

HISTORY OF AZUKI BEANS
WORLDWIDE (300 BCE to 2021):
EXTENSIVELY ANNOTATED
BIBLIOGRAPHY AND SOURCEBOOK

小豆

Xiǎodòu

大豆

Dàdòu

Compiled

by

William Shurtleff & Akiko Aoyagi



2021

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DEDICATION AND ACKNOWLEDGMENTS

This book is dedicated to C.C. Georgeson and Thomas A. Lumpkin.

Part of the enjoyment of writing a book lies in meeting people from around the world who share a common interest, and in learning from them what is often the knowledge or skills acquired during a lifetime of devoted research or practice. We wish to give deepest thanks...

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■ Finally our deepest thanks to Tony Cooper of San Ramon, California, who has kept our computers up and running since Sept. 1983. Without Tony, this series of books on the Web would not have been possible.

This book, no doubt and alas, has its share of errors. These, of course, are solely the responsibility of William Shurtleff.

■ This bibliography and sourcebook was written with the hope that someone will write a detailed and well-documented history of this subject.

INTRODUCTION

Brief Chronology of Azuki Beans

Azuki beans and soybeans are usually paired in China and Japan. The soybean is called the “big bean” (*dadou* in Chinese; *daizu* in Japanese) and the azuki bean is called the “small bean” (*xiaodou* in Chinese; *shozu* or *azuki* in Japanese).

325 BCE – The azuki bean may have been mentioned in the *Guanzi* [The Book of Master Kuan] under the name *xishu*. However, both the date and the name are uncertain.

300 BCE – The azuki bean may well have been mentioned in the *Zhouli* [Rites of the Zhou dynasty] under the name *daxiaodou*, which means “large and small bean.” In China, from this point on, the azuki bean is referred to as the “small bean.”

270 BCE – The azuki bean is clearly mentioned in the *Shennong Shu* [The Book of Shennong, the Heavenly Husbandman]. It is called *xiaodou* (“small bean”).

40 BCE – The azuki bean is again referred to as *xiaodou* in the *Jiji Pian* [Handy Primer, or Dictionary for Urgent use], by Shi You.

544 CE – In the famous Chinese manuscript *Quimin Yaoshu* [Important Arts for the People’s Welfare], Jia Sixie refers to azuki beans once as *baixiaodou* (white azuki beans).

712 CE – The azuki bean is first mentioned outside of China in Japan, in the *Kojiki* [Record of Ancient Matters]. In this, Japan’s oldest chronicle and the mythical story of Japan’s origin, it is said that red beans [probably azuki beans] grew in the nose of the slain deity.

1200 – Azuki beans appear in a cookbook, *Wushi Zhongguilu* [Madam Wu’s Recipe Book]. One sweet recipe, a dumpling made to celebrate the Double Fifth Festival (see p. 56) calls for a rich stuffing that includes red beans [azuki].

1603 – Azuki beans are called *Azzuqi* in the famous *Vocabulario da Lingoa de Iapam*, compiled and published in Japan, in Portuguese and Japanese, by the *Companhia de Jesus* [Society of Jesus (Jesuit)].

1712 – Englebert Kaempfer, writing in Latin in his *Amoenitatum Exoticarum Politico-Physico-Medicarum, Fasculi V* [Exotic Novelties, Political, Physical, Medical,

Vol. 5] refers to azuki beans variously as *sjodsu*, *adsuki*, and *atsuki*.

1727 – Azuki beans are first mentioned in an English language document by Englebert Kaempfer. In his *History of Japan...* he calls them *Adsuki* or *Sodsu*.

1736 – Azuki beans are first mentioned in a French language document by Pierre Charlevoix. In his *Histoire et description generale du Japon* he calls them *Atsuki*.

1742 – The earliest known image appears in China in the *Shoushi Tongkao* (Compendium of Works and Days. Imperial Encyclopedia of Agriculture and Related Topics).

1804 – An early color illustration of the azuki bean appears in Japan in the *Seikei-Zusetsu* [Agricultural Encyclopedia (Illustrated) 30 vols. (See Adzuki bean at Wikipedia).

1854 – Azuki is believed to have been first introduced into the United States by the Perry expedition (Admiral Commodore Perry). Browne (1855) wrote that the expedition brought back two varieties of “Soja bean,” the ‘White’ and the ‘Red-seeded,’ both of which are employed by the Japanese for making soy [sauce], a kind of black sauce...” Almost all later writers (e.g., Piper & Morse 1914) stated that the ‘Red seeded’ bean was probably an adzuki bean.

1859 – Azuki beans are first referred to as “red beans” in an English language document, *Japan and Her People*, by Andrew Steinmetz.

1867 – In the first (but slightly unpolished) edition of his famous dictionary, *A Japanese and English Dictionary*, James C. Hepburn introduces many new words related to azuki: “*An*,” “*Sekihan*,” “*Shiruko*,” “small red bean,” “*Yayenari*” and “*Yokan*.”

1872 – The word “Adzuki” is first used in an English language document by James C. Hepburn in his *Japanese-English and English-Japanese Dictionary*. 2nd ed. This spelling is very popular thereafter, appearing in at least 262 English language documents.

1872 – Azuki beans are first mentioned in a German language document by S. Syrski. In a book chapter titled *Landwirthschaft in Japan* [Agriculture in Japan] he calls them *Adsuki*.

1879 – Edward Kinch, living in Japan, writes a remarkable 65-page work titled *Japan: A Classified and Descriptive Catalogue of a Collection of Agricultural Products Exhibited in the Sydney International Exhibition*. This is the earliest English-language document seen that uses the word *Shodzu* (or *shôdzu* or *shôzu* or *shodzu* or *shozu*) to refer to the azuki bean, or that gives its scientific name as *Phaseolus radiatus*, or that reports the existence of large and small varieties, or that uses the word *Bundo* to refer to a type of azuki bean.

1880 – Edward Kinch writes a long article titled “Contributions to the agricultural chemistry of Japan” in the *Transactions of the Asiatic Society of Japan*. In one section (p. 401), “Adzuki or Shôdzu, *Phaseolus radiatus*,” he is the first to mention a large variety called *Dai-na-gon* [later generally spelled Dainagon] and a white kind, *Shiro-adzuki* [white adzuki]. Dainagon (spelled without hyphens) was first used in 1895.

1886 – The word “azuki,” so widely used today, is first used by James C. Hepburn in the 3rd edition of *A Japanese-English and English-Japanese Dictionary*.

1890 Dec. – The earliest known reference to the “adzuki” bean in the United States appears in *Kansas Agricultural Experiment Station, Bulletin No. 18*, in an article titled “Experiment with forage plants,” by C.C. Georgeson, H.M. Cottrell and W. Shelton. Page 188 states: “We also obtained from Japan two varieties of *Dolichos radiatus*. The Japanese name for this class of beans is Adzuki. The two varieties grown here are known only by their native names, viz. *Shiro Saya Shozo* [red seeds, white pods] and *Kuro Saya Shozo*” [red seeds, black pods].

Thus, C.C. Georgeson appears to have been the second person, after Commodore Perry, to have introduced the adzuki bean to the United States.

1892 June 15 – The earliest known reference to the azuki bean in an American newspaper appears in an article in the *Kansas Farmer* (Topeka, Kansas) titled “Agricultural matters: Test of some Japanese beans,” by C.C. Georgeson. The text begins: “Two species of Japanese beans have been grown here at the station for two years past. These are the soy bean and the adzuki...”

This is a reprint of information that first appeared in Bulletin No. 32 of the Kansas Agricultural Experiment Station.

1894 March 1– McCarthy and Emery write “Some leguminous crops and their economic value,” published in *North Carolina Agricultural Experiment Station, Bulletin No. 98*. They state (p. 143): “Japanese Beans –*Phaseolus radiatus* [azuki beans] – Japanese Bean No. 5. – A low and slender-growing plant bearing numerous pods well filled

with a small red bean which makes excellent soup.”

1895 – In *Useful Plants of Japan: Described and Illustrated*. Vol. 1, the Agricultural Society of Japan discusses five varieties of *Phaseolus radiatus*, including *Tsuru adsuki* (a climbing subspecies), a “Red-fruited dwarf bean” whose seeds are boiled with glutinous rice to make *Kowameshi* (also called *sekihan*), etc.

1897 June – Osborne & Campbell write “Proteid of the white podded adzuki bean (*Phaseolus Radiatus*)” in the *J. of the American Chemical Society* (p. 509-13). They write: “This is a small red bean cultivated in Japan. The seeds used in this investigation were grown in Kansas and sent to us by Prof. C.C. Georgeson.”

The authors found in the Japanese adzuki bean a globulin (protein) which was so like phaseolin, both in properties and composition, that it was stated to be that protein.

1910 – The terms “jam,” “bean jam” and “red bean jam” are first used in English to refer to sweet azuki bean paste (*an*) by Jukichi Inouye in his *Home Life in Tokyo*.

1915 – The word Kintoki is first used to refer to azuki beans in *Japan and her exhibits: At the Panama-Pacific International Exhibition, 1915*. Production of Kintoki in Japan is 2,050,000 kin. Note: 1 kin = 600 grams.

1931 – Azuki-related words found in *Kenkyusha's New Japanese-English Dictionary*. 2nd ed.
 akameshi (see sekihan)
 amanatto: sugared red beans [a very popular snack of cooked azuki beans coated with sugar].
 an: bean jam [red bean paste].
 anko: bean-jam = an.
 azuki: a red bean
 azuki meshi = sekihan.
 sekihan: rice boiled together with red beans [azuki beans].
 shiruko: red-bean soup with rice cake [mochi].

1960 – Many Americans (especially young people) start to eat azuki beans thanks to the influence of the macrobiotic movement and George Ohsawa (a Japanese teacher). Starting in March 1960 with his book *Zen Macrobiotics*, Ohsawa and other macrobiotics usually write “aduki” bean. Two recipes (No. 121 and 122) in this initial book call for “aduki” beans.

Since the 1960s, macrobiotics and Japanese- and Chinese-Americans have done by far the most to introduce azuki beans to the Western world.

1963 – The terms “sweetened red bean paste” and “strained red bean paste” are first used by Tanaka and Nicholas in *The Pleasures of Japanese Cooking*.

1969 – The azuki bean is reclassified from the genus *Phaseolus* into the genus *Vigna* by Ohwi and Ohashi then confirmed in 1970 by Verdcourt in *Kew Bulletin* 24:507-09.

1974 – The term “sweet red-bean paste” is first used to refer to *an* (sweet azuki bean paste) by Cecelia Chiang, in her book *The Mandarin Way* (p. 164). She refers to azuki beans as *xiao hong dou*. Cecelia, a great lady and restaurateur, was founder and owner of The Mandarin Restaurant in San Francisco.

1994 Dec. – *Azuki Bean: Botany, Production and Uses*, by Thomas A. Lumpkin and D.C. McClary, is published by CAB International (xv, 268 p.). This is a superb book, the first comprehensive work ever written on azuki. It contains hundreds of illustrations and photos, plus a 67-page bibliography containing 1,009 references – many of them from East Asian sources, which are hard for many researchers to obtain and to understand. Dr. Lumpkin speaks Japanese and Chinese. Hu Jia, who was a librarian in China’s National Agricultural Library, is working in Tom’s program; she has been able to locate most of the early Chinese literature on the azuki beans, which is now cited in the bibliography of this book.

2021 – Wikipedia calls this bean “Adzuki bean.” There are also separate entries (with English names) for most of its uses, such as “Red bean paste.” “Red bean rice,” etc. Thus, it is now well represented on the Web, with many commercial products for sale.

ABOUT THIS BOOK

This is one of the most comprehensive books ever published about the history of the azuki bean. It has been compiled, one record at a time over a period of 42 years, in an attempt to document the history of this ancient and interesting bean. It is also the most current and one of the most useful sources of information on this subject.

This is one of more than 100 books compiled by William Shurtleff and Akiko Aoyagi, and published by the Soyinfo Center. It is based on historical principles, listing all known documents and commercial products in chronological order. It features detailed information on:

- 39 different document types, both published and unpublished.
- 1143 published documents - extensively annotated bibliography. Every known publication on the subject in every language.
- 132 unpublished archival documents.
- 42 original Soyinfo Center interviews and overviews never before published, except perhaps in our books.
- 21 commercial azuki products.

Thus, it is a powerful tool for understanding the development of this subject from its earliest beginnings to the present.

Each bibliographic record in this book contains (in addition to the typical author, date, title, volume and pages information) the author’s address, number of references cited, original title of all non-English language publications together with an English translation of the title, month and issue of publication, and the first author’s first name (if given). For most books, we state if it is illustrated, whether or not it has an index, and the height in centimeters.

All of the graphics (labels, ads, leaflets, etc) displayed in this book are on file, organized by subject, chronologically, in the Soyinfo Center’s Graphics Collection.

For commercial soy products (CSP), each record includes (if possible) the product name, date of introduction, manufacturer’s name, address and phone number, and (in many cases) ingredients, weight, packaging and price, storage requirements, nutritional composition, and a description of the label. Sources of additional information on each product (such as advertisements, articles, patents, etc.) are also given.

A complete subject/geographical index is also included.

ABBREVIATIONS USED IN THIS BOOK

A&M = Agricultural and Mechanical
 Agric. = Agricultural or Agriculture
 Agric. Exp. Station = Agricultural Experiment Station
 ARS = Agricultural Research Service
 ASA = American Soybean Association
 Assoc. = Association, Associate
 Asst. = Assistant
 Aug. = August
 Ave. = Avenue
 Blvd. = Boulevard
 bu = bushel(s)
 ca. = about (circa)
 cc = cubic centimeter(s)
 Chap. = Chapter
 cm = centimeter(s)
 Co. = company
 Corp. = Corporation
 Dec. = December
 Dep. or Dept. = Department
 Depts. = Departments
 Div. = Division
 Dr. = Drive
 E. = East
 ed. = edition or editor
 e.g. = for example
 Exp. = Experiment
 Feb. = February
 fl oz = fluid ounce(s)
 ft = foot or feet
 gm = gram(s)
 ha = hectare(s)
 i.e. = in other words
 Inc. = Incorporated
 incl. = including
 Illust. = Illustrated or Illustration(s)
 Inst. = Institute
 J. = Journal
 J. of the American Oil Chemists' Soc. = Journal of the American Oil Chemists' Society
 Jan. = January
 kg = kilogram(s)
 km = kilometer(s)
 Lab. = Laboratory
 Labs. = Laboratories
 lb = pound(s)
 Ltd. = Limited
 mcg = microgram(s)
 mg = milligram(s)
 ml = milliliter(s)

mm = millimeter(s)
 N. = North
 No. = number or North
 Nov. = November
 Oct. = October
 oz = ounce(s)
 p. = page(s)
 photo(s) = photograph(s)
 P.O. Box = Post Office Box
 Prof. = Professor
 psi = pounds per square inch
 R&D = Research and Development
 Rd. = Road
 Rev. = Revised
 RPM = revolutions per minute
 S. = South
 SANA = Soyfoods Association of North America
 Sept. = September
 St. = Street
 tonnes = metric tons
 trans. = translator(s)
 Univ. = University
 USB = United Soybean Board
 USDA = United States Department of Agriculture
 Vol. = volume
 V.P. = Vice President
 vs. = versus
 W. = West
 °C = degrees Celsius (Centigrade)
 °F = degrees Fahrenheit
 > = greater than, more than
 < = less than

HOW TO MAKE THE BEST USE OF THIS DIGITAL BOOK - THREE KEYS

1. Read the Introduction and Chronology/Timeline located near the beginning of the book; it contains highlights and a summary of the book.

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Click on the link to this book and wait for the book to load completely and the hourglass by the cursor to disappear (4-6 minutes).

Type [Ctrl+F] to “Find.” A white search box will appear near the top right of your screen.

Type in your search term, such as uki or adzuki bean. You will be told how many times this term appears, then the first one will be highlighted.

To go to the next occurrence, click the down arrow, etc.

3. Use the indexes, located at the end of the book. Suppose you are looking for all records about tofu. These can appear in the text under a variety of different names: bean curd, tahu, doufu, to-fu, etc. Yet all of these will appear (by record number) under the word “Tofu” in the index. See “**How to Use the Index,**” below. Also:

Chronological Order: The publications and products in this book are listed with the earliest first and the most recent last. Within each year, references are sorted alphabetically by author. If you are interested in only current information, start reading at the back, just before the indexes.

A Reference Book: Like an encyclopedia or any other reference book, this work is meant to be searched first - to find exactly the information you are looking for - and then to be read.

How to Use the Index: A subject and country index is located at the back of this book. It will help you to go directly to the specific information that interests you. Browse through it briefly to familiarize yourself with its contents and format.

Each record in the book has been assigned a sequential number, starting with 1 for the first/earliest reference. It is this number, not the page number, to which the indexes refer. A publication will typically be listed in each index in more than one place, and major documents may have 30-40

subject index entries. Thus a publication about the nutritional value of tofu and soymilk in India would be indexed under at least four headings in the subject and country index: Nutrition, Tofu, Soymilk, and Asia, South: India.

Note the extensive use of cross references to help you: e.g. “Bean curd. See Tofu.”

Countries and States/Provinces: Every record contains a country keyword. Most USA and Canadian records also contain a state or province keyword, indexed at “U.S. States” or “Canadian Provinces and Territories” respectively. All countries are indexed under their region or continent. Thus for Egypt, look under Africa: Egypt, and not under Egypt. For Brazil, see the entry at Latin America, South America: Brazil. For India, see Asia, South: India. For Australia see Oceania: Australia.

Most Important Documents: Look in the Index under “Important Documents -.”

Organizations: Many of the larger, more innovative, or pioneering soy-related companies appear in the subject index – companies like ADM / Archer Daniels Midland Co., AGP, Cargill, DuPont, Kikkoman, Monsanto, Tofutti, etc. Worldwide, we index many major soybean crushers, tofu makers, soymilk and soymilk equipment manufacturers, soyfoods companies with various products, Seventh-day Adventist food companies, soy protein makers (including pioneers), soy sauce manufacturers, soy ice cream, tempeh, soynut, soy flour companies, etc.

Other key organizations include Society for Acclimatization (from 1855 in France), American Soybean Association, National Oilseed/Soybean Processors Association, Research & Development Centers (Peoria, Cornell), Meals for Millions Foundation, and International Soybean Programs (INTSOY, AVRDC, IITA, International Inst. of Agriculture, and United Nations). Pioneer soy protein companies include Borden, Drackett, Glidden, Griffith Labs., Gunther, Laucks, Protein Technologies International, and Rich Products.

Soyfoods: Look under the most common name: Tofu, Miso, Soymilk, Soy Ice Cream, Soy Cheese, Soy Yogurt, Soy Flour, Green Vegetable Soybeans, or Whole Dry Soybeans. But note: Soy Proteins: Isolates, Soy Proteins: Textured Products, etc.

Industrial (Non-Food) Uses of Soybeans: Look under “Industrial Uses ...” for more than 17 subject headings.

Pioneers - Individuals: Laszlo Berczeller, Henry Ford, Friedrich Haberlandt, Artemy A. Horvath, Englebert Kaempfer, Mildred Lager, William J. Morse, etc. Soy-Related Movements: Soyfoods Movement, Vegetarianism, Health and Dietary Reform Movements (esp. 1830-1930s), Health Foods Movement (1920s-1960s), Animal Welfare/Rights. These are indexed under the person's last name or movement name.

Nutrition: All subjects related to soybean nutrition (protein quality, minerals, antinutritional factors, etc.) are indexed under Nutrition, in one of more than 70 subcategories.

Soybean Production: All subjects related to growing, marketing, and trading soybeans are indexed under Soybean Production, e.g., Soybean Production: Nitrogen Fixation, or Soybean Production: Plant Protection, or Soybean Production: Variety Development.

Other Special Index Headings: Browsing through the subject index will show you many more interesting subject headings, such as Industry and Market Statistics, Information (incl. computers, databases, libraries), Standards, Bibliographies (works containing more than 50 references), and History (soy-related).

Commercial Soy Products (CSP): See "About This Book."

SoyaScan Notes: This is a term we have created exclusively for use with this database. A SoyaScan Notes Interview contains all the important material in short interviews conducted and transcribed by William Shurtleff. This material has not been published in any other source. Longer interviews are designated as such, and listed as unpublished manuscripts. A transcript of each can be ordered from Soyinfo Center Library. A SoyaScan Notes Summary is a summary by William Shurtleff of existing information on one subject.

"Note:" When this term is used in a record's summary, it indicates that the information which follows it has been added by the producer of this database.

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3. An asterisk in a listing of the number of references [23* ref] means that most of these references are **not** about

soybeans or soyfoods.

Documents Owned by Soyinfo Center: Lack of an * (asterisk) at the end of a reference indicates that the Soyinfo Center Library owns all or part of that document. We own roughly three fourths of the documents listed. Photocopies of hard-to-find documents or those without copyright protection can be ordered for a fee. Please contact us for details.

Document Types: The SoyaScan database contains 135+ different types of documents, both published (books, journal articles, patents, annual reports, theses, catalogs, news releases, videos, etc.) and unpublished (interviews, unpublished manuscripts, letters, summaries, etc.).

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About the Soyinfo Center: An overview of our publications, computerized databases, services, and history is given on our website.

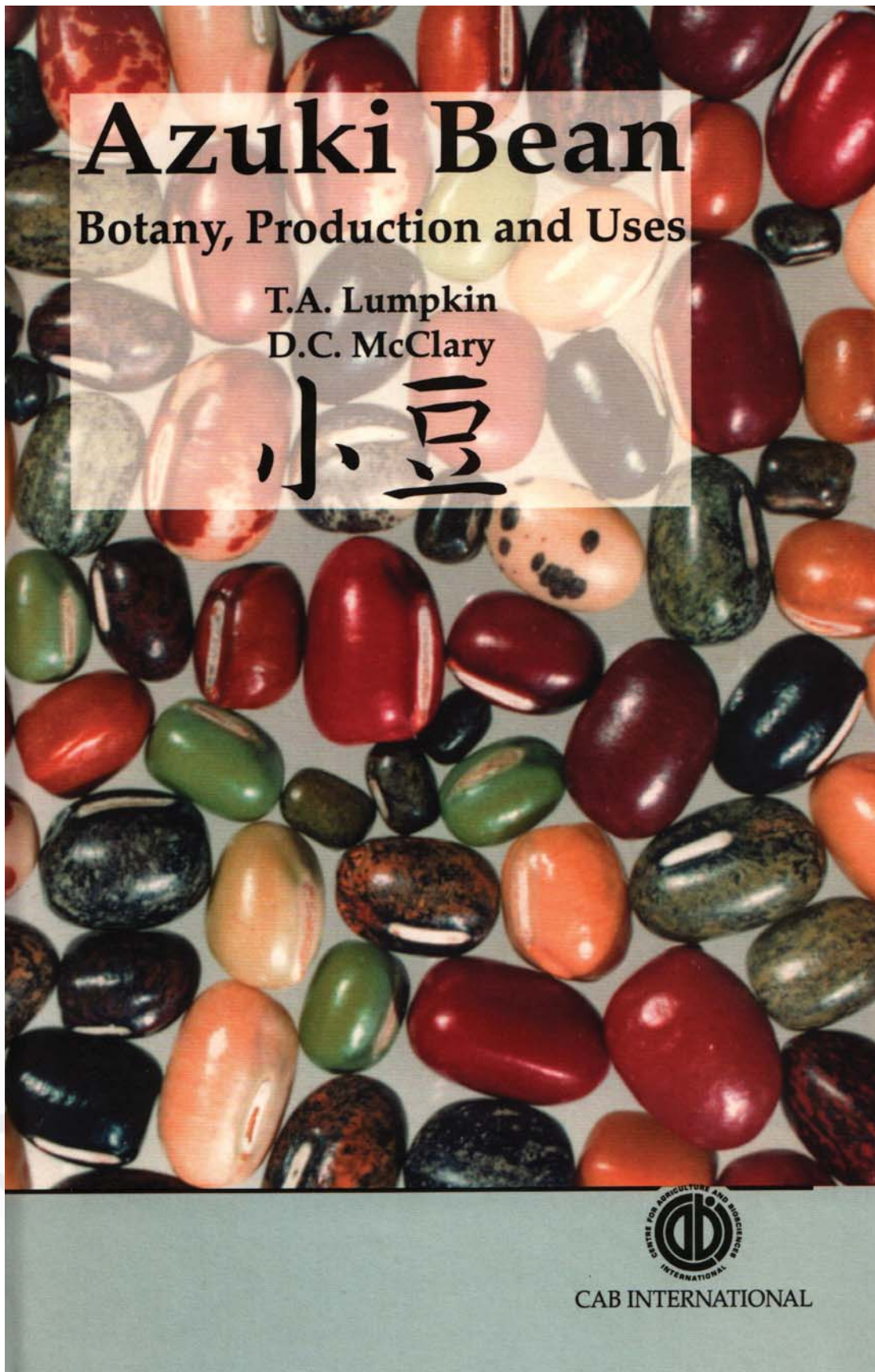
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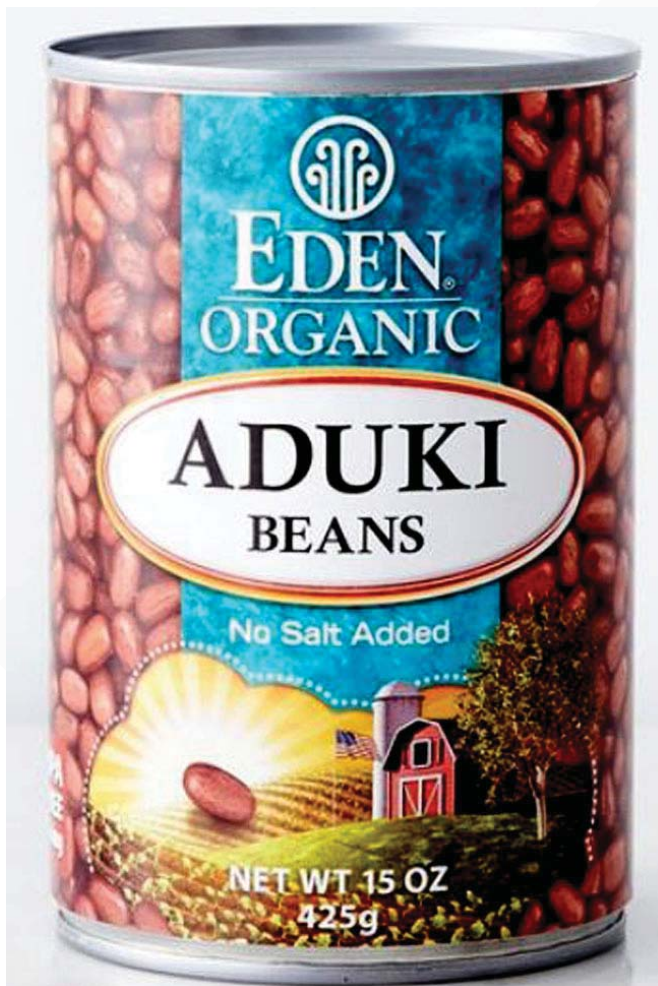
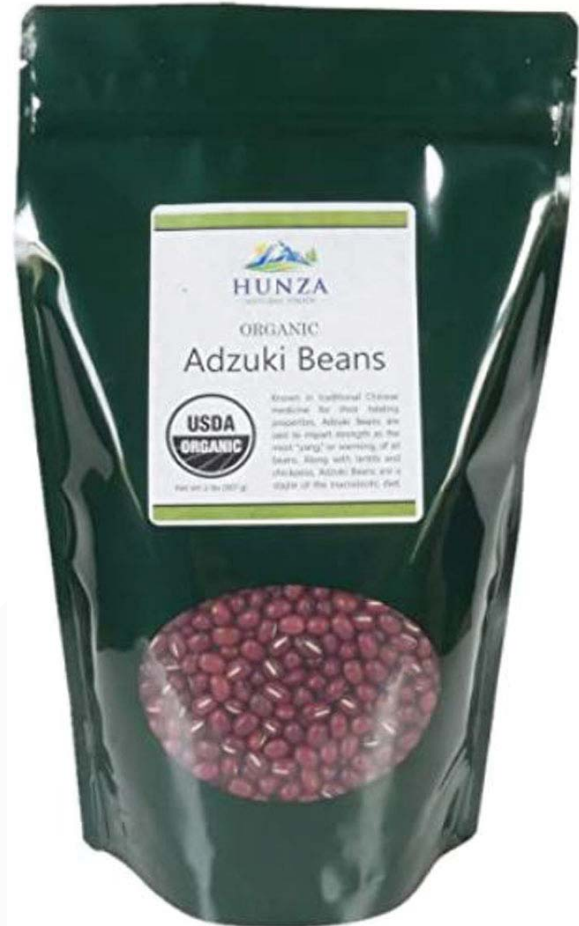
EARLIEST KNOWN IMAGE OF AN AZUKI BEAN

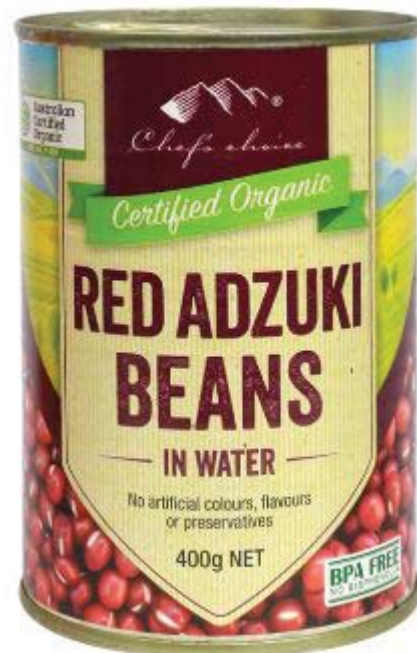
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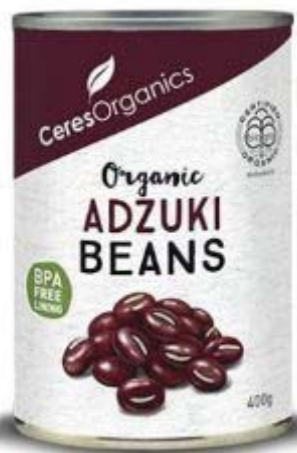
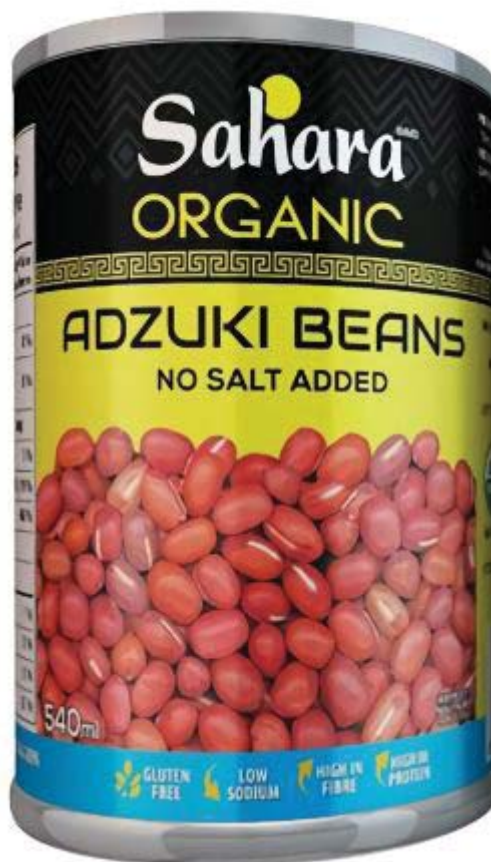
**The three characters at top of image read,
from right to left
Red + Small + Bean**



Adzuki beans, illustration from the Japanese agricultural encyclopedia Seikei Zusetsu (1804)

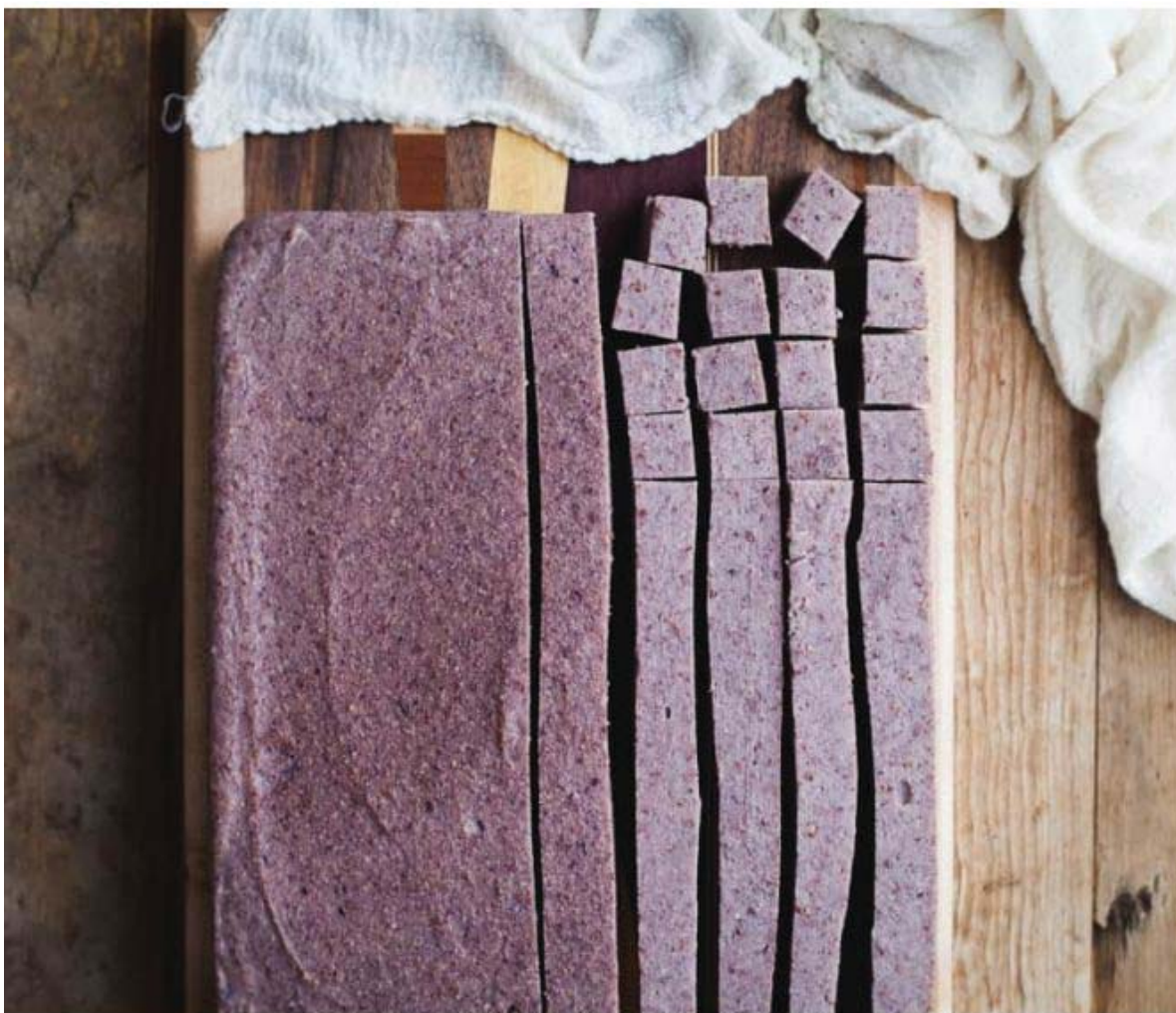


















White adzuki bean. Isolated on white background









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Mission: To be the world's leading source of information about soyfoods and utilization of soybeans in both printed and electronic formats. Much of our information is **free**!

Founding: In October 1972 William Shurtleff and Akiko Aoyagi began full-time research on soyfoods in Japan while writing *The Book of Tofu*. In August 1976 they founded Soyinfo Center (named Soyfoods Center until 2006) in California.

Books in Print: 100+ books on soyfoods and soybeans by Shurtleff and Aoyagi are presently in print. These include three popular books, market studies, and 70 comprehensive histories & bibliographies.

Book Sales: These books have presently sold more than 830,000 copies. Our best-selling book is *The Book of Tofu*.

SoyaScan Database: SoyaScan is the world's most comprehensive computerized database on soybeans and soyfoods. It presently contains 110,500+ records from 1100 B.C. to the present. These include four basic types of records providing detailed information on: 94,600+ published documents, 16,700+ commercial soy products, 6,300+ original interviews and overviews, and 8,400+ unpublished archival documents. These records are unique, and have been added one at a time over many years; none have been downloaded from other databases. A *Thesaurus* of our database is available.

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Focus of SoyaScan Database: In descending order of importance: Soybean utilization (for both food and industrial uses), history, market statistics, processing, nutrition, technology, marketing, and soybean production (agriculture).

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Website: At www.soyinfocenter.com you will find basic information about us, entire free online reference books, a photo gallery, 1,500 pages of our manuscript history of soybeans and soyfoods (free), a thesaurus to subject headings in our database, information on ordering of all our popular printed books, etc.

Research Library: The Soyinfo Center Library owns about 99,500 documents, almost all of which have a record in the SoyaScan database. Available for use by researchers with an appointment.

Consulting Services: William Shurtleff has been serving as a consultant to the soyfoods industry for more than 27 years. He probably has more personal contacts in this field, worldwide, than anyone else in the world. He has helped to start more than 450 new companies.

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HISTORY OF AZUKI BEANS WORLDWIDE (300 BCE to 2021)

1. Guanzi [The book of Master Kuan]. 325? BCE. China. Passage on soy reprinted in C.N. Li 1958 #15, p. 39-40. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Kuan Tzu*. C.N. Li (1958) estimates the compilation date as 5th to 3rd century BCE. Eastern Zhou dynasty and Former / Western Han. Reputed to have been written by Master Guan, who lived in the time of the Spring and Autumn Annals (5th to 3rd Century BCE).

Chapter 15 mentions soybeans (*shu*). Chapter 26 states: If you go north to the country of the Rong tribe, you will find scallions and soybeans (*rongshu*).

Chapter 58 mentions “large *shu*” or soybeans (*dashu*) and “small *shu*”—probably azuki beans (*xishu*). Note 1. This is the earliest document seen (May 2014) that uses the term *dashu* to refer to soybeans. Note 2. If *xishu* refers to azuki beans, this is the earliest document seen (Oct. 2021) that mentions azuki beans. It is also the earliest Chinese-language document seen (Oct. 2021) that uses the word *xishi* to refer to azuki beans.

Chapters 77 and 80 mention soybeans (*shu*) and setaria millet (*su*). Note 3. An older name for setaria millet is *ji*. Chapter 81 mentions soybeans (*shu*). Chapter 83 states that the five grains (*wugu*) include soybeans (*shu*) and setaria millet (*su*). Note 4. The other 3 grains are not mentioned. Both soybeans and setaria millet are enumerated two more times in this long passage. (Translated by H.T. Huang, PhD, Sept. 2001).

Bray (1984, p. 626): Zhou and Former / Western Han. Perhaps mainly compiled in the Chi-Hsia Academy (late 4th century BCE), in part from older materials. Often attributed to Guang Zhong (W.-G. Kuang Chung). Partial translations by Haloun, and T’an Po-Fu et al.

2. Zhouli [Rites of the Zhou dynasty]. 300? BCE. China. Passage on soy reprinted in C.N. Li 1958 #2, p. 18, 21-22, 26. Undated. And in Morohashi 1955, p. 11, 26, 28. See also translation by Biot 1851. [Chi]

• **Summary:** Wade-Giles reference: *Chou Li*. Former / Western Han dynasty, with some material from the Late Eastern Zhou. C.N. Li (1958) estimates the compilation date as about 3rd century BCE or late Warring States. This book, which describes all institutions, and official government posts and duties, does not mention soybeans as such. However, In the chapter on the Heavenly Officials, Part I refers to the Nine Grains. The commentary by Zheng Xuan, in the 2nd century CE, says that the Nine Grains

are three millets, paddy rice, hemp, large and small beans (*daxiaodou*), barley, and wheat. The large and small beans are soybeans and azuki beans, respectively. Commentators in the 7th and 8th century repeat the names of these crops.

Note 1. This is the earliest document seen (Oct. 2021) that clearly mentions azuki beans. It is also the earliest Chinese-language document seen (Oct. 2021) that uses the word *xiaodou* to refer to azuki beans, or that uses the word *dou* or (by inference) the word *dadou* to refer to soybeans, or that uses the word *daxiaodou* to refer to “soybeans and azuki beans.”

In Part II of the Heavenly Officials chapter, the section on the duties of the Director of Regions (*Zhifangshi*; W.-G. *Chih Fang Shih*) lists the nine provinces of China and the staple grains and livestock of each. An excellent table (Huang 2000, p. 21) shows all this information plus the location of each province. For two provinces the Five Grains (*wugu*; W.-G. *wu ku*) are given as the staple grains. These two are Yuzhou (W.-G. *Yü-chou*), probably located in today’s Henan / Honan & Huai valley, and Bingzhou (W.-G. *Ping-chou*), located in today’s northern Shansi / Shansi and Northern Hebei / Hopei. Zheng Xuan says in his commentary that these Five Grains are hemp, panicum millet, setaria millet, wheat, and beans (*dou*). Scholars assume that *dou* refers to soybeans.

In the chapter on the Summer Officials, Part II, there is a section on duties of the *Zhi Fang Shi* (Director of Regions; W.-G. *Chih Fang Shih*), which mentions the Five Grains. Again, Zheng Xuan explains that the Five Grains are panicum millet, setaria millet, soybeans (*shu*), wheat, and rice. (Translated by H.T. Huang, PhD, Aug. 2001). Dr. Huang adds: At the time the *Zhouli* was compiled, most Chinese knew what the Nine Grains and the Five Grains were. Today’s scholars are very grateful to Zheng Xuan for commenting on almost all the classics, and for helping us to understand what the ancient words meant at that time. The meaning of many words later changed. Although Zheng Xuan used three different terms to refer to soybeans, this was not uncommon among ancient writers. The *Zhouli* also refers to the six food animals for slaughter (*liusheng*); these have traditionally been considered to be cattle, sheep, swine, dogs, geese, and fish.

H.T. Huang (2000, p. 333-34). Concerning early types of jiang made without soybeans: In the *Zhouli* is a section titled “Superintendent of meat sauces” (*Hairen*). Zheng Hsuan, in his commentary on this section says: “To make *hai*, cut meat in thin slices, dry them in the sun, slice them

in thin strips, mix them with salt and mould ferment (*qu*) in a jar and soak the mixture in fine wine. After a hundred days *hai* is formed.” “The same passage in the *Zhouli* mentions *hai* prepared from venison, snail, oyster, ant’s eggs, fish, rabbit, and goose, as well as *haitan*. The *Zhouli* further states that the *Shanfu* (Chief Steward) stores 120 jars of *jiang* in the royal household and that the *Shiyi* (Grand Dietician) is responsible for upholding the quality of 100 types of *jiang* needed by the King.”

Note 2. This is one of the earliest documents seen (May 2014) that uses the word *qu* (“mold ferment,” called koji in Japanese)—but it does not describe what it is or how it is made. The invention of *qu* is a milestone in Chinese food technology, for it provides the conceptual framework for the three major soyfood fermentations (See Huang 2000, p. 335).

This book also suggests a primitive form of aquaculture practiced by the Zhou community. The “Fishery Superintendent” (*yuren*, W.-G. *Yü Jên*) is head of a staff of 14 assistants, 30 clerks, and 300 laborers, who maintain basket traps along dykes to supply fish in season. In the spring, he supplies the swordbill sturgeon (*wei*) and other kinds of fresh or dried fish for the King’s table, for ceremonial offerings, for entertaining guests, and for funerary sacrifices. He administers official laws regulating fishing and collects taxes for the King’s treasure from people who fish. In addition, the “Shellfish Keeper” (*pieren*, W.-G. *Pieh Jên*) was responsible for providing the King’s kitchen with tortoises, turtles, clams, oysters, snails, and ant eggs (Huang 2000, p. 63-64).

3. *Shennong shu* [The book of Shennong, the Heavenly Husbandman]. 270? BCE. China. Passage on soy reprinted in C.N. Li 1958 #22, p. 44; #286, p. 213. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Shên Nung Shu*. Probably late Zhou dynasty. The section titled “Discourse on the eight types of grains” states that soybeans (*dadou*) grow among the locust trees (*hui*; *Sophora japonica*). They live among the marshy valleys. They flower in 90 days and mature 60 days after that; so one can harvest them 150 days after planting. The phrase “cereals and beans” (*dou*) is repeated three times in this section; azuki beans (*xiaodou*) are also mentioned. (See Li 1958 #355). (Translated by H.T. Huang, PhD, Nov. 2001; Dec. 2002). Dr. Huang adds: The locust tree is a large leguminous tree which grows in north China. The character for “beans” presumably refers to soybeans. This book, which is not particularly important, is attributed to Shennong, who was a mythical Chinese figure. The author is unknown and the book was compiled long after Shennong was supposed to have lived. By contrast, the *Shennong Bencao Jing* (Classical pharmacopoeia of Shennong) (100 CE), though later and attributed to the same mythical figure, is a very important work.

Note 1. This is the earliest document seen (May 2014) that mentions or is attributed to Shennong (W.-G. *Shên*

Nung)—note that it mentions soybeans.

Note 2. This is the earliest document seen (June 2020) that gives specific, useful information about soybean cultivation.

Note 3. This is the earliest document seen (May 2014) that mentions soybeans in connection with locust trees.

Note 4. This is the earliest Chinese-language document seen (Oct. 2021) that uses the word *xiaodou* by itself to refer to azuki beans.

Bray (1984, p. 629): The Book of the Heavenly Husbandman. Probably late Zhou [between the 5th to 3rd centuries BCE]. Author unknown. No longer extant, but quoted extensively in later agricultural works, particularly the *Lüshi Chunqiu* (Master Lü’s Spring and Autumn Annals) (239 BCE).

Li (1958): The compiler is unknown. According to the original commentary on the *Yiwenzhi* (bibliographical) section of the *Hanshu* (Probably: History of the Former Han dynasty, by Ban Gu, 76 CE), the *Shennong Shu* was a work of the Six Kingdoms (5th to 3rd centuries BCE).

4. Han Fei. 250? BCE. Hanfeizi [The book of Master Han Fei]. China. Passage on soy reprinted in C.N. Li 1958 #16, p. 41-42. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Han Fei Tzu*. Eastern Zhou dynasty—Warring States period—early 3rd century BCE. There is some doubt about the authorship of this book. It may have been written or compiled by the disciples of this philosopher, rather than by Master Hanfei himself.

Chapter 21 mentions a soup made with soybean leaves (*shuhuo*).

Chapter 30 states that the frost was not heavy enough to kill the soybean (*shu*) plants. It adds that a person should place one stone (*dan*, a unit of weight) of “red *shu*” (*chishu*) outside the east gate. Note 1. The meaning of *chishu* (red + *shu*) is not clear. It probably means “red soybeans,” but it could mean red “azuki beans.”

Chapter 23 (out of order) states: “We have lots of horses, soybeans (*shu*), and millet (*su*).” (Translated by H.T. Huang, PhD, Sept. 2001). Dr. Huang adds: Chapter 23 does not state that the horses were fed soybeans, but it strongly implies that they were.

H.T. Huang (2000) says this ancient classic is the earliest document seen that mentions chopsticks (p. 104n). It also mentions sour, sweet, salty, and bland flavors (p. 283n).

Note 2. This may be the earliest document seen (May 2014) that mentions red soybeans.

Note 3. This is the earliest document seen (July 2021) stating that soybeans are able to withstand frost.

5. *Lüshi chunqiu* [The annals of Lü Buwei]. 239? BCE. China. Passage on soy reprinted in C.N. Li 1958 #19, p. 42. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Lü Shih Ch’un Ch’iu*.

C.N. Li (1958) estimates the compilation date as 3rd century BCE. Eastern Zhou dynasty–Warring States period. This book is not related to the “Spring and Autumn Annals,” even though both have the term *Chunqiu* in the title. In Chapter 26, the soybean (*shu*) appears in two sections. The section titled “Usage of the earth” mentions the soybean and hemp. The section “Determining the proper time for planting” mentions *dashu* (soybeans–“large legumes”) and *xiaoshu* (“small legumes / beans”). Note: *Xiaoshu* (small + *shu*) probably refers to azuki beans (See Zhang Zilie 1627), but it might refer to small soybeans. If it refers to azuki beans, this is the earliest Chinese-language document seen (Oct. 2021) that uses the word *xiaoshu* to refer to azuki beans. (Translated by H.T. Huang, PhD, Nov. 2001).

Dr. Huang adds: We are not told when soybeans should be planted. Master Lü was the chancellor to the first emperor of China. This work was attributed to him but not written by him, but rather by his scholars and attendants.

Wilkinson (2000, p. 469, 474, 627, 638): “The annals of Lü Buwei.” Circa 239 BCE. This is “one of the first ancient works that appears to have been conceived from start to finish as a complete ‘book.’ It is an anthology of excerpts on many subjects apparently written by several scholars employed by Lü” (who served at the end of his life as chancellor of the Qin dynasty). One part is an agricultural calendar, which links phenological observations with the seasons. The “Benwei” chapter lists dishes from southern China.

Bray (1984, p. 626-27, 629): Master Lü’s Spring and Autumn Annals. A compendium of natural history. From the Chou (Ch’in) 239 BCE. Written by a group of scholars gathered by Lü Pu-Wei. Translated by Richard Wilhelm (1928). Chung-Fa Index, no. 2.

Hagerty (1917, p. 3, 19, 29. Translation of Wu 1848): “The ruler of the Chih state, a Marquis, came and presented the Jung with other booty to the emperor. Ku Liang’s commentary on the Spring and Autumn Annals also makes mention of the Jung shu.” “In the 10th month of the first year of the Duke of Ting (509 BCE) the *shu* (soybean) crop was killed by frost.” “The terms *ta* (big) *shu* denote a bean which is round, while the name *hsiao* (small) *shu* [azuki?] denotes a bean which is round and fragrant. The soybean is more round than the small bean. Those beans which are perfectly round are called *Wan tou*.” Brief chronology record of major events in court of state of Lu from 722–481 BCE. Terse and factual.

6. Huangdi neijing suwen [Yellow Emperor’s classic of internal medicine: Questions and answers]. 200? BCE. China. Undated. Passage on soy reprinted in C.N. Li 1958 #287, p. 213. Undated. For translation see Veith 1972. [Chi] • **Summary:** Wade-Giles reference: *Huang Ti Nei Ching Su Wen*. Concerning the date–Huang (2000, p. 616): Zhou dynasty, remodeled in Qin and Han, reaching final form ca. 2nd century BCE–during the Former / Western Han dynasty.

Wilkinson (2000, p. 660): “A composite work that reached its present form at the end of the Warring States period in the third century BCE.” Eastern Zhou dynasty–Warring States period.

Chapter 4, titled “Treatise on the truth of the golden box,” explains the complex relationship between the various colors, directions, five organs, five elements, five grains, etc. Black is the color of the North; it pervades the kidneys... its taste is salty; its element is water; its animals are pigs; and its [curative] grain is the soybean (*gudou*); it conforms to the four seasons and corresponds to the morning star.

Chapter 22, “Treatise on the seasons as patterns of the internal organs,” states: Since the color of the liver is yellow, you should eat salty (*xian*) foods. Soybeans (*dadou*), pork, chestnuts, and coarse greens are salty.

Chapter 70 mentions repeatedly that the soybean is one of the cereal grains (*gudou*).

Wilkinson (2000): The chapter on “Medicine” (p. 660) notes that this work is also known as *Neijing* for short. It is divided into two parts, *Suwen* (Plain questions) and *Zhenjing* (Classic of acupuncture). In the section titled “regional cuisines,” a footnote (p. 645) states: “*Juan* 1 of the late Warring States medical classic *Huangdi neijing* (Chapter 36) has a schematic account of different eating habits linked to the five directions and to five-phase theory and correlated with different diseases and medical traditions.”

Chatfield (1986): A detailed explanation of acupuncture first appeared in the *Nei Jing* (*Inner Classic of Medicine*) published in 206 BCE. The text described the flow of vital energy (*chi*) along pathways called meridians, the therapeutic properties of acupuncture points, the correspondence of meridians to internal organs, and symptomatology.

Needham (1962): The greatest of all Chinese medical classics, this cannot be considered a work compiled by one individual nor is it from one period.

Veith (1966, New Edition) is an English-language translation of chapters 1-34 with a long Introduction. See chapters 4, 22, 70 and p. 113, 205.

Hagerty (1917 p. 22. Translation of Wu 1848): “According to the *Su wen* (Footnote: See Wylie. Notes on Chinese Literature. 1902–p. 96-97) (*Huang ti su wen*?–Medical Treatise supposed to have been written before Christ), under the heading of Tsang Ch’i fa shih lun, says: ‘As the color of the heart is red, the food most suitable to this organ is *suan* or sour, and therefore the *Hsiao tou* [azuki], being sour, is appropriate. The spleen being of yellow color, the food most suitable is the *Hsien*, or salted kind. Therefore the *Ta tou* bean, being salty, is appropriate. The difference in nature and taste determined the suitability and resulted in a division of the grains into two classes.’”

Note 1. This is the earliest document seen (Dec. 2020) concerning the medicinal or therapeutic value of the soybean. However nutrition was not a science in China until the 20th century.

Note 2. This is the earliest document seen (Dec. 2020) concerning the soybean in traditional Chinese medicine.

Note 3. This is the earliest document seen (Dec. 2020) that mentions acupuncture or any other form of “alternative medicine” (as it is called in the West).

7. Shi You. 40 BCE. *Jijiu pian* [Handy primer, or dictionary for urgent use]. China. Passage on soy reprinted in C.N. Li 1958 #33, p. 50-51, 91. [Chi]

• **Summary:** Wade-Giles reference: *Chi Chiu P'ien*, by Shih Yu. This is not a typical dictionary; it contains lists of characters and words but no definitions. There is a 7th century CE commentary (large characters) by Yan Shigu (a famous Tang dynasty scholar) and a 13th century CE supplemental commentary (small characters) by Wang Yinglin (a Southern Song scholar, lived 1223-1296).

Two passages are of interest. The first, titled *bing er mai fan gan dou geng*, is a listing of foods: Pasta & pastry, cooked wheat granules, sweet bean soup. It is not clear exactly what the last three characters, “sweet bean (*dou*) soup,” mean and to what kind of beans the character *dou* refers. The 13th century supplemental commentary by Wang Yinglin says that *dou* refers to soybeans. Additional characters for “small bean” (*xiaodou*) probably refer to azuki beans, but this is also not clear.

The second passage, titled *wu yi yan shi xi zuo jiang*, is another listing of foods: Fetid elm seed, salty fermented black soybeans (*shi*), soured pickles / vinegar, and *jiang*. Concerning *shi*: The 7th century CE commentary states: “When you incubate beans (*dou*) you get *shi*. In the *Chuci* (Poems from the state of Chu) (250 BCE), fermented black soybeans are called *daku*. Concerning *jiang*: The 7th century CE commentary states: “If you mix beans (*dou*) and [wheat] flour, then process it, you get *jiang*. A relative of *jiang* made from meat is called *hai*; a relative of *jiang* made from meat mixed with bones is called *ni* (Note 1. *Sanni* is three kinds of meat paste still mixed with bone. See Huang 2000, p. 379).

Note 2. This is the earliest document seen (April 2021) that describes a method for making *jiang* (Chinese-style fermented soybean paste) in which a significant amount of wheat (or wheat flour or barley) is mixed with the soybeans before fermentation begins.

The 7th century commentary continues: The character for *jiang* (the seasoning) is pronounced the same as the character for *jiang* (a general in the military). When you eat, you must have *jiang*, just as in the army you must have a general [to lead it in the right direction]. (Translated by H.T. Huang, PhD, Dec. 2001). Dr. Huang adds: This book, though not a dictionary, is a condensed compilation of information in groups, and a quick way of remembering that information. By this time, *jiang* had become a commodity.

The author, Shi You, flourished from 48 to 33 BCE. The book (called *Kyushu hun* in Japanese), written in the early Han dynasty, is a primer in rhyme on Chinese history used

for teaching reading and writing to children.

H.T. Huang (2000, Science and civilisation in China. Vol. 6, Biology and biological technology. Part V: Fermentations and food science, p. 346-47). The earliest reference to *chiang* as a fermented soybean paste in the literature appears in this work (Handy Primer {Dictionary for Urgent Use}, ca. 40 BCE, p. 31). The commentary by Yen Shih-Ku in the 7th century CE states that soybeans and wheat flour are mixed to produce *chiang*. There is also a 13th century CE commentary by Wang Ying-Lin. This work also discusses production of a fermented vinegar named *tso* [pinyin: *zuo*] (p. 284).

Wilkinson (2000, p. 49). From the Han to the Six Dynasties the *Jiju Pian* (Quick Mastery of the Characters), by Shi You was the most popular character primer. It introduced everyday characters for basic vocabulary arranged in groups.

Bo (1982): This work mentioned the term “chiang.”

8. Fan Shengzhi. 10 BCE. *Fan Shengzhi shu* [The book of Fan Shengzhi (on agriculture)]. China. Passage on soy reprinted in C.N. Li 1958 #34, p. 51-52; and #288, p. 214-15. [Chi]

• **Summary:** Wade-Giles reference: *Fan Shêng-Chih Shu*, by Fan Shêng-Chih (also titled *Chung Chih Shu*). Former / Western Han dynasty. This is the earliest Chinese book by an individual author devoted solely to agriculture. Very interesting and important, it is a summary of dry-land farming experiences in an arid district of the middle Yellow River region—the Guan Zhong region. The original book was lost in antiquity. Only excerpts are preserved in later agriculturist treatises, especially in the famous *Qimin Yaoshu* of the 6th century CE.

The numbered text below is based on the following excellent English-language translation with facing Chinese text: Shih, Shêng-han. 1959. *On “Fan Sheng-chih shu”*: An agriculturist book of China written by Fan Shêng-chih in the first century B.C. Peking, China: Science Press. (Kexue Press). 68 p.

2. Selection of date and varieties for planting. 2.1 Azuki beans (*xiaodou*) are ill-suited with *mao* (the 4th in the set of every twelve)... and soybeans (*dadou*) with *shen* (8th in 12). All the nine cereal grains have their respective ill-suited days. If planted on these days, there will surely be crop loss or failure. This is no idle talk. It is rather the consequence of nature. Footnote: Ten characters called “celestial stems” and 12 characters called “terrestrial branches” were used in alternative combinations to form a hexacodenary cycle, used to denote the days, months, and years from the 18th century BCE onward. The passage above warns against planting azuki beans and soya beans on particular days.

4. Cultivation of certain crop plants... 4.6 From soybeans, a good crop can be easily obtained even in adverse years. Thus, it is quite natural for the ancient people to grow

soy as protection against famine. Calculate the acreage to be covered by soybeans for members of the whole family according to the rate of 5 *mou* (3,045 square yards or 0.65 acres; 1 *mou* = 609 square yards or 0.13 acres) per capita. This should be viewed as basic for farming.

4.6.1 In the third month, when elm-trees are fruiting, plant soybeans on upland fields whenever it rains. Use 5 *sheng* (3.5 cups) of seeds per *mou* when the soil is mellow and not cloddy, but more seeds if the soil is not so. As late as twenty days after summer solstice soybeans may still be planted.

4.6.2 Soybean seedlings break ground as though with a helmet on top, so it is not necessary to plough very deep. Don't cover the seed with too much soil after planting. Too thick a cover renders the bean-stalk bent-necked; the seedlings may never break ground and instead die (prematurely) underneath.

4.6.3 Dropping of soybeans ought to be uniform and not too dense.

4.6.4 Soybean flowers dislike sunshine; direct exposure causes their yellowing and scorching.

4.7 From azuki beans, a good crop cannot be safely secured; they are hard to grow.

4.7.3 Both soybeans and azuki beans should not be excessively defoliated (Footnote: Soybean leaves were widely gathered for use as green vegetables in earlier times). In former times, defoliation was rather restrained, because people knew that leaves produce nourishment (for the plants themselves). Excessive defoliation means disrupting the nourishing process and causes losses in harvest. Nowadays people defoliate too much and thereby often suffer loss of seeds. Hence the saying: 'refrain from defoliating beans excessively.'

4.7.4 With proper care, the yield [of soybeans] from a good field may attain 10 *shi* per *mou* [equivalent to 36.5 bushels/acre or 2.7 metric tons/hectare] from poor land up to 5 *shi* (1 *shi* = 16.7 liters). Note: This is the earliest document seen (Aug. 2021) that gives soybean yield.

7. Cultivation in shallow pits. 7.4 Cultivation of soybeans in shallow pits: Dig pits 10.5 inches or 26.4 cm (1 *chi* and 2 *cun*) apart. One ditch thus holds 9 plants, and one *mou* (609 square yards or 0.13 acres) contains 6,480 plants.

7.4.1 To plant soybeans in shallow pits: Make pits 5 inches or 11 cm (6 *cun*) across and deep, and 17 inches or 44 cm (2 *chi*) apart. Thus one *mou* holds 1,680 pits. After making a pit, take 0.7 cup (1 *sheng*) of well ripened manure, mix well with earth from the pit, then return the mixture to the pit. Just before planting, pour 2.1 cups (3 *sheng*) of water into every pit, then place 3 beans therein. Cover with earth, but do not make the layer too thick. Press down with palm of hand to insure close contact of seeds with soil. Use 1.4 cups (2 *sheng*) of seeds and 74 gallons (16 *shi* and 8 *tou*) of manure per *mou*. Hoe when 5 or 6 leaves have appeared fully. Water if drought occurs; 3 *sheng* (2.1 cups) of water

per pit. A full-grown man works 5 *mou* (0.65 acres). In the autumn, the yield may attain 16 *shi* per *mou* (= 67.7 bushels/acre).

H.T. Huang (2000, p. 117, 120, 293n, 615, 670).

Bray (1984, p. 512): The modern term for soybean is *dadou* [characters given], 'greater bean,' a term which first appears in the 1st century BCE *Fan Sheng-Chih Shu*." Also called *Chung Chih Shu*. The Book of Fang Sheng-Chih on Agriculture. Former Han, late 1st century BCE (c. 10 BCE). Translated by Shih Sheng-Han. The book also gives a detailed description of hemp cultivation (p. 535).

Ying-shih Yü (1977, p. 71-72): "Based on these archaeological finds, we can now say with confidence that the major categories of grains accessible to the Chinese in Han times included millets of various kinds, rice, wheat, barley, soybeans, lesser beans, and hemp. It is particularly noteworthy that this archaeological list matches very closely the 'nine grains' recorded in the agriculturist book by Fan Sheng-chih of the first century BCE... Fan was a professional agriculturist and had actually taught people in the vicinity of Ch'ang-an the art of farming (S.H. Shih 1959, p. 8-11, 42-44)."

Shih Shêng-han (1962), in his translation and interpretation of the *Qimin Yaoshu*, includes a lengthy analysis of the sources from which it is drawn. On pages 15-21 is a detailed discussion (with 14 excerpts) of this book (*Fan Shengzhi shu*) and its author.

Shih Shêng-han (1959): An excellent English-language translation. The section titled "A brief analytical survey of *Fan Shêng-Chih Shu*" (p. 40-41) states that Fan Shêng-Chih, an eminent agriculturist of China, flourished in the later half of the first century BCE. His book, *Fan Shêng-Chih Shu*, is the earliest Chinese book of individual authorship devoted solely to agriculture that we can have access to. It exists only as fragmentary quotations in some later books. So far as we can discern, the fragments extant consist of directions on the system of dry-farming prevailing about 2,000 years ago in an arid district of the middle Yellow River region. They typically represent the level of attainments in scientific and technological knowledge concerning agricultural production at that time.

Hagerty (1917, p. 13-14. Translation of Wu 1848): "Fan Shêng-chih's *Chung chih shu*, says: 'This bean is a staple (*pao sui*-2 Cc) crop, which may be stored and kept to provide against famine and is easily made suitable for food. In ancient times it was used as a food in times of scarcity. Count the number of persons in the family and plant five acres of beans for each person. This is a fundamental rule in farming. In the third month, about the time when the seed pods appear on the elm trees, and after a rain has fallen; the uplands may be planted with the Ta tou seed. The soil should be fine and free from lumps of earth. To each acre plant five *shêng* or pints of seed, or if the soil is not favorable, then add more. Plant the seed of the Ta tou at the 'Hsia chih.' or

summer solstice (June 21). Within twenty days of this date the seed may be sown with assurance that it will bud and grow. Best results are obtained when the earth has not been plowed too deeply. The Ta tou thrives best when planted evenly and not too closely. The blossom of this bean cannot stand exposure to the sun. If it should be constantly exposed to the sun, it turns to a yellow color and withers away, and its roots also dry up. The method of harvesting the Ta tou bean is as follows: When the pods are black and the stems azure-green, there is no further doubt that they may be harvested. Unless this is quickly done the beans will fail and be wasted or lost. This is the reason for saying:—'When the bean is ripe, hurry into the fields and gather them. The green pods are above and the black pods are below'" (Continued).

9. Fan Shengzhi. 10 BCE. Fan Shengzhi shu [The book of Fan Shengzhi (on agriculture)] (Continued—Document part II). China. Passage on soy reprinted in C.N. Li 1958 #34, p. 51-52; and #288, p. 214-15. [Chi]

• **Summary:** Hagerty (1917, p. 14-15. Translation of Wu 1848): "Fan Shêng-chih's Chung chih shu states under the heading of 'Method of Cultivating the Ta tou': 'Dig holes for seeds about six inches deep and about two feet apart. In one acre, sixteen-hundred and eighty holes should be made for planting seed. When these holes are all made each should receive a pint of good manure mixed with earth, and filled. When about to plant the seed, irrigate each hole with three *shêng* or pints of water. Sow three seeds in each hole and spread the earth over the hole, but not very thick, using the hand to pat it down, bringing the seeds and earth in mutual contact. For each acre use one *shêng* of seed and sixteen *shih*, or piculs, and eight *tou*, or pecks, of manure. When the seed has germinated and grown five or six leaflets the plant should be cultivated with a hoe. When the soil becomes dry, irrigate, using three *shêng*, or pints, of water to each hill of beans. One man can take care of five acres up to the time of fall harvest. Each acre planted with seed, will yield sixteen *shih* or piculs of beans. The field should now be cleared of the bean stalks.'"

Hagerty (1917, p. 18): "Fan Shêng-chih's Chung chih shu, says: 'In the third month when the Yü, or Elm tree, is bearing its seed pods and after a rain, the Ta tou may be planted on the elevated fields. Within twenty days after the summer solstice the seed may be planted. There is an early and a late variety of Shu. The late variety is planted in the fifth month at the latest.'" Hagerty (1917, p. 27): "Fan Shêng-chih's Chung chih shu, says: 'In the third month when seed pods of the elm tree appear, and after a rain, the uplands may be planted with the Ta tou, or Large bean [soybean]. Within twenty says after the summer solstice, the seed may still be planted.'"

Bretschneider (1882, p. 164): The term "ta tou" first appeared in this work. "Plant 5 acres of soybeans for each member of the family." "Soybeans guarantee a good

harvest."

Note: This early document gives considerable details about the cultivation of soybeans. And it is the earliest document seen (July 19) that uses the word "irrigate" (or irrigation, irrigating, etc.) in connection with growing soybeans.

10. Yuejueshu [The book of the last days of the Yue kingdom]. 80 CE. China. Passage on soy reprinted in C.N. Li 1958 #37, p. 54. [Chi]

• **Summary:** Wade-Giles reference: *Yüeh Chüeh Shu*. Later / Eastern Han dynasty. Chapter 5 contains a listing of various farm crops and livestock including azuki beans (*chidou* or "red beans") and soybeans (*dadou* or "large beans"). (Translated by H.T. Huang, PhD, Jan. 2002). Dr. Huang adds: This is not a major work. Yue was one of the minor kingdoms.

Wilkinson (2000, p. 471, 518) translates this title as "Yue's destruction of Wu" and considers it one of the "Miscellaneous histories" (*zashi*) compiled in the Later / Eastern Han.

Note 1. This is the earliest document seen (May 2014) that uses the characters *dadou* meaning "large beans" to refer to soybeans.

Note 2. This is the earliest Chinese-language document seen (Oct. 2021) that uses the word *chidou* ("dark-red beans") to refer to azuki beans. Previously, various characters meaning "small beans" had been used.

Bray (1984, p. 633): "Lost records of the State of Yüeh." Later / Eastern Han. ca. 52 CE. Attributed to Yuan K'ang.

11. Dai De. 100 CE. Dadai liji [Record of rites of Dai the elder]. China. Passage on soy reprinted in C.N. Li 1958 #4, p. 29. [Chi]

• **Summary:** Wade-Giles reference: *Ta Tai Li Chi*, by Tai Te (Tai the Elder). Later / Eastern Han dynasty. Scroll No. 47, for the 5th month, mentions soybean gruel (*shumi*), which is soybeans cooked in water for a long time. Note: This is the earliest Chinese-language document seen that mentions soybean gruel (*shumi*).

Scroll No. 56. mentions that people eat soybean leaves (*huo*). The section titled *Xia xiao zhêng* (Calendar of the Xia Dynasty [ca. 2000-1520 BCE]) states: In the fifth month, when the planet Mars (*Dahuo*) is in its zenith in the Heart (*Xin*) constellation, it is time to plant glutinous millet (*shu*), soybeans (*shu*), and *mi* (a non-glutinous millet).

In the chapter titled "Ceremony of pouring the pot," item 78 states that azuki beans (*xiaodou*) are in the pot. (See Li 1958 #355). (Translated by H.T. Huang, PhD, Aug. 2001).

Huang (2002, p. 119-20, 624) states that this book was compiled by Tai the Elder; he is probably the father of the man who wrote the famous *Liji* or *Xiaodai Liji* at about the same time. This book, by the father, is traditionally ascribed to the Former/Western Han (ca. 70 BCE to 50 BCE), but it

really first appeared in the Later/Eastern Han (ca. 80 to 105 CE).

Hagerty (1917, p. 17-18, 25): Cited as “Ta tai li chi (Ritual of the Elder Tai).” See translation above. Hagerty adds: “At the present time in southern parts of China, many of the Ta tou (soybean) varieties are planted in the second month.”

12. *Liji* or *Xiaodai liji* [The book of rites]. 100 CE. China. Passage on soy reprinted in C.N. Li 1958 #5, p. 29-30. Reiki in Japanese. [Chi]

• **Summary:** Wade-Giles reference: *Li Chi* or *Hsiao Tai Li Chi*, compiled by Dai the Younger. Huang (2000, p. 619) states that this book was compiled by Dai the Younger and is traditionally ascribed to the Former/Western Han (ca. 70 BCE to 50 BCE), but it really first appeared in the Later/Eastern Han (ca. 80 to 105 CE), though the earliest pieces included may date from the time of Confucius (ca. 5th century BCE).

In Chapter 4 titled *Tangong* (a person's name) Part II, we find the expression *chuoshu yinshui* (W.-G. *ch'o shu yin sui*) which means literally “sucking soybeans and drinking water.” Huang (2000, p. 294) notes that the ancient Chinese found that soybeans tasted better and were better tolerated [more easily digested] if they were cooked in water for a long time to make soybean congee or gruel. This food must have been extremely smooth and thin since, in pre-Han references to consumption of this gruel, the expression *choushu* is used. *Chou* is a very unusual term that refers to a way of ingesting that is half way between eating and drinking. The soybean appears to be the only grain that was prepared in this way in ancient China. The word/character *chou* is not even used for thin rice or millet congee or gruel. Rather, the *Liji* uses the word *shi* (to eat) for them.

Chapter 6, titled “Monthly Ordinances,” describes a ceremony for the “Son of Heaven” (the emperor/king), in which he is supposed to eat soybeans (*shu*) and chicken. Note: Huang (2000, p. 163-65) states that this chapter contains the earliest known description in Chinese of how wine (*jiu*; Jap. saké) was made from millet and rice. In the second month of winter, the Superintendent of Wine used *qu* (a grain-based mold ferment like Japanese koji) and *nie* (sprouted grain) to make the wines, which were used for both ritual and drink.

Chapter 12, titled “Rules for the family” (*Neize*) lists soybeans (*shu*) as one of the foods to be served to a relatively high-class family.

In the chapter titled “Ceremony of pouring the pot,” item 14 states that azuki beans (*xiaodou*) are in the pot. (See Li 1958 #356). (Translated by H.T. Huang, PhD, Aug. 2001).

This book, which is about etiquette and ceremony (including eating and drinking, marriages, funerals, etc.) for the royalty and upper classes, was compiled by disciples of Confucius during the Eastern Chou period. These rites and

rituals were a key element in the whole Confucian concept of social order. This is the last of the five classics.

Huang (2000, p. 334) states concerning non-soy jiang: “*Hai* made from frog, rabbit and fish are mentioned in the passage in the *Neize* [W.-G. *Nei Tse*; Internal Family Regulations] chapter of the *Liji*. Also mentioned are *jiang* from fish roe and *jiang* from mustard, as well as *haijiang* which presumably simply means a *hai* type of *jiang*.” Also mentions *xijiang* which “probably indicates an acid type of *jiang* possibly made by blending *jiang* with vinegar. These records indicate that *jiang* is a general term for fermented or pickled condiments prepared from finely divided food materials; *hai* is *jiang* made from animal products, and *tan* is juice drained from mature *hai*.”

Huang (2000, p. 33) states that *xiaodou* (lesser beans, *Phaseolus calcaratus*) [azuki beans] are also mentioned in the *Neize* chapter.

Wang and Fang (1987) note: “According to the Book of Rites, 20 jars of chiang were seen in the kitchen when the victory feast was being prepared for the first ruler of the Chou dynasty. Confucius (551-479 BCE) was quoted as saying not to eat food that is not seasoned with the proper type of chiang.” In Japanese this work is called the *Reiki*. It was translated into Japanese by Yasui Shotaro in 1921. It is written entirely in Chinese characters (Kanbun).

Bray (1984) states (p. 533) that both the hemp plant (*Cannabis sativa*; *ma*) and the cloth made from it are mentioned many times in the classical texts, including the *Shih Ching*, *Chou Li* and *Li Chi*.

Bo (1982): “Called *Reiki* in Japanese, this book mentions ‘hai,’ a type of sauce made from animal flesh without bones, and *tan*?, a sauce made with a lot of liquid. It also says, ‘If you eat soybeans [*shu*] and drink water, you can be entirely satisfied/happy.’”

K.C. Chang (1977, p. 34) appears to consider this the earliest Chinese cookbook with modern recipes. He states: “The only elaborate recipes for Chou dishes are those of the so-called Eight Delicacies, describe in *Li chi* (‘*Nei Tse*’), to be specifically prepared for the aged. They are the Rich Fry, the Similar Fry, the Bake, the Pounded Delicacy, the Steeped Delicacy, the Grill, the Soup Balls, and the Liver and Fat.” Each of these recipes is then described in detail on pages 51-52. Unfortunately none contains any soy ingredients.

Ying-shih Yü (1977, p. 58): “What makes the Ma-wang-tui discovery doubly interesting is the amazing degree to which the food list from Tomb No. 1 agrees with the list given in the ‘*Nei tse* (‘Internal [Family] Regulations’) chapter of *Li chi*. Virtually all the foodstuffs and prepared dishes listed above can be found in that chapter (*Li chi*, 8:19a-21b; Legge 1967, 1:493-63).”

Sato (1963, p. 8), in his book titled *Documents on Fermented Black Soybeans, Chiang, Miso, and Shoyu*, cites this as the second earliest Chinese document seen on the subject.

Nancy L. Swann. 1950. *Food and Money in Ancient China*. On page 434 is a footnote concerning soy sauce which says: “Consult *Li-Chi* 2:23b, SBE [Sacred Books of the East], xxvii, p. 79.”

13. Shennong bencao jing (Benjing) [Classical pharmacopoeia of Shennong, the Heavenly Husbandman]. 100 CE. China. Passage on soy reprinted in C.N. Li 1958 #51, p. 60. [Chi]

• **Summary:** Wade-Giles reference: *Shên Nung Pên Ts’ao Ching* (*Pên Ching*). Later / Eastern Han dynasty. A very famous and important book. Widely reputed to be the first Chinese pharmacopoeia (*Bencao*), it was lost as a separate work, but was repeatedly quoted in all subsequent compendia of pharmaceutical natural history. The author(s) are unknown. Based on Chou and Ch’in material, it was reconstructed during the Han period but did not reach final form before the 2nd century CE. The book contains instructions on how to prescribe, administer, and process 365 drugs that are divided according to their strength / toxicity into three categories: superior, common, and inferior.

Soybeans are mentioned twice among the “common” drugs. (1) Yellow curls from the soybean (*dadou huangjuan*; very short soy sprouts): The flavor is sweet and neutral / mild / balanced [on the heating-cooling or hot-cold foods and medicine continuum]. Used to treat numbness in the joints, muscles, and knees. (2) Raw soybeans (*sheng dadou*): Used externally to relieve swellings. Boil the raw soybeans in water then drink the cooking liquid to “kill the devils and toxic materials.” It also relieves pain. Azuki beans (*chixiaodou* or “red small beans”) help to eliminate water (edema?), expel swellings due to blood, and make the skin smooth. (Translated by H.T. Huang, PhD, March 2002).

Dr. Huang adds: This book is divided into three parts or chapters. The first concerns the “princely” or higher drugs, which are the least toxic. These are good for general health, contain no dangerous active principles, and are capable of being taken constantly with no harmful or negative effects. The lower of the three classes are for use in emergencies, contain dangerous or quite toxic active principles, have to be prescribed in small doses, and should not be taken for a long time. All drugs are considered to be poisonous or toxic. When you are very sick, you take something toxic to counteract the poison in your body. The least toxic drugs do the least harm, but that does not mean they are the least effective. Previously (2001 July 3) he added: Looking at the Chinese-language edition of this book, he is quite sure (but not certain) that the Chinese characters *sheng dadou* refer here to raw, uncooked mature dry soybeans and not to green vegetable soybeans or to “Fresh bean” (as Hagerty {1917} translates the term). This is clear because they are listed under and as a subset of soybean sprouts (pronounced *dadou huangjuan* and translated “yellow curls”), which is the main item and which is regarded as more important medicinally.

These raw soybeans are called *sheng dadou* rather than simply *dadou* (“soybeans”) to more clearly differentiate them from soybean sprouts. It is understood that these raw soybeans must be cooked for a long time before they can be eaten or used medicinally. *Sheng dadou* is used to reduce swelling. If you drink the juice which remains after boiling, it will reduce the worst kind of poisoning and alleviate pain.” “It has a sweet taste and a uniform / even nature.”

Huang (2000, p. 295-97) gives an excellent history of soybean sprouts in early Chinese literature. Although they were first mentioned in this document, it is difficult to say when they were first prepared as medicine or food. They “probably first came into medicinal use during the Han dynasty.”

Wilkinson (2000, p. 660). “*Shennong’s Classic Materia Medica*, compiled in the Qin and Han, is the earliest systematic pharmacology to have survived.”

Talk with H.T. Huang, PhD, expert on the history of Chinese food and agriculture. 1998. Oct. 14. This work was compiled starting in the Early / Western Han dynasty [206 BCE to 8 CE] from material that had existed long before. Today it is considered by Chinese authorities as a genuine work. Both the azuki bean [written with the characters red + little + bean] and soybean sprouts [yellow + curls + big + bean] are mentioned in the same passage of this early work. The azuki bean is listed in the middle of the three classes of medicines. It is said to eliminate / dispel water (from the body) and modulate the blood.

Note 1. This is the earliest Chinese-language document seen (Oct. 2021) that uses the term *chixiaodou* to refer to azuki beans.

Wang Lianzheng (1987, p. 246): This book contends that sesame oil can give people energy, benefit the brain, and help them grow muscles.

Needham (1986, p. 235-48) in the section titled “The Heavenly Husbandman,” clarifies the history of this work and of its mythical author.

Bray (1984, p. 629): *Shên Nung Pên Ts’ao Ching*. Classical Pharmacopoeia of the Heavenly Husbandman. Dates from the Early / Former Han, based on Chou and Ch’in material, but not reaching final form before the 2nd century CE. Writers unknown. Lost as a separate work, but the basis of all subsequent compendia of pharmaceutical natural history, in which it is constantly quoted. Reconstituted and annotated by many scholars; see Lung Po-chien (1957), pp. 2 ff, 12 ff. Best reconstructions by Mori Tateyuki (1845, in Chinese) and Liu Fu (1942). In his commentary on the text, Mori Tateyuki (1845) notes that, in antiquity, there were more prescriptions using soybeans, but their number seems to decrease in later works.

Needham (1977, p. 86): “The official class of China, fundamentally an agricultural country, has always had an interest in the food of the people. In fact, Shên Nung, one of the earliest legendary sages of Chinese history, who is

supposed to have introduced the cultivation of the five sorts of grain (*wugu*), and invented the plough, is also pictured as an experimentalist who tasted all kinds of plants and classified them according to their nature and their effects on the individual, into various groups for ordinary and medicinal uses. Although the book *Shên Nung Pên Ts'ao*, which contains three volumes with 365 varieties of plants for medicinal use, has no real connection with the legendary culture hero, it cannot be later than the beginning of the Christian era since in 4 CE the emperor convoked an assembly of experts in *Pên Ts'ao* (See *Ch'ien Han Shu*, chap. 12, p. 92) and it is referred to in the biography of an important physician (*Lon Hu*) of the same period. The oldest version probably existed before the 1st century BCE. It may be significant that the *Pên Ts'ao* divides plants into three categories, superior, medium, and inferior, according as they possess 'rejuvenating,' tonic or curative properties. Hence at this early date there was a suggestion that prevention was more important than cure."

Unschuld, Paul U. 1977. "The development of medical-pharmaceutical thought in China." *Comparative Medicine East and West* 4(2):109-15; 5(3-4):211-31. Dec. One of the best sources on the history of herbals, including this one. He finds the first reference to Shen Nung as herbalist dates from Liu An's work in the mid-2nd century BCE. Then herbals named after Shen Nung began to accumulate.

Needham (1962) gives date as 1st century CE. Liang Ch'i-ch'ao says 3rd century CE. Treats 365 different drugs in accord with number of days in year, arranged in 3 classes according to their medical virtues.

Merrill and Walker (1938, p. 556): "This work [*Shên-nung pên ts'ao ching*] by an early mythical Chinese ruler and known only by numerous references to it in Chinese literature, is the first Chinese materia medica mentioned in the famous classic by Li Shih-chên, *Pên ts'ao kang mu* (1590). It has been recreated from quotations given in the *Ming i pieh lu*. For a discussion see Bretschneider, E.V., 1882-96 (main bibl.) (16:27-32)."

Hagerty (1917, p. 8-9. Translation of Wu 1848): "The Ta tou huang chüan ([soy] Bean sprouts) have a pleasant taste and a tranquil or uniform effect upon the human system. They are used as a remedy for paralysis, palsy, and pains in the thighs."

Hagerty (1917, p. 2): The *Pên ts'ao ching* (*Shên Nung Pên ts'ao ching*) says: "The Shêng ta tou [Chinese characters: raw / fresh + large + bean] (Fresh bean) has a sweet taste and a uniform nature and may be eaten daily without satiation. It is used as a remedy for reducing swellings like tumors and abscesses. By boiling in water and drinking the broth which is made, we have a remedy which may be used for the worst forms of poisoning, and relief of painful condition."

Bretschneider (1882): "Soy sprouts taste sweet and smooth." Compiled in Han dynasty. "The soybean is included in the 2nd class of drugs."

Note 2. This is the 2nd earliest document seen (May 2014) that mentions soybean sprouts, which it calls *dadou huangjuan* ("soybean yellow curls"). The text is unusual for several reasons: (1) The soybean itself is not mentioned. (2) The soybean sprouts are mentioned only as a medicine, not as a food. (3) The use of soybean sprouts as food did not become popular in China until the Song dynasty (960-1127 CE), about a thousand years later. This is a rare example of a food that was known during the Han but did not become popular until the Song. During the Song, when bean sprouts became popular in China, mung beans were most widely used for sprouting, but soybean sprouts were also used as food at that time. Soybean sprouts are not even mentioned in the famous *Ch'i-min yao-shu* of 535 CE. They are a good food, more digestible than whole cooked soybeans and richer in several vitamins.

Note 3. This is the earliest document seen (May 2014) that contains the term *Shêng ta tou*. The Chinese character *Shêng* can mean either "raw" or "fresh." Yet raw soybeans are very different from fresh green soybeans.

Note 4. In early editions of this work, the two passages on soy sprouts and on fresh / raw soybeans were kept separate. In later, versions, however, they were often merged into one.

14. Cui Shi. 160 CE. *Simin yueling* [Monthly ordinances for the four classes of people]. China. Passage on soy reprinted in C.N. Li 1958 #45, p. 56. [Chi]

• **Summary:** Wade-Giles reference: *Ssu Min Yüeh Ling*, by Ts'ui Shih. Later / Eastern Han. A detailed description, lunar month by month, of the activities of a well-to-do household. An early and important agricultural treatise of the late Han dynasty (2nd century CE). The following is based on the translation by Hsu Cho-yun (1980, p. 217-23). 1st month [February]: The first day of the first month is called the New Year. One can make various sauces (or pastes). During the first ten days of the month, roast / fry soybeans (*dou*); in the second ten days, boil soybeans. Chopped soybeans (or groats) are made into *modu* (W.-G. *mo-tu*) (a type of jiang—apparently fermented, salted soy paste), which, by the conjunction of the 6th and 7th month, should be used for making pickled melons, fish sauces, meat sauces, and basic [liquid / clarified] soy sauce (*qingjiang*; W.-G. *ch'ing chiang*).

2nd month: On the day of the spring equinox [March 20], thunder will be first heard. One can plant spiked millet, soybean (*dadou*), female hemp (which does not yield fiber), and sesame (*huma*; "foreign hemp"). One can sell millet, panicked millet, soybeans, hemp, and wheat seed.

3rd month: When it rains, it is time to plant hemp and sesame. When the mulberry turns red, one can plant soybeans.

4th month: One can plant millet, spiked millet, soybeans and lesser [azuki] beans (*daxiaodou*), and sesame.

5th month: On the day of the summer solstice [June 21-22], present wheat and fish to ancestors and deceased parents; offer sacrifice and follow the procedures for food preparation, purification and cleansing. When timely rains fall, one can plant sesame and male hemp. One can prepare elm sauce and minced meat sauce. One sells [soy] beans, lesser [azuki] beans (*daxiaodou*), and sesame.

6th month: One can sell soybeans, buy oats and wheat, and collect plain white silk.

7th month: On the sixth day, the five grains (*wugu*) and the mill should be ready. One can sell lesser [azuki] beans and [soy] beans, buy wheat, and collect raw silk and white silk.

8th month: One can make *mo-tu* preserve [perhaps fermented soybean] paste and collect leaves of beans.

9th month: Soy is not mentioned.

10th month: One harvests the five grains. One should purchase spiked millet, [soy] beans and lesser [azuki] beans, and hempseed.

11th month: The winter solstice arrives. Buy spiked millet, [soy] beans, lesser [azuki] beans, and hempseed.

12th month: Soy is not mentioned. (Translated by H.T. Huang, PhD, Feb. 2002).

H.T. Huang adds: The four classes of people (in descending order of importance) referred to the scholars / government officials, farmers, artisans / laborers, and merchants. Scholars were the highest class because they ran the country. The merchants were the lowest class because it was felt they did not produce anything. This system lasted from antiquity until about 1949. Ordinances, usually issued by a high official (up to the emperor or king), were executive orders, suggestions, or exhortations as to what the people should or should not do, often in connection with food, crops, or daily living.

H.T. Huang (2000, p. 347, 359, 362-64, 371-72) argues convincingly that the *qingjiang* (clear chiang or “clarified soy sauce”) made during the 1st month is a liquid soy condiment, similar to today’s soy sauce, obtained as a by-product of *chiang*. *Mo-tu* has also been interpreted as fermented soybean paste by Miao Ch’i-Yü ed. (1981, p. 23) and Hung Kuang-Chu (1984, p. 93).

Fukushima (1989, p. 3). This document describes the first liquid soy sauce. “The liquid products which belong to the category of soy sauce did not appear in the literature before the later Han dynasty (about 25-220 CE). There is a description of the liquid product which was made by separating the liquid portion from the chiang in *Ssu-ming Yüeh-ling* (*Shimin-Getsurei* in Japanese), published by Ts’ui Shih (*Sai Shoku* in Japanese) in the later Han dynasty. This liquid was called *chiang ch’ing*, which means ‘clear chiang.’”

Bray (1984, p. 56, 630): Monthly Ordinances of the Four Sorts of People. Later Han, c. 160 CE. By Ts’ui Shih. Translated by Herzer (1963, in German). Our present version

of this book is based almost exclusively on passages cited in the *Qimin Yaoshu* (544 CE).

Bo (1982): This work states, “On New Year’s Day, make various types of chiang, meat chiang and ch’ing chiang.” The term “ching” means “refined” or “clear.” This ch’ing chiang must be today’s filtered soy sauce. In the Ch’ing dynasty (1644-1912) this same term was used to refer to soy sauce. Even today a lot of people along the Yellow River or in the countryside of eastern north China still refer to soy sauce as “ch’ing chiang.” Also, up until recently, in restaurants and hotels in Beijing, there were typically two white ceramic pots. On the one containing soy sauce was written “ch’ing chiang” and on the one with vinegar, “kao ts’u.” Also, in Korea they used to call soy sauce “ch’ing chiang.”

Bray (1981): Almanac of agricultural practice, household management, and ritual for landowning class. With planting instructions. Based on a reconstruction of the text by Shi Shenghan. Also parts appeared in the *Ch’i-min yao-shu*. The original work is lost.

Shih Shêng-han (1962), in his translation and interpretation of the *Qimin Yaoshu*, includes a lengthy analysis of the sources from which it is drawn. On pages 21-23 is a detailed discussion (with one long excerpt) of this book (*Simin Yueling*) and its author. The excerpt states that in the 5th month, one may sell soybeans and azuki beans (*daxiaodou*), and sesame, and buy barley and wheat.

Note 1. This is the earliest document seen (May 2014) that mentions soy sauce, which it calls *qingjiang*.

Note 2. This is the earliest document seen (May 2014) that clearly mentions sesame seeds, which it calls *huma*. Bray (1984, p. 425) says that “sesame did come to China from the West in or just after Han times.” Address: Anhui province, China.

15. Zhang Yi. 230 CE. Guangya [Ancient dictionary: Enlargement of the *Erya*]. China. Passage on soy reprinted in C.N. Li 1958 #52, p. 60, and #291, p. 215, and in Morohashi 1955, trans. p. 31. [1 ref. Chi]

• **Summary:** Wade-Giles reference: *Kuang Ya*, by Chang I. Three Kingdoms period. The pods of the soybean (*dou*) are called *jia* and the leaves are called *huo* (Li #52, p. 60). The soybean (*dadou*) is the same as *shu* (Li #291, p. 215). Soybeans (*dadou*) are called *shu*; azuki beans (*xiaodou*) are also called *da*. (Cited in *Qimin Yaoshu* 6.2, and in Li #331, p. 234, cited in the *Sannongji*). Note 1. This is the earliest document seen (May 2014) that mentions soybean pods (*jia*).

Note 2. This is the earliest Chinese-language document seen (Oct. 2021) that uses the word *da* to refer to azuki beans.

The word *hudou* is mentioned in passing, and we are told that it is also called *xiang shuang* (“river + double”) (Li #584, p. 329). Note 3. This is the earliest Chinese document seen (May 2014) that contains the term *hudou*. Dr. Huang adds: Whenever the Chinese encountered a bean whose

name they did not know, they called it *hudou*, which means “foreign bean” or “Western bean.” In about 126 BCE, when Zhang Qian (W.-G. Chang Ch’ien) returned to China from his long expedition to the west, he is said to have brought back several types of *hudou* (along with many other new plants) and introduced them to China. Zhang Qian was a real person and a very important traveler, and he almost certainly brought back some new plants with him. However, some of the plant introductions attributed to him may not be factual, since there is no evidence as to which plants he brought back to China. We are not even sure that he brought back a plant that was later called *hudou*—which was merely a “catch-all” word.

One section gives three names for the field pea (*Pisum sativa*): The modern name (*wandou*; the 2nd of the three), and two archaic names that have not survived. See Li 1958 #591. (Translated by H.T. Huang, PhD, March 2002; Jan. 2003, May 2003).

Bray (1984, p. 515-16). While the soybean was probably the most important bean grown in China, it was certainly not the only one. Lesser beans (called *xiaodou* or *da*, according to the *Guangya*, as quoted in the *Qimin Yaoshu*) came, according to the latter book, in three varieties: red, green, and white. Bray continues: The term *xiaodou* can probably be identified with the adzuki bean, *Phaseolus angularis* (Willd.) Wight, which is native to China and Japan. The term *wandou* (*Pisum sativum* L.) was first used in the *Guangya*, as quoted in the *Qimin Yaoshu* (6.1.2).

Hagerty (1917, p. 21-22. Translation of Wu 1848): “The Kuang ya (Footnote: See Bretschneider, *Botanicon Sinicum*, 1:164) (Ancient Dictionary) by Chang I, uses the term Ta tou to denote the Shu, and the Hsiao or Small bean is called the Ta” (1 Cc).

Bretschneider 1882 (Vol. 1, p. 164). “383. (2 Cc) *Kuang ya*. An ancient dictionary by (2 Cc) *Chang I* (about A.D. 227-240), who enlarged the *Rh ya* by adding extracts from writers of the Han dyn. In the reign of Sui Yang ti (A.D. 605-617), whose cognomen was (1 Cc) Kuang, the title of this book was changed into (2 Cc) *Po ya*, by which the work is sometimes known. Chang I’s title was (2 Cc) *po shi* (Professor). (2 Cc) *Ts’ao Hien* of the Sui dyn. added the pronunciation and commentaries.—P. 28. S.K.K. IV. 16.—Reprinted in the H.W.—The section on plants is reprinted in the T. III.V.”

16. Wu Pu. 235 CE. *Wushi bencao* / *Wupu bencao* [Wu’s pharmaceutical natural history]. China. Passage on soy reprinted in C.N. Li 1958 #54, p. 61. [Chi]

• **Summary:** Wade-Giles reference: *Wu Shih Pên Ts’ao* or *Wu P’u Pên Ts’ao*, by Wu P’u. The date is also given as 240 CE. Three Kingdoms period. The entry for “Soybean sprouts” (*dadou huangjuan* or “soybean yellow curls”) begins by noting that Shennong (The Heavenly Husbandman) and Huangdi (The Yellow Emperor) both said that these sprouts

are not toxic / poisonous. They are simply the young sprouts obtained when soybeans are allowed to germinate. Raw soybeans (*shengdou*) and azuki beans (*chixiaodou* or “red small beans”) are also mentioned—but not as sprouts. (Translated by H.T. Huang, PhD, March 2002). Dr. Huang adds: The author, who lived to age 99 (149-250 CE) was a famous physician. His book was cited by many later works, then was lost. It was reconstituted by a number of modern scholars and published in 1987. The reconstituted version (p. 84) states that fermented black soybeans (*shi*) are a medication that benefits *qi* (vital energy). Shennong was a mythical person who is considered the father of Chinese agriculture and is used to represent or embody the accumulated knowledge of previous Chinese. He is said to have tasted many plants and to have classified them as toxic (unsafe to eat), edible, and medicinal. He further classified the medicinal plants into three categories. It is doubtful that Huangdi (The Yellow Emperor) was a real person; however this is a topic of debate, since his tomb exists somewhere in China. He is said to be the first tribal chieftain of China.

17. Bang Gu; Liu Zhen; et al. 270 CE. *Dongguan Hanji* [Eastern view of the records of Han]. China. Passage on soy reprinted in C.N. Li 1958 #48, p. 57-59. [Chi]

• **Summary:** Wade-Giles reference: *Tung Kuan Han Chi*, started by Pan Ku and completed by Liu Chên et al. ca. 270 CE. This is a major work. Soy is mentioned in eight chapters: (1) Biography of the emperor Guangwu (his reign title), the first emperor of the Later Han dynasty. Hemp and soybeans (*shu*) were abundant during the early years of his long reign. (2) Biography of Deng Yu: Mentions azuki beans (*chidou* or “dark-red beans”) and [soy] beans (*dou*).

(3) Biography of Kou Xun: Ten thousand *hu* of [soy] beans (*dou*) were obtained as a crop. Note 1. One *hu* is a unit of volume equal to about 1 bushel (8 gallons). (4) Biography of Feng Yi, a general: Feng Yi prepared soybean congee (*douzhou*) for the emperor [Guang Wu, founder of the Later / Eastern Han dynasty] and his troops, during a strenuous campaign, when the imperial troops were tired, cold, and hungry. On the second day, the emperor remarked to his generals that the soybean congee had helped to assuage their hunger. Note 2. The earliest way to eat unfermented soybeans in China was to boil them for a long time in water until they became quite soft, like rice congee. This preparation was not considered very tasty or satisfying, and it never became very popular. Note 3. This is the earliest document seen (May 2014) that contains the term *douzhou*.

(5) Biography of Ni Meng, an important person: Meng and his elder brother were outside of the city collecting vegetables. They were taken prisoner by the red bandits, who wanted to kill them. They pleaded for their lives. Meng said, “My brother is too old now. He is not as healthy as I am. If you want to kill one of us, why don’t you just kill me, and let my brother go.” The bandits, impressed by his

selfless attitude, said, “Okay, we’ll let you go provided you come back and bring us some soybeans (*dou*). Then we’ll release both of you.” Meng did bring the soybeans and the two brothers were released.” Note 4. This story tells us that the soybean was an important commodity in daily life at that time.

(6) Biography of Ming Gong: Ming and his friend had no vegetables when they met at one of their homes. So all they did was “sip soybeans and drink water” (*choshu yinshui*). Note 5. *Cho* is a fairly rare character: Dr. Huang has only seen it used together with the character for soybean (see Huang 2000, p. 294). The story is an indication of very frugal or modest living.

(7) Biography of Liu Ping: During the war, Liu Ping was starving and scrounging for food. He was caught by bandits who were very hungry. They wanted to kill him and eat him. Liu said, “I am looking for food for my elderly mother, who is very hungry. Can you wait? Let me take some food to my mother, then I’ll come back and offer myself.” He was in tears. So the bandits took pity on him and let him go. After preparing food for his mother, he explained to her: “I have made a promise to these bandits, so I cannot go back on my word.” He returned. The bandits were very surprised; they didn’t really expect to see him again. One of them said: “We have never seen anyone who is as virtuous and faithful as you.” So they let him go, and gave him three *sheng* (600 cc) of soybeans (*dou*). He thanked the bandits for their mercy.

(8) The story of Chimei Zai: After the pacification of Chimei [probably a rebel], the hundred people were hungry. They ate each other. One catty of gold will only buy you about 5 *dou* of soybeans (*dou*). Note 6. A *dou* is a unit of capacity equal to about 1/10 of a bushel in the late Han dynasty. At times of famine, all food is expensive. (Translated by H.T. Huang, PhD, Feb. 2002). Dr. Huang’s comments are noted above.

Note 7. This is the earliest document seen (May 2014) concerning the prices of soybeans, soybean products, or soybean seeds.

Wilkinson (2000, p. 505, 788). Until the Tang dynasty, this was regarded as the standard work on the Later Han. It was used as a main source by Fan Ye for the *Hou Hanshu*.

18. Cui Bao. 300 CE. *Gujinzh* [Commentary on things old and new]. China. Passage on soy reprinted in C.N. Li 1958 #59, p. 63. [Chi]

• **Summary:** Wade-Giles reference: *Ku Chin Chu*, by Ts’ui Pao. Western Jin dynasty. Chapter 6 titled “Grasses and trees” mentions the nine grains which are: panicum millet (*shu*, usually glutinous), another panicum millet (*chi*, usually non-glutinous), paddy rice, setaria millet (*liang*), three kinds of beans (*sandou*; soybeans, azuki beans, and one other, perhaps *da*), wheat and barley (“two *mai*”). (Translated by H.T. Huang, PhD, April 2002).

Huang (2000, p. 20) illustrates six of the staple grains

of ancient China. A footnote on that page states that Hsia Wei-Ying (1979, p. 126-33) interpreted China’s ancient nine grains as *shu* millet, *chi* millet, rice, hemp, soybeans, small beans [azuki], wheat, barley, and wild rice.

Note: This is the earliest document seen (May 2014) that mentions “three kinds of beans” (*sandou*).

19. Guo Yigong. 390 CE. *Guangzhi* [Extensive records of remarkable things]. China. Passage on soy reprinted in C.N. Li 1958 #57, p. 62-63. [Chi]

• **Summary:** Wade-Giles reference: *Kuang Chih*, by Kuo I-Kung. Western Jin dynasty. The original book has been lost; this short book is a reconstruction from the *Qimin Yaoshu*. When you plant azuki beans (*xiaodou*, “small beans”) you can get three crops a year [in the Western Jin of Central China]. As for soybeans there are numerous varieties: White soybeans (*baidou*), which are coarse when large, can be used for food. Prickly soybeans (*cidou*) can also be used for food. The millet-like soybean (*judou*), has seedlings like those of the azuki bean; its flowers are purple, you use it with flour to make flour- or pasta-foods (*mian*), and it is grown in a place named Zhuti. In Zianning [which is in Sichuan province] there are soybeans (*dadou*) which are yellow and there are imperial/royal soybeans (*yudou*), which have pods (*jia*) that are long and angular. There are also willow soybeans (*yangdou*), whose leaves (*ye*) can be eaten. Another variety is foreign beans (*hudou*), which can be green (*qing*) or yellow (*huang*). (Translated by H.T. Huang, PhD, March 2002).

Dr. Huang comments: The above translation and interpretation is based on the 1982 edition of the *Qimin Yaoshu*, by Miao Chiyu (W.-G. Miao Ch’i-Yu); this is the most recent and widely accepted edition. The commentary states clearly that the many types of beans referred to above are all soybeans. Some of the above characters are in doubt because they have been copied several times, and mistakes appear to have been made in the copying.

Note 1. This is the earliest document seen (May 2014) that discusses many different types or varieties of soybeans, or that mentions white soybeans (*baidou*) or yellow (*huangdou*) soybeans.

Note 2. This is the earliest document seen (May 2014) that uses the character *ye* (which is a general character for all leaves) to refer to edible soybean leaves; previously the character *huo* (which is specific to soybean leaves) has been used.

Concerning the date: Bray (1984), Needham (1986), and Huang (2000) all give the date as late 4th century CE. But Li (1958, p. 62) says 270 CE, Western Jin (which was 265-316 CE).

20. Fan Ye. 450 CE. *Hou Hanshu* [History of the Later Han dynasty (25 to 220 CE)]. China. Passage on soy reprinted in C.N. Li 1958 #49, p. 59-60. [Chi]

• **Summary:** Wade-Giles reference: *Hou Han Shu*, by Fan Yeh (lived 398-445). This is the most important history of the Later Han dynasty (25 to 220 CE). In the part on lives of the emperors, Chapter 1 is Biography of Emperor Guang Wu. Section 1 states that hemp and soybeans (*shu*) were prevalent throughout the country [today's northern China]. Chapter 9, Biography of Emperor Xian Di, notes that during his reign there was a great famine, when one *hu* (bushel) of soybeans (*dou*) cost 200,000 cash [the coin of the realm]. The soybeans were used to make congee (*zhou*). Rice and soybeans were kept in the granaries / storehouses, and during this time were used to make congee to feed the hungry. Note 1. This is the earliest document seen (May 2014) concerning soybeans and famine, or soybeans as a famine food.

In the part on lives of the generals, Chapter 7, the Biography of Feng Yi, tells how he prepared bean congee (*douzhou*) for the Emperor Guang Wu, founder of the Later / Eastern Han dynasty (25–220 CE; Capital at Luoyang / Loyang) when the imperial troops were cold and hungry during a difficult campaign. Note 2. This same story, although in a shorter form, appears earlier in the *Dongguan Hanji* (270 CE) in a chapter with the same title. At the end of this longer version we learn that later, when times were better, Feng Yi was rewarded by the emperor.

The Biography of Chen Fan states that at that time (during the Later Han dynasty), food and soybeans (*shu*) were scarce / insufficient. The Biography of Dong Zhuo is about a man who was famous at the very end of the Later Han Dynasty and into the Three Kingdoms Period. During a period of unrest [and food scarcity], grain became very expensive; one *hu* (bushel) of soybeans (*dou*) and wheat/barley cost 200,000 cash. Rice and soybeans, kept in the granaries / storehouses, were used to make a kind of congee (*mi*).

The chapter on Rituals (for funerals) says that you must have containers, each holding 3 *sheng* (about 600 cc) of the following: Glutinous millet (*Panicum miliaceum*), millet (*Setaria italica*), wheat or barley, a third kind of millet, paddy rice, hemp, soybeans (*shu*), and azuki beans (*xiaodou*). (Translated by H.T. Huang, PhD, Feb. 2002). Dr. Huang adds: Since long before the Han dynasty in China, the government maintained granaries in every district of the empire for use in times of famine. A district (*xian*, like a U.S. county) was the basic administrative unit; there were many districts in each province. Each granary was guarded by soldiers in times of famine or unrest to prevent hungry people from robbing it. They would make congee because adding more water during cooking would go farther in filling the stomachs of the hungry. In the “Rituals” chapter, one container of each type of grain was probably among the funerary objects (including clothing, textiles, utensils, furniture, etc.) buried in the tomb with an important deceased person at their funeral to provide for their needs in the afterlife. Wilkinson (2000, p. 505, 788). Until the Tang, the

Dongguan Hanji was regarded as the standard work on the Later Han. It was used as a main source by Fan Ye for the *Hou Hanshu*.

21. Tao Hongjing, 510 CE. Mingyi bielu [Informal records of famous physicians]. China. Passage on soy reprinted in C.N. Li 1958 #293, p. 215-16. [Chi]

• **Summary:** Wade-Giles reference: *Ming I Pieh Lu*, by T'ao Hung-Ching. Northern and Southern Dynasties. This is a typical pharmacopoeia entry. Raw soybeans (*sheng dadou*) have a flavor that is sweet and neutral [i.e., their energy {*qi*} is neutral; it is not heating or cooling]. They grow in the area of Tai Shan [a famous, sacred mountain in Shandong, near Confucius' birthplace] and in the plains [of north China; the Yellow River basin]. They are harvested in the ninth month.

Black soybeans (*heidadou*) are used to make sprouts (*nie* or “sprouted grains;” the same character means both “sprouts” and “malt”). When the sprout is five inches (*cun*) long, you dry it; it is called “yellow curls” (*huangjuan*). After you cook it, it can be eaten.

Note 1. This is the earliest document seen (May 2014) that uses the term *heidadou* to refer to black soybeans.

The leaves can be used to feed livestock. The pods can be used to feed cattle and horses. The stems can be used as fuel to cook food (from *Sannongji*, 1760).

Note 2. This is the earliest document seen (May 2014) stating that soybean pods can be used as feed for livestock, specifically cattle and horses, or that soybean leaves can be fed to livestock. Dr. Huang adds: The passage concerning the sprouts is very interesting. Usually in the pharmacopoeia, the sprout is very short, typically less than an inch, when it is used to make “yellow curls.” The sprouts here are much longer. Moreover, it is unusual at this early date to see soy sprouts used as food, as well as the traditional medicine. The word *nie* may suggest food use. When the sprout has reached five inches, very little bean will be left; the ratio of sprout to bean will have increased greatly. This indicates that it was probably used by some people as food, but not yet used this way popularly.

Note 3. This is the earliest document seen (May 2014) that recommends letting soybean sprouts grow to a length of five inches.

The first entry for hyacinth bean (*biandou*; *Lablab purpureus*, formerly *Dolichos lablab*) states: The flavor is sweet and the nature is slightly warm. It dispels / alleviates the middle and lower gases [in the human digestive tract]. The second entry notes: Plant hyacinth beans by the fence [because it's a climber]. Steam the pods. They are good to eat. (See Li 1958 #535).

Note 4. This is the earliest document seen (May 2014) that mentions the hyacinth bean together with the soybean. (Translated by H.T. Huang, PhD, Jan. 2003).

Huang (2000, p. 296) states that “soybean sprouts” (*dadou huangjuan* or “yellow curls”) are mentioned in this

standard pharmacopoeia. Fermented black soybeans (*shi*) are listed as a middle-class drug; they are “bitter in taste, cold, and non-toxic” (p. 337). Jiang is listed as a lower-class drug, which is “salty, sour, and cold. It dispels heat, restrains anxiety, and counteracts the toxic side-effects of drugs, heated soups, and fire.” Malt sugar (*yitang*) is first mentioned in this book (p. 460). Two types of sea vegetables are given as cures for goiter (p. 575).

Note 5. This is the earliest document seen (April 2019) that mentions sea vegetables.

Hagerty (1917, p. 4) says that the *Pieh lu* (*Ming i pieh lu*, a Materia medica by Tao Hung-ching, 452-536 CE) states: “The Shêng ta tou [gives 3 Chinese characters = 3 Cc], or Fresh soy bean, is useful as a remedy for the following diseases: Dropsical affections, gastric fever, paralysis, difficulty in passing urine, bladder trouble, improper circulation of the blood, catarrh or improper flowing of the fluids of the vital organs, heart, liver, kidneys, stomach and bowels, chills, and poisoning from eating Aconite [a dried tuberous root of the monkshood, *Aconitum napellus*, formerly used as a sedative and anodyne]. If the Pai ta tou [Baidadou; white soy bean] is eaten for a long period it will cause the body to become heavy. When cooked in a powder or meal-like form, it tastes good and sweet and is a good remedy for the following diseases: gastritis, fever, tumorous swellings, paralysis, inability to digest grain foods, and abdominal dropsy. This bean is grown in the level marshy land in the vicinity of Tai-shan mountain, and is harvested in the ninth month.”

Note 6. This is the earliest document seen (Jan. 2019) that mentions whole soy flour (yellow soybeans “cooked in a powder or meal-like form”).

Note 7. Tai Shan mountain (5,048 feet high) in Shandong province, is 32 miles south of Jinan (W.-G. Tsinan). Considered as sacred for several thousand years, it was formerly an important place of pilgrimage. Many temples are along the road up and on the top.

Note 8. Talk with H.T. Huang, PhD, expert on the history of Chinese foods. 2001. July 3. Looking at the Chinese-language edition of this book, he is fairly sure (but not certain) that the Chinese characters *sheng dadou* refer here to raw, uncooked mature soybeans and not to green vegetable soybeans or to “Fresh soy beans” (as Hagerty translates the term). This is clear because they are listed under and as a subset of soybean sprouts (“yellow curls”), which is the main item. These raw soybeans are called *sheng dadou* rather than simply *dadou* (“soybeans”) to more clearly differentiate them from soybean sprouts. It is understood that these raw soybeans must be cooked for a long time before they can be eaten or used medicinally.

Hagerty (1917, p. 9): “It [the white {yellow} soy bean] is not poisonous and is a specific remedy for improper functioning of the heart, liver, kidneys, stomach and bowels. It is also used as a remedy for constipation, as a stimulant for

the lungs, eradication of poison, improving the complexion by cleaning the skin of various impurities, and stimulating the growth and appearance of the hair.”

Hagerty (1917, p. 29): T’ao Shih, in giving directions for his medical prescriptions, says: “If using the Hu tou bean, use two ‘Ta ma chun,’ or measures, of beans, while if using the Hsiao tou, or Small bean [azuki bean] use three ‘Ta ma chun,’ The Hu tou, or Foreign bean, which compared with the Hsiao tou is very small, is identical with the Yeh wan tou, or Wild wan tou, and the stem of the Yeh wan tou is called Wei [1 Cc].

Hagerty (1917, p. 76-77): “Shih: The Shih [1 Cc], or Bean relish [fermented black soybeans] has an acrid bitter taste, and a cold effect upon the system, but it is not poisonous. It is used as a remedy for the following diseases: Injury from cold, headaches, chills and fever, malaria, serious poisoning, and other diseases. T’ao Yin-chü says that the Shih, or Bean relish, can be made a constant article of diet. But in the spring and summer season, when the weather is disagreeable, it is to be boiled or fried, and only that which has been steeped in wine should be used. This is extremely good.” The following is according to Kang Po’s method: “Use vinegar and wine and steeped bean relish, boil until the beans are dry and parched, mix together with some ‘Ma yu,’ or hemp seed oil, and again boil, cooking three times in all. Add some ground pepper and dried ginger. When all are mixed together it is ready to serve and is very good. At the present time this is given the name of Oily bean relish. People having foot disease frequently take this and steep it in wine and use the dregs to apply to the feet, which will be cured. The good quality, being fragrant, mellow, and of rich strong decoction, is found in the Hsiang-yang district, in a town called Ch’ien-t’ang. That which is in the middle part of the vessel has a stronger effect.”

Hagerty (1917, p. 81): “Chiang [1 Cc], or Soy Sauce [Chinese miso]: The Chiang has a salty sour taste, and has a cold effect upon the human system. It is a remedy for the following diseases:” [Hagerty omits the medical text].

Bretschneider (1882, part III, p. 2): Enlargement of the *Shen Nung Pên Ts’ao Ching*, adding 365 more drugs used during Han and Wei periods. An independent treatise. T’ao, a T’ang dynasty Buddhist monk, lived 452-536 CE.

Note 9. This is the earliest document seen (May 2014) that mentions hemp seed oil.

22. Jia Sixie. 544 CE. Qimin yaoshu [Important arts for the people’s welfare]. China. Passage on soy reprinted in C.N. Li 1958 #66, p. 66-67, and #295, p. 216-20. Translated by Shih Sheng-han 1958, 1962. [Chi]

• **Summary:** Wade-Giles reference: *Ch’i Min Yao Shu* (QMYs) by Chia Ssu-hsieh. Northern dynasties–Northern Wei (386-534 CE; established by nomadic people from the northern steppes). This is the world’s earliest encyclopedia of agriculture. H.T. Huang (2002) adds: “This is the most

important book on agriculture or food technology ever published in China. At a remarkably early date it gives both general information and great detail about agriculture and food processing.” The QMYS is divided into 10 books / fascicles (*juan*), and subdivided into more than 91 consecutive parts.

In his Preface, Jia Sixie states that the material in his book comes from four sources: (1) The Chinese classics; (2) Contemporary books, proverbs, and folk songs; (3) Information gathered from experts; and (4) His personal experience (“original material”).

A partial English-language translation of the “original material” and commentary by Shih Shêng-han was published in 1958 (2nd ed. 1962). The numbered text below is based on the 1962 translation titled “A preliminary survey of the book *Ch’i Min Yao Shu*: An agricultural encyclopaedia of the 6th century.” 2nd ed. Peking, China: Science (Kexue) Press. x + 107 p.

Book 2. General comments. The best time to plant soybeans (*dadou*) and oilseed hemp (*youma*) depends on the climate and soil condition. “Realization of the importance of proper choice of season and soil.” These two factors are the key to agricultural success. A table (p. 33) shows: Best, medium, and latest time for various operations: Planting spring soybeans: Best time—First ten days of the 2nd month. Medium—First ten days of the 3rd month. Latest time—First ten days of the 4th month. Also gives such times for azuki beans, male and female hemp, and sesame seeds. For making jiang: Best time—12th and 1st month. Medium—2nd month. Latest—3rd month. Making *shi* (fermented black soybeans): Best—4th and 5th month. Medium—20th day of 7th month until 8th month. Latest—None. In addition: Large dark-red beans (*da chidou*) should be planted in the 3rd lunar month, and harvested in the 6th month (See Li 1958 #385).

Note 1. This is the earliest document seen that uses the verb “harvest” as a verb in connection with soybeans.

Note 2. The scientific- and common name of dark-red beans is unclear; it may well be another name for azuki beans.

Chapter 4. Millets. It is best to plant millets on new fields (without a previous crop), or on a field where the previous crop was soybeans. Best, medium, and least suitable soil / ground for planting various crops. Spiked millet: Least suitable—Following turnips or soybeans. Panicked millets—Medium soil—Following soybeans. 1.3 Amount of seeds to be sown at different seasons: Soybeans: Best time—8 *sheng/mou* (= 220 ml/508 square meters). Medium time—10. Latest time—12.

Chapter 6, “Soybeans” (*dadou*):

Note 3. The first third (approximately) of this section is quotations from four early Chinese works and commentaries on them: (1) The *Erya* (Literary expositor) (ca. 150 BCE) says: “*rongshu* is the same as *renshu*.” Sun Yan’s commentary on the *Erya* explains that *rongshu* is the

soybean (*dadou*).

(2) According to the *Guangya* by Zhang Yi (Ancient dictionary: Enlargement of the *Erya*) (230 CE), soybeans (*dadou*) are called *shu*; azuki beans (*xiaodou*) are also called *da*. *Hudou* is *jiangdou*. Dr. Huang adds: The true identity of *hudou* is unknown.

(3) The *Guangzhi* by Guo Yigong (Extensive records of remarkable things) (390 CE) says: When you plant the azuki bean (*xiaodou*), you can get three crops a year. The flavor is good. *Baidou* (“white bean”) is coarse, large, and edible. *Cidou* (“prickly bean”) is also edible. *Judou* (“millet bean”) has a seedling which is like that of the azuki bean (*xiaodou*). The flowers are purple. It can be used for flour (*mian*). It is grown in a place called Zhuti within Jianin (in today’s Sichuan). Of soybeans (*dadou*), we have the yellow *luodou* (“drop bean”), the *yudou* (“imperial bean,” in which the bean is elongated), the *yangdou* (“poplar bean”), whose leaves are edible, and the *hudou* (“foreign bean”), which comes in green (*qingdou*) and yellow (*huangdou*) varieties.

(4) According to the *Bencao* (probably *Shennong Bencao Jing*; *Benjing*) (Classical pharmacopoeia of Shennong, the Heavenly Husbandman) (100 CE), when Zhang Qian (W.-G. Chang Ch’ien) traveled to foreign lands, he brought *hudou* (“foreign bean”) seeds back to China.

Note 4. Zhang went west along what is now called the Silk Road during the Former / Western Han dynasty, was gone for 11 years, and returned to China in 126 BCE. The *hudou* is now generally thought not to be a soybean.

The *Qimin Yaoshu* then begins: So now (i.e., Later Wei), we have two kinds of soybeans (*dadou*), black and white, as well as *changshao* (“long tip”) and *niujian* (“cow path”) varieties. There are three kinds of azuki beans (*xiaodou*): The green (*ludou*), the red (*chixiaodou*), and the white (*baixiaodou*) varieties. There are also the yellow Korean bean (*huang gaolidou*), the black Korean bean (*hei gaolidou*), the *yandou* (“swallow bean”) and the *bidou*; all are varieties of soybeans (*dadou*). Then there are *wandou*, *jiangdou*, and *laodou*; all are varieties of azuki beans (*xiaodou*).

Note 5. This is the earliest document seen (May 2021) that mentions Korea in connection with soybeans.

Note 6. This is the earliest Chinese-language document seen (Oct. 2021) that uses the word *baixiaodou* to refer to white azuki beans.

Spring soybeans (*dadou*): Plant them at the same time as the early grains; the middle of the 2nd lunar month is best. Use 8 *sheng* of seeds per *mou*. The second best planting time is the first third of the 3rd lunar month; use 10 *sheng* per *mou*. The latest you can plant them is the first third of the 4th lunar month; use 12 *sheng* per *mou*. If you meet with late germinating weather, you can plant in the 5th or 6th lunar month, but you must increase the amount of seed used.

The soil should not be overly fertile. After land has been harvested in the previous autumn, it can be planted

sparsely. If the soil is too rich, you may get luxuriant growth but fewer pods. Harvest the crop late. The pods do not drop. If you harvest too early, the seeds will not be full. Use a drill to plant, so the seeds will be placed deep in the soil. The seedlings will be sturdy and have deep roots to reach the moisture in the soil. Pierce (?) once, plow once, and hoe several times.

Mow / cut when all the leaves have fallen. When some leaves are left, it is harder to cut the stems. After mowing, quickly plow stubs under the soil. The soybean stubs dry out easily. If you do not plow them under, the soil will not retain moisture.

To produce [soybeans] for animal feed (*jiao*), use a wheat field as a base, and plant 3 *sheng* of seeds per *mou*. Broadcast the seeds and use a plow to form a narrow and shallow channel; level it plane. If the weather is dry, the stems will be coarse and sturdy, and the leaves sparse. If there are too few seeds, the seedlings will not grow tall; if the seeds are placed too deep, the seedlings will not be able to emerge from the soil.

If the soil is too damp, first plow deeply, then broadcast the seeds away from the plowed furrows and level the soil. Do not do this if the soil is not too damp.

In the 9th month, if you see leaves close to the ground turning yellow and about to fall, immediately harvest the crop. Even if the leaves do not turn yellow, they can easily start to rot. If you do not harvest, the wind will quickly strip the leaves, and the rain will rot the stem. The crop will be ruined.

Book 2, “Cultivating cereal grains.” The best way to improve the soil is to plow under green beans (*lūdou*, probably *Dolichos* species rather than mung beans or green gram). Azuki beans or sesame seeds (*huma*) are next (Note 7. Sesame seeds are not a legume and do not enrich the soil). It’s best to broadcast these densely in the 5th or 6th month, then plow them under [as green manure] in the 7th or 8th or eighth month. In the yield of spiked millet planted the next spring should be 10 *sheng* per *mou*. The effect is as good as adding the excreta of silk worms or well-rotted compost. Varieties of crops. The Chinese and English names of 7 cereal crops and the number of varieties of each recorded in the QMYS are given; soybeans are not in this list. Fertilizing the ground: Succession of crops. This table is similar to a previous one but: For soybeans: Most favorable forerunner—Spiked millet. For azuki beans the best forerunner is spiked millet or wheat. The QMYS was the first book to state that using green manure is “the best thing to do.” The best preceding crops for plowing under as green manure are *Dolichos* beans (*lūdou*) or azuki beans. The next best crops are hemp, foxtail millet (*su*; *Setaria italica*), or sesame seeds. The least desirable are rapeseed / colza (*wujing*) or soybeans (*dadou*).

Note 8. This is the earliest document seen (May 2014) worldwide that mentions rapeseed.

Harvesting and storing crops. Soybeans: In the 9th month, when the lower leaves become yellow and fall, reap quickly. Different harvest dates are given for azuki beans and sesame seeds.

Chapter 8 (Li 1958, p. 217)—Hemp: Be careful not to plant soybeans (*dadou*) mixed with hemp.

Chapter 10—Barley or wheat: Upland (high) fields are good for cultivating cereal grains or beans.

Note 9. This is the earliest document seen (May 2021) that gives basic formulas for fermented soyfoods or soy condiments such as *jiang*, soy sauce, etc.

23. Jia Sixie. 544 CE. *Qimin yaoshu* [Important arts for the people’s welfare (Continued)]. China. Passage on soy reprinted in C.N. Li 1958 #66, p. 66-67, and #295, p. 216-20. Translated by Shih Sheng-han 1958, 1962. [Chi]

• **Summary:** Continued: Book 3, “Culinary vegetables.” Chapter 14 (3.2.31 Li 1958, p. 217)—To plant melons, make a pit as big as a bowl. Place 4 melon seeds and 3 soybean seeds in the sunny side of the pit. After several leaves have expanded on the melon vine, pinch off the soybean seedlings. (Melon seedlings are too weak to break through the ground, so one should take advantage of the pushing force of germinating beans. Yet if the soybeans were allowed to grow, they would shadow the melon vine to disadvantage. Bean stalks when pinched give off a sap that moistens the soil. Never pull out the bean stalks, lest the ground become loosened and dry).

Method #2 for growing melons (from Li 1958 #66): Use the raised fields method with raised rows. After the rains in the 6th month (July), plant *Dolichos* beans. In the 8th month, plow them under. Plow again in the 10th month, then start to plant melons. Every two steps, make a small pit the size of a plate with a mouth about 5 inches in diameter and a flat bottom. Then plant melon and soybean (*dadou*) seeds, ten seeds each, in the pit. Add manure and soil, and cover it gently. Tamp it down with your feet. Pull out the beans and thin the melons as usual. When the spring grasses appear, the melons will come up and the leaves will grow quickly. In the 5th month (June) the melons will be ripe and their leaves luxuriant. They are not harmed by drought.

Note 1. We are not told when to pull out the soybeans.

3.4 Preservation of garden vegetables. 3.4.2. Perishable vegetables can be half-dried then conserved in *jiang*; they are called *jiangcai*. The QMYS recommends 6 vegetables to be preserved in this way.

6.1 Fiber crops. The only plant discussed is hemp. Female hemp plants are cultivated mainly for their oil-rich seeds, are cropped for both their fiber and their function in pollination. Use of wild kuzu (*Pueraria*) is mentioned in passing. 6.2 Tinctorial plants include indigo. Note 2. This is the earliest document seen (Aug. 2017) that mentions kuzu / kudzu.

Book 7, “Animal husbandry,” discusses domesticated

animals including horses, cattle, donkeys, mules, sheep, goats, pigs, geese, Chinese ducks, and other fowl.

Chapter 45—On mulberry: Mentions azuki beans.

Chapter 58 (7.3)—On rearing baby pigs: For feeding baby pigs, nursing is the best. If you must feed them some other way, using artificial feeds, they may not grow fat, so leave the baby pig with its mother in the same pen. Using foxtail millet (*su*) and soybeans (*dou*) may not be sufficient. Bury some cartwheels (vertically) in the pen to form a feeding enclosure, enabling you to separate the baby pig from its mother. Scatter foxtail millet (*su*) and soybeans (*dou*) therein. The piglets will be able to go in and out freely and get enough to eat, so they will grow quickly. But the mother pig will not be able to reach the feed. Note 3. This is the earliest document seen (May 2014) concerning the feeding of soybeans or soybean products to pigs.

Chapter 17, titled “Planting mallows,” advises to plant *lūdou* in the 5th or 6th month, and to plow it under [for use as a green manure] in the 7th or 8th month. Chapter 21, titled “Planting onions” (*cong*) recommends planting plant *lūdou* in spring and plowing it under in the 5th month. (See Li 1958, #416).

Note 4. This is the earliest document seen (May 2014) that mentions *lūdou*.

Chapter 57—Raising sheep. If you raise 1,000 sheep, within 3-4 months you should plant a batch beans [to help feed them].

Chapter 60—Raising geese and ducks: Take the female ducks (hens) and do not mix them with the males (drakes). Feed the female ducks with foxtail millet (*su*) and soybeans (*dou*) until they are satiated. You should get 100 eggs from each female duck. Dr. Huang notes: They are raising the ducks for the eggs, not the meat. Note 5. This is the earliest document seen (May 2014) which mentions that ducks (or geese) are fed or eat soybeans.

24. Jia Sixie. 544 CE. *Qimin yaoshu* [Important arts for the people’s welfare (Continued)]. China. Passage on soy reprinted in C.N. Li 1958 #66, p. 66-67, and #295, p. 216-20. Translated by Shih Sheng-han 1958, 1962. [Chi]

• **Summary:** Wade-Giles reference: *Ch’i Min Yao Shu* (QMYS) by Chia Ssu-hsieh. Chapter 72—*Shi* (unsalted / bland fermented black soybeans, or salted / savory fermented black soybeans). Most of the following is based on the translation of Huang (2000, p. 337-38). The QMYS gives four methods for making *shi*, however one of them is for making *shi* from wheat, which is of little interest or importance compared with the *shi* made from soybeans. Of the three methods based on soybeans, the first and most extensive is for unsalted / bland fermented black soybeans (*danshi*)—as follows: The incubation must be carried out in a shady, warm hut [incubation room] with a very clean floor. For making bland fermented black soybeans, dig a pit about 2-3 feet deep on one side of the room. The hut should have

a thatched roof—not a tiled roof. Tightly seal any windows and the door with mud so that no draft, mice, or insects can enter. Cut a small opening [through the door] just big enough for one person to pass through. Cover it tightly with a thick straw mat when not in use. Ideally the incubation room should be kept as warm as your arm pit. The best time to make bland fermented black soybeans is late spring (4th moon) or early summer (5th moon). Next best is early fall (7th to 8th moon). You can make it at other times but remember that when the weather is too hot or cold it will be difficult to maintain the desired incubation temperature.

Take cleaned, winnowed soybeans (*jing yangbou*). Boil 10 *dan* (1 *dan* = 40 liters) of them with water in a large pot until they feel soft when pressed between the fingers. Drain and cool until the beans reach the right temperature, warm in winter and cold in summer, when touched by your hand. Then arrange them in conical piles on the floor of the incubation room.

Examine the piles twice a day. Put your hand inside any pile. When the inside feels as warm as one’s armpit, stir the pile so that the beans on the outside are moved to the outside and vice versa. After 4-5 such stirrings, the pile should be warm both inside and outside and a white coat [mycelium] should have begun to appear. Now press down the tip of the pile each time it is stirred. After 4 more stirrings, the height of the pile should be reduced to 6 inches. A yellow coat [mainly *Aspergillus* spores] should start to appear. Then spread the soybeans to a height of about 3 inches and allow them to incubate undisturbed for 3 days. A rich yellow coat should now cover the beans. Take the molded beans [soybean koji] outside the hut, winnow to remove the loose coat of yellow spores, then soak in water, place in a basket, rinse thoroughly with water, and air dry on a mat.

Dig a pit 2-3 feet deep on one side of the hut. Line it with straw mats and fill it loosely with millet husks. Place beans in pit. Have a worker stamp on them until they are as compact as possible. Cover beans with a mat, then place more husks on top of it. Trample these down also. The fermented beans (*shi*, bland fermented black soybeans) will be ready after about 10 days in summer, twelve days in fall, or 15 days in winter. If the incubation period is too short, the color of the beans will be too light, but if too long, a bitter flavor will develop... After being dried in the sun, the [unsalted] fermented soybeans may be kept for a year without spoiling.

Dr. Huang notes: The method for making *danshi* may well have been developed before the other three. This is normal, because it is used in medicine. That is probably why it is listed first in the QMYS.

Note 1. This is the earliest existing document seen (May 2014) that mentions unsalted / bland fermented black soybeans (*danshi*). The process is characterized by a warm temperature and use of rice straw close to the soybeans—which probably makes this product intermediate between

unsalted soybean koji and Japanese natto.

Note 2. This is the earliest document seen (May 2014) which describes a specific process for cleaning soybeans–winnowing. This is also the earliest document seen (Jan. 2005) that uses the word “winnowing” in connection with cleaning soybeans. Typically, freshly harvested (uncooked) soybeans are winnowed by tossing them into the air to separate the beans from the pods and chaff.

Note 3. The question arises: How can 40 liters of soybeans, which double in size to 80 liters after being boiled in water, fit into a pit 2-3 feet deep that is already filled loosely with millet husks. The answer: (1) The pit must have a large surface area, while still fitting in one side of a hut; (2) The loosely-packed millet husks (good insulation) will compress when the beans are added, then trampled underfoot.

The second method for making shih (salted fermented black soybeans) from soybeans first appeared in the *Shijing* (Food canon (#1)) (530? CE)—which see.

The third method is for making bland fermented black soybeans (*danshi*) at home—as follows: You can make any amount. Wash the beans (*dou*) well. Soak for 1 night. The next morning, steam them as you would rice. To make one picul (*dan*), after it is cooked, cover it with fresh rushes / straw, just as if you were making glutinous rice koji (*nuqu*; W.-G. *nü ch'ü*). After 14 days, the beans should be covered with a yellow coat (*huangyi*). Winnow the coat [to remove some of the yellow spores, which could make the product bitter]. Dry the beans then soak in water until soft. Place beans in an earthenware urn. Dig a hole in the ground big enough to hold the urn. Make a wood fire in the hole. Place the urn in the fire. On top of the beans in the urn, put at least 3 inches of mulberry leaves. Cover urn tightly, then seal the mouth with mud (*ni*). After 10 days it should be ripe. Pour out the contents and dry in the sun until half-dry. Then steam and sun-dry it 3 more times. It should now be ready. (Translated by H.T. Huang, PhD, May 2002). Dr. Huang notes: The process for making *shi* involves a two-stage fermentation: (1) Aerobic culture of airborne wild molds on the surface of cooked soybeans; (2) The enzymes from the molds hydrolyze (digest or “break down”) the soybean constituents under aerobic conditions. Partial hydrolysis of the soy proteins create flavor compounds.

Note 4. This is the earliest document seen (May 2014) that gives a recipe for making fermented black soybeans at home.

Huang (2000, p. 285-87) notes that Chapter 71 contains 23 recipes for making vinegar (*zuo* or *cu*; W.-G. *tso* or *ts'u*). One of these (recipe 17) is a flavored vinegar made with azuki beans (*xiaodou*), plus panicum millet and wine.

25. Jia Sixie. 544 CE. *Qimin yaoshu* [Important arts for the people's welfare (Continued)]. China. Translated by Shih Sheng-han 1958, 1962. [Chi]

• **Summary:** Continued: Wade-Giles reference: *Ch'i Min Yao Shu*, by Chia Ssu-hsieh. This is the world's earliest encyclopedia of agriculture.

Letter from Dr. H.T. Huang, 1991. Aug. 4. In the inestimable classic of the 6th century CE, the *Ch'i Min Yao Shu*, which describes the making of every conceivable type of processed food (even the making of yogurt) that was of importance, tofu is not mentioned at all. This indicates that tofu had not yet gained the stature of one of the “useful arts” for the people's welfare by the 6th century CE (See also Huang 2000, p. 313-14).

Fukushima (1989, p. 2-3). “The first document in which soybeans appeared as a substitute for meat in *chiang* was the *Ch'i-min Yao-shu* (*Saimin-Yojutsu* in Japanese) by Chia Ssu-hsieh (*Ka Shikyo* in Japanese), the world's oldest encyclopedia of agriculture, published in 535 CE in China.”

Note 1. The above statement is not true; as of May 2014, five Chinese documents, from 166 BCE, mention soybean *jiang* before the *Ch'i-min Yao-shu*. Two processes for making shih (fermented black soybeans) are described in the *Ch'i-min Yao-shu*. One is the process described earlier in the *Shi-ching* by Hsieh Feng (which survives only in the *Ch'i-min yao shu*). In the second process, first described in the *Ch'i-min yao-shu*, soybeans are winnowed, cooked, drained, and cooled. They are piled, the temperature is measured, and then they are stirred. The last 3 steps are repeated 3 times until they are spontaneously molded. They are then spread and furrowed to make soybean koji. This is winnowed, washed, drained, dried, moistened, piled, fermented, and dried to give unsalted soybean shih (p. 8).

Yu (1987, p. 25): Discusses skills of farming, crop rotation, plowing, care of livestock, fish culture, and food processing in the middle and lower reaches of the Yellow River.

Note 2. This is the earliest document seen (May 2014) that discusses fish culture (fish farming, aquaculture); however soybeans were not used as fish feed.

Note 3. This is the earliest document seen (June 2020) that mentions “crop rotation.”

Wang and Fang (1986): In this 6th century book on Chinese technology, the product *chiang-ching* was mentioned. The characters show that the product was related to *chiang* and was probably the origin of *chiang-yu* (soy sauce). But the method of preparing soy sauce was first described in the 16th century *Pen-ts'ao kang-mu* by Li Shih-chen.

Note 4. For an excellent discussion of the much earlier origins of soy sauce in China, see Huang, 2000, p. 358-74. Also in this book more than 20 methods of preparing *tsu* (Chinese-style vinegar made from grains such as millet, rice, or sorghum) are discussed. The grain is cooked, mixed with *ch'ü* (koji), packed in a sealed container, and allowed to ferment for 3 weeks.

Yokotsuka (1986, p. 198) cites this as the earliest

document seen that mentions a liquid soy sauce. He states that the *Chi-Min Yao-Shu* (532-549) discussed *ch'ü* (mold-cultured cereals made from crushed wheat or wheat flour made into balls or cakes, or cooked rice), Chiang (made from soybeans or wheat), Shi (mold-cultured soybeans with or without salt), and Shi-tche (the saltwater extract of shi).

26. Jia Sixie. 544 CE. *Qimin yaoshu* [Important arts for the people's welfare (Continued)]. China. Translated by Shih Sheng-han 1958, 1962. [Chi]

• **Summary:** Continued: Wade-Giles reference: *Ch'i Min Yao Shu* (QMYS), by Chia Ssu-hsieh. Francesca Bray (1984) in her superb book on agriculture in China (*Science and civilisation in China. Vol. 6, Biology and biological technology. Part II: Agriculture. Joseph Needham series*) offers many important insights into the QMYS. She cites it as: Essential Techniques for the Peasantry. Northern Wei, c. 535 CE. By Chia Ssu-Hsieh. Textual references are to the 1957 ed. of Shih Sheng-Han. Bray devotes a long section (p. 55-59) to discussing this work and its context in detail. It is the "earliest Chinese agricultural treatise to have survived in its entirety. It is a long and impressive work, logical and systematic in its arrangement, comprehensive and detailed in its treatment, and a model for all subsequent Chinese agronomists." She translates the introduction. A long work, it is divided into ten books comprising 92 chapters and over 100,000 characters. It quotes from more than 160 other works, sometimes at great length. Our present versions of the *Fan Shengzhi Shu* [The book of Fan Shengzhi (on agriculture)] (10 BCE) and the *Simin Yueling* [Monthly ordinances for the four classes of people] (160 CE) are based almost exclusively on passages cited in the *Qimin Yaoshu*. "Almost half of the book consists of quotations, but the main body of the text is from" Jia Sixie's own hand. "Little is known about the author except that he served as a middle-ranking official; however it is generally assumed that his agricultural experience was based on conditions in the Shantung area." The work describes in depth "the practical details of running an agricultural estate, cultivating both subsistence and commercial crops and directing a number of household manufactures and culinary preparations." The book also gives a detailed description of hemp cultivation (Bray, p. 535).

Adzuki beans are also referred to frequently, especially in connection with cultivation of green manures. With the development of printing in China in the early Song dynasty, it was one of the first agricultural works to be printed by imperial order (Bray, p. 53).

Concerning soybeans (Bray, p. 514-15): "The soybean was probably the most important legume grown in China, but it was by no means the only one. 'Lesser beans' (*hsiao tou* or *ta*) came, according to the *Ch'i Min Yao Shu*, in three varieties, red, green and white (Fig. 239). The term *hsiao tou* can probably be identified with the adzuki bean, *Phaseolus*

angularis (Willd.) Wight, which is native to China and Japan."

Bray (1981): Northern Chinese agricultural methods and crops, with extended sections on preserving, brewing, exotic plants, etc. With the *Nongshu* perhaps the most fundamental work. This document, which arrived in Japan during the late 700s, was a key link in the transmission from China to Japan of food preparation techniques. It described how to make fermented black soybeans. Lists varieties of soybeans and how to grow them. It says Chang Chien brought soybeans to China.

27. Jia Sixie. 544 CE. *Qimin yaoshu* [Important arts for the people's welfare (Continued)]. China. Translated by Shih Sheng-han 1958, 1962. [Chi]

• **Summary:** Continued: Wade-Giles reference: *Ch'i Min Yao Shu* (QMYS), by Chia Ssu-hsieh. Bo (1982): This is the world's earliest document describing techniques for processing agricultural products. The production methods for soybean *chiang* and *shih* (fermented black soybeans) are described in detail. In these descriptions, the author frequently used the terms "tou-chiang-ch'ing" (literally "soybean *chiang* refined") and "chiang ch'ing" (literally "chiang refined"), but unfortunately he didn't describe how these products were made. These terms are almost surely related to the term "ch'ing *chiang*" used in the *Ssu Min Yüeh Ling* by Ts'ui Shih of the Later Han. *Shih* was made from soybean koji. Using only soybeans (instead of soybeans and wheat, as for *chiang*) hydrolyzes the protein more efficiently, and was thus well suited for making fermented black soybean sauce (*kuki-jiru*). Thus this book contains about 70 recipes for using fermented black soybean sauce, many more than for soy sauce. Yet the book does not explain how to make fermented black soybean sauce.

The *Ch'i-min yao-shu* quotes from an even earlier non-extant work, the *Shih ching* (*The Classic of Food*; date and authorship unknown), giving the *Shih ching*'s recipe for making "one thousand year bitter soy wine."

Note: This is the earliest document seen (Oct. 2014) that mentions "one thousand year bitter soy wine."

Sato (1963, p. 9), in his book titled "Documents on Fermented Black Soybeans, Chiang, Miso, and Shoyu," cites this as the third earliest Chinese document seen on the subject. Called the *Seimin Yojutsu* in Japanese, it was translated into Japanese in 1959 by Nishiyama Kakekazu and Kumadai Yukio. It is written entirely in Chinese characters (*Kanbun*).

Shih Sheng-han (1958). The first English-language (partial) translation of this book; revised 2nd ed. in 1962. For details see these two works. The section titled "Fish-pond" (1958 and 1962, p. 72) states: "There is a whole chapter (62) on fish-pond management... But the source and the calculations of the quotation are dubious. Anyhow we can infer from this chapter that fish-pond management was

started in China earlier than the 6th century.”

28. Wei Zheng. 636 CE. Suishu [History of the Sui dynasty]. China. Passage on soy reprinted in C.N. Li 1958 #77, p. 72. [Chi]

• **Summary:** Wade-Giles reference: *Sui Shu*, by Wei Chêng-chang, et al. The record of Gaozu (the founding emperor), part II, states that during a famine they collected the small leftover soybean pieces or grits (*douxie*), mixed them with the bran of cereal grains, then cooked the mixture in water to assuage hunger. Dr. Huang adds: It is not clear how these leftover pieces were created. They may have been the result of trying to grind or to dehull soybeans. These are the least desirable parts of the beans and cereal grains. Normally they would be fed to animals.

Note 1. This is the earliest document seen (May 2012) that contains the term *douxie*.

The record of rites and ceremonies (*Liyiji*) tells what kinds of grains are used in the ceremony: You plant red millet (*chiliang*), white grain (*baigu*), soybeans (*dadou*), red panicum millet (*chishu*), adzuki beans (*xiaodou*), black millet (*heiji*), hemp seed (*mazi*), wheat (*xiaomai*).

Note 2. This is the earliest document seen (May 2014) that uses the characters *xiaomai* to refer to wheat.

Note 3. This may be the earliest non-reconstructed document seen (May 2014) that uses the characters *xiaodou* to refer to azuki beans; see also *Guangzhi* (390 CE).

The record of the five elements, part I, states that soybeans (*shu*) and setaria millet (*su*) are left over in the horses' stables in someone's palace. Dr. Huang adds: Apparently soybeans and millet are used together as a feed for horses.

The record of the five elements, part II, states that during this year, a heavy frost killed the rice (*dao*) and soybeans (*shu*).

The biography of Tu Guhun says that in his region they grow barley (*damai*), setaria millet (*su*), and soybeans (*dou*).

The biography of Gui Zi notes that in his country (also named Gui Zi) they grow rice (*dao*), millet (*su*), soybeans (*shu*), and wheat (*mai*). (Translated by H.T. Huang, PhD, July 2002).

Wilkinson (2000, p. 504, 736, 819) states that this standard history was written/compiled by Wei Zheng (lived 580-643 CE) et al. It was compiled during the years 629-636 and presented/printed in 636 CE, during the Tang dynasty (618-906). The Sui Dynasty existed from 581-618; this book covers the years 581-617. Non-Han foreigners mentioned: Xiyu, Nanman Beidi, and Dongyi.

29. Kojiki [Kojiki: Record of ancient matters]. 712 CE. Japan. [Jap]

• **Summary:** This is Japan's oldest chronicle. The mythical story of the origin of the soybean in Japan is as follows, from Philippi's 1968 translation (p. 87): "Chapter 18. Opo-ge-

tu-pime produces food and is killed by Susa-no-wo. Again, [Susa-no-wo-no-mikoto] asked food of Opo-ge-tu-pime-no-kami. Then Opo-ge-tu-pime took various viands out of her nose, her mouth, and her rectum, prepared them in various ways, and presented them to him. Thereupon Paya-susa-no-wo-no-mikoto, who had been watching her actions, thought that she was polluting the food before offering it to him and killed Opo-ge-tu-pime-no-kami. In the corpse of the slain deity there grew [various] things: in her head there grew silkworms; in her two eyes there grew rice seeds; in her two ears there grew millet; in her nose there grew red beans [lit. "small beans," probably azuki]; in her genitals there grew wheat; and in her rectum there grew soy beans. Then Kami-musubi-mi-o-ya-no-mikoto ['Divine Generative Force Deity'] had these taken and used as seeds."

Note 1. This is the earliest Japanese-language document seen (March 2021) that mentions soy beans.

Concerning the book, Reischauer and Fairbank (1960, p. 464-65) note: "The 'Kojiki' and 'Nihon Shoki.' The most important materials bearing on Japanese origins and the formation of the Japanese state are the early native records, but this is not for reasons of accuracy. The *Kojiki* (*Record of Ancient Matters*) was compiled only in 712 and the *Nihon shoki* (*History of Japan*, also known as the *Nihongi*) in 720. Influenced by eighth century concepts, the authors of these works obviously reshaped Japanese mythology and historical traditions to enhance the prestige and power of the ruling family and to create a false picture of long centralized rule and a respectable antiquity comparable to that of China. Although reasonably reliable on the later periods, their accounts of the early centuries are almost worthless as history..."

"The accounts of early history in the *Kojiki* and *Nihon shoki* were woven together out of a variety of myths, legends, genealogies, vague historical memories, and borrowings from Chinese philosophy and history. Frequently the two books flatly contradict each other, of the *Nihon shoki* offers a series of variants of a myth or tradition." In the Japanese creation myth, the first deities to emerge were a sister and brother, Izanami and Izanagi, who, descending to earth, gave birth to the islands of Japan and a number of other deities, including a Sun Goddess called Amaterasu [also called Amaterasu-omikami, the Shinto Sun Goddess], and a male deity named Susa-no-o (also called Susa-no-wo). The Japanese state was said to be founded in 660 B.C. in Yamato, the area centering around the Nara Plain, a short distance inland from Osaka. The founder of the imperial line was said to be Jimmu, the "Divine Warrior."

Note 2. Historically, the Yamato emperors lived in the 5th century A.D. "Since their direct lineal descendants still occupy the Japanese throne, the Japanese imperial family is by far the oldest ruling line on earth."

"The *Kojiki* is written partly in Chinese, partly in Chinese characters used phonetically to represent individual

syllables of Japanese names or words, and partly in Chinese characters used to express the meaning of whole Japanese words. The result, naturally, is extremely difficult to read. The *Kojiki* deals largely with early myths and legends and dwindles to little more than genealogies for the rulers traditionally dated between 488 and 628.

“The *Nihon shoki*, by contrast, is written in pure Chinese and becomes increasingly more detailed as it approaches its terminal date of 689.”

Concerning azuki beans, Lumpkin & McClary (1994, p. 37, based on Hoshikawa 1985) write: “The *Kojiki* states that when the god *Susano no Mikoto* came to earth, he killed a man and azuki sprang from the man’s nose...”

Note 3. This is the earliest Japanese-language document seen (Oct. 2021) that mentions azuki beans.

Harlan (1992, p. 45) notes that the source of soybeans suggests flatulence.

Note 4. This is the earliest document seen (March 2021) that suggests flatulence in connection with soybeans. However the word “flatulence” does not appear in the text.

30. *Nihon shoki* (or *Nihonshoki*, or *Nihongi*) [*Nihon shoki*: Chronicles of early Japan]. 720 CE. Japan. [Jap]

• **Summary:** The second version of the mythical story of the origin of the soybean in Japan, following that told in the *Kojiki* (A.D. 712) is as follows, from a note in Philippi’s 1968 translation of the *Kojiki* (p. 404-05): “Ama-terasu-opo-mi-kami [also called Amaterasu-omikami, the Shinto Sun Goddess], hearing that a deity called Uke-moti-no-kami [a food deity] dwelt in the Central Land of the Reed Plains, sent Tuku-yomi-no-mikoto [the moon god] to inquire after her.

“When Tuku-yomi-no-mikoto arrived there, Uke-moti-no-kami took rice, fish, and meat from her mouth, and, placing them on tables, offered them to him. At this he became angry and killed her, then returned and reported this matter.

“Then Ama-terasu-opo-mi-kami rebuked the moon deity and vowed never to set eyes on him again. For ever after she dwelt one day and one night apart from him. [A mythological explanation for the rotation of sun and moon.]

“When Ama-terasu-opo-mi-kami sent a messenger to see, in the dead Uke-moti-no-kami’s head there had come into being cattle and horses, on her forehead millet, on her eyebrows silk-worms, in her eyes Deccan grass [MJ *hie*; also panic grass], in her belly rice, and in her genitals wheat, soy beans, and red beans [probably azuki].

“When these were taken and presented to Ama-terasu-opo-mi-kami, she rejoiced and caused these things to be used by mortal men for their livelihood. [Asahi ed., I, 86-87; Aston, I, 32-33.]”

For a background on this book, see *Kojiki* (A.D. 712). For other English translations see Aston (1896, 1972; p. 32-33).

31. *Jili cuoyao* [Summaries of calendrical records]. 900 CE. China. Passage on soy reprinted in C.N. Li 1958 #86, p. 74. [Chi]

• **Summary:** Wade-Giles reference: *Chi Li Ts’o Yao*. This is reputed to be a work of the Tang dynasty (618-906 CE); the author is known by his pseudonym, which means “the old man of the deer gate.” However, recent scholarship concludes that this document comes from a much later period and the author is unknown. In short, no one knows who wrote it or when. Therefore this reference and record are of almost no value. The “Fifth month” chapter mentions soybeans (*dou*). The “Eighth month” chapter also mentions soybeans (*dou*).

The chapter titled “Miscellaneous information” mentions soybeans (*shu*), azuki beans (*xiaodou*), soybeans (*dadou*), soybean flowers (*douhua*). Concerning mung beans (*ludou*) it states: To plant *ludou*, you don’t need fertile soil. (Translated by H.T. Huang, PhD, July, 2002, May 2003).

32. Su Song; et al. 1061. *Bencao tuijing* [Illustrated pharmacopoeia: Or, Illustrated treatise of pharmaceutical natural history]. China. Passage on soy reprinted in C.N. Li 1958 #299, p. 220-21, and #331, p. 234. [Chi]

• **Summary:** Wade-Giles reference: *Pên Ts’ao T’u Jing*, by Su Sung, et al. Song dynasty. Li (1958, p. 220-21) cites this as *Tuijing Bencao* (1061 CE) however Needham (1986) has convinced us to cite it as shown above. This is a noteworthy work, however the original has been lost. The following passage has come down to us in the *Zhenglei Bencao* (Reorganized pharmacopoeia) (1082 CE), Chapter 25. Dried soybean sprouts (*dadou huangjuan*; “yellow curls”) and mature raw soybeans (*sheng dadou*). They grow in the plains near Taishan (the famous mountain near the birthplace of Confucius). You find them everywhere. Dried soybean sprouts are derived from the fresh soy sprouts. After it has sprouted, you dry it and use it. Alchemical treatises call it “yellow curls” (*huangjuan*). There are two kinds of soybeans: Black and white. The black ones are used in medicine, the white ones are not. The very small ones are the male beans (*dou*); they are particularly good for medical use.

The young plants (*doumiao*) grow to a height of 1-2 feet. The leaves are round with a pointed tip. The color is green. They are slightly hairy. The stem divides into branches. In the fall, they bear small, white or purple flowers in clusters. They form pods (*jia*) more than one inch (*cun*) long, which may contains 3-4 seeds / beans. Small pods may contain only 1-2 seeds / beans. The seeds fill the pods. When the leaves and the stems are full, then the beans are ready for harvest. There are early, medium, and late varieties. The shapes are large, small, round, or flat. The colors are yellow, white, red, black, spotted / speckled / striped (*ban*), and dark brown. Soybeans are used to make jiang, fermented black soybeans (*shi*), tofu (*fu*), or soy sprouts (*ya*). They can be pressed to give soy oil (*you*), or they can be parched / fried (*chao*, with

or without oil, probably without in this case) to give soynuts (*guo*, literally “fruit”). They can also be used to make soy flour candy (*tangmo*). So the soybean has many uses. The pods are called *jia*, the leaves are called *huo*, the stems are called *qi*, and the seeds are called *dou*.

Note 1. This is the earliest document seen (May 2014) stating that *doumiao* grow to a height of several feet. The term *doumiao* is used elsewhere to refer to long soy sprouts which were typically much smaller and more tender.

Note 2. This is the earliest Chinese-language document seen (May 2014) that mentions soynuts, which it calls *guo*.

Note 3. This is the earliest document seen (May 2014) that mentions brown or dark brown soybeans.

Note 4. This is the earliest document seen (May 2014) which states that there are early, medium, and late varieties of soybeans.

Note 5. This is the earliest document seen (Aug. 2016) that mentions soybean oil for what appears (from the context) to be food or therapeutic use. It is also the earliest Chinese-language document seen that uses the word *you* (a general term for all oil) to refer to soybean oil.

Red azuki beans (*chixiaodou*) are also mentioned in this book. (See Li 1958 #387).

And there is an entire section titled “Cowpeas” (*jiangdou*, *Vigna sinensis*) which says that it was widely cultivated in the northwestern provinces of China. (See Li 1958 #476).

And a section titled “Hyacinth beans” (*biandou*) with a long description. (See Li 1958 #537).

There is also a section titled “Broad beans” (*candou*, *Vicia faba*) with six lines of description, including the statements that it can be boiled, stir-fried, or made into flour (*fen*). When these beans are fed to cows or horses, the animals grow well. The seedlings fertilize the fields. The stems can be used for fuel, and the leaves used for feed. The pods are shaped like silkworms—which is why they are called “silkworm beans” (*candou*). (See Li 1958 #641). Note 6. This is the earliest document seen (May 2014) that mentions broad beans (*candou*; *Vicia faba*) together with soybeans. (Translated by H.T. Huang, PhD, Jan. and May 2003).

Note 7. The above text now exists only in the *Sannongji* (Records of the three departments of agriculture) (1760), by Zhang Zongfa.

Needham (1986, p. 581, 281n) cites this as shown above noting: “Now preserved only in numerous quotations in the later pandects of pharmaceutical natural history.” On p. 588 Needham has a second explanatory reference for: “*T’u Ching* (*Pên Ts’ao*). Illustrated Treatise (of Pharmaceutical Natural History). See *Pên Ts’ao T’u Ching*. He explains that the term *T’u Ching* originally applied to one of the two illustrated parts (the other one was a *Yao T’u*) of the *Hsin Hsiu Pên Ts’ao* of 659 CE. But by the middle of the 11th century CE these had become lost, so the *Pên Ts’ao T’u Ching*, by Su Sung was prepared as a replacement. The title

“*T’u Ching Pên Ts’ao* was often later applied to Su Sung’s work, but wrongly—according to evidence in the *Sung Shih* bibliographies. Needham (1986) states that this was the first document to mention flax in China (p. 174). Su Sung, also called Su Tzu-Jung, was a statesman and outstanding scientific thinker (p. 252, 281).

Note 8. This is the earliest document seen (May 2014) that mentions soybeans whose color is spotted / speckled / mottled / striped (*ban*).

Note 9. This is the earliest document seen (Oct. 2014) that mentions flax.

33. Kou Zongshi. 1116. *Bencao yanyi* [Dilations upon pharmaceutical natural histories]. China. Passage on soy reprinted in C.N. Li 1958 #300, p. 221. [Chi]

• **Summary:** Wade-Giles reference: *Pên Ts’ao Yen I*, by K’ou Tsung-Shih. Song dynasty. An important work. In Chapter 20, the section titled “Whole dry soybeans” (uncooked, *sheng dadou*) after describing the different colors and kinds of soybeans (already found in many earlier documents) it states that soybeans can be ground and made into tofu (*fu*), and eaten.

Red azuki beans (*chixiaodou*) are also mentioned in this book. (See Li 1958 #388). (Translated by H.T. Huang, PhD, Jan. 2003).

Dr. H.T. Huang (personal communication, 5 June 1993) notes that this book states: “Keep chewing (massaging) wheat flour and it will yield *mianjin* (wheat gluten).”

Gai & Guo (2001, p. 44): This book was written by Ke Zhong-Xiang, who wrote: There are three kinds of immature raw soybeans: green, brown and black. The larger ones come mainly from Jiangsu, Zhejiang, Hunan, and Hubei; the smaller ones are from other places.

Needham (1986, p. 283-87): Emperor Hui Tsung, a remarkable man, came to the throne in 1101 CE. His court was a “veritable entourage of virtuosi, appreciative of all the best that the art, the science and the technology of the time could perform.” A major of event was the presentation to his throne of an “entirely original treatise on pharmaceutical natural history, by a hitherto unknown Medical Officer,” K’ou Tsung-Shih. It was printed in 1119 by the writer’s nephew, K’ou Yo. He wrote passages of “cardinal importance about the lodestone and the magnetic needle, recording induction and polarity, with a description of the floating compass,” a statement on magnetic declination, and an attempt to explain it, all about 60 years before anything was known about magnetic polarity in Europe. He also discussed various fossils, and was perhaps an even better mineralogist and geologist than a botanist. In Chapter 17, he also discussed insect pests and their natural enemies (p. 525).

A modern edition was published in 1937 by Commercial Press.

34. Meng Yuanlao. 1148. *Dongjing menghua lu* [The eastern capital: A dream of splendors past]. China. Passage on soy reprinted in C.N. Li 1958 #100, p. 78. [Chi]

• **Summary:** Wade-Giles reference: *Tung Ching Mêng Hua Lu*, by Mêng Yüan-Lao. This is a famous book, published during the Southern Song period. The eastern capital is Khaifeng and the author's name may be a pseudonym meaning "old man." The section titled "Miscellaneous food products" states: Every day they sell steamed pears and yellow cakes / pastries made from jujubes, congee cooked overnight, steamed cakes of pounded glutinous rice (*bīng*; *mochi* or "rice cake" in Japanese), sprouted soybeans (*yadou*), etc.

Note 1. This is the earliest document seen (May 2014) that mentions pounded glutinous rice, widely known in the West by its Japanese name, *mochi*.

Note 2. This is the earliest Chinese-language document seen (May 2014) or that contains the term *yadou* (sprouted soybeans for food use). However the use of sprouted soybeans (*dadou huangjuan* or "yellow curls") as a medicine was first cited much earlier, in 100 CE in the *Shennong bencao jing* (Classical pharmacopoeia of Shen Nung). (Translated by H.T. Huang, PhD, Aug. 2002).

Huang (2000) adds: This book is a very interesting example of unofficial notes or memoirs which describe the details of life and culture in China at a particular time and place (p. 141). It also describes four different dairy products consumed in China: *ju*, a milky emulsion; *lo*, a yogurt drink; *su*, clotted cream; and *ju fu*, milk curds (p. 256). Bean sprouts were apparently a common food during the Sung dynasty. The author recalls that soybean sprouts were an edible staple found in the market in the Northern Sung capital, Khaifeng. He also mentions sprouted mung beans and recalls that sprouted azuki beans were sold by street hawkers (p. 296); also mentions fermented black soybeans (*shi*) (p. 341). This book refers to the two decades which ended with the fall of the Northern Song capital (Khaifeng) in 1126 CE and the completion of the move to Hangchow in 1135 CE; it was first printed in 1187 CE (p. 341, 626).

Wilkinson (2000, p. 164, 188, 854): He translates the title as *The eastern capital: A dream of splendors past* and writes the pinyin as shown above. This book gives a lively and detailed account of city life and festivals in the Northern Song capital of Bianliang (Kaifeng), based on the author's reminiscences of his youthful years there. The author flourished 1090-1150 and the book appeared in 1148.

35. Zheng Qiao. 1150? *Tongzhi* [Historical collections]. China. Passage on soy reprinted in C.N. Li 1958 #102, p. 79. Undated. [Chi]

• **Summary:** Wade-Giles reference: *T'ung Chih*, by Chêng Ch'iao. Southern Song dynasty. The section titled "Insects, grasses and plants" states that there are different varieties of soybeans (*dou*). One is the deer soybean (*ludou* [?]);

its sprouts look like the peas (*wandou*, *Pisum sativum* L.). When young, the deer soybean is a climbing plant which can be used as a vegetable; the stem is yellow and fragrant—according to the materia medica literature. The young sprout (*nie*) of the soybean (*dadou*) is called "yellow curls / rolls" (*huangjuan*). It is also called "curls of young sprouted grain" (*juannie*). The flower of the azuki bean is called *fubi*. (Translated by H.T. Huang, PhD, Aug. 2002).

Dr. Huang adds: When the sprout of the soybean first emerges, it is yellowish white and tends to curl—hence the name "yellow curls." Later it straightens. The Chinese have always classified soybeans as a "grain" (*gu*). The word (*nieh*) refers broadly to the sprout or tiller of any grain (such as barley, wheat, rice, or soybeans) in its very young stage. In English, of course, such young sprouted barley is called "malt."

Wilkinson (2000, p. 525-26) cites this as: Zheng Qiao. 1149. *Tongzhi* (Comprehensive treatise on institutions). The author, Zheng Qiao, lived 1104-1162. It is a famous and encyclopedic history of government institutions.

36. Wushi zhongguilu or Zhonggui lu [Madam Wu's recipe book]. 1200? China. Passage on soy reprinted in H.T. Huang 2000, p. 358. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Wu Shih Chung Khuei Lu*. Also known as *Chung Khuei Lu*. Author unknown; reputed to be Madam Wu. Southern Song dynasty. Huang (2000, p. 358) notes that the earliest references to the term *jiangyou* [soy sauce] occur in two works of the late Song dynasty. This work describes the use of *jiangyou* in cooking meat, crab, and vegetables. A footnote summarizes the recipes, with page numbers from the 1987 modern Chinese version: Soy sauce is used to marinate sliced raw meat before stir-frying (p. 8). Crab is cooked in wine, soy sauce, vinegar, wine fermentation lees and sesame oil (p. 10). Soy sauce, sesame oil, vinegar and pepper are mixed as a dressing for various vegetables (p. 21).

A full-page table (Huang 2000, p. 372) shows the "Usage of soy condiments in food recipes from the Han to the Qing dynasties." Only seasonings based on *jiang* (fermented soybean paste) are used in this book; none are based on fermented black soybeans (*shi*). *Jiang* itself is used in 5 recipes, and soy sauce made from *jiang* (*jiangqing*) in 3 recipes.

Note: This is the earliest Chinese-language document seen (May 2014) that uses the word *jiangyou* to refer to soy sauce (one of two documents).

Yan-Kit So. 1992. *Classic Food of China* (p. 26-27). "It is not until the Song dynasty (960-1279 CE) that we find cookery books of broad scope again. Two in particular warrant our attention. The first, *Zhonggui Lu* or *Records of Home Cooking*, was written by a Mrs. Wu, who may be called the first Chinese woman cookery writer. Not even her first name is known, let alone other biographical details,

save that she lived in Pujiang in Zhejiang province. About 6,500 words in length and containing sixty-five recipes with instructions and quantities of ingredients, her book reflects the evolving Shanghai or Eastern regional cuisine. More than thirty are vegetable recipes, six fish, three crab, two prawn, one razor clam, six pork, one chicken, one yellow bird and two on fermenting soy beans.” One sweet recipe, a dumpling made to celebrate the Double Fifth Festival (see p. 56) calls for a rich stuffing that includes red beans [azuki]. In her recipe to intoxicate crabs, she calls for the use of soy sauce. Mrs. Wu made a considerable impression on writers in later dynasties, “so much so that one Ming writer, Gao Lien, who had two cookery books under his belt, transcribed the whole of *Zhonggui Lu* into one of his books. A Qing woman writer in the 19th century, Zeng Yi, who was as well versed in medicine and poetry as in cookery, also chose the same title for her small cookery book of twenty recipes, although her recipes were her own.”

37. Ma Duanlin. 1224. *Wenxian tongkao* [Examinations of literature]. China. Passage on soy reprinted in C.N. Li 1958 #130, p. 91-92, and #306, p. 222. [Chi]

• **Summary:** Wade-Giles reference: *Wên Hsien T'ung K'ao*, by Ma Tuan-Lin. Date estimated as 14th century, during the Yuan (Mongol) dynasty. The section titled “Record of strange happenings” / “Freaks of nature” contains one unnumbered and four numbered subsections that mention soy. Each is about a particular type of unusual event:

Unnumbered: Song dynasty. During the first year the Daguang reign period (1107 CE), it “rained soybeans” (*dadou*) in a place named Luzhou. During the 2nd year and fourth month of the Zhidao reign period, in Fuzhou (the capital of Fujian province), in Fuqing county, it “rained” yellow and black soybeans (*dou*). It “rained” black soybeans (*heidou*) in Changle and Taiping counties (near Fuzhou). The beans were strong and solid.

No. 5. During the Song dynasty, during the second year of a particular reign period, in the sixth month it “rained soybeans” (*dou*). During the Song dynasty, during the 16th year of another reign period, in the first month it again “rained soybeans” (*dou*). During the Later / Eastern Han dynasty, wild cereals were rampant, including hemp (*ma*) and soybeans (*shu*).

Note 1. These latter soybeans may not have been planted; they have been “volunteers.”

Note 2. Since it “rained soybeans” during the first and sixth months, before soybeans in northern China could have been mature, and since the other events discussed in this section include unusual, harmful events such as heavy rains and frost, the term “rained soybeans” might refer to hail with hailstones the size of soybeans. See also *Heguanzi* [The book of Master Ho Kuan], 300 BCE, which confirms this interpretation. However, none of these passages state that “rain” of soybeans injured real soybean plants; this is

puzzling.

No. 9. During the Jin dynasty (265-420 CE), heavy rains injured the soybeans (*dou*) and wheat (*mai*). During the Song dynasty, heavy rains affected crops, including cereals, hemp, soybeans (*shu*), and setaria millet (*su*). They rotted.

No. 11. During the Chen period (557-589 CE) of the Northern and Southern Dynasties, in the 10th year of a particular reign period, in the 8th month a heavy frost killed the paddy rice (*dao*) and soybeans (*shu*). During the Jin dynasty (265-420 CE), in the 8th month, rain and hail injured the three kinds of beans (*sandou*). Note 3. These three are probably soybeans, azuki beans, and one other—perhaps mung beans—which is unknown. In another year, in the fourth month, in several places, again heavy rain and hail injured the wheat and soybeans (*dou*). In the 5th month, in several other places, heavy rain and hail injured wheat and the three kinds of beans (*sandou*).

No. 20. During the Jin dynasty (265-420 CE), in several places, locust infestations injured cereals (*he*) and soybeans (*dou*). In the last year of a certain reign period, there was a huge locust infestation east of the Yellow River (*Huang Ho*), but they did not eat or injure the panicum millet or the soybeans (*dou*). The people collected the locusts and buried them alive. But they could hear them crying at a distance of 10 *li* (about 3 miles). Finally the locusts emerged, flew out, and consumed the millets and soybeans (*dou*). In another place, they had a huge locust infestation; they came out of the earth. After 20 days, they became like silk worms. After 7-8 days they went dormant. After 4-5 days they flew out and devastated the “100 grasses,” but they did not consume the three kinds of beans (*sandou*) or hemp. In the Song dynasty, during the third year of a particular reign period, there was drought in the summer and autumn. Large swarms of locusts covered the whole sky in the counties of western Zhejiang province [W.-G. Chekiang, on the eastern coast of China]. The early crops were devastated, or if you plant soybeans (*dou*) or setaria millet (*su*), they would all perish. (Translated by H.T. Huang, PhD, Sept. 2002; Jan. 2003).

Wilkinson 2000 states that this work contains an important bibliography, the *Jingjika* (p. 272). He also lists the 28 main section headings, which give a good idea of the scope of the subjects covered. One of the *Shitong* (The ten encyclopedic histories of institutions), this work appeared in 1224 CE, and is most detailed in sections covering the Song dynasty.

Bray (1984, p. 632): “Comprehensive study of (the history of) civilisation (literally: Complete study of the documentary evidence of cultural achievements (in Chinese civilisation)).” Sun and Yuang dynasties, begun perhaps as early as 1270 CE, and finished before 1317. Printed in 1322. French translation of chapters 44 and 45 in R. de Rotours (1932).

38. Wuben xinshu [New book of basic information (on

agriculture)]. 1250? China. Passage on soy reprinted in C.N. Li 1958 #115, p. 84. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Wu Pên Hsin Shu*. Author unknown. Date is estimated as 13th century—probably Southern Song dynasty. This book no longer exists, but is cited in another book. It mentions different kinds of beans grown as crops, including the soybean (*dou*) and azuki bean. (Translated by H.T. Huang, PhD, Aug. 2002).

39. Meng Qi. ed. 1273. *Nongsang jiyao* [Fundamentals of agriculture and sericulture]. China. Passage on soy reprinted in C.N. Li 1958 #127, p. 89-90. [Chi]

• **Summary:** Wade-Giles reference: *Nung Sang Chi Yao*, probably edited by Mêng Ch’i. This important work was published during the Yuan (Mongol) dynasty. The section on crop plants describes different crops (including soybeans) grown in China’s nine provinces, quoting the *Zhouli* (Rites of the Chou dynasty; 300 BCE). It reiterates information from Part II of the Heavenly Officials chapter, the section on the duties of the Director of Regions (*Zhifangshi*; W.-G. Chih Fang Shih), stating that soybeans (*shu*) were grown in several northern provinces in antiquity. It also contains new information about soils. (Translated by H.T. Huang, PhD, Sept. 2002).

Huang (2000, p. 621) also gives date as 1273 CE and states: Preface by Wang P’an. Imperially commissioned and produced by the Board of Agriculture (*Sinongsi*). Probable editor: Meng Qi (W.-G. Mêng Ch’i). Probable later editors: Chang Shiwen (c. 1286 CE) and Miao Haoqian (1339 CE) (W.-G. Ch’ang Shih-Wên and Miao Hao-Ch’ien). Textual references are to photo reprint Shanghai Library, 1979.

Wilkinson (2002, p. 629) cites this as *Essentials of Agriculture and Sericulture* (1273). This comprehensive, imperially sponsored work is the earliest official agricultural treatise that survives. It consists mainly of quotations from previous works, some of which have been lost.

Bray (1984, p. 71-72): According to the preface by Wang P’an written in 1271, the Yuan emperor established a Board of Agriculture (*Sinongsi*) “to be solely responsible for the teaching of agriculture and sericulture; one of its tasks was to produce a special handbook that could be used throughout the Yuang kingdom (which until 1279 consisted only of the northern Chinese provinces and parts of Sichuan).” In 1273 the Board of Agriculture presented this book to the throne; it was immediately printed and distributed throughout the country. The text consists of about 60,000 characters divided under ten headings—which are given. Chapter 3 includes new material on new crops whose cultivation the government wished to encourage, including cotton from Central Asia, ramie from South China, sugar-cane and water melons. Silk production was expanded to pay for increasing imports of tea, and the government encouraged substitution of cotton for silk. This government campaign was largely successful; silk production in northern China increased, and cotton soon

became an important economic crop in the North (p. 71-72). Note: This is the earliest document seen (May 2014) concerning the soybean crop. It is also the earliest document seen (May 2014) that mentions both cotton and soybeans.

Chapter 10 is “animal husbandry” which includes pisciculture (fish farming) and apiculture (bee keeping).

Morse (1941, p. 6): “... the Nung Sang Chi Yao quotes the Chi Min Yao Shu and says that the Ta tou should be planted in the spring following the planting of the grain. That which is to be harvested late in the season can be planted in the fifth or sixth month. When planted in the fifth or sixth month additional seed should be sown.”

Hagerty (1917, p. 17. Translation of Wu 1848): “The Nung sang chi yao (Footnote: See Bretschneider, *Botanicon Sinicum* [1882], 1:82) (Work on Agriculture and Sericulture, AD 1273)... state that the Ta tou bean [soybean] was one of the staple crops (?), easy to make suitable for food. In ancient times these beans were grown in order to provide against famine.”

Hagerty (1917, p. 22-23): “The Nung sang chi yao quotes Fan Shêng-chih as saying that the Ta tou is a crop which may be kept from season to season and is very easily made suitable for food. In olden times it was looked upon as a preventative against famine. The Hsiao tou, or Small bean [azuki], could not be kept from season to season. If it were difficult to obtain the Ta Tou for food, it was impossible to fill its place entirely with the Hsiao tou, because the Hsiao tou has many leaves and takes away the fertility of the land. If you plant the Hsiao entirely it destroys the fertility of the land, then you will fail to obtain a good harvest.”

Bretschneider (1882, 1:82): “The (4 Cc) *Nung sang tsi yao*, another work on the Agriculture of the Yüan period, in seven books, was drawn up by order of Kublai Khan, in 1273. It was then considered a treatise of great importance, and has been several times republished. There are ten divisions on the following subjects: Precepts, Ploughing, Sowing, Planting Mulberry-trees, Rearing Silkworms, Vegetables, Fruits, Bamboo and Forest Trees, Medicinal plants, and Breeding Cattle (See Wylie l.c. 76). The preface of the work is by (2 Cc) Wang P’an.”

40. Sishi leiyao [Important activities for the four seasons]. 1273. China. Passage on soy reprinted in C.N. Li 1958 #126, p. 89. [Chi]

• **Summary:** Wade-Giles reference: *Ssu Shih Lei Yao*. Year of publication: Unknown—perhaps Southern Song dynasty. This work has been lost, but is collected in the *Fundamentals of Agriculture and Sericulture* (*Nongsang Jiyao*) (1273). The section titled “Tenth month” states that soybeans and azuki beans (*daxiaodou*) are harvested. (Translated by H.T. Huang, PhD, Sept. 2002).

41. Hanshi zhishuo [Master Han’s straight talk (on agriculture)]. 1273? China. Passage on soy reprinted in C.N.

Li 1958 #124, p. 88-89. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Han Shih Chih Shuo*, by Mr. Han. Year of publication: Unknown—perhaps Southern Song dynasty. This work has been lost, but is collected in the *Fundamentals of Agriculture and Sericulture (Nongsang Jiyao)* (1273). Li (1958) quotes three paragraphs; the first two are about planting. The first mentions the soybean (*dou*) as one of the crops planted. The second mentions soybeans and azuki beans (*daxiaodou*). The third paragraph is about feeding cattle—probably bullocks for use as draft animals. Soybeans (*dou*) is one of the crops fed. (Translated by H.T. Huang, PhD, Sept. 2002).

Note: This is the earliest document seen (Jan. 2019) concerning the feeding of soy products to cattle.

Bray (1984, p. 624): “Master Han’s plain words [on agriculture].” Probably Jin or early Yuan (Mongol) dynasty. Author unknown. No longer extant except in quotations.

42. Wu Zimu. 1275. *Mengliang lu* [Dreams of the former capital]. China. Passage on soy reprinted in C.N. Li 1958 #121, p. 86. [Chi]

• **Summary:** Wade-Giles reference: *Měng Liang Lu*, by Wu Tzu-Mu. Southern Song dynasty. This important work is a description of Hangzhou, the capital, towards the end of the Southern Song dynasty. The “Different bureaus” section states that they have fields of rice, wheat, and soybeans (*dou*) used [perhaps as forage] mainly to feed horses belonging to the various government agencies.

The “Street vendors on mats” section describes foods they are selling in Hangzhou—capital of the Southern Song dynasty, including bean-flavored water (*douershui*) and sweet soybean soup (*gandoutang*), honeyed jujubes, fruits, and cooked meats.

The “Market that sells things at dawn” section states that in the summer they sell various things including young soybean congee (*douzizhou*). Note 1. Young soybeans might refer to green vegetable soybeans.

The “Miscellaneous products” section states that children are selling different kinds of foods, including two unknown varieties of soybeans (*qidou* and *fadou*, “law + bean”), brownish-green soybeans (*geqingdou*), salted young soybeans (*yandouer*, maybe green vegetable soybeans), and sugared yellow young soybeans (*douer huangtang*), and cooked soybeans ground to make a cake (*doutuan*).

The section on “Noodle shops” says that these shops sell different kinds of soups and dishes, including pan-fried tofu (*doufu*), fried fish, cooked vegetables, fried eggplant. These are shops where the common people get an inexpensive meal.

The section on “Produce” mentions grains but concentrates on beans, starting with soybeans of different colors: black (*doudahei*), purple (*dazi*), white (*dabai*), yellow (*dahuang*), and green (*daqing*). Also mentions various non-soy beans including white (flat) beans, black (flat) beans,

white azuki beans (*baixiao*), red azuki beans (*chixiao*), mung beans (*ludou*), and many others. (Translated by H.T. Huang, PhD, Sept. 2002). Dr. Huang adds: The word “former” in the title indicates that author apparently moved away from Southern Song territory, perhaps northward into that controlled by the Yuan (Mongol) dynasty, which began in 1260. Note 2. This is the earliest document seen (May 2014) that uses the term *doudahei* (“bean large black”) to refer to black soybeans, or the term *dabai* (“large white”) to refer to white soybeans.

Huang (2000): In Lin An (present-day Hangzhou, capital of the Southern Song dynasty), “tofu soup and grilled tofu [pinyin: *jian doufu*; W.-G. *chien toufu*] were sold in a wine shop, and a food stall specializing in vegetarian stews also sold grilled tofu” (p. 301). Fermented black soybeans (*shi*) are mentioned (p. 341). A full-page table (Huang, p. 372) shows the “Usage of soy condiments in food recipes from the Han to the Qing dynasties.” In this book, *jiang* (fermented soybean paste) is used in two recipes and fermented black soybean sauce (*shizhi*) is used in one recipe.

This book also “states that ‘things that people cannot do without every day are firewood, rice, oil, salt, soybean paste (*jiang*), vinegar, and tea.’ It is clear that by the time of the Song, edible oil had advanced to the position as one of the proverbial ‘seven necessities’ of life” (Huang p. 436). Vegetable “oil pressing establishments were seen in the southern capital of Hangzhou” (p. 441). Northerners loved to use hemp oil for frying food. Wheat gluten (*fu*) was widely served during the Southern Song; names of four dishes served in a pasta restaurant are given (p. 500).

Wilkinson (2000, p. 854) cites this as *Record of the splendors of the capital city*, by Wu Zimu (no date given). These are reminiscences of the Southern Song capital of Lin’an (Hangzhou) modeled after *Menghualu*.

Talk with H.T. Huang. 1995. Dec. 28. The *chiang* mentioned by this work would definitely have been soybean *chiang*; that is what the word meant, starting a century or two before the beginning of the Christian era.

Letter from H.T. Huang. 1994 April 12, followed by talk of 1995 Dec. 28. The “seven necessities” of life are first mentioned in this book, in chapter 16, p. 136 in the 1982 edition. They are: firewood, rice, oil, salt, *chiang*, vinegar, and tea.” Yet according to another respected source, the original version of the book mentioned eight necessities, the eighth being wine, which was widely used both for drinking and as a condiment in cooking. Today, however, all the modern editions of this book include only seven necessities, omitting wine. Later the list was standardized seven (see Chai Hao 1771), and the term “seven necessities of life” became popular in China during the Yuan dynasty (1279-1368). In the Yuan dynasty there were several famous dramas; this period saw the start of Chinese dramatic literature. The words were put together in rhymes of seven characters, and at least one of these mentioned the “seven

necessities.” They couldn’t accommodate eight necessities in the rhyme, so since the Yuan it has always been standardized at seven.

Letter from H.T. Huang, PhD, expert on the history of Chinese food and agriculture. 1993. June 5. This book (1982 edition, p. 136) lists *fu* (gluten) with lamb casserole, dragon (shrimp) *fu*, parched *fu* in five flavors, and grilled *fu*. At this time, *fu* (gluten), used as a synonym for *mien chin*, seems to be widespread in the Southern Sung, China.

Note 3. This work was re-issued in 1982 by Commerce Publishers, Beijing. It is part of a series titled “Culinary Classics of Ancient China.”

Note 4. This is the earliest document seen (May 2014) that mentions grilled tofu. It is also the earliest Chinese-language document seen (April 2013) that mentions Chinese-style grilled tofu, which it calls *jian doufu*.

Yan-Kit So. 1992. *Classic Food of China* (p. 18). The book *Mengliang Lu* or *Dreaming of the Capital*, is by Wu Zimu, a Southern Song dynasty writer. It “contains reminiscences about the picturesque and urbane social and commercial life in Hangzhou in the 13th century...” An important source of information for that period, it mentions Mrs. Song’s fish soup by name.

43. Saito, Akio. 1292. [Chronology of soybeans, 122 B.C. to A.D. 1292] (Document part). In: Akio Saito. 1985. *Daizu Geppo* (Soybean Monthly News). Jan. p. 12-14. [Jap; eng+] • **Summary:** 122 B.C.—It is said that Lord Liu An of Huai-nan (*Wainan O Ryuan*) invented tofu. Therefore it is sometimes called “Wainan.”

300 A.D.—By this time in Japan people are using fermented foods such as kuki, sake, vinegar, sushi, and hishio made from herbs (*kusa-bishio*) and grains (*koku-bishio*). Kuki is a bean-based product related to miso, natto, or tamari.

630 A.D.—Igunami no Otasuki is sent as a student from Japan to T’ang dynasty China (*Kentoshi*). It is thought that foods like tofu were brought back to Japan by such student monks when they returned [but there are no records of this].

701 A.D.—The Taiho Law Codes (*Taiho Ritsuryo*) are established, and they call for the establishment of the Hishio Tsukasa (Bureau for the Regulation of Production, Trade, and Taxation of Hishio and Miso), located in the Imperial Palace as an annex to the emperor’s kitchen (*daizenshoku*). Soybeans were definitely used to make these fermented foods and seasonings such as hishio (like Chinese chiang), fermented black soybeans (*shi, kuki*), and miso (a forerunner of miso; the term “miso” had not yet been coined).

741 A.D.—Two new Buddhist temples are added to each feudal domain (*kuni*): Kokubunji is for monks and Kokubunniji is for nuns. It is said that from this time, fermented black soybeans (*tera nattô*, or *shiokara nattô*) spread throughout Japan. They are made from soybean koji,

which is soaked in salted water and dried.

794—The capital of Japan is relocated to Kyoto from Nara. The Heian period (794-857) begins.

794-1190—Salted pickles (*shio-zuke*), hishio pickles (*hishio-zuke*), miso pickles (*miso-zuke*), and sake lees pickles (*kasu-zuke*) are eaten. The pickles were made by various methods. But only during and after the Muromachi period (1338-1573) were the various pickles made often.

802—Sakanoue no Tamuramaro (758-811) recommends that farmers in Tanzawa grow soybeans as an emergency food.

840—Each feudal domain (*kuni*) is encouraged to plant millet, barnyard millet, barley, wheat, soybeans, azuki beans, and sesame seeds.

901—The Chinese character *so* in the present word *miso* appears for the first time in the *Sandai Jitsuroku*.

927—The *Engishiki* is completed by Fujiwara no Tokihira (871-811) and others. In this book it is written: “In the feudal domain of Omi 60 koku of soybeans [1 koku = 47.6 gallons or 180 liters], in the domain of Tanba 30 koku, in the domain of Harima 20 koku, in the domain of Misa 10 koku, and in the domain of Iyo 10 koku are recommended (*susumu*). It seems that the soybean was an important crop in those days. Soybeans, rice, wheat, sake, and salt are given as the raw materials for making mishi (a product resembling miso). The places famous for making mishi are Omi, Hida, Yamato, etc. There are 27 mishi shops in the Nishi no Kyo area of Kyoto. It is stated in the *Engishiki* that in order to make 1.5 koku of hishio you need 3 koku of soybeans, 1.5 koku of salt, 0.15 koku each of rice, wheat, and sake, and 0.043 koku of non-glutinous rice (*uruchi-mai*). Hishio at that time would seem to resemble today’s *kidamari*; it would seem to have been very salty.

1068?—Salty natto (*shiokara nattô*; probably fermented black soybeans) appears for the first time in the book *Shin Sarugakki*, by Fujiwara no Akihira (lived 989-1066). In this book the lifestyle, manners, and customs of the time are described.

1083—Stringy natto (*itohiki nattô*) is discovered accidentally in Oshu (northeast Japan) during the conquest of Oshu by Minamoto (Hachimantaro) Yoshiie (lived 1041-1108). It is said that the natto was made when cooked soybeans were placed in a sack strapped over the back of a horse. The warmth of the horse caused the fermentation. There are so many legends like this on in the northeast prefectures (*Tohoku Chiho*) of Japan that it seems possible that natto was originally made there.

1183—Tofu is first mentioned in a document from the Great Kasuga Shrine (*Kasuga Taisha*) in Nara. The characters used to write the word tofu then were different from the characters used today. It seems that this tofu was very hard.

Note: See Diary of Hiroshige NAKAOMI, entry of 1183.

1192–The Kamakura period and shogunate begins as Minamoto no Yoritomo (1147-1199) becomes the first head shogun.

1228–The Buddhist monk Kakushin returns to Japan from Song dynasty China having learned the method for making fermented Kinzanji miso. While fermenting the miso in Japan, he discovers that the liquid which gathers on the bottom of the vats can be used as a tasty seasoning. Note 1. This tamari is considered the first soy sauce in Japan. Kinzanji miso is a type of *namémiso* (Finger Lickin' Miso) made from roasted soybeans and barley koji. To these are added eggplant, white melon (*shiro uri*), etc., and the mixture is fermented.

1288-1292–Tamari-style shoyu is sold from Yuasa in the Kishu area (in today's Wakayama prefecture).

Note 2. This document contains the earliest clear date seen for the cultivation of soybeans in Japan (A.D. 802, and 840), or for the appearance of the term “tamari” in Japan (1228).

Note 3. This is the earliest document seen (Sept. 2014) that mentions sesame seeds (802 A.D.). Address: Norin Suisansho, Tokei Johobu, Norin Tokeika Kacho Hosa.

44. Jujia biyong shilei quanji [Essential arts for family living (encyclopedia)]. 1301. China. Passage on soy reprinted in H.T. Huang 2000, p. 352. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Chü Chia Pi Yung Shih Lei Ch'üan Chi*, author probably unknown or maybe by Hsiung Tsung-Li (pinyin Xiong Zongli). Late Yuan (Mongol) dynasty.

Huang (2000, p. 352) states that this book “presents two methods for making jiang from soybeans, one for *shu huang jiang* (ripe yellow soy paste) and the other for *sheng huang jiang* (raw yellow soy paste). The names are actually misleading since the ‘ripe’ and the ‘raw’ refer to the manner in which the beans are treated before mixing with wheat flour for the first fermentation and do not refer to the quality of the final product. In the *shu* or ‘ripe’ case, the beans are roasted and ground into flour; in the *sheng* or ‘raw’ case the beans are soaked overnight and boiled until soft and tender. The product from the first fermentation is called *huangzi* [‘yellow child,’ soybean koji] and well as *jianghuang* [‘jiang yellow’].”

Huang (2000, p. 355-56) gives an interesting full-page table which compares the processes for making the following types of jiang: Soybean (*dou*), wheat (*mien*), sweet flour (*tianmien*), azuki bean (*xiaodou*), jack bean, barley (*damai*), and elmnut (*yuren*). Each of the processes except one is based on the *Jujia Biyong* (ca. 1350); the process for making sweet flour jiang is based on the *Bencao Gangmu* (The great pharmacopoeia) (1596 CE).

A full-page table (Huang, p. 372) shows the “Usage of soy condiments in food recipes from the Han to the Qing dynasties.” Only seasonings based on jiang (fermented

soybean paste) are used in this book; none are based on fermented black soybeans (*shi*). Jiang itself is used in 17 recipes, and soy sauce made from jiang (*jiangqing*) in 1 recipe.

Huang (2000, p. 297) notes that this is the earliest document seen to use the term *douya*, which, in English, is the modern term—“bean sprouts.” Mung beans (*lūdou*) are the preferred beans for making such sprouts. A long quotation describes the process in detail and gives a recipe.

Huang (2000, p. 255) quotes a passage describing the process for making *jufu* (also known as *jubing*), from dairy milk curds. Its says to coagulate cow's milk by adding vinegar, just as when making tofu (*doufu*). When the dairy curds are fully formed, drain in a silk bag and press with a stone. Add salt and store in a jar.

Letter from Dr. H.T. Huang. 1996. Sept. 29. “I am glad you brought up the question of when vegetarian mock meat dishes were first prepared in China; it is one that requires further research. The earliest examples of mock meat dishes I have found so far were made with *mien-chin* (wheat gluten).” Gluten is used “in a recipe for mock lung sausage and one for mock eel.” The book contains 4 vegetarian recipes using *mien chien* (wheat gluten), found on pages 132-34. These are vegetarian versions of grilled liver, barbecued liver, mock fermented beans (*doushi* = fermented black soybeans), and mock fish.

Note 1. This is the earliest document seen (Nov. 2014) concerning meat alternatives. It is also the earliest Chinese-language document seen (Nov. 2014) concerning meat alternatives.

Note 2. This is the earliest document seen (Oct. 2014) that mentions a meat alternative in the form of fish or seafood (“mock eel”).

Note 3. This is the earliest document seen (Oct. 2014) that mentions a meat alternative in the form of sausage (“mock lung sausage”).

Note 4. This may be the earliest document seen (Sept 2021) concerning roasted soy flour—but we cannot be sure.

Note 5. This is the earliest document seen (May 2014) concerning a meatless sausage.

Huang (2000, p. 194-95) notes that this book contains probably the earliest account of the process for making red ferment [*hong qu*; red rice koji] and a red wine.

Bray (1984, p. 623): Translates the title as “Collection of certain sorts of techniques necessary for households (encyclopedia).” Published in Yuan, 1301 CE. Probably by Hsiung Tsung-Li. Ed. Ming, 1560 CE, T'ien Ju-Ch'eng. Partly reprinted in Shinoda & Tanaka (1973), “A Collection of Chinese Dietary Classics.” Also discusses hemp oil, which was widely used in traditional China, was considered to have an offensive smell, and was rated lowest of all the cooking oils, but it was a good lamp oil as it did not smoke or hurt the eyes” (p. 51).

Bo (1982): This book mentions wheat chiang. It also

gives a detailed description of the method for making fermented black soybean sauce: Two months after September, heat clear sesame oil, stir in 3 *tou* [unit of measure] of good fermented black soybeans (*shi*), mix, steam, and cool. Sun dry then steam again. After repeating this process 3 times, mix in 1 *tou* of white salt and put everything in a large cauldron with 3-4 *tou* of hot water. Add 1 *ry* each of three spices, 5 *kin* each of white onion and (?). Simmer down to two-thirds the volume and store in a container. From this it is clear that fermented black soybean sauce was a kind of soy sauce with flavorings and spices.

45. Wang Zhen. 1313. Wangzhen nongshu [Wang Zhen's agricultural treatise]. China. Passage on soy reprinted in C.N. Li 1958 #131, p. 92-93, and #307, p. 222-23. Illust. Also published in 1956 by Zhonghua Press, Beijing. (Pinyin: Wang Zhen. Nongshu). [Chi]

• **Summary:** Wade-Giles reference: *Wang Chên Nung Shu*, by Wang Chên. The title of this illustrated Yuan (Mongol) dynasty book is also given as simply *Nongshu*, since Wang Zhen is the author. There are three numbered sections titled "Principles of agriculture and sericulture;" soy is mentioned in each.

No. 1. The subsection titled "Annual agricultural activities" states: In the second month, plant soybeans. In the eighth month, mow the soybean stems (*yi doujiao*; i.e., harvest the soybeans). In the ninth month, when you might get frost, it is time to harvest soybeans (*dadou*).

No. 2. The subsection titled "Methods of planting #6" lists all the common seeds that can be planted in a field; these include panicum millet, setaria millet, paddy rice, hemp, barley, wheat, soybeans (*dadou*), and azuki beans (*xiaodou*).

It then describes four different planting methods: (1) Broadcasting (*manzhong*), drill planting in rows (*louzhong*), *guazhong*, and planting in difficult places *ouzhong*. For broadcasting: Carry a container of 2,000 cc (2 *dou*) capacity containing the seed grain under your left arm. Using your right hand, take a handful of seed from the container as you walk and, every three steps, scatter it over the prepared field, trying to get even distribution, so that the young plants will be neither too crowded nor too sparse. This was the method used in northern China during the Qin, Han, and Jin dynasties (221 BCE to 420 CE). Another method more often used in northern China was drill planting in rows, which is described in the *Qimin Yaoshu* (544 CE). A special machine (perhaps pulled by oxen) was used to compact the earth, while drilling holes in it. A person walked behind and stamped the holes with his feet. Today (1313 CE) they use a seed-drill (see Bray 1984, p. 256-57) which automatically plants the seeds in rows. "One man is needed to lead the ox and one to hold the drill, shaking it as he walks so the seed falls by itself." The *ouzhong* method is used near the hilly areas, where there are steep rocky hillsides or city walls. You apply fertilizer and irrigate [by hand].

No. 3. The subsection titled "Organic fertilizers #8" quotes the *Qimin Yaoshu*: To enrich the field, mung beans (*lüdou*) are best. Next best are azuki beans (*xiaodou*) and sesame seeds (*huma*). It's best to plant in the 5th to 6th months. In the 7th to 8th months you kill them [probably by plowing under as green manure]. In the spring, if you plant cereals [after the legumes], you will get 10 piculs per mou. It's as good as using the droppings of silkworms, as well as other excreta [from both farm animals and humans]. Note 1. Shows Chinese awareness of growing legumes before cereal grains to increase the yield of the cereals. (Translated by H.T. Huang, PhD, Sept. 2002).

The section titled "Soybeans" (*dadou*, also called *bidou*) states: There are three kinds of soybeans (*dadou*): white, black, and yellow. The *Guangya* (230 CE) says the soybean (*dadou*) is *shu*. The *Erya* (200 BCE) says that "*rongshu* is the same as *renshu*." Then comes a long quotation about when to plant soybeans. Black soybeans are good for relieving hunger and also as a reserve against famine years. In years of abundance you can use them as fodder / feed (*liaoshi*) for cattle and horses. Yellow soybeans (*huangdou*) can be used to make tofu (*doufu*), and to make jiang and related materials [perhaps such as fermented black soybeans and soy sauce]. White soybean congee (*baidouzhou*) can be used as a supplemental food. The three soybean varieties (*sandou*) have different colors and different uses, but they are all beneficial grains.

Huang (2000, p. 441-57) states that this is the earliest Chinese document seen which contains a description of an oil press (*youzha*; used to press oil from seeds—in this case sesame seeds). He translates the long passage describing the wedge press, notes that the illustration which accompanies it bears no relationship to the description, then examines why the oil press was developed so much later in China than it was in Mediterranean civilizations—where olive oil was being pressed by the 6th century BCE. The most common wedge press was made from large tree trunks, slotted and hollowed out. The seeds were roasted in a large pan over a stove, crushed, then pressed, using wedges hit by a hammer or mallet. A photo (p. 449, from Hommel 1937, p. 91) shows a wedge press. Note 2. This is the earliest document seen (Sept. 2016) that mentions a wedge press—but not in connection with soybeans.

Bray (1984, p. 628) cites this as *Nung Shu* (Agricultural Treatise). Published in Yuan, 1313 CE. By Wang Chên. Textual references are to the 27 *chüan* Palace ed. of 1783, prefaced 1774. However it is indexed under *Wang Chên Nung Shu* and refers to many ingenious early Chinese agricultural implements. Concerning woodblock printing (p. 49): The development of printing during the Song dynasty enabled the Chinese government to disseminate both old and newly commissioned agricultural works. Thus, the number of agricultural works published in China increased exponentially from the Song on. Woodblock printing also

made possible the use of illustrations, yet relatively few Chinese agronomists used this new technology. The great pioneer in this field was Wang Chên, author of this book in 1313. Sadly, “most subsequent authors were content to simply crib their illustrations, if any,” from this book. The book devotes a special section to the preparation and weaving of hemp (p. 535).

Concerning soybeans (Bray 1984, p. 514): “Black soybeans are a food for times of dearth; they can supplement [cereals] in poor years, and in good years they can be used as fodder for cattle and horses.” Of the various kinds of soybeans, “although some were thought to be fit only for fodder except in times of famine, others were considered to make wholesome porridges and gruels.”

Concerning kaoliang, Bray says (p. 449) that the word *kao liang* (literally “tall millet”) first appears in this document, but the plant was more commonly known in pre-modern times as *shu shu* (“Szechwan millet”).

Bo (1982): This work states, “Soybeans are the grain that helps the world. Tofu and *chiang ryo*? are made from them. The latter product, used in the recipes in the book, must be soy sauce.”

Bray (1981): A practical handbook on the essentials of agriculture and sericulture in south China. With the *Qimin Yaoshu* perhaps the most fundamental work. The text (except for capitalization and commas) is identical to that in Hagerty 1917.

Perkins (1969): Beancake is not mentioned in the 1313 edition of this book.

Needham (1965), in *Science and civilisation in China. Vol. 4, Physics. Part II: Mechanical engineering*, in the section on oil mills (p. 206-10), states that Wang Zhen first describes the horizontal wedge press used for pressing oil from Chinese oilseeds. However soybeans are not specifically mentioned.

Hagerty (1917, p. 17): Cited as “Nung Shu (Treatise on Husbandry), by Wang Cheng.” “The Ta tou bean includes three varieties, Pai, or White, Hei, or Black, and Huang, or Yellow. The Pai tou, or White bean, is utilized for making congees or gruels, but all kinds may be mixed and used for food” (See: Bretschneider, E. 1882. *Botanicon Sinicum*. 1:81).

46. Tuotuo (Toghto). 1345. Songshi [History of the Song dynasty]. China. Passage on soy reprinted in C.N. Li 1958 #123, p. 86-88, and #305, p. 222. [Chi]

• **Summary:** Wade-Giles reference: *Sung Shih*, by T’o-T’o. Written during the Yuan dynasty. The section on the “Reign of Zheng Zong” mentions a harvest of soybeans (*shu*) and wheat (*mai*).

The section on the “Reign of Shen Zong” states that in a certain county it “rained soybeans” (*dou*). In another county at another time it also “rained soybeans” (*dou*).

The section on the “Reign of Hui Zong” says that in

another place it also “rained soybeans” (*dou*).

The section on the “Reign of Ning Zong” mentions a recommendation for the people to plant millets (*su*), wheat (*mai*), hemp (*ma*), and soybeans (*dou*).

The section titled “Astronomical records” discusses the relationships between major crops and the stars. There are eight grains and eight stars. The grains are: 1. Rice. 2. Millet. 3. Barley. 4. Wheat. 5. Soybeans (*dadou*). 6. Azuki beans (*xiaomai*). 7. Setaria millet. 8. Hemp. The Chinese constellations are the signs of the zodiac and each is represented by an animal (such as the cow, rabbit, snake, tiger, horse, etc.). The soybean is mentioned three times (twice as *dadou* and once as *dou*) in connection with the cow and horse constellations. Note 1. The meaning of this passage is unclear.

The section on “Record of the five elements / phases” (*wuxing*) states that in the third year of the reign of Kaixi there was a drought in the summer and fall. A swarm of locusts covered the sky. In the western part of Zhe (probably today’s Zhejiang province), the soybeans (*dou*) and setaria millets (*shu*) were ravaged (eaten and destroyed) by the locusts. In the first year and third month of the Daguang reign period, it “rained soybeans” (*dadou*) in a place named Luzhou. In another year, at a different place it “rained soybeans.” In a different year and place it “rained soybeans” again.

The section on the “Records of Hequ” states that the Yellow River level rises and falls at Hequ; therefore they name objects according to the level of the water. In the 7th month, the soybeans (*shudou*) there are particularly attractive; thus they call the river there “beautiful bean water.” Note 2. This is the earliest Chinese-language document seen (Sept. 2002) that uses the term *shudou* to refer to soybeans.

The “Record of rituals” states: For the rituals, the prime minister recommends 50 objects; to taste the soybean and the buckwheat. Throughout the four seasons he recommends 28 things; in the fall, they taste the soybeans. And they drive out [exorcise] the ghosts with chestnuts [to protect the harvest].

In the “Record of economic affairs,” the first paragraph is mostly about growing and taxing various crops; it mentions soybeans twice (*shu* once and *dou* once). The second paragraph is about the use of crops, apparently as tribute or tax, on seven consecutive days: 1. Millet. 2. Rice. 3. Wheat. 4. Millet... 6. Soybeans (*shu*). 7. Miscellaneous.

The “Biography of Fan Feng” (the governor / magistrate of a certain district) states that his district suffers from locusts. The people thought that locusts do not eat soybeans (*shu*), so they planted them. However the locusts did eat these soybeans, so the people lost their crop. Fan Feng came to this district and agreed to lend the people a certain amount of soybeans. However the county magistrate (a lower official) said he thought that was not wise. However Fan Feng overruled the lower magistrate. Note 3. Dr. Huang is

not completely sure of his interpretation. (Translated by H.T. Huang, PhD, Sept. 2002). Dr. Huang adds: There was an overlap between the beginning of the Yuan (Mongol) dynasty in 1260 in the north and the end of the Southern Song dynasty in 1279; during these 19 years the two were fighting.

Wilkinson (2000, p. 505, 737, 847, 856-57) states that this is the standard history; editorship was credited to the chancellor Tuotuo (Toghto, lived 1313-1355), but the compiling was done by a group of officials from his office and from the Yuan Historiography Academy (*Yuan Guoshi Yuan*). It was in 1343-1345 and presented in 1345. It covers the period 960-1279. Non-Han foreigners mentioned: Waiguo Manyi. This is one of the largest of the 24 Standard Histories, thanks to the number of archives and documents which survived the fall of the Song, and it is especially notable for the high quality of the monographs. The *Songshi* contains references to about 100,000 people, of whom 70,000 are relatives of the founding emperor, Zhao Kuangyin.

Bray (1984, p. 630): "History of the Sung dynasty [960 to 1279 CE]," T'o-T'o (Toktaga) and Ouyang Hsüan. Yuan dynasty. ca. 1345 CE. Yin-Te index no. 34.

47. Chia Ming. 1350. *Yinshi xuzhi* [Essentials of food and drink]. China. A 1968 edition appears in *Yin-chuan p'u-lu*, compiled by Yang Chia-lo. [Chi]

• **Summary:** Wade-Giles reference: *Yin Shih Hsü Chih*, by Chia Ming. Late Yuan to early Ming dynasty.

Huang (2000) states that this book discusses food antagonisms and incompatibilities (p. 135). One of the two best known and most important works on diet therapy during the late medieval period, it is concerned mainly with prevention. The author reached the venerable age of 100 years in 1368, when the Ming dynasty was founded, and died six years later. Thus, he was a living testimony to his teachings. Huang summarizes some information on the structure and contents of the work first given in English by Mote (below), then notes that the work, with its emphasis on poisonous and incompatible foods, "tends to be somewhat alarmist in tone, and could give the impression that eating was a highly hazardous occupation" (p. 137-39). It mentions tofu (p. 324). In Chapter 2 it says succinctly: Wash wheat flour (*fu*) to get wheat gluten (*mianjin*). It is sweet and cooling, but when fried, it becomes a heating food. Since it is not easily digested, it should be avoided by children and those who are sick (p. 501).

F.W. Mote notes in K.C. Chang's *Food in Chinese Culture*. (1977, p. 227, 230) that this fascinating book (Essential knowledge for eating and drinking, published in 1368) stresses prevention rather than treatment of disease. The author was from a wealthy family in Hai-yen in northern Chekiang, and had held a minor government post at the end of the Yüan dynasty. He was in his hundredth year of age in 1368 when the Ming dynasty was founded, and the Ming

founder (Chu Yüan-chang, ruled 1368-98) summoned him to the court to honor him for his longevity. In the polite conversation that ensued, the emperor of course asked him the secret of his long life, to which Chia replied: "The essential is to be most cautious about what one drinks and eats."

This book is divided into 8 chapters. Chapter 2 concerns the fifty kinds of grains, including legumes and some seeds used for food. In Chapter 2, the following appears: "Soybeans: their flavor is sweet; when raw, their character is warm, and when fried [or cooked] it becomes hot. They are slightly toxic. Eaten in excess they block the lungs, produce phlegm and arouse coughing, induce ulcerated sores, and cause a person to become yellow of face and heavy of body. They must not be eaten together with pork. Small greenish black beans, also red and white beans [probably azuki], are similar to soybeans in flavor and character. None should be eaten with fish or mutton."

Note: This is the earliest document seen (Dec. 2020) stating that soybeans are slightly toxic, Address: China.

48. Lu Shen. 1530. *Shudu zachao* [Miscellaneous jottings from Chengdu]. China. Passage on soy reprinted in C.N. Li 1958 #139, p. 95. [Chi]

• **Summary:** Wade-Giles reference: *Shu Tu Tsa Ch'ao*, by Lu Shen. Ming dynasty. Chengdu (W.-G. Ch'eng-tu) is the capital of Sichuan province (also called "Shu kingdom") in southwestern China. Discusses various fruits and nuts from Sichuan, and mentions that soybeans and azuki beans (*daxiaodou*) can be eaten. (Translated by H.T. Huang, PhD, Oct. 2002).

49. Ning Yuan. 1540? *Shijian bencao* [The dietary mirror: A pharmaceutical natural history of nutritional substances]. China. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Shih Chien Pên Ts'ao*, by Ning Yuan. Ming dynasty. One section states: White beans (*baidou*) [probably white azuki beans] are also called *fandou*. They can be eaten together with rice congee / gruel (*zhou*) and rice (*fan*). (See Li 1958 #466). (Translated by H.T. Huang, PhD, May 2003).

50. Li Shizhen. comp. 1596. *Bencao gangmu* [The great pharmacopoeia]. China. Passage on soy reprinted in C.N. Li 1958 #311, p. 224-26. [Chi]

• **Summary:** Wade-Giles reference: *Pên Ts'ao Kang Mu*, by Li Shih-Chên (lived 1518-1593). Ming dynasty. This famous, classic work was completed in 1578, but not published until 1596. It describes almost 2,000 animal, vegetable, and mineral drugs and gives over 8,000 prescriptions. A rich source of information, it is still very useful. All foods mentioned are considered as medicines, based on the ancient Chinese saying: "Food and medicine have the same origin." The title might also be translated as "Collected essentials

of herbs and trees.” Or, “Illustrated compendium of materia medica with commentaries.”

Soybeans and soyfoods are discussed in two chapters of this book. Chapter 24 contains sections on soybeans, soybean sprouts, and yellow soybeans, in that order. Chapter 25 has sections on fermented black soybeans, yellow molded soybeans (Jap. soybean koji), tofu and yuba (*doufu pi*), jiang, and soy sauce. Concerning yuba: If a film should form on the surface of soymilk when it is heated in the process of making tofu, it should be lifted off and dried to give *doufu pi* (yuba), which is itself a delicious food ingredient (Huang 2000, p. 303, 323).

Note 1. This is the earliest Chinese-language document seen (May 2014) that mentions yuba, which it calls *doufu pi*.

Note 2. This is the earliest document seen (May 2014) that describes yuba as being removed at the start of the tofu-making process. If this description is correct it could help explain the deep and ancient connection between making bean curd (Chinese: *doufu*; Japanese: *tofu*) and making bean curd skin (Chinese: *doufu-pi*; Japanese: *yuba*).

The first part of each section is titled “Explanation of names”; when these simply repeat material we have translated from earlier Chinese documents, we will not re-translate it. Another part of each section explains each food / medicine in terms of its “nature” or “vital energy” (*qi*, hot, warm, neutral, cool, and cold) and “flavor” (*wei*, bitter, sour, sweet, pungent, salty).

The section titled “Soybeans” (*dadou*) begins by stating that soybeans are considered a “middle class drug / medicine” according to the *Shennong Bencao Jing* (*Benjing*) (Classical pharmacopoeia of Shennong, the Heavenly Husbandman) (100 CE). This section has four parts: (1) “Explanation of names.” The soybean is *shu*. The pods are called *jia*. The leaves are called *huo*. The stems are called *qi*. (2) “Explanation of uses.” After quoting information from earlier Chinese sources, he states: The different soybean varieties are black, white, yellow, spotted / speckled (*ban*), green, and striped. The black ones are also called *wudou*. They are used for both medicine and food, and for making fermented black soybeans (*shi*). The yellow ones are good for making tofu (*fu*), for pressing to obtain oil, or for making jiang. But the other soybean varieties can also be used to make tofu and can be cooked for food. They are usually planted before summer. The young plants (*miao*) grow to a height of 3-4 feet. The leaves are pointed. In the fall they have small white flowers which come in clumps about one inch across. The plants wither in the frost. According to the *Lüshi Chunqiu* (Master Lü’s spring and autumn annals) (239 BCE), when soybeans are in season, the stems are long and the branches are short. The pods come in groups of 27. The more branches there are, the more nodes. The large soybeans (*shu*) are round; the small soybeans (*shu*) are oval. The early varieties tend to grow like vines. The leaves float. The nodes are further apart. The pods are smaller and not solid. The

later varieties have fewer nodes, less space between nodes, and they are less solid. According to the *Fan Shengzhi Shu* (The book of Fan Shengzhi {on agriculture}) (10 BCE), if you plant soybeans in early summer, you should not plant them deep because the flowers do not like too much sun; they will rot and the roots will be scorched. One should adjust the depth of planting according to the variety. [After harvesting,] store soybean seeds in a level, shady place in a bag. Take them out 15 days after winter begins; then you can use them for planting. Soybeans can be stored quite easily for one full year, so they can be kept in preparation for a famine year.

(3) Black soybeans—nature and flavor (*heidadou qiwei*): They are sweet, neutral, and nontoxic. Prolonged ingestion will make you / your internal organs feel heavy. When raw, they are warm. When cooked, they become cold—according to *Zhibo* (a person) cited in the *Huangdi Neijing Suwen* (Yellow Emperor’s classic of internal medicine: Questions and answers) (200 BCE). Chang Qi (another person) says: When soybeans are raw they are neutral, but when they are roasted they become hot, and when they are boiled they become cool (*han*). When made into fermented black soybeans they become cold (*leng*). When used to make jiang or soy sprouts (“raw yellow curls”) they are neutral. When cattle eat them, they are warm [i.e. they have a warming effect on the cattle]. When horses eat them, they are cold. So even though it is one substance, when it is eaten in different ways, it has different effects.

(4) “Inventions” (*faming*): Explains the complex pharmacology and medicinal effects of soybeans on the five internal organs—such as the kidney, liver, etc.

The section titled “Soybean sprouts” (*dadou huangjuan* or “soybean yellow curls”) has two parts: (1) “Explanation of names.” These are sprouted [soy] beans (*dounie*). Allow the black soybean to sprout until it is 5 inches (*cun*) long. Then dry it; this is called *huangjuan* (“yellow curls”). It becomes very small when dried. (2) Nature and flavor (*qiwei*): Sweet, neutral, nontoxic.

Note 3. This is the earliest document seen (May 2014) that uses the term *dounie* to refer to “sprouted soybeans.”

The section titled “Yellow soybeans” (*huang dadou*)—explanation of food uses—is divided into three parts: (1) “Explanation of names.” Similar to the passage above stating that yellow soybeans are good for making tofu (*fu*), for pressing to obtain oil, for making jiang, etc. (2) Nature and flavor (*qiwei*): Sweet, warm, nontoxic. (3) Soybean oil (*douyou qiwei*) nature and flavor: Pungent, sweet, and hot (*re*); slightly toxic.

Note 4. This is the earliest document seen (May 2014) that uses the term *huang dadou* to refer to yellow soybeans.

Note 5. This is the earliest Chinese-language document seen (Aug. 2016) that uses the term *douyou* (“bean oil”) to refer to soybean oil.

Note 6. Is fermented tofu (*furu*) mentioned in this work? After looking carefully through the Chinese document,

Dr. H.T. Huang says (2002) he cannot find any mention of it, after another long search. Moreover, he does not mention this book in the section of his Needham series book about fermented tofu (2000, p. 325-28). However Dr. Masaaki Yasuda, a professor in Okinawa, who has spent his professional career studying *tofuyo*, a type of fermented tofu, disagrees. When asked by Wm. Shurtleff about this specific point he replied (e-mail of 11 Nov. 2011): “You will find mention of fermented tofu in the Special Issue of *Honso Komoku (Bencao Gangmu)* by Li Shih-Chen in 1596. Maybe you only checked ‘the main issues’ of this book, but actually he also published other special issues that were not included in the main issues. You will find the fermented tofu using the key word *furu*, not fermented tofu nor *rufu*. *Furu* in this book clearly refers to the fermented tofu that you are searching for. Of course I read it myself in this book; I did not hear it from anyone else.”

Red azuki beans (*chixiaodou*) are also mentioned in this book; a listing of alternative names, with commentaries, is given. (See Li 1958 #393).

White beans (*baidou*) are also mentioned as follows: White beans (*baidou*) are mentioned in the Song dynasty. They are also called *fandou*. The seedlings can be used as a vegetable. They are good eaten raw. In eastern Zhejiang the flavor is especially good. They can be used to make *jiang* and tofu (*fu*). In the north, the watery white beans (*shui baidou*) are similar but is not as good. White beans are also called *fandou*. They can be used to complement congee / gruel (*zhou*) and cooked rice served as a main dish (*fan*). According to the author (Li Shizhen) *fandou* is the same as white azuki beans. Some white beans have a yellow color. The beans are about the size of mung beans (*ludou*). Plant them in the 4th or 5th month. The leaves of the seedlings are like those of red azuki beans (*chixiaodou*) and can be eaten. The pods are like those of azuki beans (*xiaodou*). One kind of pod comes with leaves like those of the soybean (*dadou*). They can be cooked like rice and used to make tofu (*fu*). They are of the same category. Nature and flavor (*qiwei*): It is sweet, neutral, and nontoxic. (See Li 1958 #467). (Translated by H.T. Huang, PhD, May 2003). Dr. Huang adds: The white bean (*baidou*) could well be the white azuki bean.

51. Li Shizhen. comp. 1596. *Bencao gangmu* [The great pharmacopoeia]. China. Passages on soy reprinted in C.N. Li 1958 #140, p. 95-96, and #311, p. 224-26. [Chi]

• **Summary:** Continued: Wade-Giles reference: *Pên Ts'ao Kang Mu*, by Li Shih-Chên (lived 1518-1593). The following information on soybeans and soyfoods appears in Chapter 25 of the *Bencao Gangmu*.

The section titled “Fermented black soybeans” (*dadou shi*) is divided into four parts: (1) “Explanation of names.” The word *shi* (different character but same pronunciation) also means something delectable and highly desirable.

According to the *Shuowen Jiezi* (Analytical dictionary of characters) (121 CE), you get fermented black soybeans by adjusting salt and incubating soybeans (*shu*). (2) “Explanation of uses” gives a long, detailed description of how to make fermented black soybeans. See Huang 2000, p. 340-41. *Shi* can be made from various types of soybeans. When made from black soybeans, they make good medicine. There are two kinds of *shi* [both made by a mold fermentation]: unsalted / bland fermented black soybeans (*danshi*), and salted / savory fermented black soybeans (*yanshi*).

To make unsalted / bland fermented black soybeans (*danshi*): In the 6th month, take 2-3 *dou* (20-30 liters) of black soybeans. Winnow until clean then soak overnight in water. Steam the beans thoroughly then spread on a mat. When almost cool, cover beans with artemisia leaves. Examine them every 3 days. When they are covered, but not luxuriantly, with a yellow coating [of mold], dry them in the sun, then winnow until clean. Add enough water to wet the soybeans, so that when scooped by hand, there will be wetness between the fingers. Place them in an earthenware jar (*weng*) and pack them down tightly. Cover with a 3-inch layer of mulberry leaves. Seal mouth of jar with mud, then let stand in the sun for 7 days. Remove beans from jar and dry them in the sun for an hour. Wet them again and put them back in the jar. Repeat this process [from wetting and sunning] 7 times. Finally, steam the beans, cool, dry, and store in the jar.

To make salted / savory fermented black soybeans (*yanshi*): Take 1 *dou* (10 liters) of soybeans, soak in water for 3 days, steam thoroughly and spread on a mat (as before). When the beans are covered with a yellow coating [of mold], winnow, soak in water, drain off the water, and dry in the sun. For every 4 catties of beans (1 catty weighs about 1.33 pounds), mix in 1 catty of salt, plus half a catty of finely-cut strips of ginger. Place mixture in an earthenware jar. Season with pepper (*jiao*), orange peel, perilla, fennel, and almonds. Add water until it is one inch (*cun*) above surface of mixture. Top contents with leaves, then seal the mouth. Sun the jar for a month; then the savory fermented black soybeans will be ready.

Huang (2000, p. 341) notes that the process described above is identical in principal to that in the *Qimin Yaoshu* (Important arts for the people's welfare) (544 CE), reiterated about 350 years later in the *Sishi Zuanyao* (Important rules for the four seasons) (900 CE).

(3) Unsalted / bland fermented black soybeans nature and flavor (*danshi qiwei*): Bitter (*ku*), cold (*han*) and nontoxic. (4) Puzhou fermented black soybeans (*Puzhou shi*) nature and flavor: Salty (*yan*), cold (*han*), nontoxic. Note 1. Puzhou is a place in Shanxi province, China, noted for its distinctive fermented black soybeans. This is the earliest document seen (Feb. 2003) that mentions *Puzhou shi*.

The section titled “Yellow soybean koji” (*douhuang*,

“bean yellow”) describes the soybeans covered with yellow mold; they are the first step in making salty fermented black soybeans and are not a consumer food product. This section is divided into two parts: (1) “Explanation of names.” Describes how to make *douhuang*. According to Li Shizhen (the author of this book): Take one *dou* (bushel) of black soybeans. Steam until cooked through. Spread on a mat and cover with rushes—as if you were making jiang. Allow the soybeans to mold until they have a yellow coating. Dry, then grind. (2) Nature and flavor (*qiwei*): Sweet, warm, nontoxic.

Dr. Huang offers a comparison of *danshi* and *douhuang* (Feb. 2003 Feb): Unsalted / bland fermented black soybeans (*danshi*) is an end product, which is largely free of molds when it is sold; it was traditionally used in Chinese medicine. Dr. Huang has never seen or tasted *danshi*, never heard of it being used in food, and never seen it for sale in the USA. *Danshi* is made by a two-stage fermentation. In the first stage, after the soybeans are covered with a yellow coat of mold, they are winnowed, soaked in water, rinsed to remove most of the white mold and its yellow spores, then sun dried. In the second stage, the beans are packed tightly into a container and incubated for 10-15 days depending on the season. This stage enables the enzymes to act on the soybeans, digesting some—but not all—of the soy proteins. If the incubation is too long, some of the excessive peptides resulting from digestion of soy proteins may give the *danshi* a bitter taste. By comparison, yellow soybean koji (*douhuang*) is an intermediate stage of soybean processing not normally sold, but used to make jiang.

(C) The section titled “Tofu”: The first clear recipe for making tofu in China appears in chapter 25 of this book (Huang 2000, p. 303). Li says that the process for making tofu (*doufu*) originated with the Prince of Huai-Nan, Liu An. Black [soy] beans, soybeans, white [soy] beans, mud beans, peas, mung beans, etc. can all be used. There are six steps: 1. Soak the soybeans [in water]. 2. Grind the beans [to give a slurry]. 3. Filter the milk [to remove the insoluble residue {okara}]. 4. Cook the milk [for an adequate time]. 5. Add nigari / bittern (*yen lu*), leaf of the mountain alum tree (*shan fan*), or vinegar to coagulate the milk. 6. Collect the curds.

Note 2. This is the earliest document seen (May 2014) that describes the basic process for making tofu, either at home or on a commercial scale.

Li Shizhen continues: One can also obtain curds by mixing the hot milk in a container with gypsum powder. Various salty, bitter, sour, or pungent materials can also be used to coagulate the soymilk.

Note 3. This is the earliest document seen (May 2014) that mentions nigari. Li (1958) adds: “Vital energy and flavor (*chiwei*, of tofu): Sweet, salty, cold / cooling, slightly toxic.” Huang adds (p. 303) that although Li gives no details about the tofu-making process, we can surmise that the procedure used in his time is very similar to that used today in the Chinese countryside. Huang (2000, p. 304-05) reprints line

drawings (from Hung Kuang-Chu 1984, p. 58-60) of the traditional process for making tofu still used in China, and notes that the same curdling agents or coagulants listed by Li Shizhen (bittern, mountain alum, vinegar, and gypsum) are still in use today.

52. Li Shizhen. comp. 1596. *Bencao gangmu* [The great pharmacopoeia (Continued)]. China. Passages on soy reprinted in C.N. Li 1958 #140, p. 95-96, and #311, p. 224-26. [Chi]

• **Summary:** Continued: Wade-Giles reference: *Pên Ts’ao Kang Mu*, by Li Shih-Chên (lived 1518-1593). The following information on soybeans and soyfoods appears in Chapter 25 of the *Bencao Gangmu*.

The section titled jiang, Li (1958, p. 95-96) states: Explanation of the name: According to the *Shiming* by Liu Xi (150 CE), jiang is like a military general (*jiang*) who directs and can control the poison in food. It is just like a general controlling the evil elements in the population. Explanation of the method: [Li] Shizhen says there are different varieties of *mianjiang* (which is sweet); it can be made from barley, wheat, sweet jiang (*tianjiang*), or bran jiang (*fujiang*). Bean jiang (*doujiang*) also comes in different varieties such as that made from soybeans (*dadou*), azuki beans (*xiaodou*), or peas (*wandou*, *Pisum sativum* L.) and soy sauce (*douyou*, literally “bean oil”).

Note 1. Soy sauce is classified here as a subcategory of bean jiang. This is the earliest document seen (May 2014) that uses the word *douyou* to refer to soy sauce.

To make soy sauce (*douyou*), take 3 *dou* of soybeans (1 *dou* is about 1 pint, so 3 pints of dry soybeans weigh about 2.43 pounds). Boil in water until soft. Mix with 24 catties of wheat flour (1 catty = about 1.33 pounds, so 24 catties weigh about 31.92 pounds). Allow them to become molded. For every 10 catties, add 8 catties of salt and 40 catties of well water. Blend to a slurry. Then collect the sauce [which separates].

Note 2. This is the earliest document seen (May 2014) that describes a method for making Chinese-style soy sauce, and the first describing a significant amount of wheat (or wheat flour or barley) being mixed with the soybeans before fermentation begins. The ratio by weight of wheat to soybeans in this early Chinese soy sauce is about 13 to 1, whereas the ratio in modern (early 21st century) Japanese soy sauce is about 1 to 1. How could the early Chinese make so much wheat flour stick to such a relatively small amount of boiled soy beans? Maybe the soybeans were mashed, mixed with the wheat flour and shaped into cakes before letting the cakes become molded (See Wang and Fang 1987).

To make soybean jiang (*dadou jiang*), dry-roast soybeans (*dou*) then grind to a flour. For every *dou* (pint) add 3 *dou* of flour. Blend well and shape into cakes. Allow it to stand until it becomes moldy. For every 10 catties, add 5 catties of salt. Then cover it with well water [in a container],

and sun it and collect it.

Concerning the use of soybeans in wine, Chapter 25 contains a section on “wine” (*jiu*) which refers to a type of soy wine called *doulinjiu* (W.-G. *tou-lin chiu*; “bean soak wine”) which is made by percolating regular Chinese wine (fermented from cereal grains) through roasted black soybeans. A recipe is given and it is stated that the *Congshu Jicheng Chubian* (Collected collectanea) (1473 CE), having 3,467 volumes, says that it cures post-partum white sickness, apparently an affliction suffered after the birth of a child.

Also describes how to make jiang from azuki beans (*xiaodou*) or from barley (*damai*).

Vital energy and flavor (*qiwei*, of jiang): Salty, cold / cooling, nontoxic. *Mienjiang* [made with wheat and soybeans] is salty. Bean jiang (*doujiang*), sweet jiang (*tianjiang*), soy sauce (*douyou*), barley jiang (*damaijiang*), and bran jiang (*fujiang*) are all salty and sweet [because they are made with wheat, which is hydrolyzed to sugars].

Huang (2000, p. 357) states that this book is the first to introduce the process for making sweet wheat-flour jiang (*tianmian jiang*). The process for making soybean jiang described in the *Bencao Gangmu* is very similar to that described in the *Jujia Biyong* (Essential arts for family living) (ca. 1350 CE).

Huang (2000, p. 363) gives the process for making soy sauce, which appears in the *Bencao Gangmu* as an appendage to the section on jiang, titled “soybean oil” (*douyou*) which was obviously a synonym for soy sauce (*jiangyou*). Take 3 *dou* (1 *dou* = about 10 liters) of soybeans; boil in water until soft. Blend in 24 catties of wheat flour. Incubate until the mixture is covered with yellow mold. Mix 10 catties of the yellow jiang substrate with 8 catties of salt and 40 catties of well water. Ferment in an earthenware jar in the sun until the product is ready. Huang comments that although the passage does not explain how the soy sauce is separated from the fermented mash, it is absolutely clear that we have here a process based on jiang and the product can rightfully be called soy sauce (*jiangyou*).

Concerning the use of soybeans in wine, Chapter 25 contains a section on “wine” (*jiu*) which refers to a type of soy wine called *doulinjiu* (W.-G. *tou-lin chiu*; “bean soak wine”) which is made by percolating regular Chinese wine (fermented from cereal grains) through roasted black soybeans. A recipe is given... birth of a child [see above].

Huang also discusses from the *Bencao Gangmu*: Koji (*qu*) for making rice wine (*jiu*, p. 158). Malt sugar (*i*, p. 158). Red ferment [red rice koji] (p. 192-202). Malt sugar (*i t'ang*, p. 460).

Huang (2000) cites this (p. 621) as *The Great Pharmacopoeia* [or *Pandects of Natural History*]. Ming, 1596 CE. Paraphrased and abridged translation: Bernard E. Read and associates (1-7). Textual references are to the 1975 edition published by Renmin Weisheng, Peking. It mentions dried young soybean sprouts (*dadou huangjuan* or “yellow

curls”) as having medicinal properties.

Wilkinson (2000, p. 662) translates the title as *Collection of Materia Medica*, gives the publication date as 1602, and notes that Li lived 1518-1593.

53. Li Shizhen. comp. 1596. *Bencao gangmu* [The great pharmacopoeia]. China. See p. 360-71. 1965 ed., reprint of 1885 edition, Peking. Also reprinted in 1916 by Shanghai Hong Pao Chai Book Co., Shanghai. [Chi]

• **Summary:** Wade-Giles reference: *Pên Ts'ao Kang Mu*, by Li Shih-Chen (lived 1518-1593). The author: Bretschneider (1882, in *Botanicon Sinicum*, p. 54-55) notes: Li was born at “K’i Chou in Hu pei, probably in the first quarter of the 16th century, and died toward the close of the same century. His literary name was *Tung pi*. He wrote under the pseudonym *Pin hu*. As was the case with the majority of early Chinese physicians of note, Li Shi chen was not a professional medical man, but a civil functionary and a magistrate of the district of P’eng k’i (T’ung ch’uan fu, Sz’ ch’uan [Szechuan]). Besides this, his principal work, Li left several medical treatises. “Li began compilation of this work in 1552, and after 26 years’ labour he completed it in 1578. He wrote out the manuscript three times before he was satisfied to give it out as complete. The author died before it was published, and his son, Li Kien yüan, presented the manuscript to the Emperor, in 1596, who ordered it to be printed.”

The work: Called *Honso Komoku* in Japanese, this is the most famous of the many Chinese herbals, and the most important Chinese work on materia medica and natural history. Also called a botanical encyclopedia, it is the first treatise of its kind in which the material is treated critically. Bretschneider (1882, p. 55) adds: “Several editions have been successively issued. The earliest now extant is, it seems, that of Shun chi 15 (1658 CE). All editions which I have had an opportunity of examining are printed on indifferent paper and are full of misprints, which make the book very inconvenient for reference... The preface is followed by a general index of the 52 books (chapters) of the work, enumerating the 16 divisions and the 62 classes under which the whole matter is arranged... It begins with a critical review of the 42 capital works on Materia medica published” previously.

Concerning the year of publication: Huang (2000, p. 621) says 1596. Yokotsuka (1986, p. 198) says 1590 and cites this as the earliest Chinese work to mention *chiang-yu* and *tao-yu* (the liquid separated from soybean *chiang*). Wai (1964) says 1596. Reischauer and Fairbank (1960, p. 308) say it was completed in 1578. Li (1958) says 1578. Merrill & Walker (1938) say 1590. Bretschneider (1882) says: Completed in 1578 but published in 1596 or 1597.

Talk with H.T. Huang. 1992. March 23. The most current, and one of the best, editions of this work was published in 1982 in Beijing by The People’s Health Press

(2,977 pages). It is edited and extensively annotated by Liu Heng-ju. He compared several of the most important extant versions, and where they differ (e.g. where a word is written differently in different versions), he explains these differences in footnotes, and explains why he chose the word or text that he did for his basic text. There is no English translation of the *Pen-ts'ao kang-mu*, one of the great scientific works in China (and worldwide) because: (1) It is a huge book which would take a lifetime to translate; (2) A vast amount of research would be required for an accurate translation; and (3) The cost of the translation and publication, and the relatively limited demand for the finished work would probably make the venture unprofitable for a commercial publisher. Perhaps the Chinese Academy of Traditional Medicine would be able to undertake such a translation, working jointly with English-speaking Western scholars.

In the section on soybeans, this work refers to a type of soy wine called *tou-lin chiu* ("bean soak wine") which is described as a sake-like fermented alcoholic beverage made from black soybeans. A recipe is given and it is stated that the *Ts'ung-shu chi-ch'eng ch'u-p'ien* (1473) said that it cures post-partum white sickness, apparently an affliction suffered after the birth of a child.

Note: This is the earliest document seen (Oct. 2012) that mentions a type of soy wine called *tou-lin chiu* ("bean soak wine") as described above.

Wang and Fang (1987) write: The method of preparing *chiang-yu* (soy sauce) was first described in this work. Cooked soybeans were mixed with wheat flour, pressed into cakes, and left in the room until the cakes were covered with yellow mold growth. The molded cakes, or *ch'ü*, were mixed with salt and water and aged in the sun. After pressing, the liquid was known as *chiang-yu*. Li also described how to make a similar sauce (*shi-tche*) by boiling fermented black soybeans.

Needham (Botany, 1986, p. 318g): "The soya-bean, *Glycine Soja*, *ta tou*, was considered an antidote for indigestion and poisoned conditions of the intestinal tract, but Li Shih-Chen found that this never had any effect unless *kan ts'ao* (*Glycyrrhiza glabra*) was given with it (chap. 24, p. 4a)."

Fukushima (1979, p. 5-6): "The *chiang-yu* described in *Pen-ts'ao Kang-mu* (*Honso-Komoku* in Japanese), published in 1590 by Li Shih-chen (*Ri Jichin* in Japanese) in the Ming (*Min* in Japanese) dynasty, was also made with koji [*ch'ü*] manufactured by using soybeans and cereals (Fig. 4). (In this process soybeans were cooked in water, mixed with wheat, and spontaneously molded to form koji. Salt water was mixed in with a paddle, then the mash was insulated and aged. Finally it was filtered to make *chiang-yu*). The ratio of soybeans to wheat in the koji making was 3:2. This ratio is very close to that used in making regular Japanese shoyu, which is made by using equal amounts of soybeans and

wheat."

Wai (1964) notes that this book infers that soybean curd [tofu] was invented by Liu An.

Sato (1963, p. 20), in his book titled "Documents on Fermented Black Soybeans, Chiang, Miso, and Shoyu," cites this as the fourth earliest Chinese document seen on the subject. It was translated into Japanese by Suzuki Shintai.

Morohashi (1955) translated parts of the *Bencao* related to [soy] bean oil (*douyu*), bean sprouts (*douya*, *dounieh*), fermented black soybeans (*doushi*), tofu (*doufu*), [soy] bean flour (*doufen*), bean soak wine (*doulinjiu*), soybeans (*dadou*—production; there are black, white, yellow, dark brown, green, and speckled soybeans).

Hagerty (1917, p. 23-24. Translation of Wu 1848): Li Shih-chên (Author of the *Pên ts'ao kang mu*), says: "The Ta tou class of beans includes the Black, White, Yellow, Gray, Azure, and Mottled. In all, there is a number of colors among these beans. The Hsiao tou, or Small bean, includes three or four varieties. The Fan tou (2 Cc), or Food bean, is also called Pai tou, or White bean. (Stuart's C.M.M. says this latter variety is used as a pot herb). There is also an earth-yellow colored. bean, called the Lu (?) tou (2 Cc). This bean grows wild, but at present, the people also cultivate it, and it is now known as the Hei hsiao tou (3 Cc), or Small black bean. At present, in the northern sections of China, we see the following varieties of Hsiao tou, or Small bean: White, Yellow, Black, Scarlet, and Green."

Page 24: "Li Shih-chên says: 'The stalks of the Ta tou bean are three or four feet high, the leaves are round, with pointed tip. In the fall season they have a small white blossom. After the plant has acquired a dense growth it is covered with pods, of an inch or more in length. After the coming of frost, they are withered (ripe?). The Hsiao tou, or Small bean, when cooked becomes soft, like gruel. The Ta tou, or Large bean, when ripe is harder and more brittle.'"

Hagerty (1917, p. 80): "Tou fu (2 Cc), or Bean Curd: The *Pen ts'ao kang mu*, a Chinese Herbal by Li Shih-chên, says: 'The earliest mention of the method of making Tou fu, or Bean curd, is found in the Han Dynasty Taoist work entitled *Huai Nan Tzu*, or Writings of Liu An, (a Prince of Huai-nan, died BC 122)..."

Bretschneider 1882 (Vol. 1, p. 54-55): "42. The (4 Cc) *Pen Ts'ao Kang Mu*. This celebrated Chinese *Materia medica*, written more than 300 years ago, which we are now about to review, is well known also in Europe. Translations from it have frequently been published by European sinologues. It forms the type of all the Chinese productions of this class, is held in high esteem by the Chinese, and represents indeed the most important native work on *Materia medica* and Natural History. It is the first treatise of this kind in which the matter is more critically treated."

54. Feng Yingjing; Dai Ren. 1601. *Yueling guangyi* [Expanded explanation of monthly ordinances]. China.

Passage on soy reprinted in C.N. Li 1958 #149, p. 97-98, and #313, p. 226. [Chi]

• **Summary:** Wade-Giles reference: *Yüeh Ling Kuang I*, by Fêng Ying-Ching. Ming dynasty. This book was compiled by Feng Yingjing (who did not finish it), then completed by Dai Ren.

“Second lunar month ordinance:” Plant soybeans (*dadou*). “Third lunar month ordinance:” Plant soybeans (*dadou*) and yellow soybeans (*huangdou*). Plant black soybeans (*heidou*) in ground that has been previously cultivated. To plant: Take one handful of the beans. Take one step, then broadcast the beans by tossing them out. As soon as the seedlings come up, kill the weeds. You can also plant black soybeans in the fourth lunar month.

“Fourth lunar month ordinance:” Plant soybeans (*dadou*), yellow soybeans (*huangdou*), and/or black soybeans (*heidou*). “Fifth lunar month ordinance:” Plant the late varieties of soybeans.

The section titled “Summer ordinance” states: Late planting for soybeans and azuki beans (*daxiaodou*). Eighth lunar month: Harvest beans. (Translated by H.T. Huang, PhD, Nov. 2002, Feb. 2003).

55. Companhia de Iesus [Society of Jesus (Jesuit)]. 1603. Vocabulario da lingua de Iapam, com a declaração em Portugues, feito por alguns padres, eirmaós da Companhia de Iesu [Vocabulary of the language of Japan, with definitions in Portuguese, produced by some fathers and brothers of the Society of Jesus]. Nagasaki, Japan. 403 p. [Por; Jap]

• **Summary:** At the bottom of the title page is written: “Com licença do ordinario, & Superiores em Nangasaqui no Collegio de Iapam da Companhia de Iesus. Anno M.D. CIII.” The “Licença” or license by Francisco Pasio is dated 2 Jan. 1603. A romanized version of each Japanese word is given, followed by a brief explanation in Portuguese. In Japanese, this book is known as *Nippo Jisho*, *Nagasaki-ban*. In 1960, Iwanami Shoten published a facsimile edition in Japan, titled *Nippo Jisho: Vocabulario da lingua de Iapam*, compiled by Tadao Doi (822 p., 22 cm), then in 1980 they published a Japanese translation (xxxiv + 862 p., 27 cm). Kawakami (1978) has summarized some soy-related portions. Iwai (1953, p. 11) notes that this dictionary was compiled by Joao Rodrigues—but this is controversial.

Soy-related terms in this dictionary, and a translation of their definitions from Portuguese, through Japanese, into English, are as follows:

Abura ague. 1. Abura agueno mono. Abura-agé [deep-fried tofu] or abura-agé mono. Things which are deep-fried in oil. Note 1. This is the earliest document seen (March 2021) that mentions fried tofu.

Aburidôfu. Slice tofu, which is made from beans like raw cheese, broil in a fire.

Amazaqe [Amazake], a still-bubbling fermented liquid that has not yet completely become sake; or sweet sake.



Note 2. This is the earliest Portuguese-language or Western-language document seen (March 2021) that mentions amazake, which it calls “Amazaque.”

Azzuqi or azzuqui [azuki beans]. “*Hus feijoes pequenos como lentilhas*” means “Beans that resemble green peas (endo). Azzuqigai is rice porridge (o-kayu) that contains azuki beans. Azzukimochi is mochi that contains azuki beans. Note 3. This is the earliest European-language document or Portuguese-language document seen (Oct. 2021) that mentions azuki beans, which it calls *Azzuqi* or *Azzuqui*.

Cabe [Kabe]. Same as tofu. A type of food which is made from ground beans. This is a woman’s word. Note 4. This is the earliest document seen (March 2021) that uses the word “cabe” (or “kabe”) to refer to tofu.

Côji [Koji], a yeast [sic] used in Japan to make sake, or mixed with other things. Note 5. This is the earliest European-language document seen (March 2021) that mentions koji.

Daizzu [Daizu]. Mame. Graos, ou feijoes de Iapao [grain, seed, kernel, or Japanese beans].

Dengacu [Dengaku]. Dancing monks (Bôzos). Or tofu which is skewered, and on top of each slice is spread miso; then it is broiled. Note 6. This is the earliest document seen (April 2021) that mentions Dengaku, a type of delicious

broiled / grilled tofu seasoned with miso.

Fanben [Hanben]. A type of food which is made by broiling tofu and simmering it with miso.

Icco [Icchô]. A way of counting some types of food, such as tofu.

Miso. A kind of mixture which is made with *graos* [grains, seeds, kernels], rice, and salt to season Japanese soups.

Note 7. This is the earliest European-language (or Portuguese-language) document seen (April 2021) that mentions miso, which it calls *Miso*.

Misocoxi [*Misokoshi*], a bamboo strainer used for straining miso. Note 8. This is the earliest document seen (April 2021) that mentions a *misokoshi*.

Misoya, a shop that sells miso.

Misoyaqijiru [*Miso-yaki-jiru*], a type of soup (*Xiru*) made with tofu and finely sliced daikon radish. Note that the word tofu was written as “Tofus” in the dictionary but should be written “Tôfus.”

Misôzzu, which should properly be called Zosui, is a healing food made from vegetables, rice, miso, etc. and served to those who are old, weak, or sick. Another meaning of this term is a type of porridge [*kayu*] containing a mixture of rice, vegetables, and other things.

Nattô, a type of food made by a brief boiling of grains / seeds [*graos* is the word used, but soybeans are actually employed], which are then put into an incubation chamber (*muro*).

Nattôjiru, a soup (*Xiru*) made from natto. Note 9. This is the earliest Portuguese-language document seen (March 2021) that mentions *natto* or *Nattôjiru*. However recall that the “natto” used in Nattôjiru may well be fermented black soybeans.

Saqe (sake, saké).

Tamari, a very savory liquid taken from miso which can be used for seasoning foods [when cooking] or at table. Note 10. This is the earliest document seen (March 2021) that mentions tamari.

Tôfu*–Taufu. A type of food. It is made into the shape of a cheese by crushing soybeans. * Note: The sound of the Japanese character for bean (*mame*) is “tou.” But at that time “taufu” was the typical pronunciation. In other documents it is the same, for example the *Iitsugu Kyoki* (Iitsugu Diary) written during the Tensho period (1573-1586), with entries in 1588, 1591, and 1600. Sometimes they used the characters for “T’ang” (as T’ang dynasty in China) and “cloth,” although they were also pronounced as “taufu.” In this 1603 Portuguese dictionary there appear a number of tofu terms written in the “open sound form” (*kaionke*): Cabe [Kabe = wall], Dengacu [Dengaku], Fanben, Icchô [One cho or cake of tofu], Vdondôfu, and Yudofu. One exception is the term Aburidôfu.

Tôfuya–Taufuya, a shop which makes and sells that cheese-like thing (tofu), which is made by grinding soybeans

that have been soaked in water until they are soft.

Vdondôfu [Udon-dôfu]. Tofu which is made like udon (Japanese-style wheat noodles) and cooked.

Xôyu [Shoyu, or soy sauce], a liquid which corresponds to vinegar except that it is salty. It is used for seasoning foods. It is also called *sutate*. The character *su* means “bamboo mat” [as in “sudare”] and the character *taté* means “to stand up.” Note 11. This is the earliest Portuguese-language document seen (March 2021) that mentions shoyu or soy sauce, which it calls *Xôyu*.

Yudôfu–Yudaufu: A food made from thinly sliced tofu, served next to a *kakejiru*-type sauce [which is then poured over the top].

The following terms are not mentioned: Agé (but *abura-agé* is), Daitokuji natto, Edamame (or *Eda mame* or *Yeda mame*), Fu (or gluten or wheat gluten), Hamanatto or Hamana-natto, Hiya-yakko, Kinako, Koya-dofu (or Kori-dofu), Okara, Soi*, Soj*, Shoyu, Tonyu, Unohana, Yaki-dofu, Yuba, Zoy*.

Note 12. This is the earliest dictionary of the Japanese language compiled by Europeans.

Note 13. This is the earliest document seen (March 2021) concerning soybeans or soybean products in connection with (but not yet in) Europe or Portugal, and the first such document to mention miso or natto.

Note 14. This is the earliest European-language (or Portuguese-language) document seen (March 2021) that mentions tofu, which it calls *Cabe*, *Tôfu*, or *Taufu*.

Michael Cooper (1974, p. 222-23), in his excellent biography of Rodrigues, states that in the preface to this celebrated work, the “compilers promised to produce shortly a supplement containing additional terms and words inadvertently admitted from the dictionary. The supplement appeared the following year, and the Bodleian Library, Oxford, possesses a copy of both the *Vocabulario* and its supplement bound together in one volume. The dictionary runs a formidable total of 330 folios, while the supplement extends to 71 more folios, each page carrying two columns of text. The value of this great dictionary, containing a total of 32,798 entries, is considerable.” “Whether or not Joao Rodrigues had a hand in the compilation of the *Vocabulario* is still a debatable point... Thus until further evidence appears, the identity of the principal European collaborators must remain conjectural.” Address: Nagasaki College of Japan.

56. Wang Qi. 1609. *Sancai tuihui* [Illustrated encyclopedia of the three realms]. China. Passage on soy reprinted in C.N. Li 1958 #145, p. 96. [Chi]

• **Summary:** Wade-Giles reference: *San Tsai T’u Hui*, by Wang Ch’i. Ming dynasty. A well-known, popular illustrated encyclopedia. The section titled “Beans” says: Beans (*dou*, soybeans)—You find them everywhere. There are green ones, yellow ones, black ones, white ones, large ones, and small

ones. The black ones are used for medicine. The white ones are not used for medicine. The tight little ones are the male, which are good for medicine. The flavor is sweet and neutral. If you consume them for a long time, they will make your stomach heavy.

Note: This is the earliest document seen (May 2014) which states that soybeans, and especially black soybeans, are used for medicine.

There are also “dark-red beans” (*chidou*; W.-G. *ch’ih tou*, azuki beans). They are also cultivated in the region of the Yangtze and Huai rivers (*Jianghuai*). The flavor of azuki (red) beans is sweet, sour, neutral and nontoxic. (Translated by H.T. Huang, PhD, Oct. 2002).

Wilkinson (2000, p. 692, 892) cites this as “Assembled pictures of the three realms” (i.e., heaven, earth, and man). 1607. 3 vols. English translation: *Heaven and Earth: Album Leaves from a Ming Encyclopedia*. Contains 120 plates selected, translated, and annotated by John A. Goodall (Shambhala 1979).

Bray (1984, p. 76, 629) cites this as “Universal Encyclopedia” (1609). It is a popular encyclopedia which contains “sections devoted to agricultural implements and crop plants.”

57. Xie Zhaozhe. 1616. *Wu zazu* [Five-part miscellany]. China. Passage on soy reprinted in C.N. Li 1958 #157, p. 103. [Chi]

• **Summary:** Wade-Giles reference: *Wu Tsa Tsu*, by Hsieh Chao-Chê (who lived 1567-1624). Ming dynasty. A long, untitled passage states: The five grains are paddy rice, panicum millet, setaria millet, wheat, and soybeans (*shu*). Also mentions the “two beans and the two *mai*.” From the definition of the nine grains, it appears that these are soybeans and azuki beans (*daxiaodou*), barley and wheat. There are many kinds of beans, including yellow soybeans (*huangdou*), mung beans (*ludou*), black soybeans (*heidou*), river beans (*jiangdou*), green beans (*qingdou*) [probably green vegetable soybeans; see *Runan Pushi*, 1620], hyacinth beans / lablab beans (*biandou*; *Lablab purpureus*), peas (*wandou*, *Pisum sativum* L.), and broad beans (*candou*, *Vicia faba*). (Translated by H.T. Huang, PhD, Nov. 2002).

Note: This is the earliest document seen (May 2014) that mentions hyacinth beans together with soybeans.

Wilkinson (2000, p. 887) cites this work as an important primary source on the late Ming dynasty; it was very popular in Tokugawa Japan. It is a type of *biji* (miscellany, or miscellaneous notes). The five categories referred to in the title are the traditional heaven, earth, man, things, and events. A modern 2-volume edition was published in 1959 by Zhonghua.

58. Zhou Wenhua. 1620. *Runan pushi* [An account of the vegetable gardens at Runan]. China. Passage on soy reprinted in C.N. Li 1958 #314, p. 226. [Chi]

• **Summary:** Wade-Giles reference: *Ju Nan P’u Shih*, by Chou Wên-hua. Written near the end of the Ming dynasty (1368-1662). The section titled *Maodou* (“hairy beans”) begins: Yellow soybeans (*huangdou*), Zhi Lo beans, black soybeans (*heidou*), mung beans (*ludou*), and dark-red / azuki beans (*chidou*) are all in the “grain” category [grown as field crops]. They are not easy to grow in a garden. Therefore they are not included in this natural history.

Maodou has green, hairy pods. It is also called *qingdou* (“green beans”). It is mentioned in the *Bencao* [materia medica] literature [we are not told which book], which states that it has a sweet flavor, is neutral, and nontoxic. It can be used medicinally mainly to “kill bad / evil chi.” It stops bodily pain, eliminates water [reduces edema], dispels heat in the stomach, reduces bad blood, and is an antidote to poisonous drugs. Uncooked *maodou*, if eaten, can induce vomiting.

Two types of *maodou* are known: summer maturing and fall-maturing cultivars. They are planted from the 2nd lunar month to the 4th lunar month, and grow from the 4th lunar month to the 8th lunar month. The best seeds to plant are those which are large and sweet. *Maodou* can grow under normal conditions without extra watering. It will deplete the fertility of the soil, so you may find it difficult to grow other crops. Harvest when the plants are young and green. They can be used to make soup. Boil the beans in the pods until done, then remove the beans from the pods and eat them. The flavor will be sweet and fresh. Or you can remove the beans from the pods before cooking, then cook the beans in lightly salted water. Or the beans can be placed on a metal screen over a charcoal fire to roast or dry them. They are called *qingdou* (“green beans” [green vegetable soybeans]), and can be served with tea or fruits, as a snack.

To get seeds for future planting, wait until fall to harvest the beans, when the beans are dry and mature. (Translated by H.T. Huang, PhD, July 2001). Dr. Huang adds: It appears, from the opening sentence, that Chinese consider *maodou* to be a different plant from regular field-type soybeans (such as yellow- or black soybeans), just as the Japanese do. They see it as a horticultural plant. That’s why they gave it a different name. These gardens are vegetable gardens, located in Henan (Wade-Giles: Honan), a city and province in east central China, bounded on the north by Shanxi, Hebei, and Shandong provinces. The last character of the title of this work is *shi*, which can mean either “history” or “natural history” in Chinese.

Note 1. This is the earliest document seen (May 2014) that clearly mentions green vegetable soybeans in China, or that uses the word *maodou* or *qingdou* to refer to green vegetable soybeans.

Note 2. It is not clear why green vegetable soybeans deplete the soil; perhaps because the plants are uprooted before the root nodules have had time to fix much nitrogen in the soil.

Gai & Guo (2001, p. 45): The term “maodou” first appeared in this work, which states: Maodou with green pod shell, also called Qingdou (green bean). To eat the raw uncooked maodou makes one vomit. Different varieties which can be planted from April through August to create continuous production, but among them, the large seeded varieties with sweet taste are the elite ones... To make soup with the beans and other materials, or just boil the fresh pods in water, all taste delicious. To shell the young seeds, boil with salt, then remove from the water, put them in an iron sieve, and smoke to dry; this dried immature soybean is called dried *qingdou* and can be consumed as a snack. The mature seeds are harvested for the next planting.

59. Wang Xiangjin. ed. 1621. Qunfang pu [The assembly of perfumes, or Monographs on cultivated plants]. China. Passage on soy reprinted in C.N. Li 1958 #154, p. 99, and #315, p. 227-28. [Chi]

• **Summary:** Wade-Giles reference: *Ch’ün Fang P’u*, by Wang Hsiang-Chin. Li (1958) and Bray (1984) give the date as 1621; Needham (1986) and Huang (2000) give the date as 1630. Ming dynasty. “Heavenly perfumes:” During the 8th month rains, it rained soybean flowers (*douhua*).

In the part titled “Assembly of cereals,” section No. 1 is about fertilizing the soil. Green beans are the best; azuki beans and sesame seeds are next best. It is advantageous to plant them before planting cereals. In the 7th or 8th month, plow them under. They are as effective as the droppings of silk worms or fresh manure, and are especially good for planting wheat.

Note 1. This passage describing green manuring is found in the *Nongsang Cuoyao* (Selected essentials of agriculture, sericulture, clothing and food) (1314), and even earlier in the *Qimin Yaoshu* (Essential techniques for the subsistence of common people) (544 CE).

Section No. 3 titled “Black soybeans” (*heidou*) states: *Dou* is the general name for beans in the pod. The large ones are called *shu*. The little ones are called *ta*. The leaves are called *huo*.

Third lunar month: Plant black soybeans (*heidou*) and regular soybeans (*dadou*). Fifth lunar month: Plant the late varieties of regular soybeans, black soybeans, and yellow soybeans (*huangdou*). Ninth lunar month: Harvest the various mature soybeans.

Black soybeans (*heidou*): They are widely grown and the young plants (*miao*) grow to a height of 3-4 feet. The pods are several inches long, and may contain 5 or 6 beans. Some pods contain only 1-2 beans. They mature by the time of the first frost. The smaller ones are used medicinally. The larger ones can be eaten; they are used for making fermented black soybeans (*doushi*) or feeding animals. The flavor is raw (*sheng*) and neutral. When fried, it is considered to be a “hot” (*re*, or “heating”) food, but when boiled it is considered to be a “cold” (*han*, or “cooling”) food. It can be used several

ways. Children 10 years old or younger should not eat the fried beans together with pork; they might suffocate and die. Do not eat hemp seeds together with fried black soybeans. The leaves are called *huo* [and can be eaten]. Planting: A good time to plant soybeans is when the locust trees are free from insects. Plant sparsely in fertile soil and densely in poor soil.

Yellow soybeans: There are two varieties—large and small. You can harvest the seedlings (*miao*), the leaves, and the pods—just like the black soybeans mentioned above. The leaves are slightly lighter in color and the pods are a little fatter than those of black soybeans. The beans can be eaten as whole soybeans (*dou*), or they can be made into jiang (fermented soybean paste), fermented black soybeans (*doushi*), soy oil (*douyou*), or tofu (*doufu*). The residue (*zhi*, Jap: okara) from the tofu can be used to feed pigs. In times of famine, people also eat this residue. The presscake (*zhi*, “residue”) that remains after pressing out the oil (*you*) can be used as a fertilizer. The stems can be burned for fuel. The leaves are called *huo*, and when these leaves are young, they can be eaten. (Translated by H.T. Huang, PhD, Nov. 2002).

Note 2. This is the earliest document seen (Oct. 2017) concerning the use of soybean presscake (or cake—the residue from pressing the oil from whole crushed soybeans) as a fertilizer.

Note 3. This is the earliest document seen (May 2014) that mentions okara, the residue of dietary fiber that is a by-product of making soymilk or tofu, which it calls *zhi* (meaning “residue”).

Note 4. This is the earliest document seen (May 2014) concerning the use of okara (residue from tofu) as a feed for pigs or other animals.

Talk with H.T. Huang, PhD, expert on the history of Chinese food and agriculture. 2001. July 10. What is the difference between eating (*doumiao*) and (*huo*)? In antiquity in China, soybean leaves (*hou*) were sometimes used to make soup. These leaves were typically picked when the plant was still green but fairly large and mature; the plant was probably not uprooted, but continued to grow. On the other hand, the soybean seedlings (*doumiao*) were uprooted when they were still quite young, and the leaves were more tender. These tender leaves were prepared differently and eaten as a succulent vegetable. (*Doumiao*) is served today as a dish in Chinese restaurants, yet Dr. Huang has never seen it mentioned for use as a vegetable the early Chinese food literature—say before the year 1500. By contrast, Dr. Huang has never seen soybean leaves (*huo*) served as a dish in Chinese restaurants but they are mentioned in the earliest Chinese literature (*Book of Odes / Shih Ching*, 7th to 10th century BCE).

H.T. Huang (2000, p. 456n) states that the sunflower (*xiangri kui*) originated in North America and was introduced to Europe in about 1510. In China, it first appeared in this 1621 book.

Wang Lianzheng (1987, p. 246) states that the sunflower is first mentioned in China in this book, where it is called *wenju* (“gentle chrysanthemum”) and *ying yang hua* (“facing sunlight flower”). Today, sunflowers are an important oil crop in northern China.

60. Zhang Zilie. 1627. Zheng zitong [Orthography of characters]. China. Passage on soy reprinted in C.N. Li 1958 #162, p. 108-09, and #318, p. 228. [Chi]

• **Summary:** Wade-Giles reference: *Chêng Tzu T'ung*, by Chang Tzu-Lieh. Ming dynasty. An important work. Orthography is the art of writing words correctly, in the standard way. The entry for *dou* (with a grass radical on top) (beans) states: Popularly this character is written without the grass radical on top. According to the book *Wulilun* (280 CE), it can also mean *shu* (soybeans). But originally it was *dou* (written without a grass radical on top).

The entry for the archaic character for *dou* (with a sort of grass radical on top) gives a long explanation. Concerning yellow soybeans (*huangdou*), the *Bencao Gangmu* (The great pharmacopoeia, 1596) states that soybeans (*dadou*) come in various colors including black, white (*bai*), yellow, dark brown (*he*), green, and spotted / speckled (*ban*). Also mentions tofu (*fu*) and soybean sprouts (*dadou huangjuan* or “soybean yellow curls”). Also cites the *Mingyi Bielu* (Informal records of famous physicians) (0510).

The entry for (*shu*) (soybeans) first explains how it is pronounced; it rhymes with the word for uncle (*shu*, which is also written like the word *shu*, meaning soybeans, but without the grass radical). It is the same as the soybean (*dadou*). The early dictionary *Erya* (200 BCE) states that “*rongshu* is the same as *renshu*.” This means that the beans of the *rong* (W.-G. Jung) tribe are the same as soybeans. The ancient dictionary *Guangya* (230 CE), an enlargement of the *Erya*, says *dadou* is the same as *shu* (both meaning soybeans). *Xiaodou* is the same as *da* (both meaning azuki beans). The early dictionary *Erya Yi* (1174 CE) says the character *shu* is the general name for all the different *dou* (beans). In the *Shijing* (Book of Odes, 1000 BCE), the group of odes / poems called *Xiaoya* states that “Soybeans (*shu*) grow in the middle of the plain.” Another group of odes called *Daya* (from this same book) mentions *renshu*. A commentary on the *Book of Odes* by Kong Yingda (642 CE; he lived 574-648) says that *shu* is the same as *dadou* (both mean soybeans); soybean leaves are called *huo*. During the Ding Yuan year of the Spring and Autumn period, a heavy frost killed the *shu* (soybeans). A tradition holds that *shu* (the soybean) is one of the herbs that is most difficult to kill. The *Hou Hanshu* (History of the Later / Eastern Han Dynasty) (450 CE), states that during a famine year, when people were very poor, half the time they had only *shu* (soybeans) to eat. When the army had no grains, they mixed *shu* (soybeans) with other grains to feed themselves. And the *Qian Hanshu* (History of the Former / Western Han dynasty) (76 CE) says

that *shu* (soybeans) are used as food in times of famine.

The entry for *dou* (without a grass radical on top) (beans) states: *Dou* is the same as *shu* (both mean soybeans). *Shu* is the same as *dadou* (both mean soybeans). *Xiaodou* is called *da* (both mean azuki beans). Lü Lan said: When the *dou* is in season, the stem is tall and the foot is short; there are 27 pods per plant, and more nodes on the stem. In the big *shu* (*dashu*, soybeans) the pods are round; in the small *shu* (*xiaoshu*, azuki beans) the pods are elongated. Those that mature first tend to be like vines, the leaves tend to be far apart, and the small pods tend to be solid. Those that mature late have short stems and fewer nodes, and the pods are less solid. The book of Fan Shengzhi (on agriculture, 10 BCE) says: In the summertime when you plant *dou*, do not plant the seeds deeply. The flowers of the *dou* do not like the sun; if they get too much sun, the plants wither and dry up. Also, soybeans (*dadou*) are black, green, yellow, white, and spotted / speckled (*ban*) in color. There are 3-4 different types of azuki beans (*xiaodou*). The *Wangzhen nongshu* (Wang Zhen's Agricultural Treatise) (1313 CE) says: Today the dark-red bean (*chidou*), white bean (*baidou*), mung bean (*ludou*), and *yingdou* are all small beans (*xiaodou*). White beans (*baidou*) are also called the rice beans (*fandou*). They can be cooked as congee (*zhou*). Another kind is called *chadou* (“tea bean”); its leaves are like those of the soybean (*dadou*). It can be cooked like grain (*fan*), which makes it like *fandou* (soybeans cooked like grain). The small black bean is called *ludou*. The northern people feed it to horses and it is also called *daodou* (jack bean, literally “sword bean”; [*Canavalia ensiformis*]). The *Youyang Zazu* (Miscellany of the Youyang Mountain) (860 CE) calls it *jiajiandou* because the pods are shaped like the back of a sword. Another bean is called *lidou* (morning bean), or *hudou* (tiger bean), or *lidou* (fox bean). Because when they pods are old, they become black and hairy. The seeds have black spots like a tiger, and striations like a fox. (Translated by H.T. Huang, PhD, Nov. 2002).

Needham (1986, p. 562) translates the title as “Complete character orthography (dictionary).”

61. He Qiaoyuan. 1629. Minshu [History of Fujian province]. China. Passage on soy reprinted in C.N. Li 1958 #148, p. 97. [Chi]

• **Summary:** Wade-Giles reference: *Min Shu*, by Ho Ch'iao-Yuan. Ming dynasty.

Note: Fujian (formerly Fukien, Fuhkien) province is on the coast of southeast China, on the mainland, opposite Taiwan.

The section titled “Southern agricultural products” states: According to the book *Wulilun*, by Yangquan (date not given), *shu* [the character which we have previously translated as “soybeans”] is a general name for beans (*dou*). There are yellow beans (*huangdou*) and white beans (*baidou*)—which can be eaten. Green beans can be used

to make a powder / flour. Black [soy] beans are good for making fermented black soybeans (*shi*). There are red beans, dark brown beans, and leafy beans (*huodou*). There are red small beans, ninth month beans [they ripen in the 9th month of the lunar calendar], *yudou*, peas (*wandou*, *Pisum sativum* L.), river beans, water beans, vegetable beans, tree beans, kudzu vine beans, *biendou*, jack beans (*daodou*), soap beans, tiger melon beans, e-mei beans (from famous mountain in Sichuan province), crab eye beans, and mulberry worm beans. They are all vegetables [and could be grown in a vegetable garden]. (Translated by H.T. Huang, PhD, Nov. 2002). Dr. Huang adds: (1) The character *shu* now appears to have a much wider meaning. (2) We have never seen so many different types of beans listed in one document.

Bray (1984, p. 627): "History of Fukien." Ming dynasty. 1629.

The following translation is by M.J. Hagerty from the section on "The beans" in the Imperial Encyclopedia (*T'u shu shih ch'eng*. Published, 1728). See p. 9-10 in Hagerty. See also Bretschneider. *Botanicon Sinicum* 1:174.

"Under the heading of *Nan chan*, or Southern Products, it says: 'In the account of the products of Yang-tsüen, it is stated that the *Shu* is the name generally applied to the *Tou*, or bean. Among the varieties grown here are mentioned the *Huang tou*, or Yellow bean [yellow soybean], *Pai tou*, or White bean [white soybean], varieties which are used for [character lost from text of *Min shu*]. There are also the [character lost from text] *tou*, which is used to make flour; the *Hei tou*, or Black bean [black soybean], used for making *Shih*, or Bean relish [fermented black soybeans]; the *Chih tou*, or Scarlet bean; *Ho tou*, or Gray bean; *Hue tou* (2 Cc = 2 Chinese characters given) or Vegetable bean; the *Hung* [character lost from text of *Min shu*] *tou*. The *Chiu yueh tou*, or Ninth month bean; the *Yü tou* (2 Cc), or Beans which grow on land which has been cultivated three successive years. Besides these, there are the *Wan tou*, or Garden pea; *Chiang tou*, or Kiang-su bean?; *Shui tou* (2 Cc), or Water bean; *Ts'ai tou*, or Vegetable bean; *Shu tou*, or Bush bean; *Ko tou* (2 Cc), or Creeping bean; *Pien tou*, or Flat bean. *Tao tou*, or String bean; *Tsao chia tou* (3 Cc), or Bean shaped like the soap pod bean, *Hu chao tou*, or Tiger's claw bean; *O mei tou*, or Beautiful eyebrow bean; *Hsieh yen tou*, or Crab's eye bean; and *Tsan tau*, or Silkworm's bean. These are all classified with the *Shu*, or Vegetables, but all are beans."

Bretschneider 1882 (Vol. 1, p. 174). "515. (2 Cc) *Min Shu*. A description of the province of Fu kien, by (3 Cc) *Ho K'iao yüan*. End of the 16th cent. S.K. LXXIV. 19.—Accounts of plants found in this work are reprinted in the T. CLXXXII."

62. Song Yingxing. 1637. *Tiangong kaiwu* [Exploitation of the works of nature]. China. [Chi]

• **Summary:** Wade-Giles reference: *T'ien Kung K'ai Wu*, by Sung Ying-Hsing. Ming dynasty. The following translation

is by M.J. Hagerty from the section on "The beans" in the Imperial Encyclopedia (*T'u shu shih ch'eng*. Published, 1728). See p. 10-17 in Hagerty. See also Bretschneider. *Botanicon Sinicum* 1:198. "(Second edition published in 1637). Under the heading of *Shu*, or Beans, says: 'In the *Shu* class of grains there are as many varieties as there are among the *T'ao*, or Rice, and *Shu*, or Millet. The *Shu* may be planted and harvested in all four seasons, and is a real substantial grain which may be utilized as a food and drink without satiation. There is one variety called the *Ta tou*, or Large bean [soybean], which grows in two colors—black and yellow. Those black and yellow beans must be planted about the time of the *ch'ing ming* season (April 5-19). The yellow bean includes three kinds, as follows: *Wu yueh huang tou*, or Fifth month yellow bean, *Liu yueh pao*, or Sixth month bean, and *Tung huang tou* (3 Cc = 3 Chinese characters given), or Winter yellow bean. The *Wu yueh hung tou*, or Fifth month yellow bean, yields few grains in its pods, while the *Tung huang tou*, or Winter yellow bean, yields at least double those of the preceding. The *Hei*, or Black variety [of soybean], is harvested in the eighth month. It is customary when taking a long journey north of the *Huai* river, to feed the horse with black beans in order to make it strong. The abundance or scarcity of the *Ta tou* [soybean] crop depends, first, upon the fertility of the soil, second, upon diligent weeding and cultivation, and third, upon sufficient rain and dew for moisture. *Shih*, or Bean relish, *Chiang*, or Bean sauce, and *Fu*, or Bean curd, are all made of the *Ta tou*, or Large beans, as they contain the elements necessary (?). Kiang-nan also has the *Kao chiao huang tou*, or High foot yellow bean. This is planted in the sixth month in a field from which an early crop of *Tao*, or Rice, has been harvested, and is harvested in the ninth or tenth month. The people of *Chi-chun*, a locality of Kiangsi province, practice a very good method in cultivating these beans. This consists of using the fields from which a harvest of rice has been gathered, and instead of plowing the land a hole is scraped out of each clump of the rice stalks with the finger, and in this hole is planted three or four seeds. When the dew falls upon the stumps of the rice plant, it will flow down to the seeds, nourishing them. Owing to the nature of the bean, it is very easy to grow, and when the stumps or roots of the rice plant are thoroughly saturated with moisture, they rot and act as fertilizer to the bean plant. If after the seeds send forth their shoots, there is no fall of rain to provide moisture, thereby producing a droughty condition, water should be drawn from a well and the field irrigated, using one *sheng* or pint to each plant. The field should now be cultivated in order to assure a very large harvest. When the *Ta tou*, or Large beans, have been planted and do not send forth shoots in the proper season, care must be taken in order to prevent injury by pigeons and swallows (eating the seed?). One variety which is called the *Lu tou* (2 Cc), or Green bean [mung bean], is a round, small variety shaped like a pearl.

The Lu tou bean must be planted during the *Hsiao shu*, or slight heat season (July 7-22), if it is planted before that time, the sprouts will creep along the ground, extending a number of *chih*, or feet, and the pods will be very few. If planted after the *Hsiao shu* season at any time up to the *Ch'u shu*, or Limit of heat season (August 23- September 7), the plants will blossom in proper season and while pods will form, they will contain few seeds or grains. This plant includes two varieties, one of which is called *Chai lu chia tou*, or Pick green pods bean. These are picked as fast as they mature and may be gathered from day to day. Another is called *Pa lu tou*, or Pull green Beans. When these are old and sufficiently matured, the whole field is harvested once only. The *Lu tou*, or green beans [mung beans], are ground, washed to purify the grain and then dried in the sun, after which they are made into flour. This flour is used to make *tang pien*, a thin sheet-like cake, and *Ts'o su*, a somewhat similar preparation but made into strips which are narrow and thick. The people regard these articles of food as luxuries and they are considered valuable. Even the water which was used to wash the bean grains may be spread upon the fields, making the soil fertile. To preserve the seeds of the Lu tou, they are mixed with *ti hui* (2 Cc), or Earth lime (?), *Shih hui* (2 Cc) or stone lime (?), *Ma liao* (2 Cc), or Pologonum (the straw, chaff, etc. (?)), or *huang tu* (2 Cc) or yellow earth (clay? loess?). If this is done, there need be no fear of damage by worms around the fourth or fifth months. If a period of dryness should ensue, causing a drought, the plants will also be free from worms or bugs. When the Tao, or rice crop has been harvested, either in the summer or winter, the earth, in the fields which are to be planted with Lu tou beans, should be broken up fine, using a long club like an axehandle for this purpose. If there should be a heavy rain within one day after the Lu tou has been planted, which causes the earth to become hard and solid, thereby preventing the beans from growing, steps should be taken to prevent too much water coming onto the fields, and to provide an outlet for the surplus water. Cultivate the Lu tou and Ta tou beans [soybeans] with plow and spade, but this cultivation should be shallow, as the plant does not benefit by deep cultivation and the roots should be short and the stalks straight. If the soil is plowed deeply, the loose earth will cover the beans and half of them will not grow. Deep plowing or cultivation is not suitable for plants of the Shu class [legumes], but the farmers of ancient times were not aware of this.

“One variety, called the Wan tou, has beans which are black and speckled in color and round in form like the Lu tou, but larger. This variety is planted in the tenth month, and in the fifth month of the following year, the crop is harvested. These beans may also be planted under deciduous trees, the foliage of which, is of slow growth (thereby allowing moisture to penetrate to the bean plants). One variety, which is called *Tsan tou*, or Silkworm bean, has a pod which is similar in form to a silkworm. The bean seeds are larger

than those of the Ta tou, or Large bean. These are planted in the eighth month, and in the fourth month of the following year they are harvested. These beans are found in Chekiang province, and are usually planted around the *Sang*, or Mulberry tree. If the foliage of the mulberry tree is so dense that it covers the growing bean plants, thereby intercepting the dew, they will not grow. At the time when the *Tsan tou* and *Wan tou* have very bushy stalks and dense foliage, the pods of the other varieties have already formed and are filled with ripe mature beans. The region around the upper part of the Hsiang and Han rivers (in Hupeh) produce very many of these beans. They are also cheap and are regarded as satisfactory an article of food as *Shu*, or Glutinous millet, and *Chi*, or Non-glutinous millet.

“One variety which is called *Hsiao tou*, or Small bean [azuki], or *Chih hsiao tou*, or scarlet bean, is utilized medicinally and has remarkable merit. The *Pai hsiao tou*, or Small white bean, also known as the *Fan tou* (2 Cc), is suitable to eat and is a very good nourishing grain. This bean should be planted after the *Hsia chih*, or summer solstice (June 21 to July 6) and is harvested in the ninth month. This variety is found growing abundantly in the region of Yang and Huai (usually means region of Kiangsu and Anhui province). One variety which is called *Lu tou* (2 Cc) was found growing wild in all the fields in ancient times and at present is extensively grown in the northern section of China. For the manufacture of bean curd, the bean rivals the *Lu tou* (2 Cc). This preparation was sold daily by peddlers in Peking, and was commonly called *Lu tou p'i* (3 Cc). Judging from this statement there must have been many of these beans produced. One variety, which is called the *Pai pien tou*, or White flat bean, is a creeping kind which grows around fences. It is also called *O mei tou*, or Beautiful eyebrow bean. Others of this class are the *Chiang tou* (2 Cc) (*Dolichos sinensis*), *Hu pan tou* (3 Cc), or Tiger's stripe bean, *Tao tou* (2 Cc), or String bean, and the Ta tou (2 Cc), or Large bean [soybean]. All are classified into either green-skinned or gray-colored classes. There are many varieties found growing profusely, only in certain localities, which are too numerous to describe here. All beans may be used as a vegetable or as a substitute for *ku*, or grain, and provide all the people with food. The naturalist must not neglect the study of these kinds of beans.

“When the beans which are harvested are few, it is customary to use a flail to separate the grains from the chaff, and in this way save the strength of the farmer. The usual method is to spread them on the surface of the field (thrashing floor?), letting them dry in the sun, and having an ox draw a heavy stone over the surface of the bean stalks, the pressure causing the bean grains to fall out of the pods. It is also customary to beat the bean plants with a flail, the handle of which, is made of stout bamboo, having at the end a crank or swivel-like arrangement with a ring, to which is attached a wand more than three feet in length. The beans to be flailed

are spread upon the ground and beaten with this implement. After the beans are separated by beating, they are shaken in the wind, which blows away the pods and leaves, after which they are sifted in order to remove everything but the good bean grains, and finally they are removed to the granary. The *Ch'ung mo* (2 Cc), or pestle and mortar (?), is not used in grinding *Ma*, or hemp seeds, and the *Wei nien* (2 Cc), or millstone (?), is not used for grinding the *Shu*, or bean.”

Bretschneider 1882 (Vol. 1, p. 198). “885. (4 Cc). *T'ien kung k'ai wu*. A treatise on Technology by (3 Cc) Sung Ying sing. Second edition in 1637.—Stanislas Julien has translated many articles from this work.”

63. Xu Guangqi. ed. 1639. *Nongzheng quanshu* [Complete treatise on agricultural administration]. China. Passage on soy reprinted in C.N. Li 1958 #155, p. 100, and #317, p. 228. [Chi]

• **Summary:** Wade-Giles reference: *Nung Chêng Ch'üan Shu*, by Hsü Kuang-Ch'i. Late Ming dynasty. The author, a native of Shanghai, lived 1562-1633. The work was composed from 1625 to 1628 and printed in 1639. This is an important work.

The section titled “Classical references” states that vegetables and soybeans (*dou*) are fed to cattle / bullocks / water buffaloes (*niu*) before they prepare the ground for planting.

The section titled “opening up new fields,” which is about reclaiming land in northern China, says that soybeans (*dou*) are recommended as feed for cattle and horses.

The section on “Seasonal recommendations” lists the seasons and months in which many different types of beans are planted and harvested. Soybeans (*dadou*) should be planted in late spring, early summer, or mid-summer (late soybeans). “Stem beans” (*qidou*; perhaps soybean plants, including their stems) are harvested in the mid-fall and late fall. Soybeans and azuki beans (*daxiaodou*) are harvested in early winter [Note 1. They are usually harvested in the fall]. Red beans (azuki) should be planted in early fall.

The section titled “Six types of livestock” (*liuchu*) describes a formulated livestock feed for pigs consisting of 1 *dou* (about 20 liters) of yellow soybeans (*huangdou*), 1 *sheng* (about 2 liters) of hemp seeds, plus various other feeds and herbs. After feeding it to pigs for 12 days, they will become fat. (Translated by H.T. Huang, PhD, Feb. 2003).

Note 2. This is the earliest document seen (May 2014) that describes a formula feed containing soybeans used in a feedlot-type system for fattening animals. Dr. Huang adds: The various herbs may be the traditional equivalent of antibiotics and other drugs in modern formulated feeds.

Wilkinson (2000, p. 630) translates this as *Comprehensive Treatise on Agricultural Administration*, by Xu Guangqi (lived 1562-1633), compiled 1639. A collated and annotated Chinese-language edition (3 volumes) by Shi Shenghan was published in 1979 by Shanghai Guji [Classics

Press]. “Important because it summed up the state of the art; it was highly popular in Tokugawa, Japan. Xu was friendly with some Jesuit scholars and has included excerpts from European works on hydraulics.

Letter from Dr. H.T. Huang, expert on the history of Chinese food and agriculture. 1994. Oct. 3. Hsü Kuang-ch'i is the name of a famous official and scientist who lived toward the end of the Ming dynasty [1368-1662]. The work Perkins refers to is probably the *Nung Chêng Ch'uan Shu* (*Complete Treatise on Agricultural Administration*).

Bray (1984, p. 64-70, 627): *Complete Treatise on Agricultural Administration*. Ming, composed 1625-26, printed 1639. Hsü Kuang-Ch'i; editor. Ch'en Tzu-Lung. Textual references are to 1843 reprint of the Palace edition; a new annotated Chinese-language edition was published in Shanghai in 1979 by Shih Sheng-Han. This was the last of the great traditional agricultural treatises, written at the end of the Ming dynasty. Hsü “was one of the outstanding figures in Chinese history, a principled politician, a first-rate scientist, a friend and protector of the Jesuits as well as one of their first converts.” His scientific achievements have been described in three sections of earlier volumes in this series. He was “an able administrator with a keen perception of his country's needs, and consequently he applied his scientific talents to agriculture, to irrigation and fertilisers, as well as to astronomy and chemistry.” The driving force in his career was his patriotism; he lived in troubled times as the Manchus awaited their chance to conquer the Ming. Table 5 (p. 66) gives a translation of the table of contents. This was an enormous work of 700,000 characters, about seven times as long as the *Qimin Yaoshu* (544 CE). By far the greater part consisted of quotations (not always entirely accurate) taken from 299 sources. The book advocates the expansion of the relatively new cotton and ramie industries. The great originality and strength of this work lies in its emphasis on the role of administration in agricultural development. Sadly, however, Hsü did not live to finish his great book. The Ming dynasty fell in 1644, eleven years after his death and the Manchus, who resented Han patriotism in any form, neglected his work—so his grand plan was never put into practice.

Perkins (1969) says in a footnote on p. 71: “Beancake is not mentioned in the *Nung shu* (1313 ed.). The first reference of which I am aware is referred to in the *Ch'en Tsu-kuei* (1958, p. 99). It is also mentioned in *Hsu Kuang-ch'i*, 1628, and in the *T'ien-kung k'ai-wu*, both seventeenth-century publications.”

64. Dai Xi. comp. 1640. *Yangyu yueling* [Monthly ordinances for superabundance]. China. Passage on soy reprinted in C.N. Li 1958 #163, p. 109-10, and #320, p. 229. [Chi]

• **Summary:** Wade-Giles reference: *Yang Yü Yüeh Ling*, by Tai Hsi. Ming dynasty.

The section titled “Third lunar month [about April], first half, planting” states: Soybeans (*dadou*) are suitable for planting. They can also be planted in the summer. Plant sparsely in fertile soil and densely in poor soil. As soon as the seedlings come up, remove any weeds. In years when there are no insects on the locust trees, soybean yields will be good. Avoid planting on *shen* days; plant on *mou* days. Note 1. These are two of the 12 “stem days.”

Black soybeans (*heidou*). Plant in fertile soil. Take a handful of seeds, then broadcast one handful as you take each step. Remove weeds as soon as the seedlings emerge. Be sure there are no weeds. You can also plant black soybeans in the fourth lunar month.

The section titled “Fourth lunar month [about May], first half, planting” states: Plant dark-red beans (*chidou*), soybeans (*dadou*), azuki beans (*xiaodou*), yellow soybeans (*huangdou*), and black soybeans (*heidou*).

The section titled “Fifth lunar month [about June], first half, planting” states: Plant sesame seeds (*zhima*) and soybeans (*dadou*). Till the soil twice before planting. For panicum and setaria millets (*shu*, *su*), till the soil three times. The earlier the better. You can also plant red beans (*chidou*), mung beans (*lüdou*), and late varieties of soybeans (*wandadou*). (Translated by H.T. Huang, PhD, Nov. 2002).

Note 2. This is the earliest document seen (May 2014) that mentions early- or late-maturing varieties of soybeans.

Note 3. This is the earliest seen (May 2014) that recommends double tilling / digging of the soil.

Note 4. Planting instructions are also given for other varieties of beans in other months.

Bray (1984, p. 632): “Monthly ordinances for superabundance.” Ming dynasty. 1633.

65. Chen Maoren. comp. 1644. *Shuwu yimingshu* [Compilation of common things with unusual names]. China. Passage on soy reprinted in C.N. Li 1958 #158, p. 103. [Chi] • **Summary:** Wade-Giles reference: *Shu Wu I Ming Shu*, by Ch’ên Mao-gun. The first passage states: “Soybean milk (*shuru*) is the same as tofu (*doufu*). If you cook the beans, you will get the milk.”

The second and last passage states: “A Sanskrit (*fanwen*) quotation says that you use soybeans and azuki beans (*daxiaodou*) as a nut or fruit.” (Translated by H.T. Huang, PhD, Nov. 2002). Dr. Huang adds: The first passage about soymilk and tofu is garbled and doesn’t make much sense. The first passage is from the *Qing Yilu* [Anecdotes, simple and exotic] (965 CE), but this source is not cited in this work of 1644, and Li (1958) was also unaware of it, because he never cited or mentioned the *Qing Yilu*.

Schlegel (1894, p. 136) (1) “The *Tao-fu* or Bean-curd was also called ‘Leguminous milk,’ and was prepared by boiling curds or milk from beans.” (2) Dr. Huang comments: Schlegel was the first to cite this early reference to tofu, but he did not realize that this passage actually comes from a

much earlier source, the *Qing Yilu*, which appeared almost 680 years earlier, at the end of the Tang dynasty!

This work consists of 30 bound volumes of 30 chapters. The wood blocks were carved during the reign period of Chong Zhen, the last Ming emperor, who hung himself on Cold Mountain as the Qing Manchus were conquering his dynasty and preparing to establish the Qing dynasty (1644-1911).

Note 1. This is the earliest document seen (May 2014) which states that the soybean was mentioned in an early Sanskrit source.

Note 2. This is the earliest Chinese-language document seen (May 2014) that uses the term *shuru* to refer to soymilk.

66. Zhang Biao. 1660. *Nongdan* [Agricultural elixir]. China. Passage on soy reprinted in C.N. Li 1958 #168, p. 112-13. [Chi]

• **Summary:** Wade-Giles reference: *Nung Tan*, by Chang Piao. Qing dynasty. The section titled “Timeliness. Chapter 1” states that the five grains include *shu*, which are the same as *dadou* (both terms mean “soybeans”). Also notes that it is good to plant azuki beans (*xiaodou*) on the tenth day after the start of summer. (Translated by H.T. Huang, PhD, Dec. 2002).

67. Gu Yanwu. 1680. *Rizhili jishi* [Collected notes on the *Rizhili* (“Record of knowledge gained day by day”)]. China. Passage on soy reprinted in C.N. Li 1958 #175, p. 115. [Chi]

• **Summary:** Wade-Giles reference: *Jih Chih Lu Chi Shih*, by Ku Yen-Wu (lived 1613-1682). Qing dynasty. This is an important book. The section titled “*Rongshu*” states that in ancient China, in the early Zhou dynasty, various states / dukedoms were fighting one another. One of the dukes obtained *rongshu*, which is the same as *shu* (“soybeans”). But according to the *Book of Odes* (*Shijing*), another nobleman obtained a different kind of *shu* which is called *renshu*, but that is also the same as *shu* (“soybeans”). Even though it is grown in another part of China and has a different name, it is still the same. This identity is recorded in the ancient dictionary *Erya* (-200).

The section titled “*dou*” (beans / legumes) says that according to the *Zhanguoce* (Records of the Warring States Period) (-220) the most important of the five grains are wheat and soybeans (*dou*). The people usually eat soybeans steamed into granules like rice (*doufan*) and soup or stew made from the soybean leaves (*huo*). According to the *Shiji* (Records of the Historian) (-90), the people eat both soybeans and wheat (or barley; *mai*) steamed like rice (*fanshu*). They emphasize the soybean (*shu*). In antiquity they used the term *shu*. Not until the Han dynasty (-202 to 220 CE) did they start to use the term *dou*. According to *Bencao* (*Shennong Bencao Jing* or *Benjing*; Classical Pharmacopoeia of Shennong, the Heavenly Husbandman) (100 CE) they now had the names “red small bean”

(*chixiaodou*; probably azuki bean) and “large bean” (*dadou*; soybean). But the *Bencao* was not really written by Shennong. The *Yuejueshu* (The Book of the Last Days of the Yue Kingdom) (80 CE) mentions both the “dark-red bean” (*chidou*; probably azuki bean) and the “large bean” (*dadou*; soy bean). According to the *Hanshu* (History of the Former Han dynasty) (76 CE), when you harvest soybeans (*shu*) you should also harvest their stems (*qi*). (Translated by H.T. Huang, PhD, Dec. 2002).

Wilkinson (2000, p. 952) translates *Rizhilu* as “Record of knowledge gained day by day” and classifies it as a type of *Biji* (“Miscellaneous notes”). “Preface dated 1676, published 1695.” In his Preface, Gu wrote: “Since my childhood studies, I have always noted down what I perceived, and if it [turned out] to be incorrect, I revised it again and again, or if earlier men had said it before me, I omitted it entirely.” “The *Rizhilu* contains 1,020 entries divided into philosophy, government, the examination system, popular customs, astronomy, and geography.”

68. Chen Qiyuan. 1682. *Maoshi jigubian* [Examination of Mao’s ancient *Book of Odes*]. China. Passage on soy reprinted in C.N. Li 1958 #177, p. 115-16. [Chi]
• Summary: Wade-Giles reference: *Mao Shih Chi Ku Pien*, by Ch’ên Ch’i Yüan. Qing dynasty. The section titled “Ode to the seventh month,” which refers to Ode 154 in the *Shijing* (The Book of Odes); summarizes earlier knowledge of soybeans (*shu*, *dadou*), azuki beans (*xiaodou*), and other beans. Soybeans come in various colors, including black, white, yellow, dark brown (*he*), green (*qing*), and spotted / speckled (*ban*). They are used to make fermented black soybeans (*shi*), jiang, tofu (*fu*) and oil (*you*). Black soybeans are used as medicine. (Translated by H.T. Huang, PhD, Dec. 2002). Dr. Huang adds: The *Shijing* (Book of Odes) is a compilation which is considered to be the oldest of the five Confucian classics. In ancient times, there were several versions of this compilation. The version compiled by Mao Hêng in the early Han dynasty (2nd century BCE) is the one that has been handed down to us and is considered the most trustworthy. When people cite or refer to the *Shijing*, they actually mean Mao’s compilation.

69. Chen Migong. 1692? *Zhifu quanshu* [Complete way to wealth]. China. Passage on soy reprinted in C.N. Li 1958 #182, p. 117, and #324, p. 231. Undated. [Chi]
• Summary: Wade-Giles reference: *Chih Fu Ch’üan Shu*, by Ch’ên Mi-Kung. Qing dynasty. Late 17th century. An obscure book. The section titled “Beans” (*dou*) mentions the growing of black, white, yellow, and green ones, and the feeding of beans (probably soybeans) to livestock. *Dadou* (soybeans) and *xiaodou* (azuki beans) are mentioned.

The section titled “Monthly activities” states: In the 4th lunar month, plant soybeans (*dadou*). (Translated by H.T. Huang, PhD, Dec. 2002).

Bray (1984, p. 622-23): “The complete way to wealth.” Late Ming or early Qing, 17th century CE. “Attributed to Ch’ên Mei-Kung with additions by the Recluse of Bell Mountain, but in fact probably a bookseller’s compilation.”

70. Saito, Akio. 1699. [Chronology of soybeans in Japan, 1600 to 1699, the early Tokugawa/Edo period] (Document part). In: Akio Saito. 1985. *Daizu Geppo* (Soybean Monthly News). Jan. p. 14-16. [Jap; eng+]

• Summary: 1600–Komakabe?, the name of a type of tofu, appears in the *Diary of Oyudono no Kami* (*Oyudono Kami no Nikki*). The very firm tofu called *kata-dofu* that is presently sold in Kochi prefecture (on the southern part of the island of Shikoku) originated from Komakabe.

1601–Daté Masamune (DAH-tay Mah-sah-MU-nay; lived 1567-1636) of Sendai establishes the Goenso-gura and starts making miso. This is the first time that an organized method has ever been used to make miso in Japan. The purpose of this is to make miso for the army and to store salt. According to some theories, the date was 1645 rather than 1601.

1603–In *Nippo Jisho*, a Japanese-Portuguese dictionary, tofu (called “taufu”) is mentioned. It says that tofu is a food that is made from powdered / ground beans and that looks like freshly made cheese.

1605–Tokugawa Ieyasu commands the monks at Daifukuji temple to make Hamana Natto. Note 1. This is the earliest document seen (Jan. 2019) that mentions “Hamana Natto” (or “Hamanatto,” regardless of capitalization). This document contains the earliest date seen for Hamanatto–1605! Note 2. This is the earliest document seen (Jan. 2019) stating that Hamanatto [fermented black soybeans] were made at Daifukuji temple in Hamamatsu.

1616–Tanaka Genba of Kamiusa no Kuni is advised to make tamari shoyu as a side business by Sanagi Kyurouemon of Settsu. The latter runs a sake factory and has a wholesale seafood products shop in Edo. This is the beginning of Choshi Shoyu and Higeta Shoyu.

1619–At about this time shoyu in quantity is brought from the Kyoto-Osaka area (*Kansai*) to Edo by Taru Kaisen and Hishigaki Kaisen. Note 1. A “Kaisen” is a ship that has a carrying capacity of at least 200 koku (= 9,520 gallons or 36,000 liters). That shoyu is regarded as the best quality and it soon takes over the entire Edo shoyu market.

1624-1644–Konpura Nakama (The union of merchants who go to Dejima / Deshima, an island in Nagasaki Bay) starts to export shoyu through the Dutch East India Company (*Higashi Indo Gaisha*) to Europe and Southeast Asia. It is said that in Europe this shoyu even reached the dining table of Louis XIV. Note 2. This document contains the earliest date seen for soybean products (shoyu) in Europe and Southeast Asia (probably Indonesia, 1644); soybeans as such had not yet been reported by that date. [Question: What is the source of these two dates?]

1626–Sendai Han (*daimyo* domain) starts to monopolize the selling of salt for the first time in the history of Japan. Because of this, all other Hans start to do likewise. Makabeya Ichibei of Kokubunji-cho in Sendai starts to sell Sendai Miso. He continues to sell his miso to the Han government for several generations.

1642–Because of famines in various provinces (*kuni*), the people were advised to eat coarse grains (*zakkoku*) and banned from eating rice. The sale of tofu, udon (wheat noodles), soba (buckwheat noodles), and *manju* (steamed glutinous rice cakes with a sweet azuki-jam filling) were also prohibited.

1645–The Ako Han starts a salt farm. Hatcho miso starts to be made in Mikawa, Okazaki. Hamaguchi Gihei of Hiromura in Kishu goes to Choshi and starts making shoyu. This is the beginning of Yamasa Shoyu.

1649 Feb.–The Tokugawa government (*bakufu*) passes a law to control the lives of farmers. Called Kanno Jorei (*Keian no Ofuregaki*), it states that farmers must plant soybeans and azuki beans between their rice fields and farms. Azé-mame (soybeans grown on the raised footpaths between rice fields) may have started from this forceful edict.

1652 May–Various farmers in Waksa, Kohama-han, Enshiki-gun? protest the heavy soybean tax increase. The farmland tax is often paid with soybeans. The leaders of the protest are killed.

1657 Jan. 18-19–A large fire (called *Sodefuri Kaji*) burned Edo (today's Tokyo). Laborers came from throughout Japan to reconstruct the city. To feed them, many sellers of pre-cooked, ready-to-eat food sprung up in Edo.

1666–Maruo Magouemon? Chotoku? of Hanshu Tatsuno makes Usukuchi Shoyu (light-colored soy sauce). After this, Tatsuno Shoyu's main product becomes Usukuchi Shoyu.

1681–The government bans the withholding or monopolizing of crops (such as rice, barley, or soybeans) following a year with a bad harvest.

1695–Dr. Hitomi Hitsudai, a Japanese physician, age 74, writes the *Honcho Skokkan* and talks about the good and bad points of daily foods from his medical viewpoint. The 12 volume book is written entirely in Chinese. He praises the therapeutic virtues of soybeans, miso, natto, tofu, and shoyu. A translation into Japanese was later made by Shimada Isao.

1695–At about this time, tofu is sold by vendors sitting by the road. We do not know for sure when tofu was first sold by walking street vendors, but it is guessed that this may have taken place in about 1837-1853 when the book *Morisada Manko* was written by Kitagawa Morisada.

1696–There is famine throughout Japan. In eastern Japan, especially in Tsugaru Han, half of the population dies of starvation.

1696–One of the greatest scholars of agriculture during the Edo period, Miyazaki Yasusada (1623-1697), write *Nôgyo Zensho* (Encyclopedia of Agriculture). In it he described the many different colors, sizes, and shapes of

soybeans cultivated at that time.

1697–Koikuchi shoyu, similar to the type made today, starts to be made from tamari shoyu in Choshi.

1698–After a big fire in Edo, sellers of Dengaku (skewered grilled tofu with a sweet miso topping) start to appear. Address: Norin Suisansho, Tokei Johobu, Norin Tokeika Kacho Hosa.

71. Kaempfer, Engelbert. 1712. *Amoenitatum exoticarum politico-physico-mediarum, fasculi v.* [Exotic novelties, political, physical, medical. Vol. 5]. Lemgoviae, Germany: H.W. Meyer. 912 p. See p. 837-40, 834-35. Illust. p. 838. Reprint of original edition published in 1983 by Steiner (Wiesbaden). [Lat]

• **Summary:** This is Kaempfer's first major work, his most famous, and his first to mention the soybean. Kaempfer was born on 16 September 1651 at Lemgo, in what is today Germany. [Note 1. Germany was not a country until 1871. Lemgo is presently a city in North Rhine-Westphalia, 44 miles southwest of Hannover.] He lived and traveled in Japan from 23 September 1690 to November 1692 and made many interesting observations. This book, written in Latin, was published in Lemgo in 1712, some 16 years after his homecoming. The fifth fascicle of the 900 page book, which contains a description of the plants of Japan, includes a full-page illustration (drawing; p. 838), by Kaempfer, of a soybean plant with details of the flower parts and their names. This is the earliest illustration of a soybean plant published in the Western world. Also contains

AMÖENITATUM
EXOTICARUM
POLITICO-PHYSICO-
MEDICARUM
FASCICULI V,
Quibus continentur
VARIAE RELATIONES, OBSERVATIONES
& DESCRIPTIONES
RERUM PERSICARUM
ULTERIORIS ASIÆ,
multâ attentione, in peregrinationibus per universum Orientem, collectæ,
AUCTORE
ENGELBERTO KÆMPFERO, D.



• LEMGOVIAE,
Impensis HENRICI WILHELMII MEYER, Aula Lippiacæ Typographi, 1712.

a description of the plant, and descriptions of how to make miso and shoyu. He called the soybean “Daidsu” and wrote the Chinese characters before the romanized name in the sequence “zu” “dai” from left to right. The actual Japanese spelling is “daizu.”

Note 2. This the earliest published Western or European document seen (March 2021) that refers to soybean as Daidso.

Note 3. This the earliest published Western or European document seen (April 2021) about the soybean and the earliest one that links the soybean and products made from it (miso and shoyu / soy sauce).

Note 4. This is the earliest document seen (March 2021) written by a European or Westerner in which Chinese characters are used to write the name of the soybean or related products.

Kaempfer’s description of the soybean in Latin (p. 837-40) begins: “Daidsu, vulgo & literatis; & ob excellentiam Mame, i.e. legumen, dictus. Phaseolus erectus, siliquis Lupini, fructu pisi majoris candido...”

Translated into English, this reads: “Daidso—as people and scientists call it, is also called ‘mame’ for its excellence. An upright bean, a leguminous plant like the lupin, with whitish fruit somewhat larger than peas. A bean, similar to the afore-mentioned, but four feet high and with more branches and leaves, with upright stem, irregular branches and with hairs. It stretches forth leaves like the garden bean, but with more pubescence on the under side of the leaf. In the month of August it bears on pedicels in the axil of the leaves several bluish white flowers with a large standard, which resemble those of lentils. These tiny blossoms are followed by pods measuring 1½ inches long, which are covered with heavy hairs (pubescence) resembling those of the yellow lupin. The pods contain two, and more rarely three seeds, similar to garden peas in size, shape and taste, but laterally somewhat compressed, and with a chestnut brown eye (hilum).

“This legume supplies to the Japanese kitchen vital elements, for they make from it the following: 1—A kind of pap that they call miso, which is added to dishes instead of butter. Butter is unknown under this strip of heaven. 2—And then the famous so-called shoyu (*Sooju*), a sauce which is poured over if not all dishes, at least over all cooked and fried meals. I add the processing methods for both.

“To make miso, one takes one measure of mame or phaseolus Daidso (phaseolorum *Daidso*) which is cooked with water for a long time and then brayed or ground and mixed into a soft pap. Under continued braying, common salt is added, in summer four parts, in winter three. If less salt is added, one gets the product quicker, but shelf life is shorter. After reducing has been repeated, one mixes the pap with *koos* [he probably meant koji] or dehulled rice (*Oryza*), and mixes the total by repeated braying. This rice in preparation has been boiled a little in the steam of unsalted water. One

lets the mixture cool down and remain in a warm cellar one or two days and nights to ripen. This mixture, which has the texture of a pap or spread, is put into a bowl that recently contained the popular *sacki*, a rice wine. Before using, one lets the bowl stand one or two months untouched. *Koos* lends to the product an agreeable taste, and its production requires, like that of the Germans’ ‘polenta’ [gruel] the experienced hand of the master. Those therefore who make it are held in high esteem, and they sell it ready made.

Note 5. This is the earliest Latin-language document seen (April 2021) (and the earliest document published in Europe) that mentions miso, which it calls *Miso*. It is also the earliest document seen (April 2021) that compares miso to butter.

“To make shoyu (*Sooju*) one uses the same beans just as thoroughly cooked. And *muggi*, which is barley or wheat fermented (with wheat the product becomes darker) which has been coarsely ground. One mixes equal units with ordinary salt, or only one unit with half of it. The beans are blended with the prepared grain, and one lets the mixture stand in a warm place under cover a day and a night for fermentation. Then the salt is added, one stirs the mass and mixes with water, normally two units to half. When this has been done, the well covered mass is stirred once (better two or three times) the next day and each subsequent day by means of an oven rake. This work is continued for two or three months, then the mass compressed and filtered and the liquid preserved in wooden containers. The older it becomes, the clearer and better it will be. The squeezed mass is again filled up with water and newly stirred and some days after treatment pressed again.

Note 6. This is the earliest document seen (March 2021) that uses the word *koos* to refer to koji, or that uses the word *Sooju* to refer to shoyu (soy sauce).

Paragraph 3 reads as follows in the original Latin: “Hoc legumen in coquina Japonicâ utramque replet paginam; Ex eo namque conficitur: tum puls *Miso* dicta, quæ ferculis pro consistentiâ & butyri loco additur, butyrum enim hîc coelô res ignota est; tum *Sooju* dictumcelebre embamma, quod nisi ferculis, certè frictis & assatis omnibus affunditur. Utriusque conficiendi modum appono:”

On pages 832-33 Kaempfer describes various types of sea vegetables including Ama nori, Tokoto tengusa, Aonori, Konbu, Arame, Miru, etc.

On page 834 Kaempfer lists the Go-koku (five chief cereal grains): *come* [*kome*], *Oryza* in genere: quinque grana Japoniis *go kokf* secundum excellentiam dicuntur: *come*, *Oryza* [rice]; *o muggi*, *Hordeum* [wheat]; *ko muggi*, *Triticum* [barley]; *daidsu* [daizu, soybean], *Phaseoli facie Lupini*; & *sjodsu* seu *adsuki*, *Phaseoli vulgaribus similes* [Adzuki, azuki, or *Phaseolus radiatus*, L.].

On page 834 he mentions awa and hie millets (*Panicum*), soba (buckwheat; *Fagopyrum sativum*), goma (sesame; *Sesamum*), keshi (poppies, *Papaver*), and maybe

peas (*Pisum*) or Soramame (broad beans).

On page 836 are botanical descriptions, each with 1-2 Chinese characters (read from right to left), of: Broad beans (*Sora mame*), sword beans (*Natta mame* [*nata mame*]), peanuts (*Nankin mame* or *Nankino*), and cowpeas (*Sasagi* [*sasage*], *Shiro Sasangi*).

On p. 837 is a detailed botanical description (in Latin) of the azuki bean, starting with a Chinese character: “Too, vulgo Atsuki [Adzuki], *Phaseolus hirsutus*...” Note 7. This is the earliest Latin-language document seen (Oct. 2021) that mentions azuki beans, which it calls *sjodsu*, *adsuki*, or *atsuki*.

On page 840 are shorter descriptions (in Latin) of “Siuku, vulgo Kuro mame [Black soybean], i.e. *Phaseoli nigri*. *Phaseoli Daidu* species sive varietas, fructo nigro,” and “Katz, vulgo Kudsu [Kudzu], *Kudsu Kádsura*.”

Note 8. This is the earliest document seen (March 2021) concerning soy in connection with (but not yet in) Germany. Other early authors to cite soy were Linnaeus (1747, p. 222, and 1753, p. 727), Osbeck (1771, p. 253), Linnaeus (1772, p. 171), de Candolle (1885, p. 331), Yule & Burnell (1886, p. 651), and Blasdale (1899).

Note 9. This is the earliest document seen (March 2021) by or concerning Engelbert Kaempfer in connection with soybeans.

Note 10. This is the earliest document seen (March 2021) that mentions lupins.

Note 11. This is the earliest document seen (March 2021) that mentions both lentils and soybeans.

An illustration, which is thought to show Engelbert Kaempfer riding on a horse in Japan, was sent to Soyfoods Center by Herr Deubel of Germany. Address: Lemgo, Germany.

72. Kaempfer, Engelbert. 1727. The history of Japan, giving an account of the ancient and present state and government of that empire;... Its metals, minerals, trees, plants, animals, birds and fishes;... Together with a description of the Kingdom of Siam 1690-1692. (translated by J.G. Scheuchzer from the original edition of April 1727. 2 vols.). London: Printed for the translator. See vol. I, book I, chapter IX, p. 121-22. [1 ref. Eng]

• **Summary:** In Chapter IX, “Of the fertility of the country as to plants,” the section titled *Gokokf* [*Goku-fu*] (“five grains,” p. 121-22) states: “The chief produce of the Fields, which contributes most to the sustenance of Life, is by the Japanese comprehended under the name of *Gokokf*, that is, the *five Fruits of the Fields*. ‘Tis by their good or bad growth they estimate the value of the Ground, the fruitfulness of the Year, and the wealth of the Possessor. They make up the chief dishes at their meals, and make good the want there is of Flesh-meat, which Custom and Religion forbid them to eat.”

Note 1. This is the earliest English-language document seen (Dec. 2014) that mentions the *Goku-fu* or “five grains” and includes the soybean among them.

Note 2. This is the earliest English-language document seen (July 2017) that uses the term “Flesh-meat” to refer to meat.

The five grains (*Gokokf*) are: (1) *Kome* or Rice (from which “they brew a sort of strong fat Beer, call’d *Sacki*...”). (2) *Oomugi* or Barley. “They feed their Cattle and Horses with it: Some dress their Victuals with the Flower [Flour], and make Cakes of it.” (3) *Koomuggi* or Wheat. (4) *Daidu* or Daidbeans. (5) “*Adsuki* [azuki] or *Sodsu* [shôzu, shôdzu = small + bean] that is Sobeans” [azuki].

Concerning soybeans: “4. *Daidu*, that is, *Daidbeans*, is a certain sort of Beans, about the bigness of Turkish Pease, growing after the manner of Lupins. They are next to the Rice in use and esteem. Of the Meal of these Beans is made what they call *Midsu*, a mealy Pap, which they dress their Victuals withal, as we do with Butter. What they call *Soeju*, is also made of it, which is a sort of an *Emamma*, as they call it, which they eat at meals to get a good Stomach [appetite]. This *Soeju* is exported by the Dutch, and brought even into *Holland*. I have describ’d their way of making it in my *Amoenitates Exoticae*, p. 839. where the Plant it self bearing these Beans is figur’d and describ’d.”

Note 3. *Midsu* clearly refers to miso, and *Soeju* to shoyu. This is the earliest English-language document seen (April 2021) that mentions miso, or miso in connection with Japan. It is also the earliest English-language document seen (March 2009) that compares miso with butter. *Midsu* has almost the same pronunciation (phonetics), and the same etymology and meaning as the today’s word “miso.” Since spelling did not become fixed until the 18th century, this could be considered the earliest occurrence of “miso” in an English-language document.

Note 4. This is the earliest English-language document seen (April 2012) that uses the word *Soeju* to refer to soy sauce. It is clearly Kaempfer’s spelling of the Japanese word *shoyu*.

The author continues (p. 121-22): “5. *Adsuki* or *Sodsu*, that is Sobeans. They grow likewise after the manner of Lupins, and are black, not unlike *Lentils*, or the Indian *Cajan*. The flower [flour] is bak’d with sugar into *Mansje* [*Manju*] and other Cakes.”

Note 5. This is the earliest English-language document seen (Oct. 2021) that clearly mentions azuki beans. It is also the earliest English-language document seen (Oct. 2021) that uses the word “*Adsuki*” or the word “*Sodsu*” to refer to azuki beans. Cooked and mashed or ground dry into flour, asuki are mixed with sugar to make *an* or “sweetened azuki bean paste.” This is used as a filling for the popular steamed Japanese sweet bun named *manju*. Azuki beans, though usually red, also occasionally have black or white seedcoats.

“Besides the several sorts of *Gokokf* just mentioned, the following Plants are comprehended under the same name: *Awa*, Indian Corn, (*Panicum Indicum* *Tabern*), *Kibi*, or *Milium vulgare nostras*, *Millet*: *Fije*, or *Panicum vulgare*

juba minore semine nigricante: And in general all sorts of Corn and *Mami* [Mamé = beans], that is pease and pulse.”

In the Introduction to this book, the translator explains that it was first published in English, after Dr. Kämpfer’s death in 1716, thanks to Sir Hans Sloane, who purchased all of Kämpfer’s plates, drawings, and manuscript memoirs as they were about “to be disposed of.” Sloane added them to his library, which the translator believes is “the completest of its kind in Europe,” with an extensive collection of Books of Physik, Natural History and Travels.” “This History of Japan was by the Author divided into five Books.”

Note 6. Kaempfer, born in what is today Germany (Germany was not a country until 1871), lived 1651-1716. John Gaspar Scheuchzer lived 1702-1729. His first translation was this one, in 1727. The title page states that the original was “Written in High-Dutch by Engelberus Kaempfer, M.D., Physician to the Dutch Embassy to the Emperor’s Court; and translated from his Original Manuscript, never before printed, by J.G. Scheuchzer, F.R.S. and a member of the College of Physicians, London. With the Life of the Author, and an Introduction. Illustrated with many copper plates.”

Note 7. In 1986 a 3 volume edition was published in Glasgow, Scotland by James Maclehose and Sons. This book contains no mention of soybeans in Siam (Thailand).

Note 8. This is the earliest English-language document seen (Nov. 2007) that mentions Lupins (or “lupin” or “lupine” or “lupines”).

Note 9. This is the earliest English-language document seen (June 2008) that mentions lentils; it compares them with azuki [azuki] beans. Address: M.D., Physician to the Dutch Embassy to the Emperor’s Court [in Japan].

73. Charlevoix, Pierre Francois Xavier de. 1736. *Histoire et description generale du Japon: Ou l’on trouvera ce qu’on a pu apprendre de la nature & des productions du pays... & l’examen de tous les auteurs, qui ont écrit sur le meme sujet...* 2 v. [History and general description of Japan... Including the examination of all the authors who have written on the same subject. 2 vols.]. Paris: Chez Julien-Michel Gandouin [and 4 others]. Illust. Index. 26 cm. [Fre]

• **Summary:** Vol. 1, page 62: The author discusses the Japanese use of marine algae [sea vegetables] for food. On the coast of Kanagawa, at 5 or 6 leagues [1 league = 4 km] from Yedo [Edo, today’s Tokyo], certain marine algae are found in great abundance; they also serve the shell-fish. There are two types; one is green and slender (*déliée*), the other is reddish and larger. They are gathered when the sea is low [the tide is out], and they are delicious to eat. After they have been well cleaned, they are put in a tub of fresh water and washed. Afterwards the green algae are spread out on a piece of wood, where they are cut into small pieces, as when tobacco is made ready for being smoked. Then they are washed anew, then poured onto a two-foot long screen,

where fresh water is poured on them. They are withdrawn with a kind of comb made from reeds, then pressed with the hands so that they make a thick paste, from which all the water is pressed out. Then it is allowed to dry in the sun. The red algae is not so common, and it is not cut up [into small pieces] like the green.

When discussing the processing of green algae, the author seems to be describing how squares, then sheets of nori are made. However nori is the Japanese name for edible seaweed species of the red algae genus *Porphyra*. On the same page, the author mentions rice (*ris*).

In Vol. 2, in the section on Plants of Japan, page 642 discusses Sasagi. Atsuki [azuki] beans. Daidso, & par excellence Mame, that is to say, Légume. Siuku, popularly known as Kuro Mame. Katz, popularly known as Kudsu [kuzu, kudzu], Kadsura & Kadsune.

The section on Daidso states: The word “Daidso” is used both in literature and popularly. This plant is a species of legume, and it has pods like the lupin, and the seeds are like large peas. It grows to a height of four feet. Its stem is not straight, and it is branching. Its leaves resemble those of the garden bean (*Haricot des Jardins*) but covered on both sides with rather coarse hairs. Its flowers, which are in full bloom in the month of August, are the flowers of a papilionaceous plant [as a bean or pea], yellow and blue, and resembling those of the *Ers* genus of leguminous plants [comprising the vetches, lentils, etc]. Its pods, or *siliques* are large in number and about 1½ inches long (*un poulce & demi*), bristling with hairs, and resembling those of the lupin. They ordinarily contain two seeds, rarely three, being the shape and size and taste of garden peas.

These seeds are very widely used by the Japanese; from them they make a type of paste, which is used in place of butter, the latter being entirely unknown to them, and a famous sauce, which they serve with roasted meats. This paste is called Miso (se nomme *Miso*), and the sauce shoyu (& la sauce *Sooju*). A great deal of attention is required for the preparation of each of these.

Note 1. This is the earliest French-language document seen (April 2021) that mentions miso, which it calls *Miso*.

The black soybean is a species of the former plant, and is not different from it except that its fruit is black. Another type has a seed which is blackish and smaller, and which is used by doctors, who make 3-4 seeds into a powder for asthmatics.

Note 2. This is the earliest French-language document seen (Oct. 2021) that mentions azuki beans, which it calls *Atsuki*.

Pierre Charlevoix lived 1682-1761. Address: Jesuit father.

74. Du Halde, Jean-Baptiste. 1736. *Description géographique, historique, chronologique, politique, et physique de l’empire de la Chine et de la Tartarie chinoise*

[Geographical, historical, chronological, political and physical description of the empire of China and the Chinese Tartary {Tartars} Vol. 1]. La Haye: Chez Henri Scheurleer. [523] p. [Fre]

• **Summary:** This book has no page numbers. At the end of this book [starting page 489] is a dictionary of the Chinese and Tartar words found in this work.

In Vol. 1. *Teou ché* [pinyin: douche], nom de fève [name of bean]. Note 1. “In English, douche is “fermented black soybeans.”

Teou pan hiang [pinyin: dou ban jiang]. Note 2. In English, *dou ban jiang* is black bean sauce, made with soybeans as the main ingredient.

Ta teou [pinyin: da dou], sorte de gros pois, ou de feves [a type of large pea or bean]. Note 3. In English, *da dou* / *dadou* is the soybean.

Related to other beans and peas:

Lou teou fuen [lǔ tou fen], espece de petits pois verds. Note 4. In English, this refers to mung bean flour.

Siao teou [pinyin: xiao dou], espece de pois [a type of pea]. Note 5. In English, *xiao dou* is the azuki bean.

Note 6. This book was also published in English in 1736, in London, by J. Watts, under the title “The general history of China. Containing a geographical, historical, chronological, political and physical description of the empire of China, Chinese-Tartary, Corea and Thibet. Including an exact and particular account of their customs, manners, ceremonies, religion, arts and sciences... Done from the French of P. Du Halde...”

Note 7. Du Halde lived 1674-1743.

Note 8. This book was discovered by Hervé Berbille of France; he sent a link to Soyinfo Center. Address: Jesuit father [P. de la Compagnie de Jesus].

75. Shoushi tongkao [Compendium of works and days. Imperial encyclopedia of agriculture and related topics]. 1742. China. 78 volumes. Illust. Published in 2 vols. in 1956 by Zhonghua Press, Beijing. [Chi]

• **Summary:** See next page. Wade-Giles reference: *Shou Shih T'ung K'ao*. Qing dynasty. Compilation from literary, administrative, and agronomic sources, according to topic, on lines similar to the *Nongzheng quanshu*, using more sources, but vastly inferior.

Bray (1984, p. 630): Compendium of Works & Days. Ch'ing, 1742 CE. Compiled by imperial order under the direction of O-Erh-T'ai. Textual references are to the 1847 reprint of the original 1742 Palace edition. Bray gives a detailed discussion of the work, including a translation of the table of contents. “It was commissioned by the emperor Qian Long (W.-G. Ch'ien Lung) in 1737 and presented to the throne by E'ertai (W.-G. O-Erh-T'ai) and his team of more than fifty collaborators in 1742. The whole aim of this work was the glorification of the emperor as the benevolent holder of the Mandate of Heaven,...” 78 volumes (*juan*) in length

and one of the longest of the *Nongshu*, it is divided under eight headings. The compilers quoted from 427 sources; the work contains no original material (p. 72-74). Bray also reproduces lovely illustrations of the soy bean plant (p. 513), the azuki bean plant (p. 515, “red small bean”), the broad bean (or “silkworm bean”) plant (p. 517), the hemp plant grown for fiber (p. 534), and the Chinese cotton plant (p. 538) from this work.

Wilkinson (2000, p. 631) classifies this as an agricultural calendar and translates the title as “Comprehensive study of the farming year” and says it was “imperial sponsored and distributed, 1747, Nongye, 1963. Almost entirely culled from previous works.”

76. Zhang Zongfa. 1760. Sannongji [Records of the three departments of agriculture]. China. Passage on soy reprinted in C.N. Li 1958 #299, p. 221, and #331, p. 234-35. [Chi]

• **Summary:** Wade-Giles reference: *San Nung Chi*, by Chang Tsung-Fa. Qing dynasty. Contains a passage on soybean seedlings (*doumiao*) from the *Zhenglei bencao* (Reorganized pharmacopoeia) (1082 CE; which see). The section titled “The spring” states: Plant black soybeans (*heidou*). Note 1. The last month of spring in the Chinese lunar calendar, which is the 3rd month, would be quite early to plant soybeans in northern China but not so early in southern China.

The section titled “Beans” (*dou*) begins with a long quotation from the *Bencao Tujin* (Illustrated pharmacopoeia) (1061, which see).

The next section begins with a brief quotation from the *Shiming* (Expositor of names) (150 CE): *Shu* (the simplified character) means soybeans (*shu*, the early, more complex character). Then Zhang Zongfa (author of this book, *Sannongji*) comments: *Shu* (the complex character) is the general name for legumes (*jiagu*, “pod grain”). Note 2. Dr. Huang has never seen these two characters used to refer to legumes. Moreover, throughout early Chinese history, the complex character *shu* almost always referred specifically to soybeans, not to legumes in general. So this is Zhang's new interpretation of the meaning of *shu*.

Zhang Zongfa continues: In the ancient “seal characters” (*zhuanwen*), the three strokes at the bottom in *shu* (the simplified character) looks like pods dangling from the stem. The character for *dou* (bean) looks like seeds (i.e., beans) in the pod. Note 3. Hu Daojing (1963) proposed that the three dots represent the nodules on the roots of the soybean plant.

According to the *Guangya* (Ancient dictionary: Enlargement of the *Erya*) (230 CE): Soybeans (*dadou*) were also called *shu*; azuki beans (*xiaodou*) were also called *da*.

According to the *Mingyi Bielu* (Informal records of famous physicians) (510 CE): The leaves can be used to feed livestock. The pods can be used to feed cattle and horses. The stems can be used as fuel to cook food.

The next paragraphs, which repeat material about soybeans from earlier documents, discuss: (2) Storage. (3)



Planting. (4) Cultivation and weeding. (5) Harvesting. (6) Storage of the harvested soybeans.

The next-to-last paragraph states: Character (*benxin*) of the soybean. The flavor is sweet and the nature (*qi*) is warm. Benefits the *qi* and blends to the middle; evens the temperament. Prolonged ingestion makes the body heavy. You can cook it by parching, or you can boil it. Its nature is cooling. If you make fermented black soybeans (*shi*), then it becomes cold. If you make jiang or raw sprouts, then its nature is neutral. When the cattle eat it, it is warming. But when the horses eat it, it is cooling. So, although it is one substance, its nature changes. If you parch the beans and eat them with pork, you may die of suffocation. Small children should avoid it, but after they are 10 years old they may eat it. If you eat hempseeds (*mazi*) or acorns? (*hobu*) you should not eat parched soybeans; if you do, you will have scars.

The section titled “sweet melon” notes: Plant sweet melon together with soybeans. After the soybean seedlings

emerge to a height of 4-5 inches (*cun*), pinch them off. After several leaves appear on the melon plants, then you pinch off the soybean seedlings (*doumiao*).

The section titled “Season of spring. Agricultural time. Plant seasonal beans” (*dou*) states that the common bean (later called *caidou*; *Phaseolus vulgaris*) was called “four seasons bean” (*shijidou*). The passage describes what it looks like, explains that it is a legume (*shu*), and tells when to plant and when to harvest. Its nature (*qi*) is warm and its flavor is sweet. See Li 1958 #580. Note 4. The term *caidou* is not mentioned. These are the most widely used beans throughout Latin America and the American Southwest—where they are known as frioles. However, they are not widely cultivated nor used as food in China. (Translated by H.T. Huang, PhD, Jan. 2003, May 2003).

Bray (1984, p. 451, 629):
 “Records of the three departments of agriculture.” Qing dynasty. Preface 1760. Citing this work from Szechuan, Bray notes that it gives the first detailed Chinese account of sorghum cultivation techniques, which are very similar to those for millets.

77. Thunberg, Karl Peter. 1784. *Flora Iaponica, sistens plantas insularum Iaponicarum...* [The flora of Japan, setting forth the plants of the Japanese

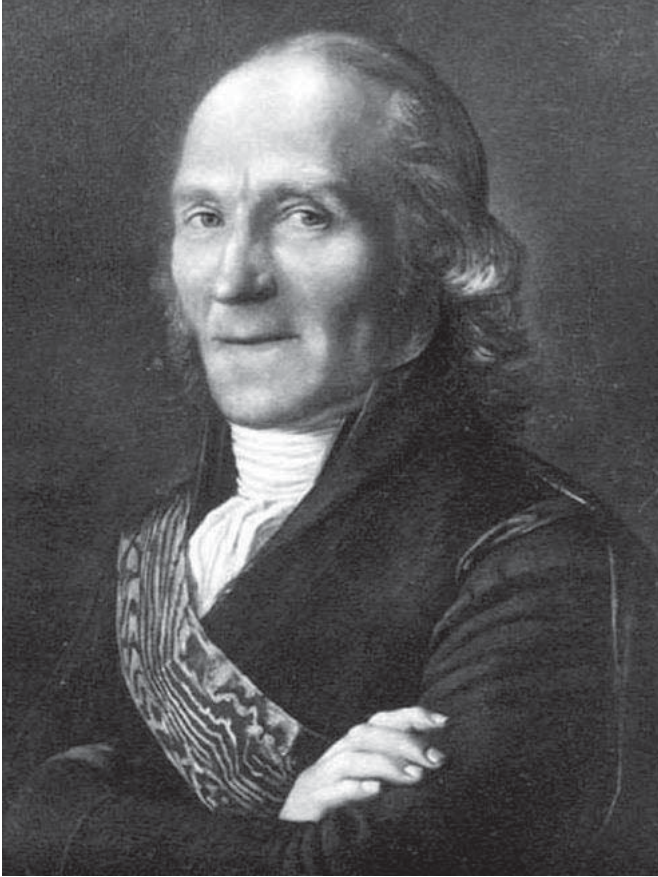
islands]. Lipsiae (Leipzig), in bibliopolio I.G. Muelleriano.
lii + 417 p. See p. 279, 282-83, 377-78. [Lat]

• **Summary:** In the chapter titled “Diadelphia. Decandria,” within the genus *Dolichos* is listed *D. Soja* (p. 282). After a botanical description in Latin, the last paragraph reads: “*Soja Iaponensium, quae Kitjap chinesium praefertur e seminibus huius praeparatur, et plurima fercula atque embemmata tantum non omnia ingreditur, viceque Salis marini contusi fungitur.*”

In the chapter on “Kaempfer’s Illustrations” (*Kaempfervs Illvstratvvs*) are listed (p. 377): *Coix lachryma* [Job’s tears] (834). Soba (buckwheat noodles, 835). *Sesamum orientale* (sesame seeds, 835). On page 838: Atsuki (azuki, 837). *Dolichos soja*—Daisu (837). Kudzu (840).

Karl Peter Thunberg lived 1743-1828.

Talk with Prof. Ted Hymowitz of the University of Illinois. 1995. March 24. The Japanese recently (and finally) published a Japanese-language edition of Thunberg. They



found his illustrations in Russia in Maximowicz's collection.

An excellent old illustration of "Carolus Pet. Thunberg" is found on page 1 in the book *Miscellaneous Papers Regarding Japanese Plants* (1935; 562 p.). Address: Sweden.

78. Ryôrisho. Fu to tôfu [Cookbook on wheat gluten and tofu]. 1790. Japan. 38 p. Unpublished manuscript. Japanese summary by Kawakami 1978, p. 175. [Jap]

• **Summary:** This must be the last volume of a three volume work. This one is about Zen vegetarian cookery (*shojin ryori*). The other two were about fish and poultry. There are a lot of tofu recipes, including Suizenji Tofu, Enmeiji Tofu, Uneri Tofu, and Shiruko Tofu. A description of how to make sweet simmered miso (*neri-miso*) is also given.

79. Cheng Yaodian. 1790? Jiu gukao [Treatise on the nine (cereal) grains]. China. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Chiu Ku K'ao*, by Ch'êng Yao-T'ien. Qing dynasty. Huang (2000, p. 20n) states that the author of this work agrees with the conventional view that the "Nine Grains" include soybeans (*dadou*) and azuki beans (*xiaodou*), but he believed the character *chi* referred, not to millet, but to sorghum, well known in China in later times as *kaoliang* / *kao-liang*.

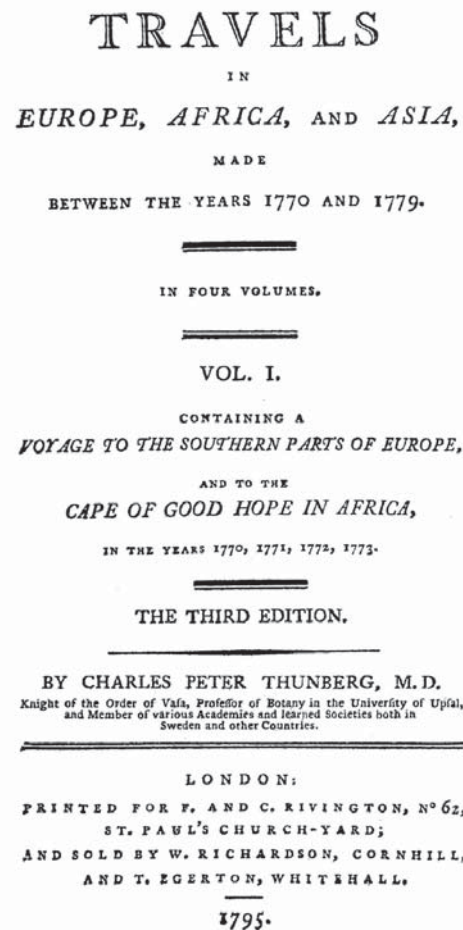
Bray (1984, p. 623) gives the date as ca. 1790 CE.

Hagerty (1917, p. 21. Translation of Wu 1848): "The

Chiu ku k'ao (Treatise on the Nine Grains) quotes the *Shuo wên* (Ancient Dictionary) and says that the name Shu (1 Cc) is identical with Tou (1 Cc). The character Shu (1 Cc) is used to denote the bean because the form of the growing bean is supposed to resemble this character."

80. Thunberg, Charles Peter. 1795. *Travels in Europe, Africa, and Asia, made between the years 1770 and 1779*. In four volumes. Vol. IV. Containing travels in the empire of Japan, and in the islands of Java and Ceylon, together with the voyage home. 3rd ed. London: Printed for F. and C. Rivington. xix + 310 p. See p. 37-38, 88, 107, 121-22, 177. Index. 21 cm. [Eng]

• **Summary:** In the chapter on Japanese foods, we read (p. 37-38): "Rice, which is here exceedingly white and well-tasted, supplies, with the Japanese, the place of bread; they eat it boiled with every kind of provisions. *Miso* soup, boiled with fish and onions, is eaten by the common people, frequently three times a day, or at each of their customary meals. *Misos* are not unlike lentils, and are small beans, gathered from the *Dolichos soja*." Note 1. The latter sentence, which is incorrect, led many subsequent early



writers to believe that the seeds of the soy bean were called miso, or that miso was a type of small bean. Rather, miso is a paste made from soy beans.

In the chapter on Japanese agriculture, we read (p. 88): “Of Beans, Peas, and Lentils, many sorts are cultivated, both the larger (*Phaseoli*) and the smaller (*Dolichos*). Of *Daidso* Beans (*Dolichos Soja*) the meal is used for dressing victuals, and the expressed juice for making Soy; as is likewise the whole Bean for the soup called *Miso*, which is a daily dish with the common people. *Atsuki* [Azuki] Beans likewise (*Phaseolus radiatus*) are ground to meal, of which small cakes are made with sugar.”

Note 2. This is the 2nd earliest English-language document seen (Oct. 2021) that clearly mentions azuki beans, which it calls *Atsuki Beans*. It is also the earliest English-language document seen (Oct. 2021) that uses the word *Atsuki* to refer to azuki beans.

Note 3. It is not clear what Thunberg means by “meal” when he says “the meal is used for dressing victuals.”

In the chapter on Commerce, after discussing the tea trade, Thunberg writes (p. 107): “The *Tea Trade* is confined entirely to the inland consumption, the quantity exported amounting to little or nothing. The traffic in Soy [sauce], on the other hand is more considerable; and as the tea produced in this country is reckoned inferior to that of China, so the soy is much better than that which is brewed in China. For this reason, soy is not only exported to Batavia [today’s Jakarta], in the wooden barrels in which it is made, but likewise sold from thence to Europe and to every part of the East Indies. In some places in Japan too the soy is reckoned still better than in others; but, in order to preserve the very best sort, and prevent its undergoing a fermentation, in consequence of the heat of the climate, and thus being totally spoiled, the Dutch at the Factory [at Desima / Dezima / Dejima] boil it up in iron kettles, and afterwards draw it off into bottles, which are then well corked and sealed [by applying bitumen / coal tar to the stopper]. This mode of treatment renders it stronger and preserves it better, and makes it serviceable for all kinds of sauce. The *Silk trade* is indeed in a very flourishing state in the empire...”

In the chapter titled “Residence at Dezima [1776], Previous to my Return Home,” the author writes (p. 121-22): “Soy-sauce, which is every where and every day used throughout the whole empire, I might almost say in every dish, and which begins even to be made use of in Europe, is prepared from Soy Beans (*Dolichos Soja*) and salt, mixed with barley or wheat. For this purpose, they cultivate this species of bean in several places, although it grows in great plenty wild. Scarcely any kind of legumen [legume] is more copiously used than this. The seeds are served up in soups, once or twice a day all the year round, to people of distinction or otherwise, to the poor and to the rich. Soy is prepared in the following manner: The beans are boiled till they become rather soft; afterwards an equal quantity of

pounded barley or wheat is added. These ingredients being mixed together, are set in a warm place, and covered up for four and twenty hours, that they may ferment. An equal quantity of salt is then added to the mixture, and twice and a half as much water is poured upon it. After it has been mixed in this manner in an earthen vessel, it must stand well covered two or three whole months together, during which period it is necessary however at first for it to be stirred about several times in the day for several days together. The liquor is then pressed and strained off, and kept in wooden vessels. Some provinces furnish better soy than others; but exclusively of this, it grows better and clearer through age. Its colour is invariably brown, and its chief excellence consists in the agreeable salt taste which it possesses.”

While in Colombo, Ceylon, in 1777 the author stated that “the *Dolichos pruriens* grew here tolerably common, with its hairy pods, the hairs of which attaching themselves to the hands, occasion much itching, which is allayed by oil, or decoction of rice, and are celebrated as a Vermifuge.”

Note 4. This plant appears in the index as “*Dolichos Soja*.”

Note 5. This is the 2nd earliest English-language document seen (April 2021) that contains the term “Miso soup.”

Note 6. On the title page, the author’s name is given as Carl Peter Thunberg, rather than Karl Peter. Of the four volumes, only vol. IV bears a date, which is 1795. The translator’s name is not given, not even in the “Translator’s preface” nor in any record on WorldCat / OCLC online bibliographic database. The original text was written in 1776. Yule & Burnell (1886, p. 651, and 1903, p. 859) state: “1776. An elaborate account of the preparation of Soy is given in *Thunberg’s Travels*, E.T., [vol.] iv. 121-122;”

Note 7. This is the earliest English-language document seen (Oct. 2014) that contains the word “Soy Beans” (or “Soy-Beans”) (p. 121-22).

Note 8. This is the earliest English-language document seen (April 2012) that contains the term “Soy-sauce” (or “soy-sauce”). The *Oxford English Dictionary* says (incorrectly): “1818 Todd (transl. Thunberg), Soy-sauce is prepared from soy-beans (*dolichos soja*) and salt, mixed with barley or wheat.”

Note 9. Lewis and Murakami (1923, p. 223) state: “The third English edition of Charles Peter Thunberg’s *Travels* (London 1796) contains an English-Japanese vocabulary of approximately 1,500 words; this was probably the first English-Japanese vocabulary ever published. It seems to have been unknown to our author [Ranald MacDonald] and his scholars.” Address: Prof. of Botany, Univ. of Uppsala [Uppsala], Sweden.

81. Thunberg, Karl Peter. 1796. *Voyages de C.P. Thunberg, au Japon*. Tome second [Voyages of C.P. Thunberg to Japan. Vol. 2]. Paris: Benoit Dandre. iv + 544 p. See p. 3, 4, 145,

266-68. [Fre]

• **Summary:** An early traveler to East Asia who mentioned soyfoods was the Swedish doctor and prof. of botany at the Univ. of Uppsala, Carl P. Thunberg. In Chapter 20 titled “Japanese Foods” he states (p. 267-68): “Three times a day, with each meal, the people eat miso soup prepared with fish and leeks. These miso [he apparently thought miso was the name of a legume; see Thunberg 1796 in English] closely resemble lentils. They are the small dolich beans of Japan (*ce sont de petites fèves de dolich du Japon*).*” (Footnote: * “*Dolichos soja*. Lam. Diction. [Lamarck 1790. Dictionary] No. 28).”

“Miso or soy sauce (*Le miso ou la sauce de soya*) constitute the principal food of the Japanese. People of all levels, great or small, rich or poor, eat them several times a day year-round. Here is how they are prepared. The beans are cooked until they are just soft, then they are mixed with an equal quantity of barley or wheat, and the mixture is allowed to ferment for 24 hours in a warm place. Now an equal quantity of salt and 2½ times the amount of water. The mixture is put in an earthen pot, which is well closed and left for 2½ months; it is stirred during the initial days. After the necessary time the liquid is pressed out and stored in wooden kegs. The inhabitants of certain provinces make better ‘soya’ than those in others. Moreover, the longer it ages, the tastier and clearer it becomes. It is always brown and its principal flavor is a pleasant saltiness. The Japanese also eat fish, boiled or fried in oil” (p. 267-68).

“The tea of Japan is inferior to that of China. However, Japanese ‘soya’ [soy sauce] is preferable to that of the Chinese. It is shipped in numerous vats to Batavia [today’s Jakarta, Indonesia], India, and Europe. The Dutch have found a way of protecting it from the effects of heat and of preserving the fermentation. They boil it in an iron pot, funnel it into bottles, and seal the mouths with pitch. This liquid retains all its ‘force’ and can be mixed with all other sauces.” Note 1. All this took place long before Appert’s invention of canning in 1809 and Pasteur’s invention of pasteurization in 1862. In fact pasteurization had been practiced in Japan for 200 to 300 years before this time.

In Chapter 23, “The State of Agriculture in Japan,” the author notes (p. 291): The Japanese plant a great deal of rapeseed, and the seed furnishes an excellent oil for lamps. In Japanese, the plant is named *na tanne* and the oil *na tanne abra* or *na tanne no abra* [sic, *natane abura*]. “Soy flour (*La farine des fèves de daidsou* (Footnote: *Dolichos soia*)) is used in various dishes.

Note 2. This is the earliest French-language document seen (Sept. 2021) that mentions roasted soy flour, which it calls *La farine des fèves de daidsou*.

Note 3. This is the earliest French-language document seen (Sept. 2014) that uses the term *fèves de dolich* or the term *fèves de dolich du Japon* or the word *daidsou* or the term *fèves de daidsou* or the term *Dolichos soya* to refer to soybeans.

The liquid that is pressed out is used to make soy sauce (*du soya*). The roots are put in a soup named *miso*, which the people use daily for nourishment. Small cakes are also made with the flour of azuki beans (*la farine de haricots d’atsouki* (Footnote: *Phaseolus radiatus*)) mixed with sugar.”

Note 4. This is the 3rd earliest French-language document seen (Oct. 2021) that mentions azuki beans, which it calls *haricots d’atsouki*.

Pages 314-15 state: “Their soy sauce (*sauce de soya*), which has been introduced by many Europe countries, is made with soybeans (*se fait avec des fèves-soya* (Footnote: *Dolichos soya*)), barley or wheat, and salt. Although these beans come spontaneously and abundantly in many places, the consumption which they make of this flour causes them to take particular care with the plant’s cultivation.”

Note 5. This is the earliest French-language document seen (April 2012) that uses the term *sauce de soya* to refer to soy sauce.

Note 6. This is the 2nd earliest French-language document seen (Aug. 2014), published in France, in which the word *soya* (or *Soya*) is used in connection with soybeans or soy sauce. Address: France.

82. Linnaeus, Carolus. 1800. *Species plantarum*; exhibentes plantas rite cognitatas ad genera relatas... Editio quarta, post Reichardianam quinta... Curante Carolo Ludovico Willdenow. Tomus III. [Species of plants. 4th ed. Edited by Carl Ludwig Willdenow. Vol. 3, Part II.]. Berolini (Berlin). Impensis G.C. Nauk. p. 851-1474. See p. 1051. [6 ref. Lat]

• **Summary:** “45. *Dolichos Soja*.

D. caule erecto flexuoso, racemis axillaribus erectis, leguminibus pendulis hispidis subdispermis. *Fl. zeyl.* 634. *Mat. med.* 171. *Jacq. ic. rar.* 1. t. 145. *Collect.* 1. p. 46.

Phaseolus erectus, siliquis lupini, fructu pisi majoribus candido. *Kaempfer. amoen.* 837. t. 838.

Houttuyn Lin. Pfl. Syst. 8. p. 564.

Soja Faseln. W.

Habitat in India orientali, Japonia. (v. v.) *Corollae vix calyce majores. Flores subsessiles* 3. 5.

Legumina disperma.

Also on page 1051, No. 47 is *Dolichos angularis* W.—the Alsuki [Adsuki] bean; *Habitat: In Japan.*

Note 1. According to the *Columbia-Lippincott Gazetteer of the World* the term “East Indies” originally referred to India, then by extension to Southeast Asia, and finally to the Malay Archipelago. Note 2. For date of issue, see Schubert in *Rhodora*. xlv, 1942, p. 150.

83. Buconjic, Andrija. 1804. *Monografija Dubrovnika 1800-1810 godina* [Monograph of Dubrovnik, 1800-1810]. Dubrovnik. See p. 126-28. Handwritten. Unpublished manuscript. [Sc]*

• **Summary:** Prof. Ted Hymowitz of the University of Illinois reads the following (20 Dec. 1994) from a translation

he had made of this undated hand-written unpublished manuscript written in Cyrillic characters. It was sent to him by Bogdan Belic (a real scholar) who found it in the library of a monastery. The scene takes place in Dubrovnik: “Sister Lucia was in charge of providing victuals for the Holy Church. Each day she would go the marketplace accompanied by Sister Angela and they would bring in foods that we did not grow in our garden. One day she brought yellow beans that were different from those we had. The next day I went with Sister Lucia to the marketplace to hear with my own ears of the qualities of the yellow beans. We soon found Donna Maria and talked to her. She told me she had grown yellow beans for years, and she served them every Friday when the entire family fasted and on church holidays. She instructed me to fry or boil the yellow beans, mix them with barley or corn grain, and feed the mixture to chickens. They would then lay those beautiful eggs, even two a day, like those from her basket.”

Donna Maria then told friar Bucojnic: “I was given the seeds by captain Luca, our neighbor in the village of Konavlje, and he had brought the seeds from a long journey to a far-away country called China. Ask captain Luca; he will tell you more. He calls the seeds ‘soybeans’ and in Konavlje we call them ‘yellow beans.’ So the next day the friar visited captain Luca, who said: “These seeds are called soybeans in China. I brought some in 1804 and planted them in my garden, the way my friends from China advised me. I gave a handful of seeds to my marriage witness, who lives in the town of Capljina, and he planted them in his garden the same year. ‘In 3 months the plants grew that high,’ said captain Luca with pride.

“In the year of our Lord 1805 I [captain Luca] brought three sacks of soybean seeds from China, yellow, black, and red, and gave them to my friends in Konavlje, Ploce, and Capljina. They planted them after my instructions and fed them to chickens and other poultry belonging to members of their households. In 4 years the people multiplied soybeans and traded one *oki* [an old unit of volume] for 3 *okis* of barley, and 3½ to 4 *okis* of corn. In the year of our Lord 1808 there was enough soybean seed to plant the entire Konavlje field, spoke captain Luca exaltingly.”

“The captain’s house was full of various seeds from all over the world, because on his travels he would collect any seeds he could get. I took for myself and my church garden several kinds seeds, including 3 soybeans, black, yellow, and reddish. I planted them right away and attended them strictly as captain Luca had instructed me. I watered the soybeans the way I used to water common beans, tended and cared for them, and around the time of Assumption [August 15, observed in commemoration of the Assumption of the Virgin Mary] I noticed very nice flowers of white and pink on the plants. The black-seeded kind, the one that captain Luca called *fajolla*, was the first to flower, followed by the yellow kind, and finally the reddish one [these could be azuki

beans].

“The Holy Father, Dominic, took notice of my frequent goings to the garden. And when I explained to him the reason why, he said that it was a gift of God to this world, and that I should preach from the altar and direct the people to plant soybeans and teach them how to use them. I acted accordingly, and in the first week of October I prepared an hour-long lecture to explain to the people how to tend soybeans. I also informed the village chiefs of that novelty and bid them to teach their people about soybeans. They accepted and spread the word of the gift of God. Captain Luca instructed the villagers enthusiastically how to tend these seeds because it was on his own merit that now our chickens lay two eggs a day instead of one, as they used to.”

Note 1. I. Kolak et al. of Zagreb (1992, p. 76) state the following about this document: “Soybean seed was introduced from China by sailors from Dubrovnik for the first time in 1800 and, the same year it was planted in Dubrovnik, Konavle, Slano and Ston under the name “Chinese yellow beans.”

Note 2. This is the earliest document seen (April 2020) concerning soybeans in Croatia or Eastern Europe, or the cultivation of soybeans in Croatia or Eastern Europe. This document contains the earliest date seen for soybeans in Croatia or Eastern Europe, or the cultivation of soybeans in Croatia or Eastern Europe (1800). The source of these soybeans was China.

Note 3. This is the earliest document seen (July 2014) concerning the feeding of soybeans or soy products to chickens.

Note 4. Dubrovnik, a center of art and literature in the Middle Ages, is the site of a 15th century palace and a 17th century cathedral. It was an independent republic until it was conquered by Napoleon in 1808. It was part of Napoleon’s Illyrian Provinces from 1809-1813, then passed to Austria in 1814. Croatia helped Austria put down a Hungarian Revolution in 1848-49 and as a result Croatia was set up with Slavonia as a separate Austrian crownland named Croatia and Slavonia, which was reunited to Hungary as part of *Ausgleich* in 1867 and set up as a Hungarian crownland. In 1918, with the collapse of Austria-Hungary, it became part of the Kingdom of the Serbs, Croats and Slovenes. In 1931 the name was officially changed to Yugoslavia. In June 1991 Dubrovnik became part of Croatia, when Croatia declared independence from Yugoslavia. Address: Friar, Church of St. Luka Marunic, Dubrovnik.

84. Savi, Gaetano. 1824. Osservazioni sopra i generi *Phaseolus* et *Dolichos* [Observations on the genera *Phaseolus* and *Dolichos*]. *Nuovo Giornale de’ Letterati (Pisa, Italy)* 7(13):95-103. [3 ref. Ita; Lat]

• **Summary:** This article contains sections 2 and 3 of a 3-part series published from 1822 to 1825. The previous Section I discussed *Phaseolus Mungo*. The article begins

with “Phaseolus: Section II,” which includes: Species 6–*Phaseolus angulosus*. 7–*Phaseolus farinosus*.

Section III. 8–*Phaseolus semierectus*. Mentions *Phaseolus radiatus*.

Gaetano Savi lived 1769-1844. Address: Professore di Botanica nell’I. e R. Università de Pisa.

85. Moon, Alexander. 1824. A catalog of the indigenous and exotic plants growing in Ceylon, distinguishing the several esculent vegetables, fruits, roots, and grains; together with a sketch of the divisions of genera and species in use amongst the Singhalese. Also an outline of the Linnæan sexual system of botany; in the English and Singhalese languages. For the use of the Singhalese. Colombo: Printed at the Wesleyan Mission press. 170 p. See p. 52-53. 34 cm. [4 ref]

• **Summary:** Under Class 17. Diadelphia. Order 24. Decandria, we find a table showing the following: “426. Phaseolus, Kidney-Bean. Willd. vi. p. 1030.” Moon then lists 7 species: *P. vulgaris* (with 2 subspecies), *P. lunatus*, *P. Caracalla*, *P. trilobus*, *P. radiatus*, *P. Max*, and *Mungo*. “*Phaseolus Max* refers to the cultivated soybean. The symbol of a dot in circle indicates that it is an annual plant. It is described as “hairy podded.” The name is written in the Singhalese alphabet and transliterated as “Boo-mae.” The abbreviation “S.E.” means that the seed is edible. An earlier source is listed as “Rumph. amb. t. 140,” which refers to G.E. Rumphius’ *Herbarium Amboinense*, vol. 5, plate 140, which is a clear, excellent illustration of the soybean. Finally the entry states: “Ceylon, cult. Gar.” which probably means that the plant is cultivated in Ceylon in gardens, as opposed to being grown in fields. Soybeans are also probably grown in the Royal Botanic Gardens, of which Moon is the superintendent.

“427. Dolichos, Dolichos. Willd. vi. p. 1037. *D. sinensis*, Chinese, Wanduru-mae. China, Ceylon, cult. *D. sesquipedalis*, long-podded, Hamas-mae, Amer., Ceylon, cult. With red (Ratu) and white (Sudu) sub-species. Likewise lists *D. tetragonolobus*, *gladiatus*, *rotundifolius*, *virens*, *medicagineus*, *scarabæoides*, *purpureus*, *albus*, *luteus*?, and *catiag*.

“429. Glycine, Glycine. Willd. vi. p. 1053. *G. villosa*, *tenniflora*, *parviflora*, *javanica*, *viscidum*. Gives details on each.

Note 1. Alexander Moon (lived 1817-May 1825) was a Scotch botanist who worked and died in Ceylon.

Note 2. This is the earliest document seen (Jan. 2009) that mentions *Phaseolus lunatus* [the lima bean], which it says is an annual with edible seeds, “scymetar-podded” [scimitar], named *Ooru-dambala*, and cultivated in Bengal and Ceylon. Address: Superintendent of the Royal Botanic Gardens in Ceylon.

86. Iwasaki, Tsônemassa. 1828. Phonzo Zoufou [Honzô Zufu: Atlas of Japanese medicinal plants. 96 vols.]. Tokyo:

Subaraya. See vol. 50. Fol. 2. Vol. 43, fol. 1-9. 8° (20-25 cm). [Jap]*

• **Summary:** In Japanese, *honzô* means “plants” or “trees and herbs.” *Zufu* means a “chart, picture, or figure.” This illustrated materia medica contains 1,795 illustrations (plates), most of them colored. The plates start with volume 50. The author, T. Iwasaki, lived 1786-1842; his first name is also written as “Kan’en.”

Franchet and Savatier (1875, p. 108) state: For the wild soybean—*Glycine soja* (Sieb. et Zucc.) see vol. 50, fol. 2?, under *Kin mame*. For the cultivated soybean—*Glycine hispida* (Moench, Meth) see vol. 43, fol. 1-9.

For the adzuki bean, *Phaseolus radiatus*, see vol. 43, fol. 11, under *Kin Adz’ki*, and vol. 43, fol. 9 verso, under *Adz’ki*.

For kudzu, *Pueraria thunbergiana*, vol. 27, fol. 15, under *Koutsou*. Mène (1882, p. 3793) also states that Kudzu is mentioned in Vol. XXVII, fol. 15 of this work.

Itie (1910, p. 43) notes: “The varieties of soybean in Japan. The number of varieties of *mame* or *daizu* cultivated in Japan is at least as large as the number in China. *Somokou Zousetz* (*Somoku Zusetzu*) has portrayed and described them in the same way as the *Phonzo Zoufou*, which has given them proper names. The former book illustrates *Glycine Soja* Sieb. et Zucc. under the name *Tsourou mame*, the second under the name *Kiu mame*; but the identification of these drawings is doubtful.”

Note: The UCLA Biomedical Library has another edition of this book; the year of publication is given as 1920. Volume 50 is Curcubits and volume 43 is Brassica. Each volume contains only 20-30 sewn pages. There is an index in the last few volumes. See: Vol. 40 (1-2) and vol. 47 (2). At the back of Vol. 20 are 20 listings for *Glycine soja*, but none for *Glycine hispida*. Address: Japan.

87. Siebold, Philipp Franz von. 1830. Synopsis plantarum oeconomiarum universi regni Japonici [Synopsis of the economic plants from the entire empire of Japan]. *Verhandelingen van het Bataviaasch Genootschap van Kunsten en Wetenschappen* 12:1-74. See p. 54-57. Also first table at end. [Lat; Dut]

• **Summary:** The English translation of this periodical title is: “Transactions of the Batavian Society of Arts and Sciences.” Batavia roughly corresponds to today’s Jakarta on the island of Java, Indonesia. This work lists 447 economic plants, including the soybean. The section on Leguminosae [sic, Leguminosæ] (p. 54+), mentions plants of the genera *Dolichos* (incl. *D. hirsutus* or Kudzu / Kudzu), *Sooja*, *Phaseolus*, *Pisum*, *Vicia*, *Medicago*, *Arachis*, *Glycyrrhiza*, and *Mimosa*. There are two species of soybeans: *Sooja Japonica*, the cultivated soybean, and *Sooja nomame*, the wild soybean. The genus and its species and varieties are described as follows (p. 56):

“CLXXVIII. *Sooja*, Moench. Sieb. (*Sooja du Japon*). 296 *S. Japonica*, Sieb. *Sooja* vernacular *Daisu*, Japan.



Varieties, grouped by color: a. White seeds. *Daisu*, Japan. b. White fuscis seeds. *Tobimame*, Japan. c. Fuscis seeds. *Sinsjumame*, Japan. d. Black round seeds. *Kuromame*, Japan. a. Black flattened seeds. *Kurotokorosun*, Japan. a. Greenish seeds. *Awomame*, Japan.

Uses: To make *Sooju*, *Miso*, *Toofu* (shoyu, miso, and tofu).

297 *S. nomame*, Sieb. *Nomame ac Jawaraketsmai*, Japan (v.v.). [vidi vivam = I have seen a living plant specimen.] *Plantae sponte crescentis folia adhuc tenera pro potu Thea colliguntur*.

At the end of this article are two large fold-out tables, each 30 by 18 inches, and each titled "Synoptic Table of Plant Uses." Each table contains six vertical double columns. References to soy appear only in table I. At the bottom right corner of the first is written in Latin: "*Dabam in Insula Dezima mensi Novembris 1827, Dr. von Siebold*." This translates as: "Given [as a letter for delivery] from the island of Dezima [Deshima], November 1827, Dr. von Siebold." The plants are divided into categories by type of use. For example: I. Simple foods: A. Cereal grains. B. Legumes. C. Fruits, etc. Under each category is a numbered list of the scientific names of the Japanese plants in that category, followed by its name written in both katakana and Chinese characters. Soy-based uses include: IA. Simple foods

(*Alimenta simplicia*) (columns 1-4): Legumes (Legumina). 1. *Sooja Japonica*, Sieb. Daizu, "Yellow + Bean."

Note 1. This is the second earliest document seen (June 1999) written by a European or Westerner in which Chinese characters are used to write the name of the soybean or related products.

II. Composite foods (*Alimenta composita*) (columns 4-5). B. For the sauce "*Sooju*." Shoyu. *Sooja Japonica*, Sieb.

C. For the paste (*pulto*) "*Miso*." Miso. *Sooja Japonica*, Sieb. plus rice and barley

D. For the cake (*placenta*) "*Toofu*." Tōfu. *Sooja Japonica*, Sieb. Note 2. This is the earliest Dutch-language or Latin-language document seen (April 2013) that uses the word "*Toofu*" or the word "*Tōfu*" to refer to tofu.

P. For the sprouts (*germinatione artifaali*) "*Mogasi*." Moyashi. *Soja Japonica*, Sieb.

Note 3. This is the earliest document seen by Siebold in which the soybean is mentioned. This document also contains the earliest date connected with Siebold and soybeans (Nov. 1827). His name on the title page is written "*De. de Siebold*."

Note 4. This is the earliest Latin-language document seen (Jan. 2013) that mentions soy sprouts, which it calls *germinatione artifaali*, "*Mogasi*." Moyashi. *Soja Japonica*.

Note 5. Siebold was born on 17 Feb. 1796 in Würzburg [Bavaria, Germany]. In 1821, as a young ship's doctor, he arrived in Japan, where he worked as a doctor at Deshima near Nagasaki for the Dutch colony. Illustrations show him as a younger and older man.

Also: Column 1 of table 1 also mentions: 13. *Coix lachryma*, P.S., *suudama* [Job's tears]. 2. *Phaseolus atzuki*, Japon, Azuki. "Red + Small + Bean." 12. *Arachis hypogaea*, L.E. Rakkasei [peanut]. "Fall + Flower + Bean." Column 2 mentions *Sesamum Orientale*, P.S., *goma* [sesame seeds]. Column 3 mentions the wild soybean (*Sooja nomame*), *Amaranthus oleraceus*, *A. Japonicus*, and *A. bicolor*. Column 4 also includes sea vegetables (*kaiso*).

Column 5 mentions *ame* [grain syrup], *fu* [wheat gluten cakes], *soba*, *somen* [wheat noodles], *mochi*, *konnyaku*, *kudzu*, and *tokoroten*. III. Medicinal foods (*Medicamina*) (columns 5-6).

88. Titsingh, Isaac. trans. 1834. *Nipon o dai itsi ran: ou, Annales des empereurs du Japon*, tr. par M. Isaac Titsingh [Annals of the Japanese emperors. Translated by Isaac Titsingh, edited by and Julius H. Klaproth]. Paris: Printed for the Oriental translation fund of Great Britain and Ireland. 3 + xxxvi + 460 p. See p. 345. 31 cm. [Fre]

• **Summary:** Page 343 states that 1444 was the first year of the Bunnan (*Boun an*) era. In the third month of this year, there fell from the sky-blue vault the beans called *miso** and the red beans (*des fèves rouges*) [azuki]. (Footnote: *In Chinese *Ta teou*, *Dolichos soya*. [Klaproth] The two Chinese characters for soybean are shown).

Note 1. This is the third earliest document seen (June 1999) written by a European or Westerner in which Chinese characters are used to write the name of the soybean or related products.

Note 2. The meaning of this entry is not clear. Isaac Titsingh [Titsing] lived 1744-1812. Julius Heinrich Klaproth lived 1783-1835. The title pages states that this work was translated by M. Isaac Titsingh with the aid of several interpreters attached to the Dutch factory or settlement at Nagasaki. The work includes a glance at the mythological history of Japan by Mr. J. Klaproth.

89. Medhurst, Walter Henry. comp. 1842-1843. Chinese and English dictionary: Containing all the words in the Chinese Imperial Dictionary, arranged according to the radicals. 2 vols. Batavia: Printed at Parapattan.

• **Summary:** In volume I (1842): At radical 37 (p. 145-46), *ta*, meaning “big,” the soybean, *tatou*, is not mentioned. But *tama*, meaning “hemp” is mentioned.

At radical 82: *Maou* (p. 432-33, hair of brute animals), *maoutow* [*maodou*, *edamame*] does not appear.

At radical 85 (“water”): *Tsëang* is defined (p. 482) as: “A thick fluid water of a certain consistence, water in rice has been steeped...” Note 1. This character (pinyin *jiang*) can also mean “milk.” *Doujiang* (“bean + milk”) means soymilk.

In volume II (1843): At radical 151 (p. 1072), *tow*, meaning “pulse” or “bean” we find: *Ta tow* is large beans [soybeans], and *seaou tow* is small beans [azuki]. But *tow fu* [tofu, doufu] does not appear. *Shé* (p. 1072, four strokes) means “Pickled pulse; any thing pickled in brine” [today’s “fermented black soybeans”].

Note 2. This is the earliest English-language document seen (July 2009) that uses the term “pickled pulse” to refer to fermented black soybeans.

Wan (p. 1073, five strokes) means “A bean, read yuh, soy.” *Tsae* (p. 1073, six strokes) means “Pickled pulse; soy.” *K’he* (p. 1073, eight strokes) means “Bean stalks.” *Han* (p. 1074, ten strokes) means “Beans in a cake.”

At radical 164: *Tsëang* (p. 1197, eleven strokes) means “Pickle, brine; the brine in which meat is salted. *Shé tsëang* means “a soy made of pulse.”

At radical 201: *Hwang* (p. 1457) means “Yellow.” But *Hwang tow* meaning “soybean” or “yellow soybean” does not appear.

Also discusses: At radical 200: *Ma* (p. 1455) means “Hemp.” Walter Henry Medhurst lived 1796-1857. Address: English Congregationalist Christian Missionary.

90. Medhurst, Walter Henry. comp. 1847-1848. English and Chinese dictionary: 2 vols. Shanghai: Printed at the Mission Press. vii + 1436 p.

• **Summary:** As explained in the Preface, this dictionary is based on the “Imperial Dictionary of Kang-he” [Ch’ing Shîng-tsu, Emperor of China, 1654-1722]. For each English

word is given both the Chinese characters (with tonal marks which have omitted here) and their Romanization.

In Volume 1, the entry for “Bean” (p. 107) states: *tow*; large beans (2 Chinese characters = CC), *ta tow* [da dou]; small beans (2 Cc) *seaou tow* [xiao dou; azuki]; horse beans (2 Cc) *tsan tow*; broad beans (2 Cc) *tsan tow*; red beans (2 Cc) *tseih tow*;...

In Volume 2, the entry for “Oil” (p. 898) includes many kinds of oil including: bean oil (2 Cc) *tow yew*.

The entry for “Sprout” includes “young sprouts” but does not include “bean sprouts” or “soybean sprouts.”

In Vol. 2 there is no entry for “Soy” (see p. 1199).

Walter Henry Medhurst lived 1796-1857. Address: English Congregationalist Missionary, Shanghai (3 Feb. 1847).

91. Madden, -. 1848. The Turaee and outer mountains of Kumaoon. *J. of the Asiatic Society of Bengal* 17(1):349-450. May. See p. 444. [3 ref. Eng]

• **Summary:** “The following details, chiefly botanical, comprise the result of observations made during several short excursions from Almorah to the Turaee and Outer Mountains of Kumaoon, between the Kosilla and the Kalee rivers. Performed during the cold season or spring, many deficiencies must necessarily exist, especially as to the vegetation of the Turaee and the mountain range immediately above it, which is most copious and luxuriant during and immediately after the rainy season.”

Page 444: “Soja hispida: ‘Bhut.’ Common about Almorah: ‘Khujooa’ of Rohilkhand” [Rohilkhand, a region of northwestern Uttar Pradesh state of India. Uttar Pradesh is bordered by Nepal to the north],

Note: Almora is a cantonment town in the Almora district in the state of Uttarakhand, in central northern India. Address: Major, Bengal Artillery.

92. Wu, Qijun. 1848. Zhiwu mingshi tukao [Illustrated investigation of the names and natures of plants]. Peking, China. 60 vol. in 6. Passage on soy reprinted in C.N. Li 1958 #341, p. 241-42. Illust. 29 cm. Reprinted in 1919 by Commercial Press, Shanghai (with Index). 23 cm. [Chi]

• **Summary:** Wade-Giles reference: *Chih Wu Ming Shih T’u K’ao*, by Wu Ch’i-Chün. Qing dynasty. A famous compilation of earlier material. The section titled “Soybeans” (*dadou*) reiterates earlier material. The section titled “White soybeans” (*baidadou*) states: Most people think that white soybeans are the same as yellow soybeans, but they are not. When you buy them in the market, you roast (*chao*) the green soybeans. The brown ones are often called “tea beans” (*chadou*); their shape is long and round and they are usually roasted (*chao*) as an accompaniment for tea. They are usually planted in Sichuan province on spare land, but they are not planted as widely as yellow soybeans (*huangdou*). Yellow soybeans are commonly called *maodou* (“hairy beans”) and

they are the most widely planted of the different colors. In the beginning they were planted as a vegetable [i.e., green vegetable soybeans]. Then it came to be used as a grain. The people cannot do without it, even for a day. The flowers are small, and the beans are yellow, but sometimes they have a black hilum (*qi*). The shape is thin. They come in early and late varieties. If you see them all together, you can tell the difference. (Translated by H.T. Huang, PhD, March 2003).

Bray (1984, p. 647): "Illustrated investigation of the names and natures of plants." Peking, 1848. Reprinted in 1919 by Commercial Press, Shanghai (with index).

Wai (1964) translates the section on Liu An and tofu as follows: "Liu An, King of Wainan, first invented the preparation of tofu (soybean curd). Black beans, cowpeas, garden peas, or mung beans may be used as the raw materials. They are soaked in water, ground, filtered, and boiled. To the boiled filtrate is added bitter, leaves of mountain alum [or China box, *shanfan*, *Murraya exotica*, L.] or sour paste vinegar, and the precipitate is collected in the pan. Sometimes the precipitation is brought about by the addition of gypsum [the dihydrate form of calcium sulfate] and the precipitate is collected in an earthenware tub. Most salty, bitter, sour as well as hot materials can be used to precipitate tofu."

In 1917 M.J. Hagerty translated the section on beans (including soy beans) into English (18 pages). Note: Wu Qijun died in 1846.

93. Wu, Qijun. 1848. *Zhiwu mingshi tukao changpian* [Comprehensive treatise on the names and natures of plants]. Peking, China. Reprinted in 1919 by Commercial Press, Shanghai (with Index). [Chi]*

• **Summary:** Wade-Giles reference: *Chih Wu Ming Shih T'u K'ao Ch'ang P'ien*, by Wu Ch'i-Chün. Qing dynasty. Needham (1986, p. 419, 613) calls this a "great botanical treatise."

Bray (1984, p. 452), in the section titled "Kaoliang or sorghum," notes that the author deplores the replacement of millet by kaoliang in the Northwestern provinces.

Bretschneider (1871, p. 6) calls this: "The last treatise on Chinese Botany of any note..." The author was a native of Honan. "It contains 60 chapters. The one half of the work consists of descriptions (for the most part very confused) of the plants now known to the Chinese. The printing is very distinct. The other half includes nearly 1,800 carefully executed drawings. Although here also many mistakes occur, this work is incomparably the best pictorial work of the Chinese of this class. The price at Peking is about \$14." Address: China.

94. Simmonds, Peter Lund. 1854. The commercial products of the vegetable kingdom, considered in their various uses to man and their relation to the arts and manufactures; forming a practical treatise & handbook of reference for the colonist,

manufacturer, merchant, and consumer... London: T.F.A. Day. xix + 668 p. See p. 313. Index. 23 cm.

• **Summary:** In the section on "Pulse" we read (p. 313). "The well known sauce, Soy, is made in some parts of the East, from a species of the *Dolichos* bean (*Soja hispida*), which grows in China and Japan. In Java it is procured from the *Phaseolus radiatus*. The beans are boiled soft, with wheat or barley of equal quantities, and left for three months to ferment; salt and water are then added, when the liquor is pressed and strained. Good soy is agreeable when a few years old; the Japan soy is superior to the Chinese. Large quantities are shipped for England and America. The *Dolichos* bean is much cultivated in Japan, where various culinary articles are prepared from it; but the principal are a sort of butter, termed *mico* [miso] and a pickle called *sooja* [shoyu].

"1,108 piculs of soy were shipped from Canton in 1844, for London, British India, and Singapore. 100 jars, or about 50 gallons of soy, were received at Liverpool in 1850. The price is about 6s. per gallon in the London market."

One page earlier, the section on "Pulse" states (p. 312): Of leguminous grains there are various species cultivated and used by the Asiatics, as the *Phaseolus Mungo* [mung bean], *P. Max* [soya bean], and *P. radiatus* [probably azuki bean], which contains much alimentary matter; the earth-nut (*Arachis hypogaea*), which buries its pods under ground after flowering."

"Captain H. Biggs [sic, Bigge], in a communication to the Agri.-Hort Soc. [Agricultural & Horticultural Society] of India, in 1845 [sic, Aug. 1844], states that of the esculents a large white pea forms the staple of the trade of Shanghai [Shanghai], or nearly so, to the astonishing amount of two and a-half millions sterling. This he gives on the authority of the Rev. Mr. Medhurst, of Shanghai, and Mr. Thoms [sic, Thom], British Consul at Ningpo. These peas are ground in a mill and then pressed, in a somewhat complicated, though, as usual in China, a most efficient press, by means of wedges driven under the outer parts of the framework with mallets. The oil is used both for eating and burning, more for the latter purpose, however, and the cake, like large Gloucester cheese, or small grindstones in circular shape, is distributed about China in every direction, both as food for pigs and buffaloes, as also for manure."

Note 1. The "large white pea" is clearly the soybean.

Note 2. This is the earliest document seen (Oct. 2014) that uses the spelling "Shanghai."

In the chapter titled "Oleaginous plants" we read (p. 512): "In Japan a kind of butter, called *mijo*, [sic, *miso*] is obtained from a species of the *Dolichos* bean (*Dolichos soja*).

Also discusses: Almonds and almond oil (p. 510, 533). Wheat gluten (221, 234, 264). Hemp and hemp oil (p. 510). Sesame or teel, sesame oil, black til, and gingelie oil (p. 511, 533-34). "The export of linseed and rapeseed cakes from

Stettin" (p. 564).

Note 3. Peter L. Simmonds lived 1814-1897.

Note 4. This is the earliest English-language document seen (July 2003) that uses the words "gingelie" or "teel" to refer to "sesame."

Note 5. This is the earliest English-language document seen (Aug. 2016) that uses the word "Oleaginous" or the term "Oleaginous plants" in connection with the soybean. Oil derived from the soybean is also mentioned. Address: England.

95. Browne, D.J. 1855. Report on the seeds and cuttings recently introduced into the United States. Preliminary remarks. *Report of the Commissioner of Patents, Agriculture*. p. x-xxxv. For the year 1854. See p. xv.

• **Summary:** "Japan pea, also described in last year's report, and has been since cultivated with remarkable success.

"Soja bean, (*Soja hispida*) procured by the Japan Expedition [of Commodore Perry]; two varieties, the 'White' and the 'Red-seeded,' both of which are employed by the Japanese for making soy, a kind of black sauce, prepared with the seeds of this plant, wheaten flour, salt, and water. This 'soy,' or 'soja,' which is preferred to the *Kitjap* of the Chinese, is used in almost all their dishes instead of common salt. The soy may be made as follows:

"Take a gallon of beans of this plant and boil them until soft; add bruised wheat, one gallon; keep in a warm place for

twenty-four hours; then add common salt, one gill [$\frac{1}{2}$ cup], and water, two gallons; and put the whole into a stone jar, and keep it tightly closed for two or three months, frequently shaking it; and then press out the liquor for use.

"The seeds of this plant only require to be sown in a warm, sheltered situation at the time of planting Indian corn, and cultivated as any garden bean."

Note 1. The author of this report apparently did not realize that the Japan Pea and the Soja Bean are one and the same plant. Note 2. This is the earliest American document seen (Jan. 2003) that uses the term "*Soja hispida*" to refer to the soybean.

Note 3. The "Japan Expedition" refers to that led by the American Commodore Matthew Calbraith Perry (lived 1794-1858).

Note 4. Piper and Morse (1923, p. 40) state concerning the Perry Expedition to Japan in 1854: "The Mammoth may well be the 'white-seeded' soja bean obtained by the Perry expedition. The 'red-seeded soja bean' was, probably, the adzuki bean (*Phaseolus angularis*), as no red-seeded soybean is known." If this were an adzuki bean, this would be the earliest document seen (Oct. 2021) concerning azuki in the United States.

Note 5. This is the earliest English-language document seen (April 2012) that uses the term "Kitjap" to refer to Chinese soy sauce." Observe the similarity between the words "Kitjap" and "Ketchup"—suggesting that the word



“ketchup” may have a Chinese origin.

Note 6. Also discusses: White quinoa (*Chenopodium quinoa*, p. xiii-xiv). White Lupine (*Lupinus albus*, from southern Spain and Germany, xv-xvi). Yellow Lupine (*Lupinus luteus*, from Germany, p. xvi). Chinese yam (*Dioscorea batatas*, from China but more recently from France, p. xvii).

Note 6. This is the earliest document seen (Jan. 2005) that mentions quinoa in the USA.

Note 7. The color Japanese Edo-period woodblock print, which is from another source (courtesy of the British Museum), shows Japanese boats in 1853 rowing out to visit one of Commodore Perry’s “black ships” in Tokyo Bay. Address: United States Patent Office, Washington, DC.

96. Miquel, Friedrich Anton Wilhelm. 1855. Flora van Nederlandsch Indie (Flora Indiae Batavae) [Flora of the Netherlands Indies. Vol. I, part 1]. Amsterdam and Utrecht: C.G. van der Post. 1116 p. See p. 196-97 (*Phaseolus* species) and p. 221-24 (*Glycine* and *Soya* species). [9 ref. Dut]

• **Summary:** Miquel’s *Soya* species include: 1. *Soya hispida* Moench, 2. *Soya Wightii* Grah. (named *Glycine javanica* by Linnaeus and *Soya javanica* by Grah.), 3. *Soya angustifolia* Miq. 4. *Soya hamata* Miq.

Glycine species include: 1. *Glycine labialis* Linn., 2. *Glycine mollis* Wight et Arn.

Note: This is the earliest document seen (July 2014) that mentions *Soya angustifolia*.

According to Merrill (1917), Miquel (p. 197) named a narrow-leafed form from Java *Phaseolus radiatus*. He erroneously thought it was the soybean. Note: It may have been the azuki bean.

Miquel was born on 24 Oct. 1811 at Neuenhaus, Germany, and died on 23 Jan. 1871 at Utrecht, Netherlands. A botanist, he was the son of a country physician. His University studies and subsequent academic career took place in the Netherlands. “Trained as a physician at the University of Groningen, Miguel specialized in botany and was director of the Rotterdam botanic garden (1835-1846), professor of botany at Amsterdam (1846-1859) and at Utrecht (1859-1871), and director of the Rijksherbarium at Leiden (1862-1871). His numerous (296 items in his bibliography) botanical publications deal mainly with the floras of the former Netherlands East Indies, Surinam, and Japan... Miguel was also the founder of the University of Utrecht herbarium.”

An illustration facing the title pages shows a portrait of Georgius Everhardus Rumphius, blind and white-haired in his old age, holding a branch on a table.

Also discusses: *Psophocarpus tetragonolobus* [winged bean] (p. 181). Address: Hoogleeraar in de Plantenkunde te Amsterdam.

97. Green, Daniel S. 1856. Narrative of the expedition of an



American squadron to the China Seas and Japan, performed in the years 1852, 1853, and 1854, under the command of Commodore M.C. Perry, United States Navy. Report upon the agriculture of Japan. *Senate Executive Document No. 79*. 33d Congress, 2nd Session. Vol. 1. p. 52; Vol. 2. p. 85. Also published as House of Representatives Executive Document No. 97. Same Congress, Session, and pages.

• **Summary:** Upon his return and at Commodore Perry’s request, Dr. Daniel S. Green, surgeon of the expedition, wrote a short “Report upon the agriculture of Japan” from notes and from memory, hoping that it might afford some interest to American farmers. This document marked the introduction of Japanese products to American agriculture.

“Their chief grain is rice, of which they are said to produce the best in all Asia. They also make barley and wheat. The first is used for feeding the cattle; the other [wheat] is not much valued, and is chiefly used for cakes and soy [sauce]. This last is made by fermenting, under ground, wheat with a peculiar kind of bean and salt” (I:52).

“Of beans the Japanese have several sorts, as white and black, runners or climbers, and bush or snap beans; the black-eye or cow pea, and a peculiar hairy-podded bean, growing upon a branching stem, called commonly Japan pea [soybean]; and also a diminutive one, not much larger than a lentil [probably azuki]. From one of these [Japan pea] the famous *soya* is made, a fermented condiment used for various dishes” (II:85).

Vol. I, p. 369 gives a list of articles received from the Japanese government, from Udono, 4th commissioner, including “1 box, 10 jars of soy.”

Note 1. This is the earliest English-language document seen (Oct. 2006) that uses the term “black-eye” to refer to the

cow pea.

Note 2. This document was published as a book in 1856 in London by Trubner & Co. (624 p.). Compiled by Francis Lister Hawks, the lead author is given as Matthew Calbraith Perry. Address: USA.

98. Norrst, L. 1858. Report on the cultivation of various plants: Japan pea. *Cultivator (The)* 6(2):47-48. Feb. Third Series.

• **Summary:** “I also have three new varieties of the Japan pea; seed received last spring (1857) from Hon. J.B. Garber of Columbia, Pennsylvania; of which Mr. G. says: ‘These peas, I am satisfied, have not yet been cultivated in the Atlantic states, except by myself—received last spring (1856) from California, just from China.’ In color the varieties are red, green and yellow. The green and yellow grow in the same form as the old variety, except they are more dwarf and earlier, ours being ripe by the 27th of September. The red sort [perhaps azuki bean?] grows some different; more slender and longer pods, each pod containing eight to ten peas of a beautiful red color—are of a similar size than the former, all upright and very prolific. The *Australian pea*, the seed of which I received from a friend in Texas, is a very peculiar pea...” The author mentions numerous other unusual peas and beans which he has grown, such as the Austrian Stock Pea, Early Canada Prolific, German Prolific, and Turtle Soup. Address: Windsor, Ashtabula County, Ohio.

99. Steinmetz, Andrew. 1859. Japan and her people. London and New York: Routledge, Warnes, and Routledge. xv + 447 p. Illust. No index. 22 cm. 2nd ed. 1860. Facsimile edition reprinted in 1973 by Scholarly Resources, Inc. (Wilmington, Delaware). Reprinted again in 2002 by Ganesha Publishing (London) and Edition Synapse (Tokyo). Series: Japan in English, Vol. 1. [30 ref]

• **Summary:** The author of this book has apparently not been to Japan; he compiled it from more than 30 major works on Japan (see p. xi-xii). The book is divided into two parts and 7 chapters. The 35 old illustrations add to the color of the book.

In Chapter 3, “Palaces, temples, castles, towns, houses, gardens, vehicles, etc.” we read (p. 175): “;... all sorts of vegetables which the season affords, and innumerable other dishes peculiar to Japan, made of seeds and powdered roots, and dressed in many different ways. The common sauce for these and other dishes is soy mixed with saki.”

In Chapter 6, “Social and domestic life,” is a long quotation from Kaempfer (1727) describing the great yearly festival held on the third day of the third month [*hina matsuuri*, dolls’ festival]. “... cakes made of mugwort and rice, which they call *futsumotzi* [*sic*, *kusa mochi*], that is, mugwort cakes, are prepared after the following manner:—The mugwort leaves [are finally] “reduced to powder, and mixed with boiled rice and *adsuki*, or red beans, coarsely powdered,

and so baked into cakes” (p. 273).

“A Japanese feast usually consists of seven or eight courses... As whets, servants of both sexes, from time to time, hand round soy [sauce], other sauces, pickled or salted ginger, and small, nicely-cut morsels of salted fish, which are all eaten with Chinese chopsticks” (p. 274-75). Andrew Steinmetz lived 1816-1877.

Note: This is the earliest English-language document seen (Oct. 2021) that uses the term “red beans” to refer to azuki beans. Address: Esq. of the Middle Temple, Barrister-at-Law [England].

100. Smith, E.E. 1860. Report on various products (Letter to the editor). *Michigan Farmer*. 2:74. March 10. Saturday. New Series.

• **Summary:** “Within the last three years, I have tried over one hundred of the novelties of the day, and have not found half of them worth any thing, and not more than one-fourth of these that were of any great value; some of the most valuable are as follows:” He then briefly describes 15 crops, the last of which is: “*Japan Peas*.—I consider the *yellow* and *green* varieties the best, as they are larger and more prolific than the *red*; with me the yield has been very large. They are very good for table use if soaked in cold water for twelve hours or more before cooking.”

Note: The red variety probably refers to the azuki bean. Address: Milan, Erie County, Ohio.

101. Smith, E.E. 1860. Japan peas (Letter to the editor). *Genesee Farmer (Rochester, New York)*. 21(6):189. June. Series 2.

• **Summary:** “Within the last three years I have raised several kinds of Japan Peas, and find them good food for man or beast; while they are very productive, and not troubled with the pea-bug. In preparing them for the table, they should be soaked in cold water for twelve hours or more before cooking.

“The *Red Japan Pea* is of small size and growth, and the earliest of all. The pods contain from 12 to 20 peas each.

“The *Green* is the largest, latest, and probably the most productive. It grows similar to the *Yellow*.

“The *Yellow* is the most common sort; of medium size, and has a strong, bushy stalk, which always stands up well. I have raised at the rate of over 80 bushels per acre, with no extra culture.”

Note: The Red Japan Pea could not be a soybean, because soybean pods almost never contain more than 3 peas per pod. It is probably an azuki bean. Address: Erie County, Ohio.

102. Iinuma, Chōjun [Yokusai]. 1861. *Sōmoku zusetzu* [*Sōmoku zusetzu*, or an iconography of plants indigenous to, cultivated in, or introduced into Nippon (Japan). 20 vols.]. Japan. See vol. XIII, p. 18-21, 37, 126 (No. 17), 129 (No.

32). 27 cm. [Jap]

• **Summary:** This botanical contains 1,215 illustrations (plates), in black and white. The author's name is also romanized as Ynouma Tsiodjoun, and the title as *Sô mokou Zoussetz*. Each sheet of paper in this book is a leaf-folded only once (called *fukurotoji* in Japanese). Both sides of each folded sheet have the same leaf number.

In vol. XIII, the section on soybeans is on leaves 17-20. There are illustrations on leaves 18-20. In the section titled "beans" (*mame*, in katakana), is a section on soybeans (*O mame*). In Japanese, the scientific name of the plant is *Dolichos soja* (pronounced "Dorikosu soya" in Japanese); it is also called *Japansche Slingerboon* (probably a Dutch term, pronounced "Yappanse Suringeru-boon" in Japanese). The description starts on the back (verso) of leaf 17 (=17b). The soybean has 15 varieties, each based on the seed shape and color. For each variety: At the top of the page, two simple color illustrations (line drawings) show the shape, color, and hilum size and location. Below that is the name, usually written in katakana (phonetic), but with occasional Chinese characters. Remember that *mame* means "bean" in Japanese: Gogatsu-mame (5th month bean), Wase-mame, Nakate-mame, Okute-mame, Maru-mame, Shiroteppo-mame, Kuro-mame (black soybean), Kuroteppo-mame, Goishi-mame (Go = Chinese chess. Ishi refers to the "stones" moved in that board game), Aomame (green soybean), Kage-mame, Aka-mame (red soybean, with 4 additional forms and colors), Chamame (brown soybean, with 2 additional forms and colors), Kurokurakake-mame, Akakurakake-mame, Fui-mame (uzura-mame-speckled).

Note 1. This is the earliest document seen (Oct. 2004) that gives the names of various Japanese soybean types or varieties such as *Nakata-mame*, *Okute mame*, etc.

Note 2. This is the earliest document seen (Oct. 2013) that describes the color of numerous different soybeans.

Note 3. This is the earliest document seen (Oct. 2004) that mentions red soybeans, or that uses the term *Aka-mame* to refer to red soybeans.

Also in vol. XIII, on the back of leaf 36 is a description of the wild soybean (*tsuru-mame*) followed on leaf 37 by an illustration of the *tsuru-mame* plant, with flowers and seeds. Vol. XIII stops at folio 55.

Franchet and Savatier (1875, p. 108) state: For the wild soybean—*Glycine soja* (Sieb. et Zucc) see vol. 13, fol. 37?, under *Tsourou Mame*. For the cultivated soybean—*Glycine hispida* (Moench, Meth.) see vol. 13, fol. 18 and 21.

For the adzuki bean, *Phaseolus radiatus*, see vol. 13, fol. 30. Under: *Tsourou adzou ki* and *Boundô, Ya enari*.

For kudzu, *Pueraria thunbergiana*, vol. 13, fol. 26, under *Koutsou*.

This book was cited by Maximowicz in 1873 (p. 398; says "Soo bokf. XIII 18-21, 37").

Mène (1885) says of this book: The soybean is shown in vol. XIII, p. 126, No. 17, under the name *O mame*; in

No. 18 on the same page its name is given as *Soja hispida*, var. *lanceolata* and *Midzu-kugusi*. As for the wild soybean, *Glycine Soja* of Siebold and Zuccarini, it is classed under the names *Tsuru-mame* and *Nô-mame* in vol. XIII, p. 129, No. 32.

Iinuma lived 1782-1865. Note that all editions of this work were published posthumously.

Talk with E. Ito of the Japanese section of the Library of Congress (LOC). 2004. Sept. 21. LOC has two copies of this book. One is in the rare book cage of the Asian Division; it is fragile and cannot be photocopied. This first edition was published as follows: Vols. 1-5 in 1856. Vols. 6-15 in 1861. Vols. 16-20 in 1862. Address: Japan.

103. Dabry, P. 1862. Sur diverses plantes potagères de Chine [On various garden vegetable plants of China]. *Bulletin de la Societe d'Acclimatation* 9:325-30. April. Meeting of April 25. [Fre]

• **Summary:** Among the 53 species of edible plants sent by the author to the Society for Acclimatization and listed on p. 330 are two species of soybeans: "Houang-teou (*Dolichos soja*); 2 species: The yellow soybean (*Houang-teou*), and the black soybean (*He-teou*)."

Also mentions the azuki bean (*Tsin-teou* (*Phaseolus radiatus*)), 2 species, but gives no details.

See also 1882, page 640 of this journal. Address: France.

104. Soubeiran, J.L. 1867. Séance de 5 July 1867 [Meeting of 5 July 1867]. *Bulletin de la Societe d'Acclimatation* 14:448-64. Aug. See p. 453. [Fre]

• **Summary:** Page 453: Dr. Mourier sent from Yokohama (Japan) several boxes containing: (1) Upland rice, *Okano-komé*, which is cultivated like wheat... (3) Red-azuki (*Aka-adzeuki*). (4) Black azuki (*Kouro-Adzeuki*). (5) White beans (*Shiro mame*) [probably white soybeans]. (6) Black soybeans (*Kouro-mamé*); these four seeds [Nos. 3-6] are used to make miso and tofu,

Note: Azuki beans are never used to make miso or tofu, but white and black soybeans are—especially white soybeans. Address: Secretary of the meeting.

105. Hepburn, James C. 1867. A Japanese and English dictionary; with an English and Japanese index. Shanghai, China: American Presbyterian Mission Press. xii + 558 + 132 p. 2nd ed. 1872; Abridged ed. 1873, 1881; 3rd ed. 1886; 4th ed. 1888; 5th 1894; 7th ed. 1903. First edition was reprinted in 1966 and 1983. Index. 24 cm.

• **Summary:** A digital version of this book is available on HathiTrust. This is Hepburn's earliest Japanese-English dictionary. The words are arranged alphabetically by their romanized spelling. Each word is written in three ways. After the romanized word (main entry), written in uppercase letters with diacritical marks (which we have largely omitted below), the same word is written in katakana, then again

A

JAPANESE AND ENGLISH
DICTIONARY;
WITH AN
ENGLISH AND JAPANESE
INDEX.
BY
J. C. HEPBURN, A.M., M.D.
—*—
SHANGHAI:
AMERICAN PRESBYTERIAN MISSION PRESS.
1867.

in Chinese characters. Finally, one or more definitions are given.

Soy-related words and terms in the 1867 edition:

Page 9. “Amazake: Sweet sake, a kind of fermented rice.”

Page 46. “Daidz [Daizu]: A kind of large white bean. Soja hispida.”

“Dengaku: A kind of food made of baked *tôfu*, also a kind of ancient theatre now obsolete.

“Go: Beans mashed into paste. *Mame no go*.

“Gokoku: The five cereals, wheat, rice, millet, beans, kibi.

Page 113. “Hiriodz [Hiriodzu, Hiryozu]: A kind of food [made of tofu fried in oil].”

Note 1. This is the earliest English-language document seen (Nov. 2014) that contains the term *Hiriodz* (the modern spelling is *Hiryozu*) which refers to Kyoto-style deep-fried tofu treasure balls.

“Ireru—*Kono mame wa yoku iremash’ta*: these beans are well parched.

“Iriru—*Mame wo iriru*: to parch peas [beans].

“Kinako [‘yellow flour’]: A kind of food made of beans.”

Page 207. “Kiradz [Kiradzu, Kirazu]: The refuse left in making *tôfu*.”

Page 220. “Koji: Malt made by fermenting rice or barley, in the process of making sake, and soy” [sauce].

Page 220. “Koji-buta: A shallow box for holding malt.”

Page 255. “Mame: Bean, pea. *Mame no ko*: bean flour” [probably kinako, roasted whole soy flour].

Page 277. “Miso: A kind of sauce made of [soy] beans.”

Page 308. “Natto: A kind of food made of [soy] beans.”

Page 314. “Nigari: The brine formed by the deliquescence of salt.”

Page 377. “Sashi (verb): Shoyu wo sashi—To season with soy” [sauce].

“Sashimi: Raw fish cut in thin slices and eaten with soy.

“Sh’taji [Sorted after “Shis,” Shitaji]: Soy (used only by women). Syn. Note 2. This is the earliest English-language document seen (April 2012) that uses the word “sh’taji” or shitaji” to refer to soy sauce.

“Shoyu: Soy, a kind of sauce made of fermented wheat and beans.”

Note: This is the earliest English-language document seen (April 2012) that uses the word “shoyu” (spelled correctly like this) to refer to soy sauce.

“Tofu: A kind of food made of beans.”

“Umeboshi (*hakubai*). Dried plums. Ume-dzke [Ume-zuke]: Pickled plums. *Ume ga mada umimasen*: The plums are not yet ripe.”

“Yuba [hot water + leaf]: A kind of food made of beans.”

Note 3. This is the earliest English-language document seen (Oct. 2012) that contains the word “yuba.” The Chinese characters (meaning “hot water” + “leaf”) are the same used today.

“Yu-dofu: Boiled tofu.”

The English-Japanese part of this dictionary starts after p. 558 and is titled “An index; or, Japanese equivalents for the most common English words.” Separately numbered to p. 132, it includes: “Bean, Mame. Barm, Kôji, tane. Pea, saya yendo [saya-endo]. Soy [sauce], Shôyu.”

Terms NOT mentioned include Aburaage, Aburage, Atsu-age, Daitokuji natto, Edamame (or Eda mame or Yedamame), Ganmodoki, Hamanatto, Hiya-yakko, Kori-dofu, Koya-dofu, Nama-age, Okara, Tamari, Tonyu, Unohana, Yaki-dofu.

Note 4. The author apparently did not realize that the various soyfoods he defined (with the possible exception of soy sauce) were made from soybeans.

Note 5. This is the second earliest English-language document seen (June 1999) in which Chinese characters are used to write the name of the soybean or related products.

Note 6. This is the earliest English-language document seen that contains the word “tofu” (April 2013) or the word “natto” (Jan. 2012), or the word “koji” or the term “koji-buta” (Oct. 2020).

Note 7. This is the earliest English-language document

seen (Feb. 2004) that refers to amazake, which it calls “Amazake.”

Note 8. This is the earliest English-language document seen (Sept. 2021) that uses the word “Kinako” to refer to roasted soy flour.

Note 9. This is the earliest English-language document seen (June 2013) that uses the word “Kiradz” [Kiradzu, Kirazu] to refer to what is now called “okara,” or “soy pulp.”

Note 10. This is the earliest English-language document seen (Oct. 2012) that uses the word “Nigari” to refer to the traditional tofu coagulant extracted from sea water, and which consists mostly of magnesium chloride. Address: A.M., M.D., Shanghai, China [American physician, translator, educator and lay Christian missionary].

106. Hepburn, James C. 1867. A Japanese and English dictionary; with an English and Japanese index. Shanghai, China: American Presbyterian Mission Press. xii + 558 + 132 p. 2nd ed. 1872; Abridged ed. 1873, 1881; 3rd ed. 1886; 4th ed. 1888; 5th 1894; 7th ed. 1903. First edition was reprinted in 1966 and 1983. Index. 24 cm.

• **Summary:** This is Hepburn’s earliest Japanese-English dictionary. The words are arranged alphabetically by their romanized spelling. Each word is written in three ways. After the romanized word (main entry), written in uppercase letters with diacritical marks (which we have largely omitted below), the same word is written in katakana, then again in Chinese characters. Finally, one or more definitions are given.

Words related to azuki are: Adzki [azuki]: A small red bean. Adzmaya [Azumaya]: A shed open on the sides. Ammochi [probably an-mochi; mochi stuffed with sweet azuki bean paste]: A kind of cake stuffed with beans and sugar. An: Mixed meat; or a mixture of beans and sugar used for baking in cakes. Kowameshi: A kind of food made of [glutinous] rice and [red] beans = sekihan. Masame: A kind of small green bean. Syn. Yayenari.

Sekihan: A kind of food made of red beans and rice, eaten on fete days. Shiruko: A kind of sauce, made of red beans and sugar, eaten with rice-cake [mochi]. Yayenari: A kind of pea or bean. Yokan: A kind of confectionary made of sugar and beans.

Note: This is the earliest English-language document seen (Oct. 2021) that contains the words “Adzki,” “An,” “Sekihan,” “Shiruko,” “small red bean,” “Yayenari” or “Yokan”—all of which are related to the azuki bean. Address: Shanghai, China [American physician, translator, educator and lay Christian missionary].

107. Miquel, Frederich Anton Wilhelm. 1867. Prolusio florum Iaponicae [Essay on the flora of Japan]. *Annales Musei Botanici Lugduno-Batavi (Leiden)* 3:52-53, 99. [5 ref. Lat]

• **Summary:** Under *Glycine* Linn. (p. 52) the author lists one species: “1. *Glycine soja* Sieb et Zucc. Abh. l.c. IV. 2, p. 119.

A Soja angustifolia Miq. *Fl. Ind. bat.* I. 1, p. 223... *Siebold legit*; “*sponte crescentum*”; *in vallibus m. Kawara Jama ins. Kiusiu legit Pierot, prope Nangasaki [Nagasaki] Oldham n. 368.*

Under *Soja* Moench (p. 52-53) the author lists one species with 3-4 varieties: “1. *Soja hispida* Moench., Sieb et Zucc. l.c.p. 119. Maxim. Prim. p. 87. *Dolichos Soja* Linn. *Soja iaponica* Savi.”

Variat sub cultura vario mondo, v.c. seminum colore quae autem sub germinatione omina plantulas similes proferunt, teste Sieboldo. Spontanea etiam provenit, foliolis latoribus, medio basi leviter attenuato—In regione littorea prope Oko Mura ins. Kiusiu et in fruticetis prope urbem Kokura legit Pierot; aliis locis cultam legerunt Siebold et Buerger [Bürger], prope Nangasaki [Nagasaki] Oldham n. 360.

[Translation: Pierot collected it in the coastal regions on the island of Kyushu near Oko Mura {or Okumura; *mura* = village} and in the shrubbery near the city of Kokura {in northern Kyushu, Japan}; Siebold and Buerger collected it in other places where it was cultivated / grown, and {Richard} Oldham (specimen No. 360) collected it near Nagasaki {located on the far western tip of central Kyushu, near Deshima / Dejima, where Siebold and Buerger usually resided}].

- Kuro mame [Black soybean], No mame [wild soybean], Kuzu, Kokura iap.

var. praecox Sieb. [Siebold], humilior, non vel vix volubilis, densius rufo-hirta, foliolis satis variantibus.—Culta.

var. obtusa Miq. [Miquel] humilis stricta robusta dense hispida, foliolis late ovalibus utrinque obtusissimis.—Spontaneam legit Pierot ad radicem m. San Saka Toge ins. Kiusiu [island of Kyushu].—Jama [Yama] daisu iap. [Mountain soybean of Japan].

var. lanceolata Miq., elatior, minus hispida, foliis longe petiolatis, foliolo terminali sub lanceolato, lateralibus semilanceatis, mucronatis. In regione littorea prope oppidum Oko Mura ins. Kiusiu [island of Kyushu] detexit Pierot—Kuzu iap.

Observ. Cl. Benth. (*Journ. Linn. Soc.* VIII, p. 269) hanc sp. et superiorem coniunxit; nostrae autem plane diversae, a b. Zuccarinio determinate.

Other non-soy genera: Under *Pueraria* DC (p. 52) he lists *Pueraria Thunbergiana* Benth. *Journ. Proceed. Linn. Soc.* IX. p. 122.—*Pachyrrhizus Thunbergianus* Sieb. et Zucc. Abh. l. c. IV. 3, p. 237. *Neustanthus chinensis* Benth. Hongk. p. 86. *Dolichos hirsutus* Thunb. in Linn. *Transact.* II. p. 339...

Under *Phaseolus* (p. 52) Linn. he lists *Phaseolus radiatus* Linn., Miq. *Fl. Ind. bat.* I. p. 197. Ph. Mungo (Linn.) Sieb et Zucc. Abh. l. c. IV. 2, p. 118. Cum pluribus ut videtur varietatibus cultus. *Assuki* iap. [Japanese adzuki] and *Phaseolus nanus* Linn.

Under *Deutzia* Thunb. (p. 99) he lists 3 species: *crenata*, *scabra*, and *gracilis*.

Note 1. How Miquel compiled this book (according to Bretschneider 1882): In 1830 the Japanese government forced Siebold to leave Japan, saying that he had a map of the island, which was illegal. “Siebold had forwarded one portion of his vast botanical collections accumulated in Japan to Prof. C.L. Blume in Java, who described some of these plants in the *Museum botanicum Lugduno-Batavorum*, 1849-51... The greater part of his dried plants, however, had been transmitted by Siebold to the Museum of Leyden, and from these materials Prof. Miquel compiled his *Prolusio Florae japonicae* [*Prolusio florum japonicarum*], 1865-67.”

Note 2. This is the earliest document seen (May 2002) concerning Heinrich Bürger.

Note 3. Richard Oldham (1837-1864) collected plants for the Kew gardens (England) in Eastern Asia in 1861. The Oldham numbers, 360 and 368, refer to the numbers of the specimens in his collection—which is now at the British Museum of Natural History, Kew.

Note 4. Also reprinted: Amstelodami (Amsterdam): Printed by C.G. van der Post. viii + 392 p. See p. 240. 2 plates. 45 cm. Address: Prof. of Botany, Director of the Rijksherbarium in Leiden, Netherlands.

108. Wylie, Alexander. 1867. Notes on Chinese literature: With introductory remarks on the progressive advancement of the art; and a list of translations from the Chinese into various European languages. Shanghai, China: American Presbyterian Mission Press. London: Truebner & Co. viii + xxxviii + 260 p. See p. 5, 130, 181. 28 cm.

• **Summary:** This book is sort of an annotated bibliography (each book is cited in both English and Chinese characters) which gives a summary of Chinese works that are said by other writers to contain descriptions of the nine grains, but there is no mention of soybeans, soyfoods, or azuki beans on the pages listed above or below. Chinese books on agriculture are discussed on pages 75-77, with the title of each book also written in Chinese characters. The author lived 1815-1887. Address: Agent of the British and Foreign Bible Society in China.

109. Hepburn, James C. 1872. Japanese-English and English-Japanese dictionary. 2nd ed. Shanghai: American Presbyterian Mission Press. xxxi + 632 + 201 p. 28 cm.

• **Summary:** This is Hepburn's 2nd Japanese-English dictionary. The words are arranged alphabetically by their Romanized spelling. Each word is written in three ways. After the romanized word (main entry), written in uppercase letters with diacritical marks (which we have largely omitted below), the same word is written in katakana, then again in Chinese characters. Then comes an abbreviation of the part of speech (n. = noun; v. = verb, etc.). Finally, one or more definitions are given.

This 2nd edition is 162 pages longer than the original 1867 edition; the Introduction is 19 pages longer, the

Japanese-English section 74 pages longer, and the English-Japanese section 69 pages longer.

We will not repeat definitions that are identical to those in the 1867 edition. For new spellings, the 1867 spelling will be shown in parentheses. No new soy-related words were found in this 1872 edition. Soy-related words and terms in the 1872 edition: Adzuki (replaces Adzki) [azuki]. Amazake. Daidzu (replaces Daidz) [Daizu]. Hiriodzu (replaces Hiriodz) [Hiryozu]: A kind of food made of *tofu* fried in oil.

Note 1. This is the earliest English-language document seen (Nov. 2014) that contains the term *Hiriodzu* (the modern spelling is *Hiryozu*) which refers to Kyoto-style deep-fried tofu treasure balls.

Kinako.

Kiradzu [okara]. Koji: Barm or yeast made by the fermentation of rice or barley, in the process of making sake and soy [sauce]. Koji-buta: A shallow box for holding barm. Miso. Miso wo suru: To rub *miso* in a mortar. Natto.

Nigari. Sashi (verb). Sashimi. Shitaji (replaces Sh'taji). Note 2. This is the earliest English-language document seen (April 2012) that uses the word “shitaji” [spelled like this] to refer to shoyu or soy sauce.

Shoyu. Tofu: A kind of food made of beans, bean curd. Umeboshi (*hakubai*).

Yuba [hot water + leaf]. Yu-dofu.

The English-Japanese part of this dictionary starts after p. 558 and is titled “An index; or, Japanese equivalents for the most common English words.” Separately numbered to p. 132, it includes: “Barm, Kôji; tane.” “Soy, Shôyu.”

Terms NOT mentioned include Abura-age, Aburaage, Aburage, Atsu-age, Daitokuji natto, Edamame (or Eda mame or Yedamame), Ganmodoki, Hamanatto, Hiya-yakko, Kori-dofu, Koya-dofu, Nama-age, Okara, Tamari, Tonyu, Unohana, Yaki-dofu.

Note 2. The author apparently still did not realize that the various soyfoods he defined (with the possible exception of hiriodzu and soy sauce) were made from soybeans.

\ Note 2. This is the earliest English-language document seen (Oct. 2021) that uses the word *adzuki* to refer to azuki beans. Address: M.D., LL.D. [American physician, translator, educator and lay Christian missionary].

110. Syrski, S. 1872. Landwirtschaft in Japan [Agriculture in Japan]. In: Karl von Scherzer, ed. 1872. Fachmaennische Berichte ueber die oesterreichisch-ungarische Expedition nach Siam, China und Japan. (1868-1871) [Expert Reports on the Austro-Hungarian Expedition to Siam, China, and Japan]. Stuttgart: Verlag von Julius Maier. 494 p. Appendix (*Anhang*), p. 175-227. See p. 175, 186, 190, 207. Index. 25 cm. [Ger]

• **Summary:** Page 186 gives the prices of 1 *shô* (*schio* = 1.825 liters) of various staples. A Tempo is apparently a Japanese unit of currency and a kr. [kreuzer] is an Austro-Hungarian unit of currency: Fava beans (*Rosssbohnen*,

Sora-mame) 4 Tempo (18 kr.), azuki (*Adsuki*) 10 Tempo (45 kr.), soybeans (*Daidzu*; *Dolichos soja*) 6 Tempo (27 kr.), Kintoki, with red seeds 5 Tempo (22 kr.) [Note 1. Kintoki is an abbreviation of “kintoki azuki,” which is a large variety of red azuki beans], barley 3 Tempo (13 kr.), wheat 6 Tempo (27 kr.), sesame 10 Tempo (45 kr.).

Note 2. This is the earliest German-language document seen (Oct. 2021) that mentions azuki beans, which it calls *Adsuki*.

Page 190 notes: The pickled beans (*Bohnensulze*), called “Miso” in Japan, is prepared from *Daizu*, a variety of *Dolichos*, together with wheat- and barley meal/flour, plus some added salt. The seasoning soy sauce (*Soia*) is likewise made from soybeans (*Daidzu-Dolichos*) and wheat meal with the addition of salt, and sprinkled on many foods... Essentially the diet of Japanese peasants consists of rice and the above-mentioned miso, therefore of an easily digestible carbohydrate (*aus einem leicht verdaulichen Kohlenhydrate*) and a strong nitrogenous substance (*stickstoffhaltigen Substanz*, protein), which is made easily digestible through processing. Concerning the nutritional value of their most important foods, Japanese peasants believe that fish, eggs, and poultry give the most strength (*Kraft*). These are followed by miso and vermicelli made from wheat flour, then rice and potatoes. They believe that buckwheat gives but little strength.

The section titled “Legumes” notes: A green *Dolichos* variety (*Dolichos unguiculatus* according to Thunberg, called *Jaenari* in Japanese) is planted in the fields of central Japan in June and harvested at the beginning of October. A *Dolichos* variety (*Dolichos soia*; called *Daidzu* in Japanese) is planted in southern Japan in April and harvested in July. In central Japan this crop is planted between rows of wheat as they near maturity in May, and harvested in September. The ground is not manured (*nicht gedüngt*); the plants make use of the fertilizer (*Düngungsmaterial*) already applied for the wheat. As a rule, 6 *shô* of seed-beans yield a crop of 120 *shô* on a field of 300 *tsubo*.

Note 3. Rein (1889, p. 57) states: “According to Scherzer, six *Shô* of seed-beans of the early-ripening *Shiro-mame* are credited with a crop of 120 *Shô* on 300 *Tsubo* of land. This means a harvest of only 20-fold, or, taking account of the seed lost in sprouting, about 12 pods of two beans each to every plant.”

“This type of *Dolichos*, as is well known, is the main ingredient in the seasoning soy sauce (*Soia*) and the aspic or pickle (*Sulze*) miso (“*Miso*”).

“A black variety of *Dolichos*, called *Kuro-mame* in Japanese (i.e. black soybeans) is planted in the area around Nagasaki in April on land fertilized with ashes (*auf einem mit Asche gedüngten Boden*), and in central Japan in May two seeds are laid in a hole between the rows of wheat. It is harvested in August or September in southern Japan, and in October in central Japan, and used rather widely as a food.”

Note 4. Scherzer lived 1821-1903.

Note 5. This is the earliest document seen (April 2020) concerning soy in connection with (but not yet in) Hungary.

Note 6. This is the earliest document seen (June 2020) that mentions the use of fertilizers for growing soybeans.

Note 7. This is the earliest document seen (Dec. 2020) that mentions carbohydrates in connection with soybeans.

Note 8. This is the earliest German-language document seen (April 2012) that uses the word *Soia* to refer to soy sauce. Address: PhD.

111. *Far East (The) (Yokohama, Japan)*. 1873. A curious phase of superstition has been exhibited since the formation of lotteries. 4(4):92. Oct.

• **Summary:** “The temple of Oiwa Inari is one very much venerated by the citizens of Tokei; and is one to which, actors, geishas, and the like go to pray for success in their profession. Since the lotteries have been in vogue, it has been given out that this is the temple at which to pray for good fortune in the drawings; the fox Oiwa having such things under his special care. The consequence is, it is always crowded with poor people who have invested (many of them their all) in these lotteries: who bring *Sekihan* (made of rice and red beans [azuki]) and *Aburage* (beans fried in oil) of which the fox is said to be very fond; and who pray incessantly for the favour of Oiwa. The crowd is everyday very great from morning until night; but particularly on the days of drawing.”

Note 1. This is the earliest English-language document seen (April 2013) that uses the word “*Aburage*” to refer to deep-fried tofu pouches.

Note 2. This article appears in the section titled “Monthly Notes from Local Papers,” which starts on p. 88.

112. Hepburn, James C. 1873. *Japanese-English and English-Japanese dictionary*. Abridged by the author. New York: A.D.F. Randolph & Co.; London: Trübner & Co. vi + 330 + 206 p.

• **Summary:** “Preface: In order to render the Dictionary more portable and convenient in size, the Author has thought it best to abridge the larger work and bring it out in its present form. In so doing, he has omitted the Chinese and Japanese characters, the synonyms, and the examples showing the use of the words, excepting such as contained a peculiar idiom, and which could not be included in a definition. All the native Japanese words, with the exception of those which were rarely used or obsolete [such as *Yu-dofu*], have been retained; as, also, all the words derived from the Chinese which are in current use.”

“The Second, or English and Japanese, Part, has not been abridged or altered from the original, except in the correction of such typographical errors as were met with.”

Note 1. New words in this edition that are not in the 1867 edition are preceded by “**.”

Soy-related terms: Adzuki: A small red bean. Amazake: Sweet sake, a kind of fermented rice. Daidzu: A large white bean. Soja hispida. Hiriodzu: A kind of food made of tofu fried in oil.

Kinako: A kind of food made of beans [roasted whole soy flour]. Kiradzu: The refuse of beans left in making tofu. Koji: Barm or yeast. Koji-buta: A shallow box for holding barm. Miso: A kind of sauce made of beans.

** Moromi: The grounds left in making soy [sauce], used as an article of food.

Note: This is the earliest English-language document seen (April 2012) that contains the word “Moromi.” However the definition is poor. The word *moromi*, which is often translated as “mash,” is the stage in making soy sauce (it has a consistency resembling apple sauce) before the liquid shoyu (soy sauce) is pressed out, leaving behind the shoyu presscake or residue (which could be called “grounds”).

Natto: A kind of food made of beans. Nigari: The brine formed by the deliquescence of salt. Sashimi: Raw fish cut in thin slices and eaten with soy. Shoyu: Soy, a kind of sauce made of fermented wheat and beans. Tofu: A kind of food made of beans. Yuba: A kind of food made of beans.

Terms NOT mentioned include Aburage, Abura-age, Aburaage, Daitokuji natto, Edamame (or Eda mame or Yedamame), Hamanatto, Hiya-yakko, Koya-dofu, Kori-dofu, Okara, Tamari, Tonyu, Unohana, Yaki-dofu.

Note 2. The author apparently did not realize that the various soyfoods he defined (with the possible exception of soy sauce) were made from soybeans. Address: M.D., LL.D. [American physician, translator, educator and lay Christian missionary].

113. Hepburn, James C. 1873. Japanese-English and English-Japanese dictionary. Abridged by the author. New York: A.D.F. Randolph & Co.; London: Trübner & Co. vi + 330 + 206 p.

• **Summary:** “Preface: In order to render the Dictionary more portable and convenient in size, the Author has thought it best to abridge the larger work [of 1867] and bring it out in its present form. In so doing, he has omitted the Chinese and Japanese characters, the synonyms, and the examples showing the use of the words, excepting such as contained a peculiar idiom, and which could not be included in a definition. All the native Japanese words, with the exception of those which were rarely used or obsolete [such as Yūdofu], have been retained; as, also, all the words derived from the Chinese which are in current use.”

Azuki-related terms: Adzuki: A small red bean. An: Minced meat or a mixture of beans and sugar used for baking in cakes. Itokoni: A kind of food made of red beans. Neri-yokan: A kind of confectionery made of red beans and sugar. Seki-han: A kind of food made of red beans and rice, eaten on fete days. Shiru-ko: A sauce made of red beans and sugar,

eaten with rice cake [mochi]. Yayenari: A kind of pea or bean.

Note: This is the earliest English-language document seen (Oct. 2021) that uses the word *shiru-ko* to refer to a way of using azuki beans.

Terms NOT mentioned include Dainagon.

Note: The author apparently did not realize that the red bean and the adzuki [azuki] were the same. Address: M.D., LL.D. [American physician, translator, educator and lay Christian missionary].

114. Yōnan, Si. 1873. Botanique Japonaise. Livres Kwa-wi traduits du Japonais avec l’aide de M. Saba par Le Dr. L. Savatier [Botany of Japan: The book Kwa-wi translated from Japanese with the aid of Mr. Saba by L. Savatier]. Paris: F. Savy, editeur. 155 p. Indexes (2). [Fre]

• **Summary:** An alphabetical table of Japanese plant names (p. 129-148), includes: (1) Adzki [Adzuki], Herb, III, 3. IV, 3. Pages 38, 55. (2) Chiro goma [Shiro goma = white sesame] (*Sesamum orientale*), Herb, III, 9. Page 41.

An alphabetical list of species cited (p. 149+) lists all plants by genus name. However after a lengthy search, we can find no reference to the soybean.

Bretschneider (1895, III, p. 10) says “illustrated by woodcuts,” however we cannot find any.

The date of publication on the title page is given as “1875,” yet all catalogs we have seen (WorldCat, Harvard, Gallica BNF) give the date as 1873. The Harvard Library cataloging record gives the original author as “Shimada, Mitsufusa, active 1751-1772.”

The translator Ludovic Savatier lived 1830-1891.

The book begins: “*La traduction du Kwa-wi n’est que le commencement d’une série de publications que je me propose de donner plus tard, afin de faire connaître en Europe les progrès de la botanique au Japon et son état actuel.*” Address: Médecin de la marine française, attaché à l’arsenal d’Iokoska [Yokosuka, Kanagawa Prefecture].

115. Franchet, Adrien; Savatier, Lud. 1875. *Phaseolus radiatus* (L.) [Adzuki]. In: A.P. Franchet and L. Savatier. 1875-79. Enumeratio Plantarum in Japonia sponte crescentium... [Listing of plants native to Japan. Vol. I.]. Paris: F. Savy. xiv + 487 p. See p. 110-11. [4 ref. Lat; fre]

• **Summary:** *Phaseolus radiatus* is mentioned by Linnaeus in *Species plantarum* (p. 1017), and by Thunberg (1784) in *Flora Japonica*... There are three types: alpha, beta, and gamma. The beta type is illustrated in: (1) *Sô mokou Zoussetz*, vol. 13, fol. 30, under *Tsourou adzou ki*. (2) *Phonzo Zoufou*, vol. 43, fol. 11, under *Kin Adz’ki*.

The gamma type is illustrated in: (1) *Sô mokou Zoussetz*, vol. 13, fol. 31, under *Boundô, Ya enari*. (2) *Phonzo Zoufou*, vol. 43, fol. 9, under *Adz’ki*. Address: Medical doctor, Yokosuka, Japan and Paris.

116. Griffis, William Elliot. 1876. *The Mikado's empire*. New York, NY: Harper & Brothers, Publishers. 625 p. Illust. Index. Map. 23 cm. [25+* ref]

• **Summary:** Book 1. History of Japan from 660 B.C. to 1872 A.D. Book 2. Personal experiences, observations, and studies in Japan, 1870-1874.

This is a remarkable book, beautifully written by an American teacher and traveler in Japan who loves the culture and the people, who lived and traveled widely among them in both the countryside and cities during his four years in Japan (29 Dec. 1870 to 25 July 1874), and who speaks Japanese. He has a deep knowledge of many aspects of Japanese history, including the history of Japanese religions (incl. Buddhism). He was invited to Japan to organize a scientific school on the American principle in Fukui, Ichizen, and to give instruction in the physical sciences. This is the 1st of 18 books he wrote about Japan. He returned to Japan in 1926 to receive the Order of the Rising Sun.

Among the Aino [Ainu] in Hokkaido [Yezo] (p. 31): They sit, like the Japanese, on their heels. Their food is mainly fish and sea-weed, with rice, [soy] beans, sweet-potatoes, millet, and barley, which, in Southern Yezo, they cultivate in small plots."

Describing the Japanese origin myth, with the Sun Goddess (Amaterasu), Izanami, Izanagi, etc. (p. 48-49): "The God of Clay and the Goddess of Fresh Water married. Their offspring was Naka musubi. From his head grew the mulberry and silk-worm, and from his navel sprang the five cereals, rice, wheat, [soy] beans, millet, and sorghum." "Reporting the matter in heaven, Amaterasu was angry at Sosanoö, and degraded her (the Moon-goddess) from joint rule, and condemned her to appear only at night, while she, the Sun-goddess, slept. Amaterasu then sent a messenger the second time to see whether the Food-goddess was really dead. This was found to be the case. Out of the dead body were growing, millet on the forehead; silk-worms and a mulberry-tree on the eyebrows; grass on the eyes; on the belly, rice, barley, and large and small beans." Note 1. Large beans are soybeans; small beans are azuki.

Page 208: The native sauce, *shō-yu*, made of fermented wheat and beans, with salt and vinegar, which the cunning purveyors of Europe use as the basis of their high-priced piquant sauces [such as Worcestershire sauce], was made and used as early as the twelfth century. The name of this saline oil (*shō*, salt; *yu*, oil) appears as 'soy' in our dictionaries, it being one of the three words (soy [sauce], bonze, moxa) which we have borrowed from the Japanese." Note 2. The author's derivation is incorrect; *shō* does not mean "salt," but rather *hishio* or *jiang*, which is the mash, having the consistency of applesauce, before the liquid is pressed out.

Page 357: In the cooper shops is a "dazzling array of wood-work, so neat, fresh, clean, and fragrant... There are two coopers pounding lustily away at a great rain-tank, or saké-vat, or soy- tub" [vat]. An illustration shows two

coopers at work hooping a vat.

At the pagan temple (p. 381): "Several old women have stands, at which they sell holy [soy] beans, pious pease, and sanctified rice. These are kept ready in tiny earthen saucers. The orthodox buy these, and fling them to the cloud of pigeons that are waiting on the temple eaves, and fly, whirring down, to feed. Ten thousand sunbeams flash from their opaline necks..."

Page 420: "The village houses were built of a frame of wood, with wattles of bamboo smeared with mud, and having a thatched roof. Within, the floor was raised a foot or so above the ground, and covered with mats. When the rooms had partitions, they were made of a frame of wood covered with paper, and made to slide in grooves. In the middle of the floor was the fire-place. From the ceiling hung pot-hooks, pots, and kettles—one for tea, one for rice, another for radishes, beans, or bean-cheese [tofu]. In these villages good-nature and poverty seemed to be the chief characteristics of the people."

Page 426-27: "The seller of fish, vegetables, oil, and bean-cheese, each uttering his own trade trade-cry, ambled on."

Page 455: "Men or women itinerants carry a small charcoal brazier under a copper griddle, with batter, spoons, cups, and shoyu sauce, to hire out for the price of a cash each to the little urchins, who spend an afternoon of bliss making their own griddle-cakes and eating them."

Note 3. This is the earliest English-language document seen (April 2012) that uses the term "shoyu sauce" (regardless of capitalization or hyphenation) to refer to soy sauce.

Page 496: "... a shop to which the *élite* of the epicures of Yedo [today's Tokyo] resorted daily for the delicacy of eels fried in soy [sauce]. The appetizing odor was wafted" into the neighborhood.

Page 516: "May 1st [1871]—During the past month I have made many excursions on horseback through the country round, staying overnight at the village inns. Sasaki and Iwabuchi have been my companions. I have seen the paper manufactories, oil-presses, the sake breweries, soy-vats,..."

Page 542: Jan. 22d, 1872. For dinner: "Rice, bean-cheese, daikon, mushroom, fish, are served."

Azuki beans (red beans, small beans) are also mentioned on pages 454 and 469. The population in 1872 was 33.3 million. On pages 587-88 is a sort of bibliography.

William Elliot Griffis lived 1843-1928.

Note 4. This is the earliest English-language document seen (April 2013) that uses the term "bean-cheese" (hyphenated, by itself, with a space before the word "bean," and where it is not preceded by the words "soy," "soya," "soja," etc.) to refer to tofu. Address: A.M., Late of the Imperial Univ. of Tokyo; presently in New York.

117. Imperial Japanese Commission to the International Exhibition at Philadelphia (1876). 1876. Official catalogue of the Japanese section: And descriptive notes on the industry and agriculture of Japan. Philadelphia, Pennsylvania: Published by the Japanese Commission. 130 p. 24 cm.

• **Summary:** The Preface (p. 3) begins: “Never until the year 1873, had Japan participated to any great extent in the various European International Exhibitions. Up to that time she had been merely represented by some of the provincial governments, acting independently of the central Government. However, the Government determined to be worthily represented at the Vienna International Exhibition [Vienna World Exhibition] of 1873,...” But Japan was well prepared for the Philadelphia Centennial Exhibition.

Under classes of “Agricultural products” (p. 32, 34): Class 621—Peas, beans, etc. (incl. Soya, adzuki). Class 650—Sea weeds (incl. Vegetable isinglass [agar, kanten]). Class 657—Flour and starch (incl. Kudzu {*Pueraria thunbergiana*}). Class 659—Wines and other kinds of drinks (incl. Sake, Soy {a kind of sauce}).

Page 71 discusses relief painting in lacquer: “The lacquer can even be carved, and, finally, the artisan can incrustate mother-of-pearl shell, ivory, thin metal, or anything he likes into the lacquer. By mixing a sort of paste made of [soy] bean powder, or the white of eggs, with the lacquer, he can thicken it to such an extent as to give it a kind of plasticity, admitting the possibility of making impressions which remain visible after hardening.”

In the long chapter titled “Descriptive notes on the industry and agriculture of Japan (p. 37-117) is section on “Agricultural products. Classes 620-21—Cereals, vegetables, etc.” (p. 104-06). Beans, generally referring to soy beans, are mentioned many times. “Manures of a mineral nature consist of marls, shells and ashes; those of vegetable origin of inferior kinds of beans and peas or their residues, of [soy bean] oil-cakes, the residues of sake-brewing...”

“The excellent kinds of beans and peas, which are made into a kind of cheese [tofu] and a peculiar mixed dish called ‘misso’ [miso] afford the necessary nitrogenous substances, and to a certain extent form the substitute for meat; the Soy [shoyu; soy sauce] also belongs to this kind of food, and is frequently mixed with other dishes. With regard to animal food, it is limited almost exclusively to fish, poultry and eggs. But a change has already been effected to a certain extent in the larger towns, where butcheries have been established. An experiment of sheep farming was commenced one or two years ago” (p. 106).

Note 1. This is the earliest English-language document seen (April 2012) that uses the word “Soyu” (regardless of capitalization) to refer to shoyu or soy sauce.

Note 2. This is the earliest English-language document seen (Nov. 2014) that contains the term “substitute for meat” (or “substitute for meats,” with any combination of quotation marks).

Under “Class 657, 658—Flour, starch, etc. we read (p. 110-11): “It has been mentioned above that the various kinds of beans constitute a very important element of the national diet. Some of the preparations made of beans and peas are worthy of a short notice. In preparing the ‘Tofu,’ white beans are soaked in water, ground between two stones, strained through a sieve and afterwards boiled. The contents of the kettle are then filtered through cotton cloth and the residue pressed out. The liquid [soymilk], which may be considered as an alkaline solution of legumine, is precipitated by successive additions of the bitter lye [nigari] which runs off from sea-salt by deliquation, and which is mostly composed of magnesium salts. The precipitate is legumine with a small percentage of legumine-composits [-composites] and a large proportion of water. The ‘yuba’ is also made by boiling the above-mentioned legumine solution in an open kettle, with a slight addition of ash-lye. The insoluble skins which form upon the surface of the boiling liquid, are taken off and dried. Another kind of preserved food is the ‘misso’ [miso]. White beans are first boiled, pounded in a mortar to form a paste, then mixed with fermenting rice and salt, whereupon the whole mixture is placed in tubs and left in some cool place; at the end of a month it is ready for use. In mentioning the various preparations made of beans, the ‘Soy’ or, as the Japanese call it, ‘Soyu’ [shoyu] should not be omitted; but as it belongs rather to the produce of fermentation, the process will be described under the head of Class 660 [Alcohol and malt liquors].

One page 112 we read: “The soy, or ‘soyu,’ is made of a small bean, the ‘Dolichos soja,’ or ‘Soya hispida,’ to which are mixed wheat, salt and water. The beans are first boiled, and the wheat bruised and steamed; both are then mixed with a small addition of fermenting wheat, placed in flat wooden boxes and kept for several days at a fixed temperature in a special room. At the end of three days, the mass [koji] is all covered with fungi and partly with roots of germination. After having been mixed with a salt-lye, which has been prepared hot and allowed afterwards to cool down, and to depose certain impurities, the mashings are now removed to enormous coops [vats] in which they are kept for several years. Experience has shown that the best soy is produced by mixing equal quantities of mashings of three years and five years’ standing. This mixture is transferred into bags of thick cotton-cloth, placed in large boxes, and then submitted to pressure—at first only to a slight pressure, which yields the best soy, and afterwards, however, to a gradually increasing pressure, the separation of the last portions being assisted by an addition of salt water.

“The soy forms a very important condiment for all kinds of dishes, and is consumed in large quantities. In 1874 the production amounted to 1,506,402 hectolitres.”

An interesting term in the Index (p. 129) is “Bean-cheese,” which refers to tofu (p. 110).

Also: Use of hemp (*asa*) for manufacture of cloth (p. 77,

113). The tea ceremony (p. 108). Sea weeds, incl. cultivated nori and Asakusa nori in Tokio bay, kanten or vegetable isinglass, and fu (that resembles carrageen [carrageenan] moss and is used in the sizing of the warp of silk goods) (p. 109). Kudzu (p. 110). Sake (p. 111). Address: Japan.

118. M. 1877. Neue Culturpflanzen [New crop plants]. *Neue Freie Presse* (Vienna) No. 4526. April 3. p. 4, col. 1. Evening edition. [Ger]

• **Summary:** Even though, as we presented in a first article (no. 4505 [*Landwirtschaftliche Zeitung*] of the *Neue Freie Presse*), out of twenty newly recommended crops we hardly arrived at one single result worthy of mention, nevertheless sometimes one such crop comes up which is completely worth the many futile attempts and failures. So among the worthless desert of seed novelties, that is how it was with one species that has recently become known which deserves the greatest attention. That is *Soja hispida*, the hairy runner bean or *Dolichos* (*rauhe Schmink- oder Heilbohne*) from the line with many branches of the East Asian *Dolichos* species. The credit for having introduced this worthy useful plant to the Occident is due to Professor F. Haberlandt at the College of Agriculture (*Hochschule für Bodencultur*) in Vienna. He found this among the Japanese seeds at the World Exposition (*Weltausstellung*) of 1873, cultivated them in complete secrecy, and has now come forward with the results of his trials.

Next to rice, the *Dolichos* or soy beans (*Dolichos- oder Soja-Bohnen*) form the main source of nutrition for the population of the two largest East Asian empires, but they are also cultivated in countless varieties in all of India, on Java, Borneo, Sumatra, and all islands of the Indian archipelago and are treasured as a daily food. Along with chickpeas (*Cicer arietinus*), they are among the most nitrogen-rich of all pulses, which means of all vegetable products, and thus their extraordinary nutritional value, especially for the working classes. In Japan, there are four varieties of runner beans (*Schminkbohnen*) that are preferably planted for their nutrition: *Dolichos* (or *Soja*) *unguiculatus*, in Japanese *jaenari*, green; *D. soja*, Japanese *daidsu*; a black variety *kuromame*, and a red one, *kintoki* [which refers to a variety of azuki beans]. They are all eaten. One of the most favorite without which a Japanese could hardly live is the bean aspic (*Bohnensulze*) “miso” (“*Mieso*”), prepared from the *daidsu* bean with wheat and barley flour together with some salt. The seasoning that is expressly called “soy” (“*Soja*”)—in Japanese *siyau* [*sic, shoyu*], in Chinese *sohi yu* or *tsiang yu*, in English soy—is a fermented soup [*sic, sauce*] that is prepared from soybeans (*Sona-Bohnen*) with different additions that is served as sauces and forms an important article of trade. In China, *Dolichos sinensis* (under which is certainly also to be included many other species) is the preferred food after rice; the plant is cultivated everywhere. According to Scherzer, entire populations are employed there

with the preparation of cakes and preserved foods made from bean meal for food. Just like with other pulses, the skins of the beans, after being carefully separated from the meal, are pressed into cake form in iron wheels and dried. They are a precious fertilizer, as are the oil cakes, and it has an extraordinary value on the market; Shanghai alone ships over a million pieces of it every year, including to the southern [Chinese] sugar plantations.

On Java, the soybean is preferably called *katjang*, that is, “vegetable” (according to Junghuhn). And next to rice, padi, and corn, *djagong* (which has only been cultivated for one and a half centuries), and the roots of yams and potatoes called *ubi*, it is the food which is cultivated the most. These Javanese soybeans, especially the white ones, are regarded as the best and are sought after as ship’s provisions. Their botanical name, *Dolichos catjang*, still originates back from the old ship’s hull (Rumpf). In East India, the perennial runner bean, *D. lignosus*, a climbing shrub (*Kletterstrauch*) is very common, along with *D. lablab*, *gladiatus*, *bulbosus*, *tetragonolobus*, and many other species. The Egyptian fellah grows *D. lubia*; in the West Indies and Brazil, *D. tuberosus* provides not just edible pods and beans, but also a farinaceous (*mehlhaltig*) root as food that tastes similar to turnips (*rübenartig schmeckend*) and can weigh up to a pound. It is also known that there is a species of *Phaseolus* with edible tubers.

In Europe, too, although only in the southern lands of this part of the world, in Turkey, Greece, Sicily, the Iberian peninsula, and specifically in Provence in France (where they are called *banettes* or *mongettes* and have a delicate flavor), runner beans have long been cultivated, and specifically preferably *D. unguiculatus*. They require a light, warm soil, but aside from that they are specifically treated and used just like other edible beans (*Speisebohnen*). They go beyond the tastiness and nutritional value of the latter, but on the contrary they have the disadvantage of being afflicted by insects (weevils) which, as is well known, is not the case with the *Phaseolus* beans.

Soja (or *Dolichos*) *hispida*, which Professor Haberlandt has successfully acclimatized, appears to be one of the most preferred species of its family. It has withstood the climate very well, even at high degrees of latitude, it has developed completely in average soils, and it has produced seeds extremely richly and brought them to maturity at the same time as with other pulses. Its use seems to be a versatile one. The seeds provided an extremely pleasant-tasting food which, when prepared in different ways as with other pulses, not only did not fall short of them but even exceeded them in their fineness. When coarsely ground, the beans were also immediately accepted by animals, which is not the case with the usual edible beans; those are accepted only by pigs and in fact only when cooked or when mixed with other fodders. We do not know whether the green pods can be used as a vegetable. But the pods that have been dried after the seeds

have been removed as well as the straw—and of course also the green plant—have proven themselves as an excellent fodder that is consumed immediately by every type of livestock with great desire.

Professor Haberlandt very liberally made available the quantity of seeds of *Soja hispida* that had been grown the previous year to a number of farmers who were amenable to progress in all areas and climates of Austria, so that we will soon have more and larger agronomic trials about which to report. In any case, the eagerly researching and valiant representative of plant cultivation at our College of Agriculture is due thanks for his successful efforts regarding the acclimatization and introduction of a new species to what thus far has been the rather closed series of our crops.

Dr. M.

Note 1. Translated by Philip Isenberg (MM, CT), Long Beach, California.

Note 2. This is the earliest article seen (April 2020) in the AustriaN Newspapers Online (ANNO) database that contains the word *daidsu* (the Japanese word for “soybean”). This word appears in 5 different issues of these newspapers from 1877 to 1924.

Note 2. This is the earliest article seen (April 2020) in the AustriaN Newspapers Online (ANNO) database that contains the German word *Soja-Bohnen* (Soybeans)—spelled with a hyphen. This word appears in 60 different issues of these newspapers from 1877 to 1947. Address: PhD.

119. Commission Imperiale à l'Exposition Universelle de Paris, 1878. 1878. *Le Japon à l'Exposition Universelle de 1878* [Japan at the Universal Exposition of 1878]. Paris: Publié sous la Direction de la Commission Impériale de Japon. 2 volumes in one. 26 cm. Preface by M. Matsugata. Facsimile edition (preservation photocopy) reprinted in 1998 by BookLab, Inc. [Fre]

• **Summary:** Part I (159 p.) is about the geography and history of Japan. Part II (192 p.) is about art, education and teaching, industry, production, agriculture, and horticulture in Japan. The Preface is by M. Matsugata, Head of the Imperial Department of Agriculture and President of the Japanese Commission to the Universal Exposition of 1878.

In Part II, the section on “Fermented beverages—Condiments” contains a long section on “Shoyu” (p. 124–25). It gives a brief description and discusses the ingredients (equal parts dehulled wheat, soybeans, and salt; the best salt comes from Ako in the province of Harima), purifying the salt by dissolving then heating it in water, and stirring the mash (2 or 3 times a day from June to September), aging for 15, 20, or sometimes 30 months to obtain shoyu. The mash is then pressed in cotton sacks, and the resulting liquid is boiled, cooled, allowed to settle, then stored in small wooden tubs. The residue from the first pressing can be used to make a second-grade shoyu, which can be mixed in varying proportions into different grades of shoyu.

Note 1. This is the earliest French-language document seen (April 2012) that uses the term *shoyu* to refer to soy sauce.

In the section on “Agriculture,” the subsection on “Cereal grains” (p. 133) discusses both soybeans and azuki beans (*Phaseolus radiatus*). “The soybean (*Le Mame*) or *Soja Hispida* is comprised of several varieties: The green soybean (*l’Awo mame*), the white soybean (*le Shiro mame*), the black soybean (*le Kuro-mame*), the yellow soybean (*le Ki mame*), *Konrinza mame*, *Ichia mame*, and the saddled soybean (*Kurakake mame*). Some of these different varieties are early maturing and some are late.

The soybean finds numerous uses, for it can be eaten cooked, ground into flour [kinako / roasted soy flour], or used for the manufacture of shoyu, miso, or tofu. The bean, its seed coat, pod, leaves, and stem serve as feed for horses. Lately it has been used on a trial basis to feed sheep, and the results proved that it was the best feed that one could give to them.

Tofu is made with two kinds of boiled soybeans: White and yellow. After being pressed and hardened, it will last for a long time. Yuba is a somewhat similar product, made with the same ingredients. Note 2. This is the earliest French-language document seen (March 2004) that contains the word *Tofu*.

The black soybean speckled with white (*Gan Kui mame* [*Gankui*]) is one of the best varieties to eat.

The azuki (*L’Azuki ou Phaseolus radiatus*) includes the early and late types, and comes in several varieties such as the *Hine no Azuki*, the *Dainagon Azuki* (*le Dai Nagon Azuki*), the *White Azuki* (*Shiro Azuki*), etc. Sweet azuki bean paste (*L’An*), is widely used in confectionery, is made by mixing the Azuki and sugar. One cake made from it is called *Yokan*. Azuki flour (*farine de l’Azuki*) is used to remove greasy stains from fabric / cloth. The *Yaye Nari*, a green bean (*haricot*), is used in the same ways as the azuki bean (p. 135). Note 3. This is the earliest French-language document seen (Jan. 2005) that uses the word “Azuki.”

Also discusses: Sea vegetables (many individual types with both Japanese and scientific names, p. 127–29). Kudzu (*Pueraria thumbergiana* [sic, thunbergiana], starch from the roots and fodder from the leaves, p. 139; fibers used to make cloth, p. 153). Hemp seeds (p. 139). Sesame seeds and sesame oil (*Goma*, p. 145). Peanuts and peanut oil (*Tojin mame*, p. 145). Hemp as a fiber plant (p. 151). Address: Paris, France.

120. Dwars, B.W. 1878. An analysis of certain articles of Japanese food. *Transactions of the Asiatic Society of Japan* 6(1):63–67.

• **Summary:** This published letter is addressed to E. Satow, Esq., Corresponding Secretary of the Asiatic Society, and dated 30 July 1877.

“Amongst the articles which the Shiyakujo of Osaka

has sent to the Exhibition of Tokio are several kinds of food, together with a report of their analysis.”

Four Kinds of Red Beans, called *Adzuki*, No. 1, 2, 3 and 4 were successively examined, these being the seeds of *Phaseolus radiatus*, Linn. var. *subtrilobata*. These beans form one of the principal articles of the foods of the Japanese, and are also especially used by those who suffer from *biri-beri* [beri-beri], they being supposed to act as a diuretic.

Four analyses of Red Beans (*Adzuki*) are given in tabular form:

No. 1. Large kind. Specific gravity 1.276. Water 14.58%. Ashes 2.76%. Fat 0.35%. Nitrogen 2.86% corresponding to about 17.9% of albumen.

No. 2. Small kind. Specific gravity 1.300. Water 13.29%. Ashes 2.95%. Fat 0.30%. Nitrogen 2.96% corresponding to about 18.5% of albumen. “No. 3. Large kind. Specific gravity 1.284. Water 16.08%. Ashes 2.77%. Fat 0.34%. Nitrogen 2.84% corresponding to about 17.7% of albumen.

No. 4. Small kind. Specific gravity 1.289. Water 13.01%. Ashes 3.03%. Fat 0.32%. Nitrogen 2.95% corresponding to about 18.4% of albumen.

There are also analyses for glutinous rice (*mochi-gome*), common rice (*kome*), rye (*hadaka-mugi*), and wheat (*mugi*).

Note: This is the earliest English-language document seen (April 2008) that uses the word *Adzuki* to refer to the azuki bean. Address: Shiyakujo, Osaka [Japan].

121. *Novice Gospodarske, Obrtniske in Narodne (The Farmers', Tradesmen's, and People's Newspaper, Ljubljana)*. 1879. Soja fazolica in pa resasti gabez “symphytum asperillum.” [The soybean and comfrey, *Symphytum asperillum*]. 37(16):121. April 16. [Slv]

• **Summary:** Another year passes where the praises of soya and comfrey are loudly sung by German newspapers. As these plants are, to us, a novelty, *News (Novice)*—could not possibly keep silent, and therefore have brought a report as it came to them—from the garden of the Agricultural Society of Carniola (*Druzba kmetijska kranjska*). They [probably *Novice*] were, in their estimations, unable to concur with such praise, for both the soya bean (*soja fazolica*) brought from China, and the comfrey much lauded by the English were already familiar plants [and the impression was not positive].

“What do we want with this bean, which is so minuscule that 10 of these little beans barely amount to one *hrovat* [i.e., one fizol or bean]—the farmers responded, when we showed them the soya bean—whereas others, who had offered the harvested comfrey leaves to their cattle, told us, rather directly: “not a single one of our cows, who are used to our native grass, touched that fodder.” It was a concise critique, but one which seemed genuine to those of us who knew that praise for soya had been exaggerated by some, particularly for the benefit of the deceased Dr. Haberlandt, Professor at

the Royal-Imperial College of Agriculture in Vienna. Those who had exaggerated their praise of soya had only tried the plant in the garden; and by those who had been amazed by the comfrey plant’s late growth and enormous leaves.

We came across the first voice to sound against the (in our words) exaggerated praise of soya in the Croatian-Slavonic Economic Society’s (*gospodarsko drustvo hrvatsko-slavonsko*) *Economic Times (Gosp. list)* which draws landowners’ attention to the fact that not all that glitters in theory is gold, and it is not in actual fact tested in the field. The second voice was in the Agricultural Society of Gorizia’s (*Goriska druzba kmetijska*) *Economic Times*; while comfrey is harshly critiqued in the catalogue of Count Attem’s seed testing station (*seminisca*), which is today the most excellent / prestigious in Austria. As it is unsafe / unwise to report on things which later turn out to be unworthy of praise to humble farm workers, who are also reluctant to catch on to good new things, things which are thrust upon them, the honorable Prof. Povse was therefore entirely right to publish an article in *The Economic Times* about soya and comfrey, which reduces praise for them to an appropriate level. Allow us to summarize the following lines from that article:

“1. Soya really has a very high iron content; our trials up to now indicate that only yellow soybean (*rumena soja*) is to be recommended. The straw [the dried stems of the soybean plant?] are bland and the animals aren’t fond of it. Soybeans take an awful long time to cook and the cooked beans aren’t at all pleasant, though it is in fact a very nutritious meal. As long as we produce native beans (*borlotti* and other types of beans) we have no need to consider soybeans, as native beans are so excellent in terms of their yield and taste, that soybeans would never take their place. Yet poor folks, including sailors, prefer to purchase the red bean [azuki?] ‘horvat’, as it’s called, as it is the quickest to cook—firewood is scarce and expensive! Yellow soya is, however, worth trying. But to save farm owners from feeling unnecessary pressure to hand over money to someone recommending soybean seeds, we can announce that Gorizia’s Rural Agricultural School (*goriska deželna kmetijska sola*) is selling a bokal [1 bokal = approx. 1.5 liters] of soya for 20 krona, and not at a quarter of a bokal for 20 krona, as has been suggested by someone proffering their soybean seeds (*sojino seme*).

Note 1. Translated by Olivia Hellewell, PhD, University of Nottingham, UK. Olivia adds: The basic gist of this piece is that there had been a lot of hype about the soya bean and comfrey, as reported in the papers, but when approached, local farmers were not at all impressed. The purpose of it seems to be to dissuade farmers and land owners from paying out money to grow soybeans on the basis of hype from elsewhere.

Note 2. Comfrey is any of a genus (*Symphytum*) of plants of the borage family with coarse hairy entire leaves

and flowers in one-sided racemes. *Symphytum officinale* is widely used as a medicinal herb; a decoction of the roots or a poultice of the fresh leaves are believed to have medicinal properties.

Note 3: Juras (1966 #17) cites the author as Strazimir, Dragutin (family name, given name), however we have been unable to find his name on this article. Address: Ljubljana.

122. Isono, Tokusaburo. 1879. On shoyu. Inaugural dissertation at Tokyo Imperial University, Japan. Published by the Dep. of Science in Tokio Daigaku. [1] + 25 p. Illust. (11 line drawings). 22 cm. <https://babel.hathitrust.org/cgi/pt?id=nnc2.ark:/13960/t44r36r25&view=1up&seq=1> [Eng]
• Summary: This book has been digitized and is now available in English on HathiTrust. On the title page: “6th Month of the 11th year of Meiji.” On the first unnumbered page: “This Essay was printed at the end of the academic year 2537-38 (1877-78) as the graduating thesis, by Tokusaburo Isono, Senior student of that year, and printed by the Department of science according to the suggestion of Prof. R.W. Atkinson.”

Page 1. “Few things are of greater importance in Japanese cookery than the peculiar kind of liquid produced by the fermentation of [soy] beans and wheat in a saline solution. This liquid is called sho-yu, to-yu, or hishiwo [hishio], but it goes almost universally throughout the country under the name of ‘Sho-yu.’ ‘Sho’ is derived from a word having the same pronunciation ‘Sho’ meaning the general of an army, and the word ‘yu’ means oil, therefore the term ‘Sho-yu’ signifies that it is the oil which has the power of destroying the poisons of the food when it is cooked with this liquid, and resembles the general of an army who suppresses an insurrection and defends the country from invasion. It is of Chinese origin, and in that country there are a great many varieties prepared from different kinds of beans. I shall here mention some of the kinds.

“1. To-yu is prepared by mixing 3 kin (weight) of boiled common white [soy] beans and 24 kin of wheat flour, and to each 10 kin of this mixture 8 kin of common salt and 40 kin of water are added.

“2. Daidso-sho is prepared by mixing 1 to of powdered roasted white [soy] beans and 3 to of wheat flour, and to every kin of this mixture 5 sho of common salt and a variable amount of water are added.

“3. Sho-to-sho is prepared by mixing together the well washed adzuki [azuki] or red beans and leaving the mixture to stand for one year. Then it is mixed with salt and water and subjected to fermentation.”

Page 2: In all the above preparations, the mixture of beans and wheat is made into koji before being mixed with common salt and water.

“The Sho-yu or to-yu above mentioned is similar to the Japanese, except that the wheat is not roasted and is more finely divided;”

“For the preparation of sho-yu were required two vegetable substances viz. beans and wheat, and an organic body, viz. sodic chloride or common salt. I shall consider each of these necessary materials separately before speaking of the preparation of sho-yu.

“Wheat: It is said that barley gives a much better taste to sho-yu than wheat, but on account of the difficulty of removing the husk from the former, the latter is almost universally used for commercial kinds.” Wheat “is the most important part of Japanese food next to rice.” Page 3: He then analyzes the chemical composition of wheat as follows:

“Water 13.77%
 “Starch 61.46%
 “Dextrin 5.41%
 “Nitrogen 9.29%
 “Fat 1.16%
 “Cellulose 2.25%
 “Ash 1.96%
 “Extractive matter 5.75%
 “Ash of the extract 0.85%.

Pages 3-4: Beans: Beans are almost as important vegetable products as rice and wheat. They are mostly used as food in the form of *to-fu*, which is prepared by extracting the beans with water after grinding in a stone mill; the extract is boiled, and the albuminous matter coagulated by what we call *nigari*, or a mixture of magnesian sulphate and chloride [magnesium sulfate and magnesium chloride]. There are seven different kinds of [soy] beans of which only three are used in sho-yu manufacture. (a) Those generally used are the common white beans, *daidzu* or *ki-daidzu* (large yellow beans), which are sown in winter and ripen at the beginning of autumn. (b) *Natsumame* (summer beans) so called because they ripen at the end of summer. (c) Lastly *kuri-mame* (chestnut bean) rarely used, and so called as their taste somewhat resembles that of the chestnut. This bean is larger than the kinds mentioned above and has a purple tinge. It is said to produce a better tasting sho-yu than any other kinds of bean but it is seldom used as it is dearer. They are sown at the end of the winter, especially along the sides of the dykes that separate the rice-fields, but also in special soils. This is done by making successive notches by means of a wooden rod, dropping 4 or 5 seeds into it, and covering with wood ashes mixed with manured soil. The following is an analysis of [soy] beans used for sho-yu manufacture... They were dried at 100°C, powdered, and subjected to analysis -

“Starch 32.22%
 “Dextrin 2.58%
 “Nitrogen 6.61%
 “Albumenoids 41.30%
 “Fat 15.37%
 “Cellulose 5.24%
 “Ash 4.47%

“Determining the water in the original beans I found it to be 9.64%.

Page 4: “Common salt is indispensable as an article of food in Japan as well as in other parts of the world. There are three kinds of common salt in commerce differing in purity and in the mode of preparation:

“1. Common kind, sold in straw bags... This kind contains all the compounds which sea water contains as it is obtained by merely evaporating sea water to dryness. Among the impurities the magnesium salts are very large in amount, for when the bags are placed over a dish, after a while we find a large quantity of magnesium salt, which has deliquesced by attracting moisture from the air, within the dish. These deliquesced salts are called *ni-gari* (derived from the word *nigashi* [or *nigai*] signifying *bitter*, as the magnesium salts are bitter to the taste). This *nigari* is used in precipitating *to-fu* as I stated before on page 3. This impure kind of salt is most largely used while the other two are only used by rich men or nobles.

“2. *Yaki shiô* or burnt salt...

“3. The *Kwa-yen*, or flower salt,...

Page 5: “... in Japan the salt is obtained almost entirely from sea water. The most celebrated salt working districts are Ako in Harima, Kashino in Bizen, and Giôtoku in Musashi...

Pages 7-12: A typical process for the preparation of salt in Japan is described. This *nigari* is used in precipitating *to-fu*...

On page 8 is a very interesting full-page illustration of a Japanese man making salt. He has a shoulder pole with a wooden bucket attached to each end using a rope.

On page 9 is another illustration of a man making salt.

Page 12: “I have made one analysis of the common kind of salt costing 0.7 to 0.8 sen per sho, with the following results.

“ MgSO_4 7.51%

“ MgCl_2 1.74%

“KCl 2.04%

“NaCl 73.00%

“Insoluble matter (sand, calcium sulfate, etc.) 0.17%

“ H_2O & organic matter 15.61%

“Shoyu: Although shoyu is usually bought by the manufacturer by the citizens, many farmers in the country make it on a small scale in their houses. The preparation of such kinds of sho-yu is slightly different from that carried out on a large scale. I shall describe here the preparation on the small scale, translating from the book called *Koyeki-kokusan-ko*, by Okura Nagatsume [*Observations on the Extension of the Useful Productions of the Country*, 1884, Osaka; contains at least 8 volumes] who says that it is more economical to make the sho-yu at home when the family consists of more than 3 persons. The process is as follows:—6 sho of unhusked barley are roasted, and half of this is roughly ground by the *hiki-usu* [quern, hand-turned stone mill] (which is the common apparatus for grinding flour in the family). The apparatus is represented [schematically] in Fig. 5. It consists of 2 solid cylinders of sandstone about

1 shaku [1 shaku = 30.3 cm or 11.93 inches] in diameter and 5 [sic] shaku thick, and these two cylinders (A&B) have very rough surfaces where they come in contact... The upper cylinder is made to revolve over the lower one on a pivot fixed in the lower one and fitting into a hollow in the upper one. Thus on revolving the handle (h) by hand, the upper stone revolves upon the lower one with (C) as an axis. By turning this and adding barley through the hole (a), it is reduced to a rough powder. The barley thus treated is mixed with 6 sho of boiled [soy] beans and made into koji. This koji making can be done from June to August by placing straw mats in the corner of the house or in a cellar upon which the mixture of grains is spread in a layer about 1.5 sun [1 sun = 0.0994 feet] thick. When the operation is performed in summer no covering is required... if the grains are sprinkled over with the ash of “sugi”-leaves, it gives better koji with greater ease.” Note: Sugi is the Japanese red cedar (*Cryptomeria japonica*), a large evergreen tree. “;... after three days we shall find the grains covered with a white mould; then we break down the masses with the hand and leave for two days when it is completely converted into koji. The mass is again broken down by hand, dried in the sun, and preserved” (Continued). Address: Student in the Senior Class of Chemistry, Dep. of Science, Tokio Daigaku [Japan].

123. Kinch, Edward. 1879. Japan: A classified and descriptive catalogue of a collection of agricultural products exhibited in the Sydney international exhibition by the Imperial College of Agriculture, Tokio, Japan. Tokyo: Agricultural Bureau (Naimushô), Home Dept. 65 p. 20 cm. [Eng]

• **Summary:** Each item that was displayed is numbered. All chemical / nutritional analyses give percentage composition unless otherwise stated. The chapter on “Manures” begins (p. 4): “The principal manures used in this country are human excrements both solid and liquid, which are collected with the greatest care and applied to the land whilst in a more or less advanced state of decomposition. The excreta are often made into a compost with dried grass.

The section titled “vegetable manures” (p. 7-13) gives analyses of rape cake (*abura kasu*), malt dust (*ame kasu*), sesamum cake (*goma kasu*), rice beer residues (*sake kasu*), soy [sauce] residues (*shoyu kasu*; water 16.37%, ash 4.96%, organic matter 78.67%), rice cleanings (*nuka*), and barley bran (*fusuma*).

Note 1. This is the earliest English-language document seen (March 2021) that contains the term *shoyu kasu* (in italics, without diacritics) which it defines as “Soy residues,” and the earliest that gives its composition.

The chapter on “Foods” begins (p. 16): “By far the most important national food is rice, *Kome*; more than one half of the cultivated land of the Empire is devoted to paddy fields, *Ta*, and besides the rice grown on this irrigated land a considerable quantity is grown on the dry fields, *Katake*.”

Mochi-gome or glutinous rice, is specially used for making the new years' cakes, *Mochi*.

The many kinds of leguminous plants include: Peas, field and haricot beans, vetches, lupins; soy beans *Glycine (soja) hispida*, *O-mame* or *Daidzu*; fol. lanceolata (*Midzu-kugiri*); *Phaseolus radiatus*, *Adzuki* or *Shodzu*; *P. radiatus v. pendula*, *Tsura-adzuki*; *P. radiatus subtriloba*, *Bundo*; Horse gram, *Dolichos uniflorus*, *Sasagi*; Gram, *Dolichos umbellatus*, *Hata-sasagi*; Overlook pea, *Canavalia incurva*, *Nata-mame*; Ground nut, *Arachis hypogaea*, *Rakkasho* or *Tojin-mame*.

"Also should be mentioned the sesamum, *Goma*, the oil of which is extensively used in cooking; *Perilla ocymoides*, *Ye-goma*; and rape, *Brassica sinensis*, *Abura-na*, which is cultivated for its seed, the oil being used for burning." Also list (with scientific and Japanese names, p. 17-18) the principal root crops, fruits, sea weed and lichens, fungi, and starch.

Next: Chemical analyses of rice, wheat, rye, "red bean—*Adzuki*—*Phaseolus radiatus* (large variety and small variety)."

Note 2. This is the earliest English-language document seen (Oct. 2021) that uses the word *Shodzu* (or *shôdzu* or *shôzu* or *shodzu* or *shozu*) to refer to the azuki bean, or that gives its scientific name as *Phaseolus radiatus*, or that reports the existence of large and small varieties, or that uses the word *Bundo* to refer to a type of azuki bean.

Then (p. 22-26): "44. Beans. *O-mame*, *Daidzu*. *Glycine (soja) hispida*. White round soy bean. Miso mame. Percentage composition (table): Water 11.32, albuminoids 37.75, fat 20.89, fibre 1.50, ash 3.86, starch and soluble cellulose 24.58. Total 100.00.

"This bean is met with in several varieties of different colour and size, but they differ little in composition. It is the vegetable which approaches nearest in chemical composition to animal food (meat), containing as it does one fifth of its weight of fat and often two-fifths of nitrogenous matter. It is an extremely valuable adjunct to the food of a people who subsist so largely on a purely vegetable diet, of which the bulk is rice so rich in heat producers—starch, and poor in flesh formers—albuminoids.

"*Shoyu*, *Miso*, and *Tofu*, are made from these beans, and enter largely into the food of the nation.

"45. Miso. *Shiro-miso* or white miso. From Osaka. Percentage composition: Water 50.73, fibre 12.93, ash 6.58 (containing 5.4 per cent of common salt), sugar 17.54, albuminoids 5.64, soluble carbohydrates 6.58. Total 100.00. Soluble in water 35.88 per cent.

"46. Miso. *Aka-miso* or red miso. From Osaka. Percentage composition: Water 50.40, fibre 8.25, ash 12.50 (containing 12 per cent of common salt), sugar 0.61, albuminoids 10.08, soluble carbohydrates 18.16. Total 100.00. Soluble in water 34.71 per cent."

Note 3. This is the earliest English-language document

seen (April 2021) that uses the term "*Shiro-miso*" to refer to white miso (and vice versa) or "*aka-miso*" to refer to red miso (and vice versa).

"In the preparation of *Miso* the beans are boiled, pounded in a mortar into a paste and mixed with fermenting rice, *Koji* (see *sake*) in various proportions, and with more or less salt, and the mixture is placed in tubs and left in a cool place for about a month. It will be seen that one variety, white miso, contains much sugar, derived from the *koji*, and little salt; whilst the other variety contains very little sugar and much more salt.

"47. Tofu. Percentage composition: Water 89.29, ash 0.48, fibre 1.01, nitrogenous substances 4.87, non-nitrogenous substances 4.35 (containing 3.32% fat). Total 100.00."

"This food is made by boiling the white soy beans, *Shiro-mame*, in water after they have been soaked, ground and strained through a sieve. The solution is filtered through cotton cloth and the residue pressed; the liquid, containing legumin in solution, is precipitated by the addition of the brine which runs off from sea salt during its deliquescence in the air. The precipitate constitutes *Tofu*."

Note 4. This is the earliest English-language document seen (March 2021) that uses the word "legumin" to refer to the water soluble protein in soybeans than can be precipitated by a coagulant to make tofu.

"48. Kori tofu. Percentage composition: Water 18.75, ash 1.60, nitrogenous substances 48.80, non-nitrogenous substances, chiefly fat 30.85. Total 100.00.

"Prepared from the above [tofu] by exposing it to the air during frost, until it freezes, and afterwards thawing in the sun, by which the greater quantity of the water is removed.

Note 5. This is the earliest English-language document seen (March 2021) that mentions dried frozen tofu, which it calls Kori tofu.

"49. Soy [sauce]. *Shoyu*. Specific gravity 1.1996. Grams per litre: Total solid residue 359.888, ash 195.168 (principally common salt), sugar 31.034, albuminoids 41.000, free acid expressed as acetic acid 6.200.

Note 6. This is the earliest English-language document seen (March 2021) that uses the word "albuminoids" to refer to the protein in soybeans or soyfoods (one of two documents).

Note 7. This is the earliest document seen (March 2021) that uses the term "specific gravity" in connection with soyfoods—in this case soy sauce.

"Manufacture of *Shoyu*. *Shoyu* is made from the soy bean, *Glycine (soja) hispida* q.v. together with wheat, salt and water. Equal parts of beans and wheat are used. A small part of the wheat is mixed with *Koji* (see *sake*) and allowed to ferment. The remainder is roasted and the beans are also roasted. The roasted beans and wheat are then mixed together with the fermenting wheat, placed in shallow wooden boxes, and kept for some days, at a fixed temperature, in a warm chamber with thick walls, until the

whole mass is covered with fungus. It is very important that the temperature of this chamber should be kept at the proper point. By these processes, part of the starch of the wheat is converted into dextrin and sugar, and lactic acid and acetic acid are formed. It is then mixed with salt lye, the proportion used being about 4 *go* of salt to 12 *koku* of water to extract 1 *koku* of the fermented product. The mashings are removed to large vats and there kept for at least 20 months and generally for 3 or 5 years. The better qualities of *shoyu* are kept the longer times. It is found that the best soy is produced by mixing that kept for 5 years with that kept for 3 years. After it has been kept a sufficiently long time, it is strained through thick cotton bags and the residue pressed in the same manner as in *sake* pressing. Before filtering, honey is sometimes added in the proportion of 10 *kin* to 1 *koku* of *Moromi* or mixed soy, in order to give it a sweet taste. Occasionally a sweet sake, obtained by taking 1 *koku* of *koji* to 7 *to* of water and 1 *to* of steamed rice, mixing them together and steaming for two hours, is added instead of honey. The residue obtained on pressing *moromi* is again mixed with salt and water, in the proportion of 8 *to* of salt to 1 *koku* of water and again pressed, this yields and inferior *shoyu*. Sometimes water is added to this second residue and it is again pressed. The residue first obtained is sometimes used as food, and the last residue as manure. One *koku* of the mixture, *moromi*, produces 4 *kuwamme* of residue at the first filtration and about 3.5 *kuwamme* of residue at the second and third. The *shoyu*, after pressing, is allowed to settle for two days in large tanks, and then drawn off and again filtered. *Shoyu* is a very important condiment, it is mixed with a great many kinds of food and is produced and consumed in very large quantities.

“1000 *Go* = 100 *Sho* = 10 *To* = 1 *Koku* = 4.929 Bushels.
1 *Kin* = 1.325 lbs. 1 *Kuwamme* = 8.28 lbs.

Note 8. This description of how *shoyu* is made contains several major errors.

Finally, there are chapters on alcoholic liquors (with emphasis on *sake* or “rice beer, sometimes called rice wine”), sweet liqueurs (*mirin*, *homeishiu*, *shiro-zake*), food adjuncts (incl. salt, vinegar, spices, herbs, and perhaps *shoyu*), edible sea weeds (20 varieties, with both Japanese and scientific names, and an analysis of each), tea, tobacco, fodder, animal foods, dye stuffs, oils and waxes, and starch (incl. *kudzu*, *Pueraria thunbergiana*).

Note 9. This is the earliest document seen (March 2021) concerning soybean products (tofu, dried-frozen tofu, and *shoyu*) in connection with (but not yet in) Australia.

Note 10. This is the earliest English-language document seen (March 2021) that uses the term “chemical composition” in connection with the soy bean.

Note 11. This is the earliest document seen (March 2021) by Edward Kinch (1848-1920) that mentions soy. Kinch was born on 18 Aug. 1848 at Henley-on-Thames, Oxfordshire, England, the 3rd child of Charles Kinch

and Emma Plumbe Kinch. He was baptised there on 12 Dec. 1845 in St. Mary’s church. Kinch was a chemist, specializing in agricultural chemistry. In 1869 he became assistant professor at the Royal Agricultural College (RAC) in Cirencester (in southwestern England). From 1876 to 1881 he was a professor of agricultural chemistry at the Imperial College of Agriculture in Tokyo, Japan. Then from 1881 to 1915 he was professor of chemistry at the RAC in Cirencester. He married Edith Shirley Huntington in 1889 in Pembroke district, Pembroke, Wales. They had two children, William (born ca. 1886) and Dora Ann (born ca. 1893). He died on 6 Aug. 1920 in Haselmere, Surrey, England.

Note 12. This catalog was displayed at the Sydney International Exhibition, held in Australia in 1879. The Sydney International Exhibition was Australia’s first international exhibition, a showcase of invention and industry from around the world. An imposing Garden Palace was constructed in the Botanic Gardens as a home for the exhibition. Address: F.I.C., F.C.S., &c., Prof. of Chemistry. Imperial College of Agriculture, Komaba, Tokio, Japan.

124. Kinch, Edward. 1880. Contributions to the agricultural chemistry of Japan: *Adzuki* or *Shôdzu*, *Phaseolus radiatus*. *Transactions of the Asiatic Society of Japan* 8(Part 3):369-415. Oct. See p. 401. Reprinted in March 1907 as a monograph.

• **Summary:** Another common bean is the *Adzuki* or *Shôdzu*, *Phaseolus radiatus*, of which there are several varieties, especially, besides the ordinary kind, a large variety *Dai-na-gon* [*Dainagon*] *adzuki*, and a white kind, *Shiro-adzuki*. The latter powdered, under the name *Arai-iko* is used for washing, and its use was more common formerly when soap was not so abundant as now.”

Note: This is the earliest English-language document seen (Oct. 2021) that uses the word *Shiro* or the term *Shiro-adzuki* to refer to white azuki beans, or that uses the word *Dai-na-gon* (now written *dainagon*) to refer to azuki beans that are larger than average.

A table shows the mean percentage values of “three analyses of *adzuki*: (large variety / small variety)–water (14.56 / 13.20), ash (2.88 / 2.86), fat (0.61 / 0.62), albuminoids (18.17 / 18.66), fibre (8.80 / 9.30), starch, soluble cellulose, etc. (54.98 / 55.36).

“From this bean are prepared the sweetmeats known as *An* and *Yôkan*; the former made of *adzuki* and sugar and the latter of decorticated *adzuki* and sugar.

“Some varieties of *P. radiatus* are cultivated, and, among leguminous plants, several species of *Dolichos*, common peas and beans, overlook peas and ground nuts, as will be seen in a list of plants used for food or producing food in this country, now in course of preparation for this society.”

Note 1. This is the earliest English-language document seen (March 2002) that mentions cellulose.

Note 2. This is the earliest document seen (Jan. 2005)

that uses the word *Adzuki* or the word *Shôdzu* to refer to the adzuki [azuki] bean. Address: Prof. of Chemistry, Imperial College of Agriculture, Komaba, Tôkiyô.

125. Mene, Édouard. 1880. Des productions végétales du Japon [The vegetable products of Japan: Azuki (Document part)]. *Bulletin de la Societe d'Acclimatation* 27:644-66. Nov. [1 ref. Fre]

• **Summary:** This is part of a longer article, published in several issues, which is an excellent review of earlier publications and work. This part begins with a section on legumes. A section titled “*Haricot (Phaseolus vulgaris)*” (p. 646-48) contains a subsection on *Azuki (Phaseolus radiatus, var. subtrilobata)* (p. 646). “In the flat tract of land dedicated to legumes, several varieties of *Azuki (Phaseolus radiatus, var. subtrilobata)* had ripened. Each had a purplish stem, violet flowers, long narrow pods 15-20 cm in length, first greenish then becoming blackish at maturity, with very small almost round greenish beans. We also found a few feet of *P. radiatus* with long pods of a greenish-yellow color 15-20 cm in length with very small, oval red beans.”

In the Bureau of Agriculture in Tokyo are the following: The *Azuki (Phaseolus radiatus)* white, very small grains, yellowish white, somewhat round” (p. 647).

“Among the *Azuki*, there are small bottles of (p. 648): 1. *Kouro-kake-yayenari*, a very small yellowish-white bean, with black speckles. 2. *Azuki*, a very small red bean. 3. *Awo-azuki*, a very small red bean [*awo* = *ao* = blue or green]. 4. *Aka-azuki*, a small red bean [*aka* = red]. 5. *Shiro-azuki*, a very small reddish-yellow bean, almost round [*shiro* = white]. 6. *Kouro-azuki*, a very small blackish-red bean, almost round [*kouro* = *kuro* = black]. 7. *Aka-yayenari*, a small red bean, elongated, very brilliant. 8. *Oushou-aka-azuki*, an almost round bean, yellowish red, the size of an average pea [*Oushou* = *Ooshû* = European]. 9. *Kouro-bouthi Azuki*, a small bean, almost round, reddish brown in color. 10. *Madora-azuki*, a small reddish gray bean. 11. *Yayenari* and *Shiro-yayenari*, very small greenish beans. 12. *Hino-azuki* and *Dai-nagon-azuki* [*Dainagon*].”

“Utilization: The bean is eaten fresh, certain species being consumed with their pods. The Japanese choose especially species that can be planted in all seasons, so they can eat them during the winter. They cook them as in France and dry them to preserve them.

“Reduced to a powder (the *Azuki*, of which there were samples of at the Exposition of Champ-de-Mars, are called *Arai-ra*), they serve to make *Yokan*, cakes that are also made in China and of which there were specimens at the Chinese exposition.”

An, a sweet material widely used in Japanese confectionery, is a mixture of azuki flour and sugar. Address: France.

126. Mene, Édouard. 1880. Des productions végétales du

Japon [The vegetable products of Japan]. *Bulletin de la Societe d'Acclimatation* 27:644-66. Nov. [3 soy ref. Fre]

• **Summary:** This is part of a longer article, published in several issues, which is an excellent review of earlier publications and work. This part begins with a section on legumes. Among the legumes discussed are *Vicia Faba* (*sora mame*, *otafuku mame*, *okakura mame*), *Dolichos unguiculatus* (*sasaghe* [*sasage*, present name: *Vigna unguiculata* (L.) Walp. subsp. *unguiculata*], incl. *Jin-roku Sasaghe*, *Yuhuté Sasaghe*, *Heritori-yu-roku-Sasaghe*), *Canavalia* (*nata-mame* = *C. incurva* [sword bean], *shiro-nata mame* = *C. lineata*), *Haricot (Phaseolus vulgaris)*, incl. *Ingen mame* and *azuki* {*Phaseolus radiatus* var. *subtrilobata*}), sesame, etc. The author saw samples on display at the Japanese Ministry of Agriculture and at the Exposition at Champ-de-Mars in France.

“Soy sauce (*Le Shoyu*) (p. 648-49): This condiment, so appreciated by the Japanese, had samples displayed in the class of fermented beverages. It is often made with wheat flour and beans (*haricots*), but more often with boiled soybeans (*pois*).

“Chinese Soye or Soya (*Le Soye ou Soya chinois*) is the same condiment, but more especially made with red beans (*haricots rouges*). Note 1. Clearly the author did not realize that soy sauce is made from soybeans (not from haricot beans or peas, nor from azuki beans).

Note 2. This is the earliest French-language document seen (April 2012) that uses the words *Le Soye* or *Soya Chinois* to refer to soy sauce.

“In Canton, it is made in the following way: the red beans are cooked in water for one hour; thrown in a sieve and drained; next the beans are sprinkled with wheat flour and carefully spread out on a wood plank that is put in a warm and humid place that favors the development of considerable mold; after four or five days the mold is taken off and the beans, after having been dried in the sun for 24 or 48 hours, are washed in cold water; salt and water are added, and the mixture is exposed to the sun for two weeks. It is then boiled for half an hour, adding for flavor a bit of star anise, regular anise, and orange peel; the mixture is then filtered through a basket and finally bottled as *Soya*.”

There follows a short section titled “Peas” (*Pois, Pisum sativum*), including *Endo mame*. Next comes a detailed but somewhat confused discussion of soybeans (*Pois oléagineux, Soja hispida*) and a listing (often repetitive) of many different types and colors, as follows (p. 649-50): “There was also a variety of soybeans (*Pois oléagineux, Soja hispida*), an early soybean (*mamé*), one with large hanging pods covered with red hairs, and one with large, yellowish-white seeds.

“The principal varieties of *Soja* and *Soja hispida* indicated in the watercolors of the Tokyo Bureau of agriculture were: 1. *Soja* with white flowers, a yellowish-white bean of medium size with white pods. 2. Early green *Soja*, a large yellowish-white bean with large pods covered

with red hairs. 3. *Soja blanc*, with large yellowish-white seeds. 4. *Grand Soja blanc*, a large, yellowish-white bean with rather long greenish pods. 5. Green *Soja*, a yellowish-white bean of medium size with little green pods and the stem scattered with brown hairs. 6. *Kinoshita-mame*, a small yellow bean with little hairy pods. 7. Red *Soja*, a red bean of medium size with green, velvety leaves and red flowers. 8. Black *Soja*, a black medium-sized bean. 9. *Kouro-hiro mame*, a large black oval bean [*kouro* = *kuro* = black]. There are also varieties called: 10. *Awo-mame*, a large, greenish-white bean [*awo* = *ao* = green]. 11. *Shiro-mame*, *Kuro-mame*, *Kuro-kake mame*, *Kinname* (*Glycine soja*), *Kouringa*, and *Ichia-mame*.

"In the collection of beans at the Exposition of Champ de Mars the following soybeans were found: 12. *Daizu* (*Soja hispida*), a round yellowish bean of medium size. 13. *Shiro-daizu*, a large yellowish bean [*shiro* = white]. 14. *Oshiro-daizu*, a very large yellowish bean, twice the size of *Shiro-daizu*. 15. *Akayendo*, a medium-sized yellowish bean. 16. *Awo-mame*, a large, greenish-white bean (variety of *Glycine*). 17. *Aokuro-daizu*, a large greenish bean speckled with black. 18. *Thya-iro-mame*, a large, reddish-brown bean (variety of *Glycine*) [*Thya-iro* = *cha-iro* = brown]. 19. *Shiro-mame*, a white bean speckled with grey (variety of *Glycine*). 20. *Aka-daizu*, a large red bean [*aka* = red]... 21. *Kouro-daizu*, a large black bean."

Near the end of this subsection we read (p. 651): "In China, an oil is extracted (*on extrait*) from soybeans (*pois oléagineux*, literally 'oil peas'); it is used for both cooking and illumination. The green or black peas are often used to color rice wine. Mixed with beans (*haricots*) and wheat, they form the base for the manufacture of soy sauce and of tofu (this latter condiment is composed of two species of boiled beans). With soybean seeds (*Avec les graines de Soja*) the Japanese also prepare a sort of pap (*bouillie*) which for them takes the place of butter and which they call *Miso*. The leaves and branches of the soybean serve to nourish goats and sheep." Address: France.

127. Bishop, Isabella Lucy (Bird). 1880. Unbeaten tracks in Japan: An account of travels on horseback the interior, including visits to the aborigines of Yezo [Hokkaido] and the shrines of Nikkô and Isé, by Isabella L. Bird. 2 vols. New York, NY: G.P. Putnam's Sons. See vol. I, p. 232, 237-38.

• **Summary:** The section titled "Notes on food and cookery" (p. 232-40) states: "Some fish are fried in the oil of the *Sesamum Orientale*, which produces an odour which makes one fly from its proximity. Eels and other dainties are served with soy (*shô-yu*), the great Japanese sauce, of a dark brown colour, made from fermented wheat and beans with salt and vinegar [sic], and with a dash of *saké* added to give it a higher flavour" (p. 232).

Buddhist teachings on the sacredness of life have, in some parts of Japan, been effaced by contact with foreigners.

There some people eat wild birds and fowl. "Seaweed is a common article of diet and is dried and carried everywhere into the interior. I have scarcely seen a coolie make a meal of which it was not a part, either boiled, fried, pickled, raw, or in soup" (p. 234). *Brinjal* or egg-plant are among the many vegetables pickled. Confections consist of sugar-coated [azuki] beans, and *yokan*—made from seaweed. Mochi is a small round cake of unbaked rice dough.

"The common people are also fond of 'a pot-boil of birds' in which a little soy and *mirinshu* are added to the water" (p. 237).

"The chief kinds of soup used by the middle classes are bean soup [miso soup], egg soup, and clear soup. The latter is of two kinds, one water and salt, the other water and soy" [sauce]. Among the lower classes there are many kinds, most of which taste like dirty water with a pinch of salt, and contain cubes of bean curd, strips of dried fish, cuttlefish, etc... Carp is used with bean soup only..." (p. 237-38).

Note: This is the earliest English-language document seen (July 2011) that uses the term "bean soup" to refer to miso soup.

In formal entertainments, the highest of the three classes is *san no zen* in which three small tables of eatables are provided to each guest. The first table includes rice, and "bean soup with carp." Each table contains from 8 to 12 bowls or dishes (p. 238).

Note 2. The author, Mr. J.F. Bishop, lived 1831-1904.

Note 3. Yezo (also spelled Yezzo, Yeso) refers to Hokkaido, Japan's northernmost main island. Address: Author [England].

128. Van Buren, Thomas Broadhead. 1881. The food of the Japanese people. Yokohama, Japan: Printed at the Japan Gazette. 19 p. No index. 24 cm.

• **Summary:** Contents: Introduction (meat eating countries vs. Japan). Cerealia (cereals). Leguminous plants. Tubers and roots. Herbaceous food-plants. Ame. Leading food plants (with Japanese name, scientific name, and parts eaten; incl. kudzu, udo, konnyaku, and daikon). Sauce.

Most civilized people are and always have been meat-eaters. "So universal has meat-eating been among the dominating races that it has become a generally received opinion that animal flesh is a necessity to a well-developed physique. The praises of beef are sung wherever Occidental civilization has penetrated. It is not only a popular belief, it is as accepted scientific opinion, that a considerable percentage of animal flesh must enter into the nourishment of any well-fed people."

"The food of Japan, with a population of 36,000,000, or about that of Great Britain and Ireland, engaged in every branch of human industry, presents a complete contrast to all this. Here they are essentially vegetarians, animal flesh being largely prohibited by religion, and its general use made impossible by reason of its comparative scarcity

and consequent high price.” Until a few years ago, their “isolation prevented the introduction of new food-plants adapted to their climate...”

In Japan there are little more than 1,000,000 head of cattle. Of these, only the cows (not more than 600,000) are eaten; male cattle are used only as beasts of burden. Thus in Japan there are less than 2 head to every 100 people, compared with 73 head in the United States. Of the 36,000 cattle slaughtered last year in Japan, “more than one-half were consumed by foreign residents and the foreign naval and merchant marine. The Japanese army and navy also consume considerable beef. It is therefore safe to say, as I have already intimated, that beef does not enter into the food of the mass of the people to any appreciable extent. Mutton and pork, outside of the treaty ports, are almost unknown. Of barnyard fowls, geese, and ducks there is a large variety. The wildfowl, consisting of pheasants, quail, woodcocks, grouse, ducks and geese are also abundant, but these, as well as eggs, on account of their high prices, can scarcely be said to enter into the diet of the common people at all, except upon rare occasions. Fish is more largely eaten. The variety of fish is very large... A very considerable percentage of the catch is dried.” “At present it may be said that one-half the people eat fish every day, one-quarter two or three times a week, and the balance perhaps once or twice a month.

“Even with these exceptions the food of the masses is fully or even more than 90 per cent. vegetable.” The Japanese exhibit “endurance of body and power of intellect to a very considerable degree, while deprived of the usual nutriment held to be essential to such developments.”

The main cereals of Japan, in descending order of the quantities produced, are rice, barley, millet, rye, and Indian corn. The three main varieties of millet are extensively cultivated and used: First class is *Setaria Italica* (Italian millet). Second class is *Panicum miliaceum* (Indian millet). Third class is *Panicum frumentacum* (Called “hiye” [hie] in Japan).

“Leguminous plants. Perhaps in no country in the world are beans and pease comparatively so extensively cultivated as in Japan. There are more than 40 varieties. That known as the soy-bean is especially important, as it is rich in those nutritive properties which are wanting in rice, and is invaluable in a country where meat is almost entirely lacking in the diet. The composition of this variety, known as Miso-mame, is as follows (table): Water 11.32%. Ash 3.86%. Fat 20.89%. Nitrogenous matter 37.75%. Gluten 2%. Starch and sugar 24.08%. Its “proximate chemical composition approaches more nearly to animal food than any other known vegetable.” Tables showing the composition of lean and fat beef are then given for comparison.

“I know it is held by scientists that, while these plants show a great chemical likeness to beef, the action upon the human body is not the same, being much less valuable. I can only repeat that here is a race of people of good physique, of

stalwart and well proportioned, although not tall, frames, and of cheerful dispositions, who daily perform tasks requiring great strength and endurance, who eat almost exclusively this vegetable food, and who, without any of the comforts of our western homes, and undergoing extreme exposure unknown to our people, live about the average lives of the laborers of Europe and America, with a table expenditure of about one-sixth or one-seventh that required by the latter.”

All classes of Japanese also consume many algæ and other sea plants, including many species of chondrus and Fucus-laminaria. Instead of sugar they use *ame*, “made from malted barley and rice or millet, the malt converting the starch of the rice or millet into dextrine and maltose, and producing the product varying from a thick sugar or honey up to a hard candy. The food value of this article is very great, and, as it is sold at a low price, its consumption is large. A table shows the composition of two grades of *amé*, first and second (cheaper).

Sauce enters very largely into the preparation of Japanese food for the table. The most widely-used kind is made as follows: “‘Shoyu,’ known to us as ‘soy’ [sauce], the one almost exclusively employed is made from wheat and the shoyu bean [soy bean] (ground) in equal proportions of one *sho* each (a *sho* is about 1 quart, 1 pint, and ½ gill). The materials are mixed and boiled, after which the mass is steamed in a basket or box prepared for the purpose, with a perforated bottom. When the steaming process is finished it is put in a cask and left until a green yeast is produced. The compost is then taken with salt water. After standing a good length of time the liquid is strained, and the sauce is ready for use. It has a rather pleasant flavor, and is said to be the basis of most of the renowned sauces [such as Worcestershire] prepared in England. The refuse is fed to cattle.”

Note: This is the earliest English-language document seen (April 2012) that uses the term “shoyu bean” (regardless of capitalization) to refer to the soybean.

The last 6 pages (p. 14-18) contain a “List of plants used for food, or from which food is obtained in Japan.” They are arranged by families. For each species is given: Botanical name, Japanese name(s), and remarks. Under Leguminosae [sic, Leguminosae], Papilionacea [Papilionaceae], we read: *Glycine soja* (S. & Z.), Tsuru mame; No mame, seeds. *Glycine hispida* (Moench) or *Soja hispida* (Miq.), Oname; daidzu, Soy bean; seeds; many varieties. *Dolichos soja* (L.), Japan pea. *Glycine hispida* f. *lanceolata*, Midzukugiri.

The section on legumes (p. 15) also discusses: (1) *Arachis hypogea* (L.), Rakkasho, Tojinmame, Ground-nut; earth-nut; fruit. (2) *Vicia faba* (L.), Sora mame, Broad beans; seeds = *Faba vulgaris*. (3) *Pisum sativum* (L.), Yendo [Endo], Pea; seeds; two main varieties; midori yendo [endo] and saya yendo [endo], the latter eaten for the pod. (4) *Pueraria thunbergiana* (Benth.), Kudzu, root, starch = *Dolichos hirsutus* (Th.). (5) *Canavalia incurva* (D.C.),

Nata mame, seeds = *Dolichos incurvus* (Th.). (6) *Phaseolus radiatus* (L.), Adzuki-Shôdzu, seeds. *Phaseolus radiatus* var. *pendulus* (Savater), Tsuru-adzuki, seeds. *Phaseolus radiatus* var. *subtrilobatus* (Sav.), Bundo-Yayenari, seeds. (7) *Dolichos umbellatus* (Th.), Sasage, Adzuki-sasage, seeds. (8) *Atylosia subthombea* (Miq.), No-adzuki; Hime-kudzu, seeds.

Note 1. This is the earliest English-language document seen (Jan. 2005) that uses the term “broad beans” (or “broad bean”) to refer to *Vicia faba*.

Note 2. Although *sasage* in Japanese means “cowpea” or “black-eyed pea,” the meaning of *Adzuki-sasage* is unclear. Address: United States Consul General of Japan, Kanagawa.

129. Penhallow, D.P. 1881. Meiso [Miso]. *Kansas City Review of Science and Industry* 5(7):437-41. Nov.

• **Summary:** “It is well known that the Japanese are a rice-eating people, with whom this article, meiso, is perhaps, the most important of all their foods, but it is not so generally known that the flesh of animals could hardly be considered a regular article of food until within the past few years, and even now, with the great mass of the people, meat is seldom used. Thus for centuries, these people have lived almost wholly without that which western people consider so important a source of nitrogen. It seems, however, that the demands of nature were recognized and met by obtaining from the vegetable kingdom what they failed to secure from the animal, and thus it is we find them consuming enormous quantities of beans prepared in a great variety of ways. Some of the important preparations from beans are cheese, or tofu—a white, curdy mass strongly resembling cottage cheese, unflavored with salt, and held in high estimation. It is prepared in a variety of ways, but almost invariably forms a part of every meal as a constituent of soup. Cake—a stiff, jelly-like confection made by straining boiled [azuki] beans and incorporating with a large proportion of sugar. Pickles—beans in the pod and frequently on the stem [edamame], pickled in a strong brine; they are eaten without further preparation. Sugared beans—roasted beans enveloped in a heavy coating of sugar, and sold as a confection. Shoyu, or Soy—a liquid of dark color and salty flavor, made by fermenting a mixture of salt, beans, and roasted wheat or barley. It is largely eaten with fish and rice. There are other modes of preparation which we will pass over with the exception of meiso, which forms the subject of this article.

“The pasty mass manufactured and sold under this name constitutes one of the most important of the preparations from beans, and enters largely into the diet of all classes as a basis for soup, or, in various forms, as a sauce for fish and meat. In composition it consists of:

“Salt—4.5 to = 2.30 bushels.

“White [soy] beans—1 *koku* = 5.13 bushels.

“Rice—4 to = 2.05 bushels.

“Salt.—The salt employed is of a very crude sort. It is obtained from sea water by evaporation under the influence

of solar heat, and as no attempts are made to secure any special degree of purity, it is consequently contaminated with other salt’s and its specific value thereby lessened. Sticks, straw—especially from the coarse bags in which it is transported—and dirt are also always to be found, and as no efforts to cleanse or purify, beyond removal of the larger fragments of straw, etc., are made at the factory, the product into which such salt enters has a rather uninviting appearance. It is always used dry.

“Beans.—The ordinary white [soy] beans appear to be used in preference to any others. They are prepared by boiling for about six hours, when the fire is drawn and they are allowed to cool in the boiler. The next morning they are removed from the boiler and placed in mash boxes which measure 10 x 3 x 1 feet, where they are thoroughly reduced and mixed with the rice and salt by means of a round pole used as a pestle.

“Rice.—White rice, or that which has been well cleaned, is soaked in cold water for two days. It is then well drained and transferred to a boiler containing fresh water, when it is steamed for three hours. While yet hot, it is taken to a warm room and allowed to remain under the influence of a warm, moist air for four days, when the whole is found to be covered with an abundant growth of fungus.

“The room in which this operation is performed usually measures about 10 x 20 feet, is constructed of mud walls—eight or ten inches in thickness, and is made as close as possible with the exception of one small window to admit light for the workmen, and a door through which to enter. The only moisture in the room is that which comes from the moist rice, but a constant temperature of 80°F. is maintained by means of a large charcoal fire at each end of the room. It is regarded that a warm, moist air, undisturbed by draughts, is quite essential to the success of the operation, though darkness is not deemed requisite, the absence of windows being more a matter of economy than anything else. The production of the fungus is usually regarded as the critical part of the whole manufacture, and failure sometimes occurs. No reason could be obtained from the Japanese why the subsequent fermentation is dependent upon the presence of the fungus; that its production is an essential part of the process was all the information that could be obtained.

“At the end of four days, the rice is taken out into a large airy room and spread upon straw mats, 3 x 6 feet, and allowed to cool for one and a half hours. It is then transferred to small trays which measure 18 x 8 x 8½ inches, for convenience in handling, when it is allowed to cool as rapidly as it can. Whether the rice now dries or remains moist appears to be a matter of indifference. As soon as thoroughly cooled, it is incorporated with the salt and beans. It is generally customary, however, to prepare the rice in large quantities once in four days, and thus have a stock always on hand. In that case, as soon as cooled, it is mixed with the salt and placed in large storage vats, where it is

tamped solid by the feet, and will then keep without trouble for two months.

“When all the ingredients have been thus prepared, they are placed, cold, in the mixing boxes already described, and thoroughly incorporated into a stiff, pasty mass by means of a long mixing rod. This mixture is then placed in large vats having a capacity of about seventeen koku or eighty-seven bushels. Here it is packed solid by the feet and allowed to undergo a very slow fermentation. Every effort is made to keep the temperature of the mass down as low as possible, and if, during the summer, the heat of fermentation gets too great, the whole mass spoils. It is then mixed with roasted wheat and by further fermentation converted into shoyu or soy. Sometimes the mixture fails to ferment properly, when it is taken out and mixed with a fresh portion of beans. The fermentation is allowed to continue six months in summer und eight months in winter, at the end of which time the meiso is ready for the market.

The result of these various operations is a stiff, pasty mixture of repulsive appearance and disagreeably sour odor, and though it would hardly find favor with Americans or Europeans, possibly excepting epicures, it seems to be in great demand with the Japanese.

“The factory where these facts were obtained employs six men, and the annual produce amounts to from 900 to 1,000 *koku*, equal to 4,617 to 5,130 bushels. The cost of the various ingredients and the finished product is as follows: *”

“Beans, 1 *koku*—5.13 bu—6 yen.

“Rice, 1 *koku*—10 yen.

“Salt, 1 *koku*—5.40 yen.

“Total cost of meiso per *koku*—7.13 yen.

“Market price per *koku*—13.20 yen.

Footnote (*): “Prices for 1880; probably somewhat higher at present. Yen, gold, is equal to the U.S. dollar.” Continued. Address: Prof., late of the Imperial Agricultural College of Japan [Tokyo].

130. *National Tribune (The) (Washington, District of Columbia)*. 1881. Chinese oil-bean. Dec. 17. p. 7, col. 1.

• **Summary:** “Recently at the Atlanta [Georgia] exposition Mr. Atkinson, of Boston, distributed beans received from China, where they are largely used for the manufacture of oil and for other domestic purposes. Having seen a few of these beans, we find that they are the seeds of *Glycine Soja* (*Soja hispida*), a low-growing Asiatic plant, which very much resembles the common bush bean of our gardens. Samples of these beans have been frequently imported during the last thirty years. The Japan expedition procured a supply of both the white and red-seeded varieties, which were distributed and cultivated as an experiment after the arrival home of the expedition. It is the well-known soy bean which is largely used in China and Japan (called miso by the Japanese) for making a kind of sauce called sooja [sic] or soy. The manner of making is said to be by taking equal quantities of the

beans and bruised [sic] wheat, and boiling them together until soft; the mixture is allow to ferment, after which salt and water are added and the liquor strained, after which it is placed in a stone jar, where it is kept tightly closed until used.

“Of late years the beans have been much used for the manufacture of oil, and the refuse pulp after the oil is expressed is made into cakes the size and shape of large cheeses, weighing about 60 pounds, which are used as food for live-stock. This bean-cake is also very extensively used as manure, especially for the sugar-cane plantations in the southern parts of China, and is an article of considerable domestic commerce in that country. The oil made from the fresh beans is said to be much better than that made from beans that have been gathered for two or three months. The bean-oil and bean-cake can be kept for a long time without spoiling. The beans can be grown in any locality where the common bush bean can be grown.”

Note: This article contains many errors. For example, “the red-seeded varieties” are azuki beans. The wheat is roasted, not bruised. Miso is not a Japanese name for the soy bean but a Japanese seasoning paste in which the soy bean is a major ingredient.

131. Bretschneider, Emil V. 1882. *Plantes de Pékin* [The plants of Peking, China]. *Bulletin de la Societe d'Acclimatation* 29:579-81. Oct. [Fre]

• **Summary:** This letter, addressed to the Secretary General of the Society Cantalienne, is dated 20 Nov. 1881. “Mr. A. Bourée, Minister of France in Peking, has given me the honor of asking me to respond to a letter that you have addressed to him dated 9 Feb. 1881, and to satisfy your demands concerning some plants that you wish to obtain from China.” These include the seeds *Aralia cordata* or *Aralia edulis* (*udo* in Japanese).

Bretschneider then includes a list of the scientific names of 112 seeds, fruits, etc. of some plants of Peking, wild or cultivated, that he sent to the Society. These include: #39 *Pueraria Thunbergiana*, Benth [kuzu]. #47 *Cannabis* [hemp], cultivated in Mongolia for its textile fibers. #73 Yellow soybeans (*Soja hispida*). #74 Black soybeans. #75 Green soybeans. #76 Striped, spotted, or speckled soybeans (var. *tigrée*). Note that the seeds of all these soybean varieties contain a large quantity of oil. They are widely cultivated.”

#77. *Phaseolus radiatus*, L. [azuki]. Widely cultivated. A very important food. With flour made from the seeds the Chinese make noodles, of which I send you some samples.

#100. *Perilla ocimoides*, L. with white seeds. #101. *Perilla ocimoides*, L. with black seeds. Address: France.

132. Paillieux, Auguste. 1882. *Soya vert, de Chine* [Green soybeans of China]. *Bulletin de la Societe d'Acclimatation* 29:640. Nov. [2 ref. Fre]

• **Summary:** Mr. Paillieux, vice-president of the Society,

is presiding at the meeting on 6 June 1882. He offers the members present the seeds of various edible plants, about which he gives the following information: “I have spoken to you so often about Soya that I hesitate to say more. I will be as brief as possible in introducing to you a green soybean (*un Soya vert*), sent from China to Mr. Faivre, a banker from Beaune [a city in eastern France in today’s Côte-d’Or department], who gave it the name of *Tsin téou*. It is very difficult for us to be certain of the Chinese name for this plant.” Note: The Chinese word *chin* (written *ch’in* in the Wade-Giles system of transliteration) can mean “green,” but this word for green is almost never used to describe soybeans. Thus, theoretically, *chindou* could mean “green soybeans” (Communication from Dr. H.T. Huang, April 2002).

“The Soya which Mr. Faivre was kind enough to send me, and whose seeds I am going to distribute to you, will make you understand embarrassment. In 1862, Mr. F. Dabry sent to our society [from China], under the name of *Tsin téou*, some *Phaseolus radiatus* (Linn.) (See Bulletin 1863, p. 330). Last year Father Perny kindly translated for me a passage from the Chinese materia medica *Pên Ts’ao Kang Mou* [*Bencao Gangmu* (The great pharmacopoeia) (1596)], in which the *Tsin téou* is presented as a purple colored bean (Soya). Finally, Mr. Faivre sent me the green soybean under the name of *Tsin téou*.

“Be that as it may, the seeds that I have received are those of a green soybean, equally recommended for the nourishment of horses and humans. In the province of Peking, it is mixed with black soybeans for feeding to horses and mules. As a food for humans, it is always the green soybean which is preferred in Japan and China. The variety which I present to you will, I believe, mature in and around Paris, and for sure in the south of France. Last year I harvested a small crop myself. I recommend that you plant the seeds quickly. There is still time but not a moment to lose.” Address: France.

133. Paillieux, Auguste. 1882. Yaye nari.—*Phaseolus radiatus* L. [Azuki bean, or *Phaseolus radiatus*]. *Bulletin de la Societe d’Acclimatation* 29:641. Nov. [Fre]

• **Summary:** Mr. Paillieux, vice-president of the Society, is presiding at the meeting on 6 June 1882. He offers the members present the seeds of various edible plants, about which he gives the following information: “The Yaye nari belongs to a race of beans which are very esteemed in Japan and which bear the name Azuki, *Phaseolus radiatus* of Linnaeus. The varieties of Azuki are numerous. I cultivate the summer (*Natsu*) azuki, which is early and red. I have given up on the autumn (*Aki*) azuki, which is late. This spring, for the first time, I planted the white (*Shiro*) azuki.

To these names one must add those cited by the Japanese author of *Japan at the Universal Exposition of 1878*, that is to say the Hine [Hime] no azuki, Dai nagon [Dainagon]

azuki, and the Yaye nari. *An*, a sweetened bean paste widely employed in confectionery, is made with the azuki and sugar. The cake or confection named *yokan*, according to several authors, is also made with the azuki. Azuki flour is also used to remove fat or grease from fabrics.

“I have eaten a puree of summer azuki and I found it very delicious. It does not have a flavor like our Haricot beans, but more like a mixture of Haricots and lentils.

“I received from my helpful correspondent a sweetened dish named *yokan*, and I had some prepared for me by Mr. Mamoz. It is rather tasty, and it could be a popular confectionery product if it could be sold at a low price, however sugar is very expensive in France.

“I have not yet tasted the Yaye nari, of which I present some seeds to you today. Last year I planted only a few bunches, but the importance of its culture in Japan and China is without doubt. Seeds have been sent to M. Vilmorin Andrieux and Co., and to Mr. Faivre, of Beaune. It seems to mature earlier than the summer azuki. I believe therefore that it is now time to plant the seeds I am offering to you. I would be very grateful if you would let me know next year what results you obtained.

“I would like to take this occasion to say several words about an operation that is very widely used in Japan and in China. I believe it is applied to both the soybean and to the azuki.

“Be that as it may, in Japan, the azuki is soaked in water and then allowed to sprout (*fait germer*), in a warm dark place, in earthenware vessels. Then they are washed with a large quantity of water to remove the seed coats, and [the sprouts] are consumed under the name of Moyashi (“eye and legs”). It goes without saying that one cooks them first in salted water and then in shoyu. They are rather tasty, and this is an easy way to provide a fresh vegetable in winter.

“I am indebted for this information to Dr. Hénon, Abbot David and Abbot Perny, and of course Mr. Eugène Simon; they have told me that the etiolation of germinating seeds is widely practiced in China and yields a good food.” Address: France.

134. Paillieux, Auguste. 1883. Culture expérimentale de plantes chinoises: Haricot radié (*Phaseolus radiatus* L.) [Experimental culture of Chinese plants: Azuki bean]. *Bulletin de la Societe d’Acclimatation* 30:21-34. Jan. See p. 26-28. [Fre]

• **Summary:** On 20 Nov. 1881 E. Bretschneider (a distinguished botanist and the physician of the Russian legation at Peking) responded to a letter to the Society for Acclimatization in France, and sent with it the seeds, tubers, and fruits of 112 plants grown in Peking, and a numbered listing of seeds, etc. This letter and listing was published in the October 1882 issue this journal (p. 579).

Mr. A. Geoffroy Saint-Hillaire, Secretary General of the Society, gave the seeds and tubers to Mr. Paillieux and asked

him to try to grow them in France. This is a report of the results of his experiment.

The azuki bean seeds were accompanied by this note: "Widely cultivated. A very important food. With the flour made from these seeds a type of vermicelli is made, of which I am sending some samples." These samples were not found in the box.

I have eaten the seeds in the dry state. This is a nice vegetable, which sometimes reminds one of haricot beans and sometimes of lentils.

M.E. Bretschneider has notified us that these are used in China to make vermicelli. The Japanese report at the Exposition of 1878 tells us that *An*, a sweetened material [sweet azuki bean paste] is made from azuki and sugar; that cakes of *Yo-kan* [sweet azuki bean gel made with kanten/agar], as well as several others, are made with azuki. Azuki bean flour is also used to remove the fat from fabric.

Thanks to the unending kindness of Dr. Henon, I have been able to taste the preparation named *Yo-kan* [Yokan], a pâté or confection made with azuki, plus sugar and a sort of gelatine extracted from marine algae. This gelatine, which has absolutely no taste, is known in Japan as *Kan-ten* [kanten]. The Japanese use a great deal of it in foods and export a large quantity to Europe.

I thought of using azuki to make a popular confection for a very low price; however sugar is very expensive in France and I abandoned (not without regret) my project.

All the varieties of azuki should certainly be able to be cultivated in that part of southern France known as *le Midi*. It is very productive. The seeds should be spaced 50-60 cm apart with only 2 seeds per hill.

In 1862 Mr. Guillemin, Bishop of Canton, sent to the Society, among a large number of other seeds, the seeds of a legume named *Lou téou* [mung bean] from which the Chinese, according to the sender, make a fine vermicelli named *Lou-téou-szé* and a widely esteemed wine, *Lou-téou-tsiéou*; and the seeds of another legume serve to make confections, etc. known as *Pe-téou-szé* and a widely.

These seeds are probably two varieties of *Phaseolus radiatus*. It is truly regrettable that of the magnificent collection of seeds, received in 1862, not a trace remains. Or azuki bean flour. Haricot Radié (*Phaseolus radiatus*; Azuki beans [*l'Azuki*]) are also discussed on p. 26-28. Address: France.

135. Kinch, Edward. 1883. List of plants used for food or from which foods are obtained in Japan. *Transactions of the Asiatic Society of Japan* 11(Part 1):1-30. April. Read April 12th, 1882. Reprinted in March 1907 as a monograph.

• **Summary:** "In the following list of food plants the genera have been arranged according to the system pursued by G. Bentham and J.D. Hooker in their 'Genera Plantarum'... I am not aware that any list of the plants used for food in Japan has been published since that by Thunberg in his 'Flora

Japonica,' 1784 [which mentions 'Dolichos polystachyos et Soja' in the Preface]."

"In the last hundred years this list has been considerably extended. The principal works consulted have been Thunberg's 'Flora,' Franchet and Savatier's 'Enumeratio,' Miquel's 'Prolusio' and Tanaka and Ono's 'So moku Zusetsu' and part of Suringar's 'Algae Japonicae.'"

Under the heading Leguminosae (Suborder Papilionaceae), Kinch reports: (1) *Glycine soja*, S. & Z., called *tsuru-mame* or *no mame* in Japanese, has no English name. Its seeds are used. (2) *Glycine hispida* Moench (synonyms: *Soja hispida* Miq. and *Dolichos soja* L.), called *O-mame* or *Daidzu* in Japanese, is called *Soy bean* or *Japan pea* in English. Its seeds are used and there are many varieties of seeds. (3) *Glycine hispida* f. *lanceolata*, called *midzu kugiri* in Japanese, has no English name. Its seeds are used.

Also discusses in this suborder: (4) *Arachis hypogaea*, L., *Rakkuwashō* [rakkasei] or *Tojin-mame*, ground nut, earth nut. (5) *Vicia faba*, L., *Sora-mame*, broad beans. (6) *Pisum sativum*, L., *Yendo*, pea. (7) *Pueraria thunbergiana*, Benth. = *Dolichos hirsutus*, Th., *Kudzu*, for root starch. (8) *Phaseolus vulgaris*, L., *Ingen mame*, French bean. (9) *Phaseolus radiatus*, L., *Adzuki* or *Shōdzu*, for beans. (10) *Phaseolus radiatus* var. *pendulus*, Savatier, *Tsuru-adzuki*, for seeds. (11) *Phaseolus radiatus* var. *subtrilobatus*, Savr., *Bundo* or *Yayenari* [Yaenari], for seeds.

Also mentions *Prunus mume* or plum. "Unripe fruit preserved in vinegar and salt as a pickle" [umeboshi].

Note: This is the earliest English-language document seen (Dec. 2006) that uses the term *Prunus mume* to refer to the scientific name of the plum tree whose fruits are used to make umeboshi salt plums. This is also the 2nd earliest English-language document seen (Dec. 2006) that refers to umeboshi salt plums, but it does not mention them specifically.

Note 3. Some of this information is very similar to that in Van Buren (1881, p. 15). Address: Royal Agricultural College, Cirencester, England. Formerly Prof. of Chemistry, Imperial College of Agriculture, Tokyo.

136. Carrière, E.-A.; André, Ed. eds. 1883. *Chronique horticole: Essais d'acclimatation* [Horticultural chronicle: Acclimatization trials]. *Revue Horticole: Journal d'Horticulture Pratique* (Paris) 55:313-16. July 16. See p. 315-16. [Fre]

• **Summary:** The Society for Acclimatization distributes to its members the seeds of exotic, edible or industrial plants, in order to test their cultivation and multiplication in France.

Recently, Mr. de Muratel, who resides in the Tarn region, gave an account of the trials that he made using the seeds he had been entrusted with. The results are very interesting.

Discusses the soybean of Etampes (*Le Soja d'Étampes*),

and the green soybean of Japan (*Le Soja vert du Japon*).

Also discusses the chufa of Spain and the Yaye-Nari (*Phaseolus radiatus*; azuki bean). Address: France.

137. Paillieux, Auguste; Bois, D. 1884. Le potager d'un curieux. Histoire, culture et usages de 100 plantes comestibles exotiques, peu connues ou inconnues: Haricot radié (*Phaseolus radiatus*) [The inquisitive person's kitchen garden. History, culture, and uses of 100 exotic, edible, little-known or unknown plants: Azuki]. *Bulletin de la Societe d'Acclimatation* 31:363-91. April. See p. 368-73. [2 ref. Fre]

• **Summary:** A long, superb article on azuki *Haricot radié* (*Phaseolus radiatus*). Contents: Introduction. In China. In Java. In Japan. In France.

Dr. Bretschneider wrote use recently: I believe that the soybean (*Soja hispida*) and the azuki bean (*Phaseolus radiatus*) have a great future in Europe.

"The very small-seeded azuki, which is cultivated in Beijing under the name of *Lou tou* (green peas) and from which the vermicelli is made, is the true azuki bean (*Phaseolus radiatus*). This plant is very important to the Chinese. I will get you samples from Beijing but later... Note: Lu Tou is the mung bean (*Vigna radiata*, as of Oct. 2021).

The doctor has previously written us: I am sorry that you have not received the pasta made from azuki beans (*Ph. radiatus*) (1). Footnote: We did not receive this pasta, addressed to the Society for Acclimatization.

They are long threads, like vermicelli. This pasta is prepared with the flour of the seeds of *Lou teou* and hot water; the result is a semi-liquid dough.

In Java: On his return from Java, Dr. Savinière pointed out to us the importance of the culture of azuki beans (*Ph. radiatus*) in the country and he dictated interesting notes to us.

In Java the plant bears the name *Katjang heedjah* or *hiedjoe* (pronounced Katian idiou). One makes, among other uses, this one: they are planted very densely on an impermeable subsoil; they are covered with 1 cm. of water.

After 2 days the shoots are harvested; they are 0.07 meters in length and have the color of *Barbe de capucin*. At the market, these sprouts are sold for a considerable sum, and they are called *Taugee* (pronounced TAU-gay). They are used in making gado-gado, prepared as follows: Put a little oil in a pan; add the sprouts of *Phaseolus radiatus* (azuki beans). At the end of 10 minutes of cooking, add soy sauce (*Ketjap*), the yolk of an egg, turmeric, etc.

In Japan: The azuki bean (*Haricot radié*) is a Japanese plant that has been cultivated for a long time. We received the seeds from Dr. H. in June 1878, accompanied by this note: "This bean succeeds very well here (*Haute-Savoie*) and ripens to its last pod. It is necessary to plant the seeds widely spaced, at least 50 to 60 cm, and not to put two seeds together, which becomes very strong."

The following November the doctor wrote us: "enclose in my letter a variety of Adzuki (*d'Adzuki*) different from that which I sent you previously. It is called Fall Adzuki (*Aki Adzuki*), which is to say azuki of the autumn, because it is planted in July for harvest in November; the one which I sent you previously is called Summer Adzuki because it is planted in May for harvest at the end of August. I believe that both these varieties will ripen their seeds here in France.

September 1879. "I am sending you a sample of the confection that is made in Japan, under the name *Yo-kan*, from Adzuki beans, with sugar and sort of gelatin (agar) extracted from marine algae. This gelatin, which is absolutely without taste, is known in Japan as *Kan-ten*. The Japanese use a lot of it in cooking and export large quantities to Europe. I believe that it would be difficult to sell but in France the *Yo-kan* finds a good market; the sugar is too expensive.

"Here is the recipe for making *Yo-kan* that is used in Japan and that I have used here. Soak the Adzuki beans for 24 hours in soft water; here I use rain water. In Japan they use river water which contains no lime. Let them cook in this water, then rub them through a sieve so as to obtain a fairly thick paste. Add half the sugar (by weight), then cook it again and add *Kan-ten* at the end of the cooking. I am not unable to indicate the portion of *Kan-ten* to use since the strength of *Kan-ten* varies greatly depending on its quality. A square stick of *Kan-ten*, 0.03 meters on a side, if it is good quality, will consistently jell a liter of water...

"I have cultivated only a small quantity of the summer Adzuki for my own use; that is very easy to do here. Therefore I believe that one would be assured of having a good harvest in soil that is rich in lime and less compact. Here the tufts become enormous and the interior pods often rot.

"Although I don't have much Adzuki to harvest this year, if you wanted to try it out a bit on a large scale, I could send you some for seed, because it doesn't take much since the plants should be spaced far apart.

"April 1881. In Japan, Adzuki, *P. radiatus* are soaked in water, then made to germinate in a warm dark place, in earthen vessels; then they are washed with plenty of water to remove the skins and the sprouts are eaten and called *Moyashi*. It goes without saying that they are cooked first in salted water, then in the Shoyu (Japanese soy sauce). They are quite tasty and it's an easy way to get a fresh vegetable in winter.

In France: In 1862 Mr. Guilemin, bishop of Canton, offered to the Society for Acclimatization a very large collection of seeds among which appeared the *Phaseolus radiatus*, so designated. *Lou teou*, green peas of which the Chinese make a fine vermicelli, *Lou teou sze*, and a very esteemed wine, *Lou teou tsieou*.

At about the same time, Mr. P. Dabry also offered the Society a collection which included these two species or

varieties of *P. radiatus* under the name of *Tsin teou*.

In June 1880 Mr. Eugène Simon sent to the Museum a considerable collection which also included the *Lou teou*.

At about the same time. Mr. C. Ford, director of the botanical garden of Hong-Kong, addressed to M. Giquel, who had kindly asked him for it for us, a collection in which *Lou teou* was included, with this mention: Medicine in fever, Syn. Liu teou.

It was also at about this time again that Mr. Faivre, of Beaune, received from China at distributed the seeds of *Lou teou*, a plant of which he indicated the importance.

Since 1878 we have cultivated the *Phaseolus radiatus* in rows in the garden and, each year, we have harvested the mature seeds. They mature very late and we cannot recommend enough to leave a lot of space between the plants and not to sow more than three seeds in each hole.

We have tried the culture of four or five varieties whose pods have not matured and we have succeeded only with the Summer Azuki, whose seeds are relatively large and of a dull red. The clumps (*touffes*) are strong and the product equal to that of our common beans.

We will mention separately the *Yaye nari* or *Bundô*, the Chinese *Lou teou*, of which the green and extremely small seeds is used to make edible pasta.

Whenever we have sown it alone, its shoots just sprouted from the ground have melted and nothing remains; but chance having caused that some seeds mixed with those of the Adzuki were sown in the same holes, we saw with pleasure, and not without surprise, that, under the protection of the latter, the *Yaye nari* vegetated fairly and gave a moderate harvest. We consider such a result to be a failure and we assume that, in a climate a little warmer than that of Crosnes, the cultivation of *Haricot radié vert* (green bean) will present no difficulty.

From the early Adzuki, we have made a puree that we found rather tasty. Its taste is a neighbor of both that of the haricot bean and that of the lentil; it is a good legume.

We will attend with great interest the samples of vermicelli from *Lou teou* that Dr. Bretschneider has kindly requested for us from Beijing. If they taste good, we hope that we will strive to win the prize offered by Society for Acclimatization for the culture of *Phaseolus radiatus*.

"The prize will be awarded to the person who has successfully cultivated the *Haricot radié* in a field of at least half a hectare.

"If several competitors presented themselves, preference would be given to the one who produced the finest specimens of food preparations obtained from the seeds of *Phaseolus radiatus*.

"Competition open until December 1, 1890. Prize: 300 francs." Address: 1. Member of the Société nationale d'Acclimatation; 2. Préparateur de botanique au Muséum. Both: France.

138. International Health Exhibition, London. 1884. The Health Exhibition Literature. Vol. XVII. London: William Clowes and Sons, Ltd. 749 p.

• **Summary:** Also cited as: (1) "Catalogue of the exhibits of Japanese Food Products at the International Health and Education Exhibition, held in London, 1884." (2) "Japan. International Health Exhibition A. Descriptive catalogue..." (3) "London, International Health Exhibition, London. 1884. The Health Exhibition Literature. Vol. XVII."

A map of the "International Health Exhibition, London, 1884" (p. 537-38), which was held at the Royal Albert Hall in South Kensington, on Exhibition Road near the High St. Kensington Station; gives an overview of the hall and surrounding roads and railway stations. The title of the section related to food is "Japan. A descriptive catalogue of the exhibits sent by the sanitary bureau of the Japanese Home Department," prepared under the direction of K. Nagai, Commissioner, and J. Murai, Assistant Commissioner. There follows a 2-page Introduction by Kiuchiro Nagai, dated Sept. 1884. Then a table of contents of five groups; Group I is food. Then a table of Japanese weights and measures. Pages 545-71 begin: the "Descriptive catalogue." Group I—Food. Detailed information and / or chemical analyses are given of the following: are given: (7) Soy bean (*Glycine hispida*) *O-mame*. (7A) *Phaseolus radiatus*. Adzuki. (192) Dried fruit of *Lagenaria vulgaris*—*Kan-pio* [*kanpyo*], cook with soy sauce. Mushroom (*Agaricus campestris*). *Shii-take* [*Shiitake*], cook with soy sauce. Kanten, vegetable isinglass, cook with soy sauce. Frozen konniaku [*konnyaku*]. Minoboshi daikon, cook with soy sauce. Fu, nama-fu, yaki-fu (plain, raw, and roasted wheat gluten). Kuzu starch. Buckwheat soba, cook with soy sauce. (203) Hijiki sea weed (*Cystoseira* species), cook with soy sauce. (204) Ogo sea weed (*Gigartina* sp.), cook with soy sauce. (205) Wakame sea weed (*Alaria pinnatifida*), cook with soy sauce. (206) Agar-agar (*Gelidium corneum*. Tengusa). Use to make tokoroten or kanten. (207) Tangle (*Laminaria japonica*). Kombu [*konbu*]. (208) Laver, dried (*Porphyra tenera*). *Asakusa-nori*. (209) Awonori [*Aonori*], dried (*Enteromorpha compressa*).

Page 560-61: (210) Frozen bean-curd. *Kôri-tôfu*. "Preparation.—It is made by steeping soy beans in water and then grinding them, after which the refuse is removed by boiling and dissolving it in a little oil. This refuse is called 'Kiradzu' [*kirazu*] or 'Unohana.' The liquid [soymilk] remaining after taking away such refuse is put into a kettle and again boiled. Upon the surface of the water [sic, soymilk] there forms a thin substance [film] like wet paper; this is skimmed off and dried. It is called 'Yuba' (lit., bean-curd skin), the taste of which is very agreeable. When it [the soymilk] begins to bubble up brine is sprinkled over it in order to stop the bubbles, and it is put into a special wooden box, then thrown into a cotton cloth bag and coagulated into long square shapes, which is bean-curd."

Three tables follow: (1) “Analysis of bean curd” [tofu]. (2) “Analysis of dried bean-curd” [dried frozen tofu]. (3) “Analysis of refuse of bean-curd” [okara].

Note 1. In the description of making tofu (above), yuba is removed during the tofu-making process.

Note 2. This is the earliest English-language document seen (June 2013) that uses the word “Unohana” or the term “refuse of bean-curd” to refer to okara.

Page 561-62: (211) Yuba (Skin of bean curd; “Yuba is made during the process of making bean curd, and is a thin, yellow, transparent substance”).

Note 3. This is the earliest English-language document seen (Oct. 2012) that uses the term “bean-curd skin or the term “Skin of bean curd” to refer to yuba.

(213) Somen (Vermicelli), cook with *shioyu* (soy sauce).

Note 4. This is the earliest English-language document seen (April 2012) that uses the term *shioyu* to refer to shoyu / soy sauce.

(228) Umeboshi (Salted and dried plums). (229) Miso (a fermented substance made from soy beans and yeast [koji]). *Miso-ai*, *Sansho-miso*, *shoga-miso*, *wasabi-miso*, *togarishi-miso*, *goma-miso* [sesame miso], *keshi-miso*, *katsuwo-miso* [katsuo-miso]. (229a) Konomono [*Kô-no-mono*] (Vegetables pickled in fermenting mixture of bran and salt (incl. Nukamiso-dzuke ([Nukamiso-zuke] pickled in salt and bran), Takuwan-dzuke (Takuan-zuke; daikon radishes pickled in salt and bran), Shiwodzuke ([Shiozuke] salt-pickled), Shio-oshi (salted and pressed), Kasudzuke ([Kasuzuke] pickled in sake residue), Misodzuke (Misozuke; pickled in miso), &c.)). Takuwandzuke [Takuanzuke; Takuan pickles]. (229b) Kasu-zuke (mentions miso soup). (230-35) Shoyu (Soy) and how it is made [p. 21 of section]. Chemical analysis of Kikkoman shoyu. Eight chief brands of shoyu. (236) Mirin (a kind of sweet liquor), with koji. Sembei [senbei], with miso. (242) Yokan, three varieties. (246) Midzu-ame [mizuame]. Frozen mochi.

Class III—Prepared animal substances. Dried cod fish, cooked with soy [sauce]. Beef tsukudani, cooked with soy [sauce].

Note 5. This is the earliest English-language document seen (June 2013) that contains the word “tsukudani.”

Class IV. Beverages. Sake (wine), made with koji (yeast). “Koji (yeast) is used for brewing Sake in Japan, almost like malt used for brewing beer in western countries,…”

Class VI. Cookery practically demonstrated. Nippon Ryoriya (Japanese restaurant), incl. misoshiru (miso soup), and konomono. Address: England.

139. Grisard, Jules. 1885. Cinquième section. Séance du 10 Mars 1885 [Fifth section. Meeting of 10 March 1885]. *Bulletin de la Société d'Acclimatation* 32:321-25. May. [Fre]
• **Summary:** Mr. Paillieux gives a lecture on the azuki bean (*Le Haricot radié*). “Numerous varieties of the *Haricot radié*

exist, and you can read in *le Potager d'un curieux* about this plant which is widely cultivated in Japan and China. “In our first sessions of this year, we are occupied with the variety which has small green seeds, called *Lou téou* [lūdou = mung bean] in China, *Yaye nari* in Japan, from which vermicelli is made in Peking, and pastries and confections in Japan. This little bean is, by the way, in use throughout the Orient. It is employed at Pondicherry [a former French coastal settlement in India], and the museum recently received it in Turkestan.” He then proceeds to describe the *Lou téou*—which is green.

Note: Mr. Paillieux distinguishes between the azuki (usually a small red bean, also said to be called *Yaye nari* in Japan) and *Lou téou* [Lü tou = Mung bean] (a green bean from China). Address: Secretary, France.

140. Mene, Édouard. 1885. Des productions végétales du Japon [The vegetable products of Japan]. Paris: Au Siège de la Société Nationale d'Acclimatation. 592 p. Index. 24 cm. [34 soy ref. Fre]

• **Summary:** The title page states in small letters: *Extrait du Bulletin de la Société Nationale d'Acclimatation*, indicating that much of the material in this book is based on articles previously published in this French-language Bulletin. However many other early books on Japanese agriculture have also been consulted and are carefully cited.

In the Introduction, the author explains that he was appointed by the Society for Acclimatization to prepare this report on the vegetable products of Japan which had been exhibited at the Universal Exposition of Paris in 1878—in two parts. Those displayed by the Japanese firm Trocadero, and those displayed in the galleries of the palace at Champ-de-Mars. The author and many others were deeply impressed by this exhibition.

Grains (class 69, p. 31): Wheat or rice are mixed with beans or peas and fermented to make shoyu and miso. Shoyu is one of the most widely used condiments in Japanese cuisine. The method of production is described briefly. Among the condiments displayed in class 74 were a number of flasks of shoyu from Tokyo.

Legumes (p. 40-47): Discusses soybeans, tofu, azuki beans (*Phaseolus radiatus* var. *subtrilobata*, p. 42-44; incl. yayenari, red, white, black, and yellowish azuki, Dainagon azuki, azuki flour, an, yokan), shoyu, soybeans (*Pois oléagineux*, *Soja hispida*, p. 45-46; incl. Kuro-mame {Black soybeans}, various colors and shapes of dry soybeans {green, yellowish, large yellowish, greenish black, brownish red, white, large red}).

There is also a special, long section on soybeans (*Soja hispida*. *O mame*: *Daizu*; p. 270-83) and soyfoods. In the Japanese exposition, the display of useful products (*tableau des productions utiles*) designates: No. 24. *Kuro-mame*. Black-seeded soybeans, the size of an average sized haricot bean. No. 25. *Shiro-mame*. White-seeded soybeans, spotted / flecked / speckled / mottled (*tachetées*) with gray. No. 26.

Ao-mame. Greenish-seeded soybeans. No. 34. *Gankui-mame*. Black-seeded soybeans, flecked with white.

The soybean (*Le Soja*) is cultivated in Japan, India, Ceylon, the Malacca peninsula [today's Malaysia], the Philippine islands, Borneo, Java, the kingdom of Siam, Cochin China, Tongkin (*Tong-King*), and throughout China, primarily in Mongolia and in the provinces of Henan / Honan, Liaoning (*Shenking*), Shandong / Shantung, and Shanxi / Shansi (*Chan-si*).

The Chinese exposition (class 73) contained samples of all the varieties of soya cultivated in all the provinces of the empire. Nos. 2991 to 3000. Green, white, black, yellow, striped or variegated, and reddish soybeans, provided by the Chinese customs office at Newchwang. Nos. 3014-16. Yellow, black, and green soybeans from the customs office at Tientsin. Nos. 3058-61. Yellow, green, and black soybeans from customs at Yantai / Chefoo. No. 3091. Yellow soybean from customs at Chinkiang. Nos. 3013-19. White, red, black, and yellow soybeans from customs at Shanghai. Nos. 3125-28. White, black, red, and green soybeans from customs at Wenzhou / Wenchow. Nos. 3152-56. White, green, and black soybeans from customs at Kao-hsiung (*Takow*).

The soybean is one of the plants most widely used in Japan and China for both food and industrial purposes. As indicated previously, shoyu, miso, and tofu are indispensable to the Japanese diet. Samples of these products were displayed in the Japanese exhibit in class 74 (condiments and stimulants); they came from Tokyo and from the province of Hizen, mainly from the town of Nagasaki. In the Chinese exhibit, also in class 74, were samples of (*soye*) or (*soya*) which are similar to Japanese shoyu but are called *Chiang-yu* (*Tsiang-yeou*) in China. They were provided by the customs offices at Yantai / Chefoo, Ning-po, Wenzhou / Wenchow, and Canton. For aroma, the Chinese often add star anise, green anise, and orange peel. Chinese soy sauce is made from yellow soybeans (*Houang-téou*).

Note: This is the earliest French-language document seen (March 2021) that uses the term *Chiang-yu* to refer to soy sauce.

Note: This is the earliest document seen (Jan. 2006) describing a soy sauce made with star anise, green anise, orange peel or other spices or herbs outside of Indonesia.

A detailed description of the method for making Japanese shoyu is given, excerpted from the book *Le Japon à l'Exposition universelle de 1878* [Japan at the Universal Exposition of 1878] (1878, vol. II, p. 124). Additional excerpts concerning shoyu, miso, and tofu are taken from: Simon 1862, Kaempfer 1712, *Bulletin of the Society for Acclimatization* 1880 (p. 248), and Champion 1866.

In France, Mr. Vilmorin and Dr. Adrien Sicard (of Marseilles), who are both involved with soybean cultivation, have prepared soy cheese (*fromage de Soja*) numerous times. Dr. Sicard has made both the white cheese [probably tofu] and the red cheese; the latter is rolled in a powder made by

grinding red sandalwood (*santal*; *Pterocarpus santalinus*), mace, and cinnamon (p. 276).

One of the most important soy products is the oil, which is obtained from the seeds—especially the large yellow soybeans that the Chinese call *Houang-téou*. The Japanese do not make soy oil (*huile de Soja*) but in China manufacture of this product gives rise to considerable commerce. Fremy (1855) found that soybean seeds contain 18% oil. The oil is a drying oil, yellow in color and with a special odor and a taste of dried legumes, similar to that of peas. It is used in cooking and illumination. In China, quite a few soy oil factories are found at Calfond in Henan, at Tsinan in Shantung, and at Tayeurn in Shanxi. But the center of soy oil production in China is Ning-po in Zhejiang / Chekiang. From the port of Ning-po and from a port on the island of *Tcheou-chan* [*Zhoushan*?] a large number of junks, carrying only soy oil, depart. Two other manufacturing centers are Newchwang and Chefoo. There follows a detailed description (p. 276-77) of how soy oil is obtained from soybeans.

Another common use is as fermented black soybeans (*Chi*) which (according to Stanislas Julien) contain soybeans mixed with ginger and salt. Kiu-tsee is a fermented soy product made in Canton; it contains red rice, soybeans, and the leaves of *Glycosmis citrifolia*. The Chinese also make a pasta and a sort of vermicelli from soybean seeds named *Hou-mi-téou*.

The stems and leaves make excellent forage. Black soybean seeds are often mixed with chopped soybean hay and fed to horses and mules in northern China and Manchuria.

In Japanese and Chinese medicine, black soybean seeds, ground and made into a decoction, are used to combat asthma attacks.

There follows a long history (p. 277-83) of the introduction of the soybean to Europe (starting at the Jardin des Plantes in Paris, in 1740 or 1779) and its acclimatization, based largely on articles from the *Bulletin of the Society for Acclimatization*. It includes a summary of the work of Prof. Haberlandt in central Europe.

Also discusses: Japanese plum trees (*Prunus mume*) and umeboshi salt plums (p. 52-54, 466-67). Sesame seeds and sesame oil (p. 54-55). Amaranths (p. 63-64). Job's tears (*Coix lacryma*; p. 214-15). Kudzu, kuzu powder, and kuzu cloth (*Pueraria Thunbergiana*; p. 283-85). Peanuts and peanut oil (*Arachis hypogaea*, *Tojin-mame*; p. 286-87). Sesame seeds and sesame oil (*Sesamum indicum*, *Goma*; p. 518-20). Hemp and hemp oil (*Cannabis sativa*, *Asa*; p. 558-59). Address: Médecin de la Maison de Santé de Saint-John de Dieu [Paris, France].

141. Paillieux, Auguste; Bois, D. 1885. Le potager d'un curieux. Histoire, culture et usages de 100 plantes comestibles, peu connues ou inconnues: Soya [The inquisitive person's kitchen garden. History, culture, and

uses of 100 edible, little-known or unknown plants]. Paris: Librairie Agricole de la Maison Rustique. 294 p. See p. 261-65. 2nd ed. 1892. 3rd ed. 1899, p. 575-625. [1 soy ref. Fre]

• **Summary:** The five-page section on Soya (p. 261-65) discusses its use primarily as a vegetable. For more about its broader uses, see Paillieux's 1881 book titled *Le soya, sa composition chimique, sa culture et ses usages*. This section discusses: Englebert Kaempfer's writings: "In Japan, this plant is named *Daidso* and surnamed *Mame*, that is to say a food grain *par excellence*." Cultivation trials with four varieties conducted by the Society for Acclimatization: (1) Soybean from China, cultivated in Hungary, imported by MM. Vilmorin-Andrieux and Co. The seed color is pale yellow and the hilum is brown. This is the earliest maturing variety we have seen. (2) Soybean of Etampes. These seeds were distributed in 1874 by the Society for Acclimatization. The seeds are light yellow and the hilum is white. The plant is beautiful, very strong and very productive, but a little late in maturing. (3) The green soybean, originating from Japan, has rather roundish green seeds and a brown hilum. Its is not as early as the soybean from China, mentioned above. (4) The light green soybean, with a white hilum, has somewhat flattened seeds. It has come to us from both Japan and China. Its pods mature rather late. Vilmorin is importing more varieties, including a brown one. The variety in their 1880 catalog seemed a bit late.

There follow instructions for planting, cultivating, and harvesting soybeans (Soya). When the soybeans are fully developed, but before the pods begin to dry, they should be picked. At this stage they are as good as fresh flageolets—though the pods are a bit difficult to remove.

In the dried state, soybean seeds make a good food. Their taste is sweet and very agreeable. We have prepared them like ordinary white haricot beans. They should be soaked for 24 hours before cooking in water that is not hard, or in distilled water. For best results, add 3 grams per liter of soda crystals [sodium bicarbonate].

Soya is without doubt the best of all the coffee substitutes. Many housewives serve a mixture of coffee and chicory each morning for breakfast. But [ground] roasted soybeans need not be mixed with anything. It gives a good coffee *au lait* whose aroma resembles that of Mocha—though it is not as strong. The soybean is cultivated in Tyrol [Tirol] and the Istrian Peninsula under the name of "coffee bean," and we suppose this is also the case in Dalmatia and the south of Italy.

Mr. Heuzé in his book *Edible Plants (Plantes alimentaires)* gives the soybean the name *Dolic à café* (the coffee bean) and says that it is cultivated in some points in the departments of Ariège and of Haute-Garonne; we have not been able to verify this. Recently we learned from Mr. Faivre, of Beaune, that the soybean had been introduced, about 12 years ago, at Allery, a commune in Saône-et-Loire [in east central France] by Father Cretin (*M. l'abbé Crétin*),

and that its seeds were used like coffee beans by many families in the country.

Mr. Faivre, an ardent and generous propagator / spreader of soya, sent us some seeds of the plant cultivated at Allery. They are brown and identical to those recently imported by Vilmorin. Finally, the engineer and head of one of our departments wrote us that he enjoys Soya each morning for breakfast, and that he prefers it to Mocha. He recommends roasting the seeds lightly.

If gardeners will set aside a little space for Soya each year in their gardens, they will obtain, at no extra expense, the coffee needed each morning by their families.

There is much more we know and could say about Soya. Worldwide, it occupies a place equal to wheat, corn, and potatoes. Indeed, it makes an excellent forage. It contains 18% oil. The cake, which remains after the oil is extracted, makes a powerful fertilizer. Under various forms, these seeds become part of the daily food of hundreds of millions of people. They are also used to feed animals, especially millions of horses and mules.

As numerous analyses have demonstrated, they constitute the richest and most complete food that one can desire. We recommend to the reader the recent work, done with great care by Pettet and Schou, in *Revue des Industries Chimiques et Agricoles* (1882).

Contents: Introduction. Discussion of individual plants arranged alphabetically by their French names. For each plant is given, below the French name: Scientific name, early sources, and plant family. Some of the plants discussed include: Amaranth (*Amarantus oleraceus*). *Glycine apios* (legume family). The peanut (*Arachis Hypogaea*; *Arachide*, *Pistache de terre*) (p. 20-23). Daikon or Japanese radish (*Raphanus Sativus*, L. var; *Daikon ou radis du Japon*). Azuki bean (*Phaseolus Radiatus*; *Haricot radié*) (p. 102-07; The section titled "A Java" mentions seasoning a dish with *Ketjap*, which it calls *la sauce noire*, or "black sauce"). Glutinous yam (*Dioscorea Batatas*; *Igname*). Konnyaku (*Amorphophallus Rivieri*; *Koniaku*). Kudzu (*Pueraria Thunbergiana*; *Kudzu*) (p. 154-64). White melon of Japan (*Cucumis Melo*; *Shiro uri*; *Melon blanc de Japon*). Myoga (*Zingiber mioga*; *Mioga*). Udo (*Aralia cordata*; *Oudo*). White quinoa (*Anserine Quinoa*; *Chenopodium quinoa*; *Quinoa blanc*) (p. 242-45). Chufa (*Cyperus esculentus*; *Souchet comestible*, *Souchet sultan*, *Amande de terre*) (p. 256-61). Soya (*Dolichos Soja*; *Soja hispida Moench*; *Glycine Soja*; *Soya*) (p. 261-65). Bambarra groundnuts (*Voandzeia subterranea*; *Voandzou*) (p. 272-74). Table of contents (by both French name and scientific name). Address: 1. Member of la Société nationale d'Acclimatation; 2. Préparateur au Muséum. Member of the Société Botanique de France.

142. Kellner, O. 1886. Zusammensetzung Japanischer landwirtschaftlicher und technischer Producte und Materialien [Composition of Japanese agricultural and

technical / industrial products]. *Mittheilungen der Deutschen Gesellschaft fuer Natur- und Voelkerkunde Ostasiens* (Yokohama) 4(35):205-22. Nov. [Ger]

• **Summary:** Tables show the chemical / nutritional compositions of 165 Japanese foodstuffs and beverages, including: (1) Rice (*Oryza sativa*), Panicum millet, Sorghum saccharatum, wheat (*Triticum vulgare*), barley (*Hordeum vulgare*), Job's tears (*Coix agrestis*), ruscus-leaf bamboo shoots (*Bambusa kumasasa*), maize (*Zea mays*).

(2) Azuki (*Phaseolus radiatus*), Buff-bean (*Canavalia incurva*), Daizu / soybean (p. 208), (*Soja hispida*), (*Dolichos uniflorus*), (*Dolichos cultratus*), (*Dolichos umbellatus f. volubilis*), (*Dolichos umbellatus seminibus albis nigris*), peanut / groundnut (*Arachis hypogaea*), sesame seed (*Sesamum orientale*), perilla seeds (*Perylla ocymoides*), kaya or Japanese torreyia (*Torreya nucifera*), Japanese camellia (*Camellia Japonica*).

(3) Three types of soy sauce (p. 209).

(4) Satsua imo, Sato imo, Nagaimo, Kashi u imo, Oniuri, konnyaku, gobo, take-no-ko (bamboo shoots).

(4) Daikon, Kabura, ninjin, hasu, kuwai, nasu, to-nasu, matsutake mushroom. shiitake mushroom, shoro, yenoki-take [enokitake mushroom].

(5) Composition of tea leaves picked every 15 days from May to Nov.

(6) Kudzu, Kusa-fuji, tojin-mame, hagi, kari-mame, hiye, kaya, sasa, rozoku, sweet potato (satsuma imo), Japanese eggplant (nasu), wata.

(7) Uruchi, okabo, karasu mugi, mugi, kibi, hiye, awa, uruchi.

(8) Nishin, shimekasu, ishiko, umeboshi, hitode, kombu (*Laminaria japonica*).

(8) Various natural fertilizers.

(9) Sake massamune, sake oiran, sake hayaremasu, mirin, shirosake, weisser kofuwein, Sakurada Beer. Address: Japan.

143. Hepburn, James Curtis. 1886. A Japanese-English and English-Japanese dictionary. 3rd ed. Tokyo: Z.P. Maruya & Co., Limited. Yokohama, Shanghai, Hongkong & Singapore: Kelly & Walsh, Limited. London: Trübner & Co. 962 p. 22 cm.

• **Summary:** “During the fourteen years which have elapsed since the publication of the last edition of this Dictionary [in 1867], the Author has kept it constantly before him, correcting errors, improving and enlarging the definitions, and adding new words and illustrations, according as his time and other important engagements allowed him. But owing to the amazing changes and rapid advancement of the Japanese in every department, he has found it difficult to keep pace with the corresponding advance of the language in the increase of its vocabulary. He has endeavored, however, to collect these words, examine, classify and define them. Many, no doubt, have escaped his notice. Still there is an

addition of more than ten thousand words to the Japanese and English part.”

New soy-related definitions in this edition, not found in or changed from the 1867 edition: Aburage: Anything fried in oil or grease, especially fried *tofu*. [fried tofu].

Amazake: Sweet *sake*, a kind of drink made of fermented rice.

Azuki: A small red bean, *Phaseolus radiatus*. Daizu: A kind of large white bean, *Soja hispida*.

Hiriôzu: A kind of food made of *tôfu* fried in oil.

Note 1. This is the earliest document seen (Nov. 2014) that contains the word *Hiriôzu* (written exactly like this). It refers to Kyoto-style deep-fried tofu treasure balls. It is also the earliest document seen (Nov. 2014) that contains a traditional Asian meat alternative made from deep-fried tofu.

Kinako: A flour made of beans.

Kirazu: The refuse of beans left in making *tôfu* [okara].

Note 2. This is the earliest English-language document seen (June 2013) that uses the word “Kirazu” [not Kiradzu] to refer to what is now called “okara” or “soy pulp.”

Koji: Barm or yeast made by the fermentation of rice or barley in the process of making *sake* or *soy* [sauce].

Miso: A kind of sauce made of beans, wheat and salt.

Miso wo suru: To rub miso in a mortar.

Sake: A fermented liquor brewed from rice. Sake wo

kamosu: To brew sake. Sake ni yô: To be drunk. Sake no uye ga warui hito: One who behaves disorderly because of drink. Sake ni oboreru: To be addicted to drink [alcohol].

Shoyu: Soy, a kind of sauce made of fermented wheat and beans. Syn. [Synonym]: Shitaji.

Tamari: Soy, shôyu. Note 3. This is the earliest English-language document seen (April 2012) that uses the word “Tamari” to refer to a type of Japanese soy sauce,

Tofu: A kind of food made of beans, bean curd.

Unohana: The *Deutzia scabra*; also refuse of beans [okara] from making *tofu*. Yuba: A kind of food made of beans, the skin of bean curd.

Terms listed unchanged from the 1867 edition include Natto, and Yu-dofu.

No listing is given for: Daitokuji natto, Edamame [Yedamame], Hamanatto, or Okara.

The “English and Japanese dictionary,” which starts on page 771-73, contains the most important English words with numerous examples. Included are: Bean: Mame. Spec. Azuki, sora-mame, daizu, endo, ingen, sasage. Bean pod: Mame no saya. Bean curd: Tôfu.

Soy: Shôyu.

Note: This is the earliest English-language document seen (Oct. 2021) that uses the word *Azuki* to refer to azuki beans. Address: M.D., LL.D., Yokohama, Japan [American physician, translator, educator and lay Christian missionary].

144. Rein, Johann Justus. 1886. Japan: Nach Reisen und Studien, im Auftrage der Koeniglich Preussischen Regierung

dargestellt [Japan: Travels and researches undertaken at the cost of the Prussian government. Vol. II.]. Leipzig, Germany: Verlag von Wilhelm Engelmann. 679 p. See p. 5, 65-70, 123-27, 185, 649. Illust. Indexes (1 German and Latin, 1 Japanese). 2nd ed. 1905. [9 ref. Ger]

• **Summary:** A superb book, showing the high German art of studying other cultures. The many illustrations are either beautiful wood engravings (*Holzschnitte*), real photographs, or actual samples of paper or textiles (glued in). In the chapter on “Food plants” (*Nährpflanzen*), the following is a partial contents of the section on “Pulse or leguminous plants” (*Hülsenfrüchte oder Leguminosen*, p. 65-71):

Introduction to crops cultivated in Japan. 1. The ground-nut and ground-nut oil. 2. The soybean: “Among the pulse of Japan (and not the less of China), the soy-bean ranks first in extent, variety of use, and value; and chemical analyses prove the empirical judgment is well founded. In point of nutriment, the soy-bean is of all vegetables the nearest to meat. It contains nearly two-fifths of its weight in legumin rich in nitrogen, and nearly one-sixth in fat. The soy-bean is to the inhabitants of Japan what their *garbanzos* (chick-peas) are to the Spanish, and their *feijao preto* (black beans) to the Brazilians. The author then describes the characteristics of the soy-bean, the work of Haberlandt with soy-beans in Austria, and the yields that he and his co-workers obtained.

“In Japan the varieties of soy-bean are distinguished—according to colour, as white (more properly yellowish), black, brownish red, green, and spotted; according to duration of growth [maturity] as early-ripening, middle-ripening, and late-ripening; according to form, as spherical, ellipsoidal, kidney-shaped, and compressed laterally; and according to use, as to those which serve primarily in making Shōyu (soy), Tōfu (bean-cheese), and Miso (a sort of sauce), and those eaten in any plain shape.”

Soy-bean varieties in Japan include: 1. “White (pea-yellow) soy-beans, Japanese Shiro-mame or Haku-daidzu. To this division belongs an early-ripening sort with very small seeds, called Goguwatsu-mame [Go-gatsu], or ‘five-months-kind,’ because it ripens in the fifth month of the old Japanese calendar, our July; also another small-seeded, early-ripening variety, the Wase-mame or Natsu-mame, that is, early and summer-bean. These two are also called Tōfu-mame, because they are used chiefly in making Tōfu. Another sort serves to produce Miso. It is called Nakate-mame, ‘middle-late bean,’ its time of maturity occurring half-way between that of the early and late kinds. Its seeds are round and somewhat larger. The late ripening varieties, Okute-mame (late-bean), Maru-mame (bullet-bean), and Teppō-mame (gun-bean), or Aki-mame (autumn-bean) have, as their names indicate, mostly bullet-shaped seeds, which become harder and larger than the early ones. The variety last named is used in making Shōyu, while Maru-mame is valuable as horse-feed.

2. Black soy-beans, Japanese Kuro-mame or Koku-daidzu. These are eaten boiled with sugar, as an entrée, or

as a relish to rice. There is a middle-late sub-species, with round, elliptical seeds, Kuro-mame, in short, and another like it with big, bullet-shaped beans is called Kuro-teppō-mame. And again there is a late-ripening sort with flat, elliptical seeds under several names.

3. Brown soy-beans, Japanese Katsu-daizu (thirsty soy-bean) are much less grown than the white and black sub-species, and are used like the latter. They are distinguished as Aka-mame, red soy-beans, round, reddish-brown in colour, in different varieties, and Cha-mame, tea beans, three light-brown sorts of small extent and significance.

4. Greenish or bluish green soy-beans, Japanese Ao-mame or Sei-daizu, are eaten mostly boiled and with sugar, like the black and brown-red varieties. And, with the brownish sorts, they are much less widely grown than the black and yellowish. The Japanese distinguish the following sub-species of Aō-mame [sic, Ao-mame]:—(a) Sei-hito,—epidermis green, inside a whitish yellow. (b) Nikuri-sei,—greenish throughout. Both sub-varieties run from roundish-ellipsoidal to a bullet roundness, are of medium size, and remind one of green peas. (c) Kage-mame, with pale green, round beans. 5. Speckled soy-beans, Japanese Furi-mame or Han-daidzu. This group is not important. Its cultivation is confined to a small area, in a few provinces. Its sub-varieties are known as:—(a) Kuro-kura-kake-mame, with a black spot on the saddle (eye), otherwise greenish; flat and with the outline of an egg. (b) Aka-kura-kake-mame, with a brown spot on the saddle (eye), otherwise yellowish-green, flat and drawn out long. (c) Furi-mame or Udzura-mame, speckled or spotted soy-bean, yellowish-green with many dark flecks. A rare variety, grown only in a few places, especially in Harima.

“Early-ripening soy-beans are sown as early as April in Southern Japan, in Central Japan during May. Those that ripen in autumn need much more warmth, and are sown, as a rule, one month later... Late-ripening Daidzu is also a favourite for planting along the edge of fields and on the new-built dykes of rice-fields.”

Returning to the work of Haberlandt: “At the end of his above-mentioned treatise, Haberlandt summed up in five noteworthy propositions, the results of his experiments with the soy-bean and of its chemical analysis. His conclusions are as follows:

“(a) The acclimatization of the early-ripening sorts, particularly those with yellow and reddish brown seeds, appeared to have fully succeeded in Central Europe.

“(b) The seeds obtained were larger, heavier, and handsomer than those from Eastern Asia, the chemical composition, however, remaining unchanged.

“(c) The soy-plant resists light spring frosts better than our young beans, and endures greater dryness in summer than most leguminous plants, though otherwise much like other kinds of beans.

“(d) It is distinguished by heavy crops, besides

furnishing, in its stems and leaves, either green or dried, a nourishing feed, of which cattle are very fond.

“(e) In their high percentage of protein and fat, they far excel all other pulse in nutritive quality; and when properly prepared are second to none in flavour.

“After such favourable judgments, it might have been expected that the soy-bean, at least in the warmer regions of the Austro-Hungarian monarchy, would soon become popular and generally cultivated. The result, however, was quite otherwise. The hopes which he had aroused in behalf of this plant seem to have disappeared with Haberlandt, who died in 1878.

3. Azuki beans (many varieties are named and described).

Two tables (p. 73-74) show the following: (1) Analysis of 10 different numbered samples of soybeans, empty pods, and straw and leaves. Eight are from Haberlandt’s book *Die Sojabohne* [The Soybean] (1878), two are from Caplan, and one each from Mach, Senff, Levallois, and Kinch. (2) Comparative composition of 9 different legumes, including soybeans, azuki beans, common peas, broad beans / faba beans, lentils, yellow lupins, and peanuts. The soybean has by far the most crude protein, is second in fat (after peanuts), and is average in (minerals).

Foods made from soybeans (p. 123-27): Shoyu (*Shôyû*, *die japanische Bohnensauce*, auch *Soja*). Miso (made with rice koji [*Kôji oder fermentierender Reis*]). Tofu (*Tôfu*, *Bohnenkäse*, made with *Shio-no-nigari* (*Salzbitter*)) incl. dried-frozen tofu (*Kori-tôfu*, *gefrorener oder Eis-Tôfu*).

“Kori-tôfu, frozen or ice-Tôfu, is the spongy, horn-like substance that remains when common Tôfu is allowed to freeze and then thawed and dried in the sun, thus getting rid of most of its water. By Yuba [Yuba] is meant a third preparation, consisting of brownish, tough skins (*Häuten*), made by boiling the dissolved legumine of the Tôfu-process, with the addition of some wood-ashes, and then taking away in succession the skins that rise” (p. 126-27; see Rein 1889).

Note 1. This is the earliest German-language document seen (Oct. 2012) that contains the word Yuba.

The section on “Oil plants and their products” (p. 176-89) gives details on 13 plants and the oil obtained from them, including: 1. Rapeseed oil. 2. Mustard oil. 3. Camellia oil. 4. Cottonseed oil. 5. Peanut oil. 6. Sesame oil. 7. Perilla oil (*Perilla ocymoides*). 11. Hempseed oil. Soybean oil is not one of these. However a table (p. 185) gives the average composition of various Japanese oilseeds (Source: E. Wolff et al.; Ollech 1884): Rapeseed, peanuts, cottonseed, sesame (brown and white), hemp seeds, shelled beech-nuts, and soybeans.

Note 2. Volume 1 was published in 1881. The title of volume 2 is *Land-und Forstwirtschaft, Industrie und Handel*. Johann Justus Rein lived 1835-1918.

Note 3. This is the earliest German-language document seen (April 2013) that uses the term “kori-tôfu,” or

“gefrorener Tôfu,” or “Eis Tôfu” to refer to dried-frozen tofu.

Note 4. Also discusses: Ame, midzu-ame, and barley malt syrup (p. 121-22). Fu, or baked wheat gluten cakes. Hemp, hempseed, and hempseed oil (p. 88, 177, 184-85). Kudzu (p. 75, 199, 217). Peanuts and peanut oil (p. 176-81, 185). Sea-weeds—especially marine algae (p. 93-96). Sesame seeds and oil (p. 88, 176-78, 181-82, 185). Address: Prof. of Geography, Univ. of Bonn, Germany.

145. Kellner, O.J. 1887. Zusammensetzung Japanischer landwirtschaftlicher und technischer Producte und Materialien [Composition of Japanese agricultural and technical products and materials]. *Mittheilungen der Deutschen Gesellschaft fuer Natur- und Voelkerkunde Ostasiens in Tokio (Yokohama)* 4(35):205-22. Sept. See p. 205, 208-09. [Ger]

• **Summary:** The introduction (p. 1) contains a list of publications on agricultural chemistry and chemical nutritional physiology published by this laboratory under Dr. Kellner’s direction. These include investigations of seeds, hay, straw, manures, and technical products (alcoholic drinks and shoyu).

A large table (p. 208, probably based on Kellner’s research) gives the German name, botanical name, Japanese name, and nutritional composition of 12 leguminous seeds and oilseeds (on a dry-weight basis, plus their ash), including soybeans (*Sojabohne*, *Soja hispida*, *daizu*), shelled peanuts (*Erdnuss*, *Arachis hypogaea*, *Nankin mame*), and sesame seeds (*Sesam*, *Sesamum orientale*, *goma*).

A discussion of the soybean (p. 209) notes that it is widely cultivated in Japan. In actuality, the soybean is also used to produce similar products, as milk is elsewhere. Surprisingly few of these beans were consumed directly, as they were preferably used for the preparation of tofu (*Bohnenkäse*), miso, and shoyu sauce.

A small table gives the nutritional composition of three additional soybean varieties that are suited for commercial shoyu production (*Shoyufabrikation*). They all contain less protein and more fat than the soybean from the previous large table. *Phaseolus radiatus* [azuki bean] is also mentioned

Another large table (p. 215) gives the German name, botanical name, Japanese name, and nutritional composition of 12 plants purchased at a market in Tokyo, including: kuzu (-, *Pueraria Thunbergiana*, *kudzu*), peanuts (*Erdnuss*, *Arachis hypogaea*, *Tojin-mame*), and soybeans (*Sojabohne*, *Soja hispida*, *kari mame*). The soybeans contain 13.67% water. Their dry matter contains 18.11% raw protein, 3.07% ether extract [crude oil], 39.16% crude fiber, etc.

Other large tables gives the composition of kudzu (*Pueraria Thunbergiana*, p. 217), kombu (*Laminaria japonica*, p. 219), okara (*Tofukuchen*, *Tofurückstände*, p. 221), and various alcoholic beverages (p. 221, including sake

{made from koji}, mirin, shirosake (white sake), white Kofu wine, and Sakurada beer brewed in Tokyo). A small table (p. 221) gives a nutritional analysis of three samples of shoyu, including the specific gravity (density relative to water), dry matter, organic matter, ash, and acid (as acetic acid). Address: PhD, Tokyo.

146. Hepburn, James C. 1887. A Japanese-English and English-Japanese dictionary. Abridged by the author. Second edition. Revised and enlarged. Tokyo: Z.P. Maruya & Co., Limited. Yokohama: Kelly & Walsh, Limited. London: Truebner & Co. vi + 330 + 962 p. 16 cm.

• **Summary:** Soy-related definitions include: Dengaku: A kind of food made of baked *tôfu*.

Go: [Soy] Beans mashed into paste for making *tôfu*; also used by dyers to limit colors. Mame no go: [Soy] bean paste.

Go-koku [Gokoku]: The five cereals—wheat, rice, millet, beans, and sorghum.

Hitashi-mono [Hitashimono]: Beans or vegetables boiled or steeped in *shôyu* [shoyu].

Irimame: Parched peas [sic, parched soybeans = soynuts].

Kirazu: The refuse of beans left in making *tôfu*.

Mamemaki: The ceremony of scattering parched beans [parched soybeans] about to drive out evil spirits on the last evening of the old [lunar] year.

Toshi-koshi [Toshikoshi]: The crossing from the old to the new year; the ceremonies observed on the last day of the year,... when parched beans [parched soybeans] are scattered after sundown to drive off noxious influences and evil spirits. The parched beans used this evening, if kept and eaten when the first thunder of the new year is heard, are supposed to protect against lightning.

Note 1. This is the 2nd earliest English-language document seen (Dec. 2012) that uses the term “parched soy beans” to refer to soynuts / irimame.

Tsui-na (*oni yarai*): The ceremony of driving evil spirits out of the house by scattering parched [soy] beans about on the last evening of the old year.

Note 2. This is the earliest English-language document seen (Dec. 2012) that uses the term *Tsui-na* in connection with Setsubun and the ceremony scattering of roasted soybeans in Japan.

Yô-kan [yokan]: A kind of confectionery made of sugar and [azuki] beans.

Yuba: A kind of food made of beans.

James Curtis Hepburn lived 1815-1911. Address: M.D., LL.D., Tokyo, Japan [American physician, translator, educator and lay Christian missionary].

147. Ichikawa, Yoshio. 1888. A new pocket dictionary of the English and Japanese languages. New edition. Yokohama, Japan: Seishi-Bunsha Printing Office. 907 p. 15 cm. [Eng; jap]

• **Summary:** The basic structure for each entry is: (1) The word, romanized, with the first letter capitalized and diacritical marks included. (2) The Chinese / Japanese characters (*kanji*, *hiragana*, *katakana*). (3) The “part of speech” (e.g. noun, verb, adjective, etc.). (4) A brief definition. In the following 3Cc = 3 Chinese characters are given

Soy-related words:

Abura-age, 2 Cc, 2 Cc, n. A thin piece of *tôfu* fried in oil.

Hiryôzu, 3 Cc, n. A kind of food made of *tôfu* fried in oil.

Daizu, 2 Cc, n. A kind of large white bean, Soja hispida.

Kinako, 2 Cc, 3 Cc, n. A [soy] bean flour.

Kirazu, 3 Cc, n. The refuse of beans left in making *tôfu*.

Kôji, 1 Cc, n. Barm or yeast, made by the fermentation of rice or barley in the process of making *sake* and soy.

Mame, 1 Cc, 1 Cc, n. A bean, pea. *Mame no saya*, bean-pod; *mame no ko*, [soy] bean flour; irimame, parched beans.

Mamemaki, 2 Cc, 2 Cc, The ceremony of scattering parched [soy] beans about the rooms of a house to drive out evil spirits, on the evening of *Setsubun*.

Miso, 2 Cc, n. A kind of sauce made of [soy] beans.

Miso o suru: To rub miso.

Moromi, 2 Cc, n. The grounds left in making soy, used as an article of food. Nattô, 2 Cc, 2 Cc, 2 Cc, n. A kind of food made of boiled [soy] beans.

Nuta, 2 Cc, n. A food made of fish sliced and seasoned with vinegar and miso.

Sashimi, 2 Cc, 2 Cc, 2 Cc, 2 Cc, [this means the word “sashimi” can be written with four different pairs of characters], n. Raw fish cut in thin slices, and eaten with soy.

Shitaji, 2 Cc, n. Soy.

Shitashimono [Hitashimono, Oshitashi], 2 Cc, n. Boiled greens eaten with soy.

Shôyû, 2 Cc, n. Soy, a kind of sauce made of fermented wheat and [soy] beans.

Suribachi, 2 Cc, n. An earthenware bowl used for rubbing miso.

Tôfu, 2 Cc, 2 Cc, 2 Cc, n. A kind of food made of beans, bean curd.

Yuba, 2 Cc, 2 Cc, n. A kind of food made of [soy] beans.

NOT listed: atsu-age, atsuage, Daitokuji-natto, edamame, eda mame, gammodoki, ganmo, ganmodoki, hama-natto, hamanatto, hiya-yakko, hiyayakko, kaisô, koridofu, koridofu, koya-dofu, koyadofu, nama-age, namaage, okara, yaki-dofu, yakidofu, yeda-mame, yedamame, tamari, unohana.

Also mentions the following non-soy words:

Azuki, 2 Cc [small + bean], n. A small red bean.

Hijiki, 3 Cc, n. Systoseira [Cystoseira], a sea-weed.

Itokoni, 3 Cc, n. A kind of food made of red beans.

Kanten, 2 Cc, n. A kind of isinglass made of sea-weed.

Kombu, 2 Cc, n. A kind of edible sea-weed, algae.

Mekari, 3 Cc, n. Sea-weed gathering.

Mikusa, 2 Cc, 2 Cc, n. Sea-weed; aquatic plants.

Miru, 2 Cc, 2 Cc, 2 Cc, n. A kind of sea weed, something like Iceland moss.

Neriyōkan, 3 Cc, n. A kind of confectionary made of red beans and sugar.

Nori, 2 Cc, 2 Cc, A kind of edible seaweed, sloke.

Sekihan, 2 Cc, n. A kind of food made of red beans and rice.

Shiruko, 2 Cc, a kind of sauce made of red-beans and sugar, eaten with rice-cake.

Tokoroten, 2 Cc, 2 Cc, n. A kind of jelly made of seaweed.

Wakame, 2 Cc, 2 Cc, 3 Cc, n. A kind of sea weed.

Non-soy words that are not mentioned: Mozuku.

Address: Japan.

148. Rein, Johann J. 1889. The industries of Japan. Together with an account of its agriculture, forestry, arts, and commerce. London: Hodder and Stoughton. xii + 570 p. See p. 6, 55-59, 62-63, 105-08, 157. Illust. Indexes (English and Latin; Japanese). 26 cm. [3 ref. Eng]

• **Summary:** This book is a translation of volume II of his superb book *Japan nach Reisen und Studien*, published in 1886. The result of many years of study, including a stay in Japan, it is based on travels and researches undertaken at the cost of the Prussian government. Rein spent the first five months of 1874 in Japan, residing in the German Legation in Tokio and studying lacquer. After submitting a detailed report on the subject, he traveled throughout Japan.

On page 6, the author discusses the *Gokoku* (five chief cereals) and the introduction of agriculture to Japan. “As Tokugawa Ieyasu, the founder of the last Shōgun [shogun] dynasty, emphasizes in the twelfth of his ‘Eighteen Laws,’ the introduction of agriculture into Japan is ascribed to the sun-goddess *Tenshō Daijin* (Amaterasu). She was, to the old Japanese, Janus and Ceres in one. Her temple, at Yamada, in Ise, was the great national sanctuary, which had to be cared for according to law, and built anew every twenty-one years out of consecrated Hinoki-wood (*Chamaecyparis obtusa* S. and Z.) ‘in order that the land might have peace and thrive.’ By *Gokoku* (five chief cereals) were meant rice, barley and wheat, Italian millet, other kinds of millet, and beans—in fact, the principal *Kokurui*, that is, cereals and pulse. The term *Go-koku*, however, did not mean the same thing in all ages. Thus we find in Kaempfer, *Amoenitatum exoticarum* (1712, p. 834), *Kome* (*Oryza*), *O-mugi* (*Hordeum*), *Ko-mugi* (*Triticum*), *Daidzu* (*Dolichos soja*, L.), and *Adzuki* (*Phaseolus radiatus*, L.) mentioned as *Gokoku*. Later the idea was extended farther, and included all important food-plants belonging to the group of cereals and pulse.”

“The Emperor Shinnung [Shen Nung] had introduced and spread the practice of agriculture in China, about the year 2700 B.C. For this he was deified after death, and a

temple was dedicated to him in Peking. In the park-like surroundings of this temple, the emperor of China since then, at the time of the spring equinox, annually ploughs a piece of land and sows it with *go-koku*.” Note 1. This is the second earliest document seen (Dec. 2013) that gives an early date (2700 BCE) for Shen Nung.

Soy-bean is described in the chapter on “Food Plants,” under “Pulse or Leguminous Plants.” “Among the pulse of Japan (and not the less of China), the soy-bean ranks first in extent, variety of use, and value; and chemical analyses prove the empirical judgment is well founded. In point of nutriment, the soy-bean is of all vegetables the nearest to meat. It contains nearly two-fifths of its weight in legumin rich in nitrogen, and nearly one-sixth in fat. The soy-bean is to the inhabitants of Japan what their *garbanzos* (chick-peas) are to the Spanish, and their *feijao preto* (black beans) to the Brazilians. The author then describes the characteristics of the soy-bean, the work of Haberlandt with soy-beans in Austria, and the yields that he and his co-workers obtained. Note 2. This is the earliest English-language document seen (June 2008) that uses the word “*garbanzos*” (or “*garbanzo*”) to refer chick peas.

“In Japan the varieties of soy-bean are distinguished—according to colour, as white (more properly yellowish), black, brownish red, green, and spotted; according to duration of growth [maturity] as early-ripening, middle-ripening, and late-ripening; according to form, as spherical, ellipsoidal, kidney-shaped, and compressed laterally; and according to use, as to those which serve primarily in making Shōyu (soy), Tōfu (bean-cheese), and Miso (a sort of sauce), and those eaten in any plain shape.” Soy-bean varieties in Japan include: 1. “White (pea-yellow) soy-beans, Japanese Shiro-mame or Haku-daidzu. To this division belongs an early-ripening sort with very small seeds, called Goguwatsu-mame [Go-gatsu], or ‘five-months-kind,’ because it ripens in the fifth month of the old Japanese calendar, our July; also another small-seeded, early-ripening variety, the Wase-mame or Natsu-mame, that is, early and summer-bean. These two are also called Tōfu-mame, because they are used chiefly in making Tōfu. Another sort serves to produce Miso. It is called Nakate-mame, ‘middle-late bean,’ its time of maturity occurring half-way between that of the early and late kinds. Its seeds are round and somewhat larger. The late ripening varieties, Okute-mame (late-bean), Maru-mame (bullet-bean), and Teppō-mame (gun-bean), or Aki-mame (autumn-bean) have, as their names indicate, mostly bullet-shaped seeds, which become harder and larger than the early ones. The variety last named is used in making Shōyu, while Maru-mame is valuable as horse-feed.

2. Black soy-beans, Japanese Kuro-mame or Koku-daidzu. These are eaten boiled with sugar, as an entrée, or as a relish to rice. A species like it with big, bullet-shaped beans is called Kuro-teppō-mame. 3. Brown soy-beans, Japanese Katsu-daizu (thirsty soy-bean) are much less grown

than the white and black sub-species, and are used like the latter. They are distinguished as Aka-mame, red soy-beans, round, of red-brown colour, in different varieties, and Chame, tea beans, three light-brown sorts of small extent and significance. 4. Greenish or bluish green soy-beans, Japanese Ao-mame or Sei-daizu, are eaten mostly boiled and with sugar, like the black and brown-red varieties. And, with the brownish sorts, they are much less widely grown than the black and yellowish. The Japanese distinguish the following sub-species of Aō-mame:—(a) Sei-hito,—epidermis green, inside a whitish yellow. (b) Nikuri-sei,—greenish throughout. Both sub-varieties run from roundish-ellipsoidal to a bullet roundness, are of medium size, and remind one of green peas. (c) Kage-mame, with pale green, round beans. 5. Speckled soy-beans, Japanese Furi-mame or Han-daizu. This group is not important. Its cultivation is confined to a small area, in a few provinces. Its sub-varieties are known as:—(a) Kuro-kura-kake-mame, with a black spot on the saddle (eye), otherwise greenish; flat and with the outline of an egg. (b) Aka-kura-kake-mame, with a brown spot on the saddle (eye), otherwise yellowish-green, flat and drawn out long. (c) Furi-mame or Udzura-mame, speckled or spotted soy-bean, yellowish-green with many dark flecks. A rare variety, grown only in a few places, especially in Harima. Note 3. This is the earliest English-language document seen (Sept. 2004) that uses the word “speckled” (or “speckling” or “specks”), or the word “flecks,” or the term “light-brown” to describe the color of soybean seeds.

“Early-ripening soy-beans are sown as early as April in Southern Japan, in Central Japan during May. Those that ripen in autumn need much more warmth, and are sown, as a rule, one month later... Late-ripening Daidzu is also a favourite for planting along the edge of fields and on the new-built dykes of rice-fields.”

Note 4. This is the earliest English-language document seen (June 2009) which states that there are early-, medium-, and late-ripening varieties of soybeans.

“At the end of his above-mentioned treatise, Haberlandt summed up in five noteworthy propositions, the results of his experiments with the soy-bean and of its chemical analysis. His conclusions are as follows:

“(a) The acclimatization of the early-ripening sorts, particularly those with yellow and reddish brown seeds, appeared to have fully succeeded in Central Europe.

“(b) The seeds obtained were larger, heavier, and handsomer than those from Eastern Asia, the chemical composition, however, remaining unchanged.

“(c) The soy-plant resists light spring frosts better than our young beans, and endures greater dryness in summer than most leguminous plants, though otherwise much like other kinds of beans.

“(d) It is distinguished by heavy crops, besides furnishing, in its stems and leaves, either green or dried, a nourishing feed, of which cattle are very fond.

“(e) In their high percentage of protein and fat, they far excel all other pulse in nutritive quality; and when properly prepared are second to none in flavour.

“After such favourable judgments, it might have been expected that the soy-bean, at least in the warmer regions of Austro-Hungary, would soon become popular and generally cultivated. The result, however, was quite otherwise. The hopes which he had aroused in behalf of this plant seem to have disappeared with Haberlandt, who died in 1878.

“As I know from a reliable source, people soon became convinced that it was possible to cultivate with certainty the early-ripening yellow sorts. The crops from these, however, are unsatisfactory. It is so difficult to boil them soft that they have no sale and cannot be turned to due account.”

The seeds of certain wild kinds of beans also serve for food, incl. Tsuru-mame or No-mame (*Glycine soja*, S. and Z.) and No-adzuki (*Atylosia subrhombica*, Miq.). (p. 62).

Tables (both based on other sources) show: (1) Analyses of soy-beans (*Glycine hispida*, Moench) (p. 62). Gives the nutritional composition of 8 varieties, plus the empty pods, and the straw and leaves. (2) Comparative “analyses of various pulse” (p. 63), including *Glycine hispida* (Daidzu—soy-beans), *Phaseolus radiatus* (adzuki), *Pisum sativum* (Yendo—peas), *Vicia faba* (Sora-mame), lentil, yellow lupin, and ground-nut.

Pages 105-08 contain accurate, detailed discussions of shoyu, miso (which “does not spoil, and is said to be at its best when three years old”), and tofu.

A table titled “Average composition of various Japanese oil-seeds according to E. Wolff and others” (p. 157) includes the composition of ground-nut [peanut], sesame (brown, or white), hemp-seed, and soy-beans.

Also discusses: Adzuki (*Phaseolus radiatus*, p. 60, 108). Algae, marine, used as food [sea vegetables] (p. 77, 80-82). Ame, midzu-ame, and barley malt (p. 103-04). Arachis hypogaea (p. 56, 153-54). Fu (wheat gluten, p. 108). Hemp (*Cannabis sativa*, p. 75, 157, 165-66). Kudzu (p. 65, 160, 184). Sesame seeds (Benni-seed, gingeli, p. 154-55). Address: Prof. of Geography, Univ. of Bonn [Germany].

149. Rein, J.J. 1889. Adzuki (Document part). In: J.J. Rein. 1889. The Industries of Japan. Together with an Account of its Agriculture, Forestry, Arts, and Commerce. London: Hodder and Stoughton. xii + 570 p. See p. 60-61, 108-09. [Eng]

• **Summary:** In the section titled “Food Plants,” pages 60-61 state: “3. Ray-fruited, dwarf bean, Jap. Adzuki (*Phaseolus radiatus*, L.). Kaempfer gives an excellent description of this, a variety that is always provided with hairs on stalk and leaf. Its short petioles, springing from the base of the leaf, form a cluster of yellow blossoms, followed in turn by from four to six hanging pods, either spread out in wheel-shape or drawn together to a head. These pods are cylindrical. The beans are no larger than small peas, but shaped like a blunt

ellipsoid, smooth and shining, and greatly differentiated according to colour and size. Since the Adzuki have a better taste than most other leguminous plants, their cultivation and consumption have always been more extensive throughout the whole monsoon region-in fact, second only to the soy-bean. The numerous sub-species are grouped by Salviati as follows:-

“(a) *Typicus*. Umbellated pods, horizontally flattened, and covered with red or black hairs. To this division belongs Adzuki or Oku-adzuki (large adzuki) with relatively large, brownish red beans. (b) *Pendulus*. Pods smooth or set with short hairs, and hanging in sets of four, two opposite two. The following varieties are worthy of notice here. (i) Kuro-adzuki, black-fruited adzuki. (ii) Shiro-adzuki, white fruited adzuki. The colour is no more white than in the case of the *Dolichos*. They are yellow, like many peas, which at first glance they appear more to resemble than beans, though smaller and of attenuated shape. (iii) Tsuru-adzuki, twining Adzuki. (c) *Subtrilobatus*. Jap. Bundo and Yayenari, each having from four to six cylindrical, hanging pods.”

Note: This is the earliest English-language document seen (Oct. 2021) that uses the word *Kuro* or the term *Kuro-adzuki* to refer to black azuki beans.

Page 108 notes of the Japanese: “While never exactly taking to our pastry, though given ample opportunity to become acquainted with it through the Portuguese and Dutch, they look upon certain unleavened and unbaked preparations of dough quite as delicacies, especially when filled with a mixture of bean-meal (*Adzuki*) and sugar. At the head of this list stand cakes from the elastic dough of the glutinous rice (*Mochi-gome*), particularly those called *Ame-no-mochi*.”

Note: This is the earliest English-language document seen (Oct. 2021) that uses the term “ray-fruited” to describe the azuki bean. *Ame-no-Mochi* may well be cakes of mochi (*o-manju*) filled with sweet adzuki paste (*koshi-an* or *tsubu-an*). Address: Prof. of Geography, Univ. of Bonn [Germany].

150. Brooks, William P. 1890. Division of Agriculture: General results of a trial of a few Japanese crops. *Massachusetts (Hatch) Agricultural Experiment Station, Bulletin* No. 7. p. 14-17. Jan.

• **Summary:** The article begins: “At the time of leaving Japan in October of last year I was unaware that I should be placed in charge of a department of the Hatch Experiment Station, and did not, therefore, make arrangements for the forwarding of any considerable amount of seed of any kind. I had been located in a section of that country, however, with a climate having essentially the same range of temperature as that of Massachusetts; and had become convinced by observation that some of the crops there cultivated were of peculiar value. I, therefore, on my own account had the seeds of a few varieties collected, and left them to be forwarded with shrubs and trees which were to be taken up after the fall

of their leaves.

“I have thought it best to make these statements in explanation of the fact that the quantities of some of the seeds were so small... All these crops were planted on June 3d on a light loam...”

In section IV titled “Varieties of beans” (p. 16-17) are two subsections on soja beans and one each on red beans and white beans (*Phaseolus radiatus* [azuki beans]). “Soja Bean. Medium Early—*Glycine hispida*, Jap. *Daidzu*. This variety showed its first flowers July 28th, and the crop was fully mature Sept. 25th, when it was pulled. The area was 880 sq. ft. and the yield 30 lb of cleaned beans, which is at the rate of 25 bu. per acre. Should this class of beans prove desirable here this variety will be superior to most of the kinds offered under the same name so much earlier. It is well known that the beans of this class are of remarkable richness, containing a very unusual proportion of nitrogen, and it certainly seems desirable to give them a fair trial.

“Soja Bean No. 2, Very Early Variety—*Glycine hispida*. Jap. *Kurakake Mame*. The Japanese name means “Saddled Bean,” and is given because of the peculiar disposition of black around the eye and on the sides of the bean, for all the world to their fancy like a saddle on the back of a horse. The first blossoms were noticed July 10th and the crop was pulled fully ripe on Aug. 31st. “In Japan I have cultivated this variety side by side with some of our earliest sorts and found it to excel them in earliness, but no comparative test was made here this year.

“Red beans.—*Phaseolus radiatus* [red azuki]. The peculiarity both of this and the following variety in germination may be of interest. They ‘come up’ like peas, the bean remaining wholly underground. The pods of both are unusually long, containing eight to ten small beans, which are characterized by a very thin and tender skin. This variety blossomed about the end of July, and was well ripened Sept. 25th, when it was pulled. The area was 440 sq. ft., and the yield was 23 lbs. of dry beans, or at the rate of about 38 bu. per acre. These beans present an unusually handsome appearance and bid fair to prove an acquisition.

“White beans.—*Phaseolus radiatus* [white azuki]. This variety was in full blossom July 27th, and was ripe Sept. 25th, when it was pulled. The area under cultivation, 440 sq. ft., gave 21 lbs. dry beans (weight taken, as in case of all crops spoken of, Dec. 21st) which is at the rate of about 35 bu. per acre. This variety except in color closely resembles the preceding; but it is not as handsome. The amount of seed now on hand is insufficient for a trial of their food qualities, but another season, if successful in securing crops, we shall make such a trial.”

Note: The “Red beans” and the “White beans” were almost certainly red azuki beans and white azuki beans, respectively; their scientific name at this time was *Phaseolus radiatus*. This is the earliest English-language document seen (Jan. 2005) that uses the term “red beans” to refer to red

azuki beans, or the term “white beans” to refer to white azuki beans.

Other Japanese crops planted on June 3 were: (1) Millet (*Panicum crus-coroi* [sic, *crus-galli*]. Jap. *Hiye*), (2) Millet (*Setaria Italica* or *Panicum Italicum*, Red Headed Variety. Jap. *Mochi awa*, or glutinous millet), and (3) Millet (*Setaria Italica* or *Panicum Italicum*. Jap. *Awa*).

Note 1. The terms “Medium Early” and “Very Early” used to describe the soja beans are probably just descriptive terms rather than early varietal names. Address: Agriculturist, Amherst, Massachusetts.

151. Georgeson, C.C.; Cottrell, H.M.; Shelton, W. 1890. Experiments with forage plants. *Kansas Agricultural Experiment Station, Bulletin* No. 18. p. 173-91. Dec. See p. 186-88.

• **Summary:** In the section titled “Miscellaneous forage plants” we read (p. 186-88): “Soy Beans, *Glycine hispida*.—We tested several varieties of these beans the past season, the object being to learn something of their value for this country and climate. As noted below, one variety was obtained from Peter Henderson & Co. and one was from home-grown seed, having been raised on the farm in 1889; the others were imported direct from Japan. These beans did remarkably well, considering the drouth [drought] they went through, and the early-ripening varieties give promise of becoming valuable to this country. The good qualities in the Soy beans have long been known, but the great difficulty with most varieties that have heretofore been tried in the North and West has been that our season is rarely long enough for them to mature properly, and hence the yield has usually been cut short. The varieties which we imported are all early, and will mature here in any season. This fact, taken in connection with their highly nutritive qualities both for man and beast, their heavy yields and easy culture, will in a measure forecast their usefulness. The average composition of Soy beans is as follows:

“Water 10.0%, ash 5.0%, crude protein 33.4%, crude fiber 4.8%, nitrogen free extract 29.2%, crude fat 17.6%.”

The following four soy bean varieties are described: (1) “Kuiske Daidzu [Kiyusuke Daizu].—Seed imported from Japan.” (Note that this name is spelled “Kiuski” in 1891 in the next issue {no. 19} of this Kansas Bulletin, then spelled “Kiyusuke” 5 times thereafter, from 1892 to 1910, starting in issue no. 32 of this Kansas Bulletin. In 1891 we learn that “Kiyusuké” is the name of a person). (2) “Edamame [green vegetable soy beans].—Seed imported from Japan.” (3) “Yellow Soy Bean.—From Peter Henderson & Co.” [seedsmen, New York]. (4) “Large Yellow Soy Bean.—Seed grown on the farm in 1889.”

Page 188: “We also obtained from Japan two varieties of *Dolichos radiatus*. The Japanese name for this class of beans is *Adzuki*. The two varieties grown here are known only by their native names, viz. *Shiro Saya Shozo*” [red seeds, white

pods] and “*Kuro Saya Shozo*” [red seeds, black pods].

In search of new fodder plants, the Station also tested “*Coix lachryma* (Job’s Tears), a grass which grows 6 to 8 feet tall, and produces a large grain, rich in protein.” The test failed, “owing mainly to drouth.”

Note 1. This is the earliest document seen (Oct. 2020) stating that Peter Henderson & Co. is selling soybeans. We learn later (in an 1898 publication) that Henderson & Co. is located in New York.

Note 2. Opposite the title page are listed the Kansas Agric. Experiment Station staff. One of the assistants is “W.T. Swingle, B.Sc., Botany.” By 1907 Walter T. Swingle was a physiologist with the USDA Bureau of Plant Industry. By 1909 he was translating Japanese articles related to soy into English.

Note 3. This is the earliest document seen by Prof. C.C. Georgeson about soybeans, or about adzuki beans. Prof. Georgeson may well have introduced the adzuki bean to the United States.

Note 4. This is the earliest English-language document seen (Nov. 2020) that mentions Edamame (spelled as one word), a soybean variety imported from Japan, or that contains the word “Edamame” (regardless of capitalization).

Note 5. This is the earliest document seen (Nov. 2020) that mentions the soybean varieties Yellow Soy Bean or Kiyusuke Daizu.

Note 6. This is the earliest document seen (Nov. 2020) that capitalizes the first letter of each word in a soy bean name to indicate that the name refers to a soybean variety (e.g. “Yellow Soy Bean,” “Large Yellow Soy Bean”).

Note 7. This is the earliest document seen (Nov. 2020) that gives the color (e.g., Yellow) of various soybean varieties.

Note 8. This is the earliest U.S. document seen (Sept. 2004) that contains the word “Adzuki” (or “Azuki” or “Adsuki”) beans. Address: 1. M.Sc., Prof. of Agriculture and Superintendent of Farm; 2. M.Sc., Agriculture; 3. Foreman of the Farm.

152. Chamberlain, Basil Hall. 1890. Things Japanese: Being notes on various subjects connected with Japan. London, K. Paul, Trench, Trübner & Co.; Tokyo, the Hakubunsha, Ginza; etc. ii + 408 p. Index. 21 cm. 2nd ed. 1891. Slightly revised edition published 1905. Reprinted in 1970 by Charles E. Tuttle Co., Inc. (Rutland, Vermont, and Tokyo). [50+* ref]

• **Summary:** The author, who arrived in Japan in 1873 and was first introduced to the mysteries of the Japanese language by a dear old samurai, has lived through the transition stage of modern Japan.

This book is arranged alphabetically by subject. An extensively revised 2nd edition was published in 1891. Food (p. 122-25): “The following is a specimen of the bill of fare at a Japanese banquet. The reader must understand that everything is served in small portions, as each guest has

a little table to himself, in front of which he squats on the floor:—Preliminary course, served with sake:—*suimono*, that is, a kind of bean-curd [tofu] soup;... *sashimi*, minced raw fish; *hachi-zakana*, a fine, large fish, either boiled with salt or boiled with soy [sauce]; *uma-ni*, bits of fish or sometimes fowl, boiled with lotus-roots or potatoes in soy and in a sort of liqueur called *mirin*;...

“First course (*Zembo*):—*Shiru*, soup which may be made of bean-curd [tofu], of fish, of sea-weed or of some other material;... *aemono*, a sort of salad made with bean sauce [miso] or pounded sesamum seeds;...”

“It is the custom, too, to set food before a guest, at whatever time of day he calls. On such occasions *soba* is in request—a sort of buckwheat vermicelli, served with soy [sauce] and the sweet liqueur called *mirin*; or else *shiruko*, that is, rice-cakes [mochi] with a sauce made of red beans [azuki] and sugar.”

On Buddhism and vegetarianism in Japan (at Food, p. 122-23): Beans are a constant part of the daily diet. Buddhism has left its impress here, as on everything in Japan. To Buddhism was due the abandonment of a meat diet, now over a thousand years ago. The permission to eat fish, though that too entailed the taking of life, which is contrary to strict Buddhist tenets, seems to have been a concession to human frailty. Pious frauds, moreover, came to the rescue. One may even now see the term ‘mountain whale’ (*yama-kujira*) written up over certain eating-houses, which means that venison is there for sale. The logical process is this:—A whale is a fish. Fish may be eaten. Therefore, if you call venison ‘mountain whale,’ you may eat venison. Of course no actual prohibition against eating flesh, such as existed under the old *régime*, exists now. But the custom of abstaining from it remains pretty general; and though beef and pork were introduced at the time of the late revolution,... recent statistics show that meat-eating is again on the wane.”

There are also interesting sections on Kaempfer, Engelbert (p. 187-88), Perry (Commodore) (267-69), and Siebold, Philipp Franz, Freiherr (p. 320-22).

For an excellent, later book with the same title, written by a Japanese in English, see Mock Joya (1960). Address: Prof. of Japanese and Philology in the Imperial Univ. of Tokyo, Tokyo [Japan].

153. Brooks, William P. 1891. The Agricultural [sic, Agriculturist]. *Massachusetts (Hatch) Agricultural Experiment Station, Annual Report* 3:4-5. Jan.

• **Summary:** “Report has been made on several varieties of Japanese crops, viz., four varieties of beans and three of millet. Of the latter, two, the *Setaria Italica* (*Jap. Mochi Awa*) and the *Setaria Italica* (*Jap. Awa*), seem especially promising for seed production and fodder...”

Note: In the 4th Annual Report (p. 8-9), published one year after this one, we learn that the Soja bean was one of the four varieties of beans tested. Red beans [azuki] were

almost certainly another one of the four (see Brooks 1890, Bulletin No. 7, p. 14-17). Address: Agriculturist, Amherst, Massachusetts.

154. Grunzel, Josef. 1891. Die Agrarverfassung in Japan [The agricultural constitution in Japan]. *Oesterreichische Monatschrift fuer den Orient: Hauptteil 1891* (Vienna), *Austria-Hungary*. Nos. 3-4. March/April. Page 93. [Ger] • **Summary:** Page 93, right column near bottom: The five sacred grains (*fünf Feldfrüchte*; *go-koku*) of China include daidzu (*Dolichos soja* L.) and adzuki (*Phaseolus radiatus* L.). Address: PhD.

155. Grunzel, Josef. 1891. Die Agrarverfassung in Japan [The agricultural constitution in Japan]. *Oesterreichische Monatschrift fuer den Orient* (Vienna). Nos. 6/7. p. 93. June/July. [1 ref. Ger]

• **Summary:** According to Kaempfer, the main grains in Japan include rice, barley, wheat, soybeans (daidzu; *Dolichos soja* L.) and adzuki (*Phaseolus radiatus* L.).

156. Chamberlain, Basil Hall. 1891. Things Japanese: Being notes on various subjects connected with Japan... 2nd ed. revised and enlarged. London: Sampson Low, Marston and Company, Ltd.; Hongkong, Shanghai, Yokohama, and Singapore, Ltd.: Kelly & Walsh, Ltd. [8] + 503 p. Index. 1st ed 1890 (408 p.). Slightly revised edition published 1905. Reprinted in 1970 by Charles E. Tuttle Co., Inc. (Rutland, Vermont, and Tokyo). [14 ref]

• **Summary:** This book is arranged alphabetically by subject. Festivals (p. 154): “*Setsubun* is the name of a movable feast occurring sometimes late in January, sometimes early in February, on the eve of the first day of spring, old calendar. Beans [roasted soybeans] are scattered about the house on the evening of this day in order to scare away demons, and of these beans each person present eats one more than the number of the years of his age.”

Food (p. 168): Same as in the 1890 ed.

Sun, moon and stars (p. 394): There are three great nights of the lunar year for moon viewing. “The 15th night of the 8th moon, which is no other than our harvest moon at the full, is celebrated by an offering of beans and dumplings and of bouquets of eulalia-grass [*susuki*] and lespedeza blossom. This moon is termed the ‘bean moon.’”

Note: In *Chado: The Way of Tea*, a translation of the Japanese classic *Sado-sai-jiki*, and various other Japanese books we learn that the full moon on the 15th night of the 8th lunar month is the brightest and most widely viewed one of the year and is called *meigetsu* (literally “bright moon”). Aesthetic appreciation of the full autumn moon originated in China as early as the Han dynasty (202 BC to AD 220). Moon-viewing became popular in China during the Tang dynasty (618-907) and this tradition was transmitted to the Japanese court in Kyoto in about the 8th century; the

aristocracy called this festival *Otsukimi* (“moon viewing”) and celebrated it, outdoors, by composing poems, listening to music, etc. Today that date falls in mid-September. In both Japan and the West, this is the “harvest moon” and its celebration a pre-harvest festival.

However it is the *next* full moon, about a month later, on the 13th day of the 9th lunar moon that is called the “bean moon” (*mame-meigetsu*). It is indeed, as Chamberlain says, celebrated by an offering of beans (*edamamé*, or green vegetable soybeans) and dumplings (glutinous rice steamed with chestnuts). In some parts of Japan the *edamamé* are mashed, sweetened with sugar, then used to coat rice-flour dumplings. This *mame-meigetsu* is still celebrated at the Kitano Tenmangu Shrine in northwest Kyoto.

Tea (p. 403): Other tea-like infusions: “*Mugi-yu*, an infusion of parched barley; *Mame-cha*, a similar preparation of beans. *Fuku-ja*, or ‘luck tea,’ is made of salted plums, sea-weed, and xanthoxylon seeds, and is partaken of in every Japanese household on the last night of the year.”

Concerning red beans [azuki]: Birthdays (p. 56): “Birthdays are not much observed in Japan, except that rice mixed with red beans [azuki] is eaten on the auspicious day.”

Festivals (p. 154-55): Dec. 13.—This day is called *Koto-hajime*, that is, “the beginning of things,” because such preparations for New Year as house-cleaning, decorating, and the pounding of rice for cakes (*mochi*), are then taken in hand. People eat *o-koto-jiru* on this day,—a kind of stew whose ingredients are generally red beans [azuki], potatoes, mushrooms, sliced fish, and a root called konnyaku.”

Jan. 15-16.—The end of the New Year holidays. The 16th is the *Hokōnin no Yado-iri*, or Prentices Holiday Home. Rice-gruel mixed with red beans [azuki] is eaten.”

N.B. *Azuki-meshi*, that is, rice mixed with red beans, is eaten on the 1st, 15th, and 28th of each month, these being the so-called *san-jitsu*, or “three days.” On the 30th, people eat buckwheat vermicelli (*misoka-soba*).

Overview of Japanese commerce: “The chief progress made during the past thirty years has been in industrial developments” (p. 433). A large table show imports to Japan in 1890 (p. 434): The top five imports (with the value in million yen) are: Textiles and textile fabrics 20.49. Rice 12.30. Sugar 8.48. Raw cotton and wool 5.74. Kerosene oil 4.95. “Oil cake” [mostly soy bean cake] is another major import, but grouped with oils, oil wax, and paints in oil 0.41.

Exports from Japan (p. 434-35): The top five are: Raw silk, waste silk, and cocoons 16.75. Tea 6.28. Copper 5.36. Silk piece goods and silk manufactured goods 3.64. Coal 3.10. Also seaweed 0.68.

The top five ports for exports and imports are (p. 435): Yokohama 73.0. Kobe 49.0. Nagasaki 7.7. Osaka 3.80. Shimonoseki 1.77.

Japan’s leading trading partners (imports + exports) are: Great Britain 32.5. USA 26.7. Hongkong 14.8. China 14.0. France 12.2. Address: Emeritus Prof. of Japanese and

Philology in the Imperial Univ. of Tokyo, Tokyo.

157. Popenoe, E.A.; Mason, S.C.; Marlatt, F.A. 1891. Germination of weeviled peas—Garden notes on potatoes, beans, and cabbage. *Kansas Agricultural Experiment Station, Bulletin* No. 19. p. 193-201. Dec. 1890. See p. 199-201.

• **Summary:** The section titled “Some Japanese beans” (p. 199-201) lists and describes ten such beans, all but two of which were procured from Japan by Prof. Georgeson. Of the ten, four are soy beans, and the first 3 of these were collected by Georgeson. “The three imported Soy beans seem to be specially commendable as resisting drought and heat to a degree surpassing all others on trial, and in ripening so uniformly that they may be pulled or cut, harvesting the crop at once without material loss from shelling.” For each plant, there is a description of the plant, its flowers and seeds, time of ripening, and yield.

“No. 7. *Glycine hispida*—‘Soy’—‘Eda-mame’ (Jap.)... [The seeds are] oval, or nearly round, smooth, greenish yellow. This was the earliest of the Soy beans, being fully ripe by August 29th. The plants continued vigorous through the severest drought of the summer, seeming to suffer little from it. The average yield per acre was estimated at 1,669 pounds.

“No. 8. Soy—‘Kiuski Daidzu’ (Jap.)... Ripened a week to ten days later [than No. 7]. Average yield per acre estimated at 1,026 pounds.

“No. 9. Soy—‘Yamagata Cha-daidzu’ (Jap.)... “Seeds, three-eighths of an inch long, oval, dull brown in color. Began bearing the latter part of August and continued till frost. The average yield per acre estimated at 1,693 lb.

“No. 208. ‘Soja’—*Glycine hispida* (Wood). The seed of this was received from T.W. Wood & Sons, of Richmond, Virginia, and the results obtained are shown for comparison with the Japanese varieties. Planted at the same time, they were only in first bloom August 27th, when No. 7 of the Japanese list was nearly ripened. The vines grew rank and succulent, three to four feet high. No pods were ripened till late in September, and further production was cut short by frost. The estimated yield per acre was 498 pounds.”

Two varieties of adzuki beans (*Phaseolus radiatus*) are also described. The black podded one yielded 934 lb/acre and the other yielded 628 lb/acre.

Note 1. This is the earliest document seen (Nov. 2020) that mentions a named soybean variety in the United States, or that mentions the soybean varieties Yamagata Cha-daidzu or Eda-Mame (or “Eda Mame,” spelled as two words).

Note 2. This is the earliest soy-related English-language document seen (March 2003) that contains the word “Entomology.”

Note 3. This is the earliest English-language document seen (Sept. 2004) that uses the term “dull brown” to describe the color of soybean seeds.

Note 4. This is the earliest document seen (Aug. 2021)

in which yields are given for soybeans at the Kansas Agric. Exp. Station. Address: Dep. of Horticulture and Entomology [Manhattan, Kansas].

158. Riley, C.V. ed. 1891. Reports of the United States commissioners to the Universal Exposition of 1889 at Paris. Vol. 5, Agriculture. Washington, DC: Published under direction of the Secretary of State by authority of Congress. 935 p. See p. 127. Index.

• **Summary:** In the section on “African and Asiatic countries” is a subsection titled “Japan” (p. 127) which (according to the table of contents) is about “The Soja (*Glycine hispida*) and the azouki [azuki] (*Phaseolus radiatus*), two important Japanese vegetables.”

The actual entry states: “The exhibit in class 71 was particularly interesting; beside the Government exhibit there were fifteen private ones and eleven of these exhibits contained soja or *daizon* [*sic*, *daizu*]. The soja (*Glycine hispida*) is a leguminous plant closely resembling the pea, and is one of the principal vegetables in use among the Japanese, who employ it in various ways; *kôritôfou*, or cheese of the soja [dried frozen tofu], is a sort of alimentary paste, prepared by coagulation and freezing. The soja is also grown to a small extent in France, and was exhibited in a collective exhibit from the département de l’Aube. Its grain contains very little amylaceous matter (starch) and sugar, and is therefore particularly adapted for food for diabetic patients, while it also contains much nitrogenous matter and phosphoric acid, which renders it very nutritive.

Note. This is the earliest English-language document seen (April 2013) that uses the term *kôritôfu* to refer to dried-frozen tofu.

“Another vegetable much used in Japan is the *azouki* (*Phaseolus radiatus*), a sort of bean [azuki]. Dried prunes, *anzous* (*Prunus armeniaca*) [apricots], were also shown and were of good quality. There was a fine exhibit of dried ginger. Raisins, nuts, peanuts, preserved bamboo sprouts, etc., were also shown, and the whole display was a good one.”

Note: This is the earliest document seen (Feb. 2017) concerning the United States Department of Agriculture (USDA) in connection with the soybean. Address: Ph.D., Representative of the U.S. Dep. of Agriculture.

159. Brooks, William P. 1892. Division of Agriculture. Massachusetts (Hatch) Agricultural Experiment Station, Bulletin No. 18. p. 41-104. April.

• **Summary:** The section titled “Report on trial of miscellaneous crops” (p. 97-104) includes many varieties imported from Japan: Oats (3 varieties). Millet, *Panicum crus-galli*. Millet, *Panicum miliaceum*. Hemp. Flax. Wheats. Japanese varieties of beans.

All the beans “belong to two distinct classes, known to the Japanese respectively as ‘Adzuki’ or ‘Shodzu,’ the latter

name meaning ‘small bean’ and ‘Omame’ or ‘Daidzu,’ both the latter names meaning ‘large bean.’ The beans of the first class are a distinct species, *Phaseolus radiatus* and are used by the Japanese almost entirely in confections. They are characterized by a remarkably thin skin, and are generally boiled, put through a sieve, and variously sweetened and colored although also prepared in other ways. An enormous quantity of these confections is eaten by persons of all ages and classes.

“The beans belonging to this class have been sometimes incorrectly designated Soja beans by American writers.” It grows fairly well but is “much poorer in albuminoids [proteins] and fat than the soja bean.”

A table compares the nutritional composition of a red adzuki bean raised in Massachusetts in 1890 with a kidney bean (*Phaseolus vulgaris*).

“Whether the beans of this class [adzuki] will prove valuable here may be doubtful. They are certainly unusually attractive in appearance; but it is not likely that the Japanese bean confections, which nearly all foreigners in Japan regard as decidedly flat and insipid, will ever come into favor here.”

“The beans of the second class (‘Daidzu’), belong to a distinct genus and by some authorities are named *Soja hispida*, whence the common designation soja (sometimes soya) bean; by other authorities, the species is named *Glycine hispida* which name, probably, has the claim of priority. The name ‘soja’ or ‘soya’ has undoubtedly been taken from the name ‘soy’ given to a sauce (used extensively as a condiment), in the manufacture of which this bean is largely used. The name given to the Japanese variety of this sauce is ‘shoyu.’ This bean is also extensively used in many ways in Japan as human food, and is also largely employed as food for horses and cattle.

“It has been said that this bean is the richest known vegetable substance. ‘In point of nutriment the soy bean is of all vegetables nearest to meat,’ says Rein [1886]. A sample of beans grown here in 1890 has been submitted to analysis, with results shown below:”

A table titled “Soya Bean. *Glycine hispida*. shows: Dry matter: 11.53%. Crude protein: 34.49%. Crude fat 16.45%. Nitrogen free extract 26.29%. Crude fibre: 4.40%. Ash: 6.55%.

Several of the varieties which I have had under cultivation, having been taken from northern Japan (Sapporo), ripen seed here with as great certainty as the kinds of corn under cultivation. It is believed that some of these varieties will prove valuable grain crops. The yield, it is true, cannot be expected to equal that of corn; but the grain is far richer, and because of the high percentage of protein it contains it is fitted to take the place of bran, cotton-seed meal and linseed meal for which our dairymen yearly pay out so much money.

“It should further be remembered that if the results of modern investigations on this point are not misleading,

this plant must be able to take most of its nitrogen from the air which must vitally affect the question of its economy as a farm crop. Most of our crops are nitrogen consumers. This, being a nitrogen gatherer, should enable the farmer to dispense in large measure with purchased nitrogenous fertilizers.”

Details of cultivation of red and white adzuki beans are given. The red yielded at the rate of 27.3 bushels per acre and the white yielded at the rate of 21.7 bushels per acre. “We have invariably found the red varieties superior to the white in productive capacity, and in beauty of appearance. The seed of these varieties was kindly sent us by Prof. Georgeson of the Kansas Experiment Station, as our original stock had been destroyed by fire. The seed was planted May 14th, the crop pulled Oct. 3rd. and threshed Oct. 23d.”

Six varieties of soya beans were also tested (p. 103-04): Eda [sic, Eda Mame] (8.37 bu/acre), Kuiske [Kiyusuke] (14.26), Medium Early White (23.25), Medium Black (22.8), Medium White (19.5), Medium Green (30.2). The first two were sent by Prof. Georgeson, the last four imported from Sapporo, Hokkaido [Japan], by Brooks. The yields in bushels per acre are given after each variety name in parentheses. Medium Early White had previously yielded as high as 35 bushels per acre. “I believe that crops of about 30 bushels per acre of this variety [Medium Early White] may be safely anticipated.”

Note 1. This is the earliest English-language document seen (Nov. 2020) that mentions the soybean varieties Medium Black, Medium Green, Medium Early White, or Medium White.

Concerning the variety Eda [sic, Eda Mame] (p. 103): “Seed received from Prof. Georgeson, planted May 14th, crop pulled Oct. 3d., and threshed Oct. 23d. The area occupied by this variety was 20.3 square rods; the yield was 1.06 bushels, or at the rate of 8.37 bushels per acre. This is one of the poorest varieties we have under cultivation.”

Note 2. An analysis of “Georgeson” plus “Eda” shows clearly that Georgeson et al. named this variety “Eda Mame.”

Note 3. This is the earliest document seen (Aug. 2021) that gives the yield of soybeans or a soybean variety to the nearest one-tenth of a bushel.

Note 4. This is the earliest English-language document seen (Oct. 2021) that uses the word “small bean” to refer to the azuki bean. Address: Agriculturist.

160. Georgeson, C.C. 1892. Agricultural matters: Test of some Japanese beans. *Kansas Farmer (Topeka, Kansas)*. June 15. p. 3, cols. 1-3.

• **Summary:** This is a reprint of information that first appeared in Bulletin No. 32 of the Kansas Agricultural Experiment Station.

The text begins: “Two species of Japanese beans have been grown here at the station for two years past. These are the soy bean and the adzuki...”

Soy bean varieties or types mentioned include: Eda-Mame, Yellow Soy Bean, Yamagata Cha-daidzu (tea colored), and Kiyusuke Daidzu.

The last paragraph reads: “As has been stated, all these yields would have been larger if the weather had permitted the saving of the crop in better shape. They were threshed on the machine, and it was found that a large portion of the beans were cracked and broken by the cylinder.” Address: State Agricultural College, Manhattan, Kansas.

161. *Rural New-Yorker*. 1892. Notes from the Rural Grounds: Japan beans. 51(2232):721. Nov. 5. Oversize.

• **Summary:** “A dozen years ago or thereabouts *The Rural New-Yorker* raised one variety of the Soy or Soja Bean from Japan. The report was that our cattle and horses preferred green clover to green Soy leaves; that the plants were difficult to cure, because the leaves became black and papery before the tough, succulent stems could be dried. Last year Prof. C.C. Georgeson, now of the Kansas Agricultural College, but recently from Japan, was kind enough to send us three varieties of the Soy Bean and two other Japan beans, called respectively, Black and White Podded Adzuki—*Phaseolus radiatus*, botanically. All were planted May 3.

“Prof. Georgeson wrote, at the time of sending the beans, that the Japanese boil the Black Podded Adzuki when ripe and eat them with rice. ‘Even the raw beans,’ he said, ‘have a pleasant taste.’

“The Soy Beans are used both ripe and green, in the latter case ‘boiled in the pods when nearly full grown and shelled and eaten at the meal.’

“July 19, we fed the Soy leaves and stems to two horses. One seemed to relish them, eating the stems as readily as the leaves, with relish. The other did not care for either stems or leaves.

“July 28, a lot of each kind was cut and partly cured in the sun. Both horses seemed to relish all kinds and ate the stems which were tough and woody. The stems were still green, the leaves somewhat blackened.

“September 1, both the Soys and *Phaseolus* were boiled. The latter were inferior to most beans; the Soys were hard and worthless.

“Description:

“No. 1. *Phaseolus radiatus*—Black Podded Adzuki. Yellow flower. Resembles cow peas. July 28, plants two feet high and bushy. General appearance that of the Soys. Not yet in bloom. August 28. Cut this date. Leaves just beginning to turn yellow. A few of the beans ripening. They are borne in small clusters of one, two and three or more—usually about three. They are about four or five inches long and less than a half inch in diameter, holding about 10 seeds which entirely fill the pod in a most uniform and regular manner. The seed is a dark, dull crimson. The pods are perfectly smooth and shell out as readily as snap beans.

“The beans grow—as do the cow ‘peas’—upon petioles of

varying length, from two or three to six inches in length.

“No. 2, *Phaseolus radiatus*—White Podded Adzuki. Bright yellow flowers. July 28, plants not so tall as No. 1. Cut August 28, leaves just beginning to turn yellow as on No. 1. A few of the beans ripening. The beans are borne in small clusters as in No. 1. and of the same size and color.

“No. 3. *Glycine hispida*. Yellow Soja Beans. July 25, height three feet, bushy. Hairy stems and leaves; leaves four inches in length, widely ovate, some heart-shaped. The largest petal (vexillum) is purple; the others (wings and keel) small and white.

“No. 4. *Glycine hispida*—Soja Beans—Kyusuke Daidzu. The seeds are much the same as those of No. 3. Height of plant, three feet four inches. Does not bloom as early as the other Sojas. Bushy plants.

“No. 5. *Glycine hispida*—Soja Beans, Edamane [sic, Edamame]. Flowers small and white. Seeds larger than those of either No. 3 or 4; as large as early smooth peas, rather longer one way than the other and light green in color; oval, hard and smooth. Leaves not quite so heavy as those of No. 3. Same size.

“No. 6. *Glycine hispida*, Soja Beans. Yamagata Chaidzu. The seeds are brown in color and as large as late wrinkled peas, but oval and smooth. The plants bear more leaves and they are larger than those of Nos. 4 or 5. Blooms somewhat later.

“The Soja pods bristle with hairs and the skin is rough. There are two seeds to a pod about the size of a Sieva. The pods do not open readily when green. The plants are very prolific, far more so than the *Phaseolus radiatus* (No's. 1 and 2). The Sojas bear two to five beans at every joint, or upon short petioles growing out of the axils, as shown in our illustration from nature. Fig. 278, see page 722, is a photo-illustration of the *Phaseolus radiatus*, life size.

“As to the future of the Soja Bean, we need not speculate. Other writers who have raised it and studied it, favor us with their views in this number, and from these an idea of its possible, if not its probable, economical value as compared with other legumes may be gleaned. It will be noted that Prof. Emery mentions that nodules form on the roots of Soja plants as they do on those of clover.”

On the center of the page is a large photo of many soy bean pods on the stems of one plant.

Note: This is the earliest document seen (Nov. 2020) that mentions “Yellow Soja” or “Yellow Soja Beans.” However this is not a new variety (See Georgeson 1890 Dec.)

162. *Rural New-Yorker*. 1892. True value of the soja bean. North, east, west, south. Will it come into general use? 51(2232):721-22. Nov. 5. Oversize.

• **Summary:** These questions were sent to the directors of all the stations in the country:

“1. After your experience with the Soja Bean as a forage crop, do you consider it of enough value to urge the farmers

of your State to experiment with it?

“2. How does it compare in yield, cost of culture and harvesting and value for stock food with clover?

“3. What is the best way to cultivate and cure it?

“4. What is its rank as a silo crop and is it best suited for the silo?

“5. Will it come into general use in your State?

“The following typical replies cover the four sections of the country. Others on the same subject will follow later:

“Vermont too far North for it: The Soja Bean has been but little tested at this station. The whole of Vermont is too far north to make it worth while to attempt to raise it. Either corn or clover is away ahead of it as a fodder crop or for the silo. We have rather gone back on Prickly Comfrey. We had no trouble in raising enormous crops of it or in getting our stock to eat it, but the labor of cutting it by hand more than over-balanced all its good qualities, and we finally gave it up.

“Vermont Station. W.W. Cooke.

“Not Much Use for New York: The Soja Bean is not well suited to most places in our Northern climate; at least it has not proved to be a success with us. We have nitrogenous plants which are so much more certainly and easily raised than this, that I would not think for a moment of cultivating it for a forage plant. As to the cost of culture and harvesting in comparison with clover, no comparison whatever can be made. We have not had opportunity to harvest and cure this plant to such an extent as to learn how it should best be done. I doubt if it would be a good plant to put in the silo, because all highly nitrogenous plants are hard to preserve in the silos, as now made.

N.Y. Station. I.P. Roberts.

“Not Much Chance in Connecticut: Our idea of the Soja Bean as a forage crop may be expressed in the following extract from a bulletin which is in preparation: ‘The Soja Bean makes a tall, slender growth and is not as succulent and leafy as the cow pea. It should be sown about May 20, and from our experience appears to need a fertile soil for the best results. The plants have made a slow growth and each season the foliage has been of a pale yellow color. The yield in 1889 was 9 tons and in 1892 6.4 tons per acre. The fodder has been well eaten by milch cows, but the yields have been lighter than for cow peas, and from the table of fodder analyses it will be seen that it is not as rich in protein. Both of these crops are ready for feeding at about the same time, and from our experience the cow pea is to be preferred.’

“It does not seem to me practicable to compare the Soja Bean with clover, since the plants mature at such very different times unless it is to be used for winter feeding. Maturing as late as it does, it is a difficult crop to cure as hay, but it is well adapted for the silo, though from our experience, as stated above, the cow pea is its superior. I very much doubt its coming into general use in this State.

“Chas. D. Wood. Connecticut Station.

“Good Where Clover Won't ‘Catch.’ I have a very good

opinion of the Soja Bean as a soiling crop, that is to be cut and fed green. On fairly strong and fertile land, sown in drills 18 inches apart and at average intervals of three inches apart in the drills, the plants have reached a height of 36 inches. Our stock eat them with a good relish. Compared with the Southern cow pea, the stems are more 'woody,' otherwise we see little difference. I certainly think it of sufficient value to urge the farmers of our State to experiment with it as a soiling crop. For cutting and curing as dry fodder I prefer clover. Many of our New England farmers find it difficult to get a first-rate 'catch' of clover every time and with our present knowledge of the value of the legumes as renovating plants I would encourage the growth of as many and as great a variety as possible. Oats, barley and Hungarian [sic, grass?] are all grown here as soiling crops, and I think we can very profitably add, or even substitute 'Soja Beans' and cow peas.

"Rhode Island Station. Chas. O. Flagg.

"Good for a Massachusetts Silo: I am much pleased with our results in raising Soja Beans as a fodder crop. During the past season I have raised several acres of them; one variety, which was bought of J.M. Thorburn & Company, of New York, has not matured seeds thus far, yet yielded 10 tons per acre of green crop, with 24 per cent of solid matter, for ensilage; the other variety matured abundance of seeds and yielded from seven to eight tons per acre. The plant is much liked by all kinds of farm live stock; our results in milk and meat production are very satisfactory with both green crop and silo product. I have just filled a silo with alternate layers of equal weights of Soja Beans and green fodder corn (kernels glazing over.) Cost of production in drills (three feet apart) is not more expensive than of any other forage crop. The convenience of securing an additional (annual) leguminous crop for annual rotation counts for much with us in the support of our dairy industry, considering the present condition of our pastures and meadows. The Soja Bean is exceptionally rich in both nitrogenous constituents and fat; and the entire plant from the time of showing flowers is equal to, if not better than any other leguminous fodder crop on record.

"My success with serradella as a fodder crop during the past season has been marked—10 to 11 tons of green fodder (18 per cent solids) per acre. Our cows feed for some time on green fodder corn (two parts) and green serradella (one part). My former satisfactory observations are confirmed. A silo has been filled with equal weights of green serradella and Hungarian Grass (in bloom).

"C.A. Goessmann. Massachusetts Station.

"A Valuable Plant for North Carolina: Our experience with this legume now covers two seasons on soil not favorable to large or even moderate crops, yet this does well in comparison with other crops. Last year (1891) two acres on the college farm produced 23,430 pounds of Soja Beans as cut for the silo and 3,140 pounds of half cured hay. The ensilage was rather too strong in odor and was at first

objected to on that score by the student feeder, and by stock as was suggested for the same reason. The driving horse was humored and fed hay while this ensilage lasted. The cows soon acquired a taste for it and seemed to be as eager for it as for any other food. Change of feeders and the grain feed during the five weeks the Soja Bean ensilage was being fed prevented any deductions on the yield of milk, though at the end of that time the flow was quite equal to that at the beginning.

"An analysis of this ensilage followed by a digestion experiment showed it to be rich food and easily digestible, although nearly 'ripe' when cut for the silo. Our crops have been planted in hills 18 inches apart with the Centennial corn planter, and in drills with a wheat drill with the rows 3 and 3½ feet apart, so that it could be easily cultivated. On our soil the crop will bear closer planting without crowding. It stands up straight, the worst fault being the too hard condition of the stems. It may be cut with a mowing machine or self-rake reaper to good advantage, and probably the new corn ensilage cutters will handle it as well as corn.

"We can recommend the Soja Bean to our friends as a valuable addition to profitable, quick-growing crops. If the college crop be calculated at 6.5 tons per acre, and 20 per cent of loss be allowed from fresh weight to ensilage, there would be 10,400 pounds of ensilage per acre. Taking it at even five tons, and comparing it with 1¼ ton of clover hay, which would be a large crop from the land on which the beans grew, we find this table. The analysis and digestibility of the Soja Beans are from Mr. Kilgore's unpublished analysis and determination, and the composition and digestibility of clover hay from Stewart's Feeding Animals:"

This 7-line table gives the amount of dry matter, ash, protein, fat, nitrogen-free extract, and crude fiber in the product of one acre of the following:

"10,000 pounds Soja Bean Ensilage

"3,000 pounds clover hay

"Digestible matter in 3,000 pounds clover hay

And the ratio of two of these.

"This difference is not very great, but is in favor of the Soja Bean as a little more cheap carbohydrate, as straw or corn stover, could be fed with it to advantage to bring up the 'ratio' to the 'standard.' Also, if 'fat' be regarded as worth 2½ times as much as carbohydrates, there would then be the value of more pounds of food from the beans, and this too after an allowance of 23 per cent for loss on the bean crop.

"Soja Beans can be ensiled more easily than cured for hay. They will grow in favor with stockmen without doubt.

"Frank E. Emery. North Carolina Station."

Note 1. This is the earliest document seen (March 2021) concerning soybeans in Rhode Island, or the cultivation of soybeans in Rhode Island. This document contains the earliest date seen for soybeans in Rhode Island, or the cultivation of soybeans in Rhode Island (about July 1892). The source of these soybeans was Dr. O.C. Wiggin (of

Keysville, Virginia), and the Kansas Agricultural Experiment Station (Continued).

Note 2. This is the earliest document seen (June 2021) that mentions the use of “drill” or of a reaper (“self-rake reaper”) for soybean production.

Note 3. This is the earliest English-language document seen (June 2021) that uses the word “machine” or the term “mowing machine” in connection with soybean production.

Note 2. This is the earliest document seen (June 2021) which shows that the soybean plant has been used for soilage / soiling.

163. *Rural New-Yorker*. 1892. True value of the soja bean. North, east, west, south. Will it come into general use? (Continued—Document part II). 51(2232):721-22. Nov. 5. Oversize.

• **Summary:** (Continued): “Later Mr. Emery sends this note: Inclosed find root of Soja Bean grown on poor red clay soil, showing tubercles. The long branch was “pulled” out, and may have had tubercles farther out, but they seem to be clustered at the base of the stalk.

Rural N.-Y.—The tubercles are plainly visible. Our readers will remember that the latest scientific theory is that these tubercles, or little warts, are active agents in the assimilation of nitrogen by the leguminous plants. This would indicate the value of the Soja Bean as a green manuring crop.

“Clover Needs a Nurse, Soja Bean Doesn’t: 1. I unhesitatingly recommend our farmers to experiment with it.

“2. It will produce more feed to the acre here than clover, and do it in half the time required for the latter. We cannot start clover with any other crop; when the so-called ‘nurse crop’ is harvested the young clover is killed by the scorching sun. This is so generally the case that but few experienced farmers in central Kansas and westward ever attempt sowing clover with wheat or oats, or any other crop. And the first year, even when seeded by itself, it seldom affords much hay, and it is unwise to pasture it for fear of killing it. The Soja Beans we have yield a full crop of feed during three months of the summer. They are harvested and the ground can be put in fall wheat, by the time the clover crop is fairly established. Moreover, the Soja Bean can be grown where clover cannot get a foothold on account of the heat and drought.

“3. So far as tried, I have found it best to grow it in rows about 30 inches or a little more apart, and let the plants average one to every two inches in the row. I cultivate them until shortly before the blossoms appear. I have so far had no difficulty in curing them as I would a heavy crop of clover. Whether it is better to cure it as hay or to put it in the silo is yet to be determined by experiment.

“4. I see many reasons why it can be made a profitable crop throughout this State, and throughout the West, but especially in the region where the corn crop and tame grasses

are uncertain.

“[Prof.] C.C. Georgeson. Kansas Agricultural College.”

A large illustration (p. 722) shows a “White podded adzuki bean. Fig. 278.”

164. Georgeson, C.C.; Burtis, F.C.; Shelton, W. 1892. Test of some Japanese beans. *Kansas Agricultural Experiment Station, Bulletin* No. 32. p. 232-38. Dec. 1891.

• **Summary:** “Two species of Japanese bean have been grown here at the Station for two years past. These are the soy bean (*Glycine hispida*), and the adzuki—the mungo, of India (*Phaseolus radiatus*). Both of them have given promise of much usefulness in this country. They have been subjected to severe tests concerning their endurance of this climate, and have come out triumphantly. Having seen these beans grown in Japan, and noted the very important part they take in the diet of the Japanese, the writer became anxious to try them here, which has been done with gratifying success.”

The Soy Bean. “The United States Department of Agriculture made an effort to introduce it [the soy bean] years ago, and several enterprising seedsmen have from time to time made attempts in the same direction; but with the result that it has been generally successful only in the South because the varieties introduced were too late to mature in the latitude of the Northern States. Knowing this, pains were taken to procure some of the earliest varieties grown in Japan. A few dozen beans of each of several kinds arrived in the spring of 1890. They were planted in the latter part of May and matured seed before frost, in a little over three months’ time. The amount planted being so small, no attempt was made to estimate the yield, but they appeared to be very productive. One thing in their favor was proved that first season—their ability to withstand drouth [drought]...

“The seed thus raised was planted in the latter part of May, in 1891, and harvested early in September, with yields ranging for the several varieties from 12½ to nearly 19 bushels of beans per acre. These yields would under more favorable conditions have been considerably larger...

“The bean takes its common name, ‘Soy,’ from a sauce manufactured from it, which in commerce goes by the name of ‘Soy,’ though the Japanese name for this sauce is ‘Shoyu.’ The beans are boiled and mixed with certain proportions of rice and salt, and the compound is then allowed to undergo a process of fermentation, which results in the delicious brown sauce so common in Japan, and which forms the basis of the best sauces in this country. The term ‘soja,’ often applied to this bean, is misleading, inasmuch as the species named by Siebold and Zuccarini *Glycine soja* is not cultivated there, or at least rarely cultivated, though it is wild in the south; and later this species was confounded with the cultivated species, *G. hispida* Moench, whence the origin of the term ‘soja,’ as applied to the cultivated bean. The soy bean is a native of Japan, and it has been cultivated there from a very remote period, as is testified by the numerous and

strongly-differentiated varieties which have been developed. The Japanese cultivate it extensively, and it is to them an important article of food. It takes to a very large degree the place of meat in their diet, and it is altogether too costly and precious an article to be fed to live stock, except when it on rare occasions is grown as a hay crop. They use the beans ripe, and, properly cooked, they make a palatable and highly-nutritious dish. Sometimes they are eaten green when nearly full grown; they are then boiled in the pods and shelled at the meal.

“In this country they will likely be of most value as a fodder plant, though they compare favorably with navy beans for table use; they are, however, more glutinous and less starchy than navy beans, and on this account may not suit the taste of all persons.”

“The following four kinds are early enough to be depended upon to mature seed in this latitude every year.” *Eda-mame*: yield, 12.6 bushels beans (at 60 pounds per bushel) per acre. *Yellow Soy Bean*: yield, 14.57 bushels per acre. *Yamagata Cha-daidzu* (tea-colored bean, from Yamagata): yield, 18.8 bushels per acre. *Kiyusuké Daidzu* (Kiyusuke is the name of a person): yield, 18.23 bushels per acre.

“As has been stated, all of these yields would have been larger if the weather had permitted the saving of the crop in better shape.”

Pages 237-38 give detailed information on “The adzuki (*Phaseolus radiatus*),” including white-podded and black-podded varieties. Mrs. Nellie S. Kedzie, Professor of Household Economy, tested the adzuki beans in recipes and found them to be “a very good bean for cooking purposes.” Baked in the old-fashioned way, the adzuki is “sweeter than the ordinary white bean; so less sugar or molasses is needed in baking. I found this bean especially nice for making bean soup.”

Photos (p. 232) show yellow soy bean, Yamagata-Cha-daidzu, and white podded adzuki plants.

Note 1. This is the earliest document seen (July 2014) that contains a photo of the soy bean or of the adzuki.

Note 2. This is the earliest document seen (Oct. 2013) that mentions the soybean variety *Kiyusuké Daidzu* (spelled that way). Address: 1. M.Sc., Prof. of Agriculture, and Superintendent of Farm; 2. B.Sc., Asst. in Agriculture; 3. Foreman of the farm. All: Kansas State Agricultural College, Manhattan, Kansas.

165. Georgeson, C.C. 1892. The economic plants of Japan—XVI. Leguminous plants. Adzuki (Document part). *American Garden* (New York) 13(12):727-29. Dec. See p. 728-29.

• **Summary:** This section of the article states: “*Phaseolus radiatus*, L.; Jap. Adzuki. This is another bean largely grown. It is not a native, but was in all probability introduced from India. It is a bush-bean, about two feet tall; leaflets oval, often sinuate or lobed; flowers yellow; pod long and narrow;

beans very small and mostly red or yellowish green, square at the ends and very short—in fact, they resemble a hand-satchel in shape. They are used mostly for grinding into flour, from which a sort of bean-cake is made. They are also boiled with rice, producing a dish called *aka-meshi*, which is served on festive occasions. They have the reputation of being the best-flavored beans in existence, but much depends on their preparation. Doctors of the Chinese school attribute medicinal properties to this bean, and order it as an exclusive diet for *kake* [sic, *kakke* = beriberi] patients, a disease sometimes attacking people who live largely or exclusively on rice. These beans are cultivated like soy beans, as a second crop, in rows two feet apart. Most varieties ripen in three months from the time of planting. Japan produces annually from a million and a half to two million bushels of this bean. I imported a little seed of two varieties two years ago, along with the soy beans already mentioned, and they have yielded very satisfactorily, producing last year twelve bushels to the acre. They ripen earlier than soy beans, and are not such robust growers.” Address: Prof., Kansas Agricultural College.

166. *Kansas Agricultural Experiment Station, Annual Report*. 1892. Bulletin No. 32. December, 1891. Chemical and Farm Departments. 4:x. For the year 1891.

• **Summary:** The introductory portion of this report gives a summary of each of the Bulletins published by the station during 1891. On p. x, the summary of Bulletin No. 32 states: “Test of the soy bean (*Glycine hispida*) and *Phaseolus radiatus* [adzuki bean], both imported from Japan, with comments on their probable value for this country; the use of plaster and oil meal as fertilizers on millet; the effect of plaster applied as a fertilizer on both tame grasses and prairie grass.”

Note: Bulletin 32 is titled “Test of Some Japanese Beans,” by Georgeson, Burtis, and Shelton. Address: Manhattan, Kansas.

167. Moore, R.B. 1892. Compilation of analyses of fodder articles, fruits, sugar-producing plants, dairy products, etc. made at Amherst, Mass., 1868-1892. *Massachusetts State Agricultural Experiment Station, Annual Report of the Board of Control* 9:313-39. For the year 1891. See p. 314, 318, 323-25.

• **Summary:** The following are percentage averages for: whole soja bean plant, soja bean hay, and soja bean grains / seeds.

dry matter 23.56, 88.46, 85.83.

protein 16.45, 14.81, 33.97.

Fat 4.84, 2.85, 20.19

Nitrogen-free extract 44.50, 54.29, 33.98

Fibre 26.47, 19.78, 6.02

Ash 7.77, 8.27, 5.84

Nutrition ratio 1:4.20, -, 1:2.61. Also discusses: Corn

and soja bean ensilage, mochi millet, Horse beans (*Vicia faba*), cow-peas, lucerne (alfalfa), small pea (*Lathyrus sativus*), red adzinki [azuki] beans, saddle beans, daidzu beans [same as soja beans], soja bean straw, white adzinki beans.

Note: This is the earliest English-language document seen (Oct. 2021) that uses the word “adzinki” to refer to azuki beans.

168. Paillieux, Auguste; Bois, D. 1892. Le potager d'un curieux: Histoire, culture et usages de 250 plantes comestibles, peu connues ou inconnues. Deuxième édition [The inquisitive person's kitchen garden: History, culture, and uses of 200 edible, little-known or unknown plants. 2nd ed.]. Paris: Librairie Agricole de la Maison Rustique. xii + 589 p. See p. 502-49. Illust. Index. 24 cm. [2 ref. Fre]

• **Summary:** Contents of section on soy: Introduction: Work of the Society for Acclimatization with soy, structure of this book, excerpts on soy from past issues of the *Bulletin the Society for Acclimatization*. Botany of the soybean. 1. Soy in Japan: Kaempfer's writings, including miso and shoyu, Japan at the World's Fair of 1878, miso, shoyu, tofu. 2. Soy in Cochinchina: Black soybeans, various foods. 3. Soy in China: Soy oil, tofu and fermented tofu, soy sauce, other uses. 4. Soy in Austria-Hungary. 5. Soy in France: Historical, varieties, cultivation, utilization.

The author's full name is Nicolas-Auguste Paillieux (lived 1812-1898; he died on 8 Feb. 1898 at age 85). An illustration (non-original line drawing; p. 503) shows a mature soybean plant bearing many pods, plus a close-up of three pods to the lower right of the plant (from an original in J.R.F. 1882). Note: Desire Bois lived 1856-1946.

Also discusses (listed alphabetically): arachide (peanuts, p. 26-28), haricot mungo (azuki, p. 201-09), kudzu or ko (p. 271-84), quinoa (p. 460-66), souchet comestible (chufa, p. 498-502, with illustration). Address: 1. Member of the Societe Nationale d'Acclimatation 2. Asst. de la Chaire de Culture, Museum d'Histoire naturelle de Paris.

169. Crocker, C.S. 1893. Compilation of analyses of fodder articles, fruits, sugar-producing plants, dairy products, etc., made at Amherst, Mass. 1868-1893. *Massachusetts State Agricultural Experiment Station, Annual Report of the Board of Control* 10:309-321. For the year 1892. Jan.

• **Summary:** In Section A, “Analyses of fodder articles,” the following analyses are given (p. 311-315): I. Green fodders—Corn and soja bean ensilage. Soja bean, whole plant (*Soja hispida* Mönch). II. Hay and dry coarse fodders—Soja bean. Soja-bean straw. IV. Grains and other seeds—Soja beans. Red adzinki [azuki] beans. Daidzu [daizu] beans.

For each product the following statistics are given: Number of analyses. Dry matter (Max., min., avg.). Percentage protein (Max., min., avg.). Percentage fat (Max., min., avg.). Percentage nitrogen-free extract (Max., min.,

avg.). Percentage fibre (Max., min., avg.). Ash.

In section B, “Analysis of fodder articles with reference to fertilizing ingredients,” the following analyses are given (p. 318-21): I. Green fodders—Corn and soja bean ensilage. Soja bean. Hay and dry coarse fodders—Soja bean. Soja-bean straw. IV. Grains and other seeds—Soja beans. Red adzinki [azuki] beans. White adzinki beans. Daidzu beans.

For each product, the following are given: Number of analyses. Moisture. Nitrogen. Ash. Potassium oxide. Sodium oxide. Calcium oxide. Magnesium oxide. Ferric oxide. Phosphoric acid. Insoluble matter. Valuation per 2,000 pounds, based on the following prices per pound of essential fertilizing ingredients: Nitrogen 15 cents, potassium oxide 4½ cents, phosphoric acid 5½ cents.

Gluten meal is analysed on pages 316 and 323. Address: Amherst, Massachusetts.

170. *National Tribune (The) (Washington, District of Columbia)*. 1893. Blades of ancient swords. Dec. 14. p. 2.

• **Summary:** “A blade composed of 4,194,304 layers of steel, and polished so that European polishing pastes will only serve to scratch it. is surely worth looking at. To the expert the quality of the blade is apparent from the markings, but the would-be purchaser may, if he choose, test the keen edge practically.

“Masa-Mune, a gentle smith of the 14th century, could let fall a hair or the hard-skinned adzuki bean across the edge, and either would split in two; or, like Regin, he would stand the weapon upright in a little stream of water and let the current carry down a tiny scrap of paper, which, as it touched the edge, would float away in halves. No such gentle tests were those of the fierce Mura-masa, who forged his swords to the cry of ‘Tenka tairan!’ (war to men) and quenched each one in the warm blood of a fresh human victim; and so inspired the bright steel with an endless thirst, which caused it to cleave iron like bronze and bronze like a melon, in search of human life...”

171. Bretschneider, Emil V. 1893. *Botanicon sinicum*. Notes on Chinese botany from native and Western sources. II. *J. of the North China Branch of the Royal Asiatic Society* 25:i-ii, 1-468. New Series. For the year 1890-91. See pages 35-36, 137-39, 162-65. [200+* ref. Eng]

• **Summary:** The single most important early work on Chinese botany written by a Westerner. Bretschneider, an M.D., lived 1833-1901. Contents: Corrigenda and addenda to Part I. Introduction (p. 1). Notes on Chinese, Japanese and European works consulted (p. 4). Plants mentioned in the *Rh ya* (p. 20). Plants mentioned in the *Shi king*, the *Shu king*, the *Li ki*, the *Chou li* and other Chinese classical works (p. 137). General remarks by Dr. E. Faber (p. 402). Classification of Chinese names of plants (p. 411). Index of Chinese names (p. 435). Index of European names (p. 461).

Pages 35-36 state: “29.—*Jung shu* is the same as *Jen shu*.

Kuo P'o:—This is the plant called *Hu tou* (foreign bean).

“Hing Ping:—Fan Kuang as well as She Jen and Li Sün all explain the above names of the *Rh ya* by *hu tou*. But they were mistaken. As *jung* is likewise a term for foreigners [western barbarians] they concluded that *jung shu* and *hu tou* are the same. Cheng Hüan and Sun Yen identified the *jung shu* correctly with the *ta tou* or great bean. [Comp. infra, 355, *Shi king*.]

“The *ta tou* is the *Soja hispida*, Moench, or soy bean. The *hu tou*, or foreign bean, is the *Faba sativa* [sic, *Vicia faba*], or common bean [sic, broad bean], one of the cultivated plants introduced from Western Asia into China, in the second century B.C., by the famous general Chang K'ien [Chang Ch'ien, traveled 139-115 B.C.].

Chapter 2, “Plants Mentioned in the Shi King, the Shu King, the Li Ki, the Chou Li and Other Chinese Classical Works,” begins with a discussion of cereals or grains (*ku*). “The term *wu ku* [wugu] (Cc = Chinese characters given) or five kinds of grain seems to be the oldest classification of grain. It is attributed to the Emperor Shen Nung. The ancient commentators enumerated these five kinds as follows (Cc): 1. *tao*, Rice. 2. *mai*, comprising Wheat and Barley. 3. *tsi*, *Panicum miliaceum*, the common Millet. 4. *shu*, *Panicum miliaceum*, the glutinous variety [of Millet]. 5. *shu*, the Soy bean, *Soja hispida*. Note 1. This is the earliest English-language document seen (Aug. 2002) which mentions the *wu ku* (“five grains”) and states that the soy bean (*shu*) is one of them. Since the classification of the *wu ku* are attributed to Shen-Nung, it is the earliest English-language document that links him with the soy bean.

“Some commentators have *liang*, *Setaria italica*, instead of *tsi*, others substitute *ma*, hemp, *Cannabis sativa*, for *tao*, rice.” Mencius and the *Li ki* both use the term *wu ku*.

“The ancient Chinese term ‘the five kinds of grain’ is also usual in Japan. We read in [Kaempfer’s] *Amoen. exot.*, 834, under *come* [rice]...” The soy bean is included. The *Chou li* mentions the six kinds of grain, or *liu ku*, which did not include the soy bean, and the nine kinds of grain, or *kiu ku*, which listed the soy bean, *ta tou*, as number six and the adzuki bean as number 7.

Pages 164-65 state: “355.—In the *Shi king* we have the term *jen shu*, which Legge translates as ‘large beans,’ 468:—Hou Tsi planted large beans [dadou = soy beans] which grew luxuriantly. Note: This is the earliest English-language document seen (June 2003) that mentions Hou Tsi in connection with soy beans.

“In the *Rh ya* [29] *jen shu* is given as a synonym of *jung shu*. Sun Yen identifies it with the *ta tou* or great bean, which latter name seems to appear first in Fang Cheng-chi’s book on husbandry [1st century B.C.] This is the soy bean, *Soja hispida*, Moench [See *Pên ts’ao kang mu*, XXIV, 1.] A good drawing of the plant is found in *Chi wu ming shi l’u k’ao*, I, 8. This bean has always been considered by the Chinese as the most important of the cultivated leguminous plants. It is

grown in numerous varieties all over the Empire, especially in the north, and is much esteemed for the oil yielded by its seeds. The name great bean refers to the plant, not to the seeds, which are small, of the size of a pea.

“The soy bean is also largely cultivated in Japan. It is described and figured under the Chinese characters meaning “great bean” in *Amoen. exot.*, 838, and *So moku*, XIII, 18-21.

“The soy bean is much employed in China and Japan for preparing the so-called ‘bean-curd’ and the sauce called ‘soy.’ The first is prepared by macerating the beans in water and milling them together with the water. The liquid pap is filtered. To this fluid is added gypsum, in order to coagulate the casein, and also chloride of magnesium. The coagulated casein or bean-curd is of a jelly-like appearance. Soy is made by boiling the beans, adding water, salt and wheat, and producing fermentation by yeast.

“Bean-curd and soy were most probably known to the Chinese in the classical period, although no distinct mention is made of these condiments in the classical writings. The ancient term *tsiang*, which Legge translates by ‘sauce,’ includes, we may suppose, soy. [See *Li ki*, I, 459-461 ‘Diet of the Ancient Chinese.’] Confucius *Analects*, 96. Biot translates the *tsiang* mentioned in the *Chou li* by ‘mets delicats.’ I, 70:—Pour les mets delicats on emploie cent vingt objets differents. Compare *Pên ts’ao kang mu*, XXV, 26, on the preparation of the *tsiang*. At Peking the common name for soy is *tsiang yu* (*tsiang* oil). [S.W.] Williams [*Dictionary* (1874), 764] states that the English word soy is probably derived from *shi yu*, in Japanese *si yu*. [I should think rather from the characters pronounced *sho yu* in Japanese. See Hepburn’s *Dictionary* (1867).] The character *shi* written with another radical replacing the “bean” radical to the left of the main character, in the *Shuo wen* is explained there by 5 characters, made of salt and beans [I cannot understand what the third character here is intended to mean]. See also *Pên ts’ao kang mu*, XXV, 2, under *ta tou shi*.

“As to the bean-curd, *tou fu*, it appears from the quotations in *Pên ts’ao kang mu*, XXV, 7, that this term and the mode of making bean-curd are first mentioned in the *Huai nan tsz’* [2nd century B.C.], but it was no doubt much earlier known in China.” Address: China.

172. Fesca, Max. 1893. Beitrage zur Kenntniss der japanischen Landwirtschaft. II. Spezieller theil [Contributions to an understanding of Japanese agriculture. II. Special part]. Berlin: Paul Parey. ix + 929 p. See 187-203, 872-73. Also published as vol. 2 of 2 volumes bound in one (Paul Parey, 1893). [7 ref. Ger]

• **Summary:** The chapter on the legumes (*Die Huelsenfruechte*, p. 187-203) is partly a review of the literature, with emphasis on soybeans (*Daizu*, *Omame*, *Sojabohne*). He begins by noting that for a nation like Japanese, where the people live predominantly on plant foods (*Pflanzenkost* = vegan diet), legumes are of major

importance for the nutrition of the people, in that they offer a substitute for meat. They also supply important nitrogen to the soil. A table (p. 188) shows soybean production and yield in Japan from 1879 to 1887. The area increased from 441,699 *cho* to 466,315. Note: 1 *cho* = 2.45 acres. Production increased from 2,280,135 *koku* to 3,253,790. Note: 1 *koku* = 180 liters or 47.6 gallons. Yield increased from 5.1 *cho/koku* to 7.69. Soybeans like the climate of northeastern Yezo [Hokkaido]. A table (p. 190) gives the date of planting, date of harvest, and days to maturity at Hakodate, Sapporo, and Nemuro (all on Hokkaido). Also discusses: Soy sauce (*Shoyusauce*; p. 190), dates for other locations, and fertilizer (*Düngung*) needs (p. 191-92, incl. phosphoric acid, potash, wood ashes, straw, and superphosphate). A table (p. 193) shows soybean area (in *cho*), production, and yield in 1887 in 6 parts of Japan (Yezo, northern Japan, central Japan [which had by far the greatest planted area and production], western Japan, Shikoku, Kyushu).

Also discusses: The extraordinarily high nutritional value of the soybean (p. 196), yellow lupins (p. 196), defatted soybean cake (*Daizukasu*, p. 196), shoyu or soy sauce, *Shoyubohne*, and koji (p. 197-99), tofu, *Bohnenkäse*, and *Tofumame* (p. 199), Kori-Tofu and E. Kinch (p. 199).

His analysis of shoyu presscake (*Shoyukasu*) and okara (*Tofukasu*) showed that they contained respectively: Water 53.6 and 85.7%. Ash: 6.7 and 0.5%. Crude protein: 12.6 and 3.8%. Crude fat: 13.7 and 1.4%. Nitrogen-free extract: 6.7% and 5.4%. Crude fiber (*Rohfaser*): 6.7 and 3.2%. *Tofukasu* is a rather good livestock feed, and it is also eaten by poor people. The shoyu presscake, although richer in nutrients than okara, is used, at most, only in small amounts in feeds and then it must be cooked. Living yeast cells in the koji can easily cause stomach diseases and problems, and the presscake also has a high salt content. Note: This is the earliest German-language document seen (June 2013) that uses the term *Tofukasu* to refer to okara.

Miso (4 types; p. 200-02): (1) White miso (*Shiro-Miso*: Low salt content and short shelf life; keeps for 10 days); made with rice koji. Fermented for 3-4 days. (2) Edo Miso (*Yedo-Miso*): Higher salt content, shelf 5-4 months up to 1 year. Made with rice koji. Fermented for 10 days in summer, 30 days in winter. (3) Farmhouse miso (*Inaka-Miso*): Very high salt content. Shelf life: About a year; made with barley koji. Fermented for about 11-12 months. (4) Sendai miso, also known as Red miso (*Sendai-miso: auch Aka-Miso genannt*): Red color and high salt content. Shelf life: several years. Made mostly with barley koji. Fermented for 1½ to 2 years.

Azuki (*Phaseolus radiatus*, with planted area, production and yield for 1883 and 1884, p. 203).

A table (p. 873) shows a valuation of Japan's agricultural production for about 17 major crops (Source: *Japan's Volkswirtschaft und Staatshaushalt*). For each crop, the annual production (in *koku*), the worth per unit, and the

value of the total crop in yen are given. The most valuable crops are: Rice: 40 million *koku*, 200 million yen. Dehulled barley (*beschalte Gerste*): 7 million *koku*, 14 million yen. Naked barley (*nakte Gerste*): 5 million *koku*, 12.5 million yen. Soybeans (*Sojabohnen*): 3 million *koku*, 12 million yen. Wheat (*Weizen*): 3 million *koku*, 12 million yen. Address: Prof., Dr., Germany.

173. Flagg, Chas. O.; Towar, J.D. 1893. Agricultural Division. *Rhode Island Agricultural Experiment Station, Annual Report* 5:129-62. For the year 1892. See p. 149-52, 156-57. [4 ref]

• **Summary:** The section titled "Forage Plants" (p. 149-62) states: "From Dr. O.C. Wiggin of Keysville, Va. [Virginia], was received a small package of Soja beans and two varieties of cowpeas... six varieties of Japanese beans [including two soja bean varieties, Yamagata Cha daidzu, and Kiyusuke daidzu, see p. 157] were received from the Kansas Experiment Station."

"Soja or Soya Bean. (*Soja hispida*, natural order Leguminosæ)." According to *Henderson's Hand-book of Plants* (p. 417) "This is a climbing annual plant allied to (*Dolichos*) ('cow-pea'). It is much cultivated in tropical Asia on account of its beans, which are used for preparing a well-known brown and slightly salt [sic] sauce (Soy) used both in Asia and Europe for flavoring certain dishes, especially beef, and supposed to favor digestion."

"We believe this plant worthy of trial by those who desire a variety of crops for soiling and especially as, in common with all the *Leguminous* plants, it is rich in nitrogenous elements. It could easily be cut and stored as ensilage..."

"During the early winter a variety of this bean was extensively advertised by a party in Missouri as 'Cole's Domestic Coffee Berry,' and offered for sale at the extravagant price of \$3.50 per pound. Its wonderful merit as a substitute for coffee was set forth in a 'dodger' with 'testimonials' attached. The seed can be purchased of J.M. Thorburn & Co., No. 15 John St., New York, or other large seed dealers, in small quantities, at 15 cents (15 cts.) per pound."

A table (p. 151) gives the composition of soja beans, red clover, and cowpea plants. Values for the soja bean plant are based on three analyses, two grown at the Massachusetts Experiment Station in 1889 and cut August 20th and August 30th, the third grown at the South Carolina Experiment Station and cut in full bloom August 5th 1889."

Another small table (p. 152) gives the fertilizer constituents of the above soja bean plant cut in full bloom: Moisture 7.05%. Nitrogen 2.37%. Potash 1.315%. Phosphoric acid 0.58%. The crop from one acre of soja beans cut and weighed green (27,769.5 lb) has the following fertilizing values, based on the value of each constituent: Vines \$34.54. Roots \$4.99. Total: \$39.53.

“For many years the idea has been prevalent among the farmers of southern New England that it does not pay to sow clover... This condition of things is unfortunate for our agriculture in the light of the discovery within recent years that the *leguminous* plants are able to use the nitrogen of the atmosphere for their growth through the medium of *bacteria* infesting a *nodular* growth upon the their roots. All the clovers, peas, beans, lupines, vetches, spurry, serradella, and sainfoin belong to this class and are generally cultivated for their seeds, for fodder or for green manuring. None other of our ordinary field and garden plants, grasses, cereals, root crops, vines, etc., have yet been shown to posses any such ability to assimilate atmospheric nitrogen, hence are dependent for their growth upon the supply of nitrogen within the soil and rain water, or supplied by the farmer in manure or fertilizers. When purchased, nitrogen is the most expensive element, costing more than three times as much per pound as potash and more than twice as much as phosphoric acid, hence true economy should direct the prudent farmer to invest his money in *phosphoric acid*, *potash* and the *seeds of leguminous plants* in so far as he can use such crops for market, for feeding or for green manuring” (p. 155).

A table titled “Summary of analyses of leguminous crops” (p. 157) compares the composition of soja beans, cowpeas, and three types of “Japanese beans” (Yamagata Cha daidzu, Kiyusuke daidzu, and Black Podded Adzuki). The two “daidzu” beans are actually types of soja beans.

Note 1. This is the 2nd earliest document seen (March 2021) concerning soybeans in Rhode Island, or the cultivation of soybeans in Rhode Island. This document contains the 2nd earliest date seen for soybeans in Rhode Island, or the cultivation of soybeans in Rhode Island (1892). The source of these soybeans was Dr. O.C. Wiggin (of Keysville, Virginia), and the Kansas Agricultural Experiment Station.

Note 2. This is the earliest English-language document seen (March 2021) that uses the word “nodular” or the word “bacteria” (or “bacterium”) in connection with root nodules.

Note 3. The authors apparently do not realize that Yamagata Cha-daidzu and Kiyusuke daidzu are the names of soja bean varieties (see table p. 157). Address: 1. B.Sc., Director of the Station, Agriculturist, and President of the Board; 2. B.Sc., Asst. Agriculturist. Both: Providence, Rhode Island.

174. Henry, Augustine. 1893. Notes on economic botany of China. Shanghai, China: Printed at the Presbyterian Mission Press; Kilkenny, Ireland: Boethius. 68 p. See p. 13-14. 18 cm. Facsimile edition printed in 1986 by Boethius Press, Kilkenny, Ireland. [Eng]

• **Summary:** The book begins: “Missionaries and others living in the interior, are often in a position to make enquiries concerning the natural production of China, the results

of which would be of great service to science. I intend to publish a few notes, pointing out the direction in which such work might be done as regards articles derived from the vegetable kingdom.”

The author focuses on the vegetable products of Shêng-king [Liaoning, a province in northeast China whose capital is Mukden]. The soja bean is a staple of Newchwang trade.

“7. The Soja bean, *Glycine hispida*, Max. is noted for its numerous varieties and manifold uses. *Ta-tou* is the book-name of the *species*; but in the colloquial the varieties have each a distinct name, and these have not been very well made out for China. In Japan there are five great varieties, the white or yellowish, green, black, brown, and spotted, divided into sixteen sub-varieties, according to difference in form (which varies from spherical to flattened elliptical) size and colour. These sub-varieties differ in their use, time of arriving at maturity, etc. In China the chief kinds are *Huang-tou* [Yellow soybean] and *Hei-tou* [black soybean]: and perhaps the following sorts mentioned in the Paris Ex. C. [Exhibition Catalogue?] as occurring at Newchwang, are simply varieties of the Soja bean, viz., *Pai-tou* [white soybean], *Ch’ing-tou* [green soybean] and *Ma-tou* [“sesame bean”]. Information is wanted about these varieties. The Soja bean is the most important of the legumes cultivated in China; from its seeds *bean-oil* is produced; the refuse in the manufacture of which, *bean-cake*, is largely used in the South for manuring the sugar plantations. From certain varieties *bean-curd*, *soy* and *bean-sprouts* are prepared...

“For Sheng-king we wish descriptions and uses of the different varieties of the Soja bean, distinguished according to the local names.”

Also discusses other species of beans and peas cultivated in China (p. 12-13; each is accompanied by two Chinese characters): 1. *Pien-tou*, the *lablab* bean, of which there are two varieties, one with purple, the other with white flowers. Botanists call this species *Dolichos lablab*, L.

2. *Kang-tou*, *Vigna sinensis* Hassk, the “chow-lee” of India [cowpea].

3. *Tao-tou* ([jack bean], literally “sword bean”), *Canavalia ensiformis*, D.C., the “over-look” pea of the West Indian negroes.

4. *Tsan-tou* (“silkworm bean”), *Vicia Faba*, L, the common bean, the broad bean.

5. *Wan-tou*, *Pisum sativum*, L., the common garden pea.

6. *Phaseolus mungo*, L. This haricot includes in China two if not more very distinct varieties. (a). *Lu-tou* (“green bean”), the Chinese vermicelli pea [mung bean]; the small seeds of this are ground into flour and are used for making the kind of vermicelli known as *Fên-t’iao*. (b). *Ch’ih-hsiao-tou* (“red small bean”), small red haricots [azuki].

8. Besides the foregoing there are several other species of beans cultivated to a small extent, among which may be mentioned the *Man-tou* of Hupeh, *Phaseolus chrysanthus*, Sav. and lentils, *Ervum Lens*, L. which is called at Ichang

Chin-mai-wan.

Note 1. This is the earliest English-language document seen (April 2003) that uses the term “lablab bean.”

Also: kudzu (*ko*, p. 57-59), which is said to grow all over China, especially in the vicinity of Kiukiang.

Note 2. The edition published in Ireland in 1893, having the same title, has E. Charles Nelson as the 2nd author. It has vx [15] pages of front matter plus 6 unnumbered pages. And it is 21 cm tall, rather than 18. According to OCLC / WorldCat (Oct. 2010) the edition published in Ireland is owned by 44 libraries worldwide, compared with only 2 for the Shanghai edition. Address: I.M. Customs, Shanghai, China.

175. Japan, Dep. of Agriculture and Commerce, Agricultural Bureau. 1893. A descriptive catalogue of the agricultural products exhibited in the World's Columbian Exposition. Tokyo: Printed by Seishibun-sha. 115 p.

• **Summary:** The World's Columbian Exposition was a World's Fair held in Chicago, Illinois, to celebrate the 400th anniversary of Christopher Columbus's arrival in the New World in 1492.

Discusses 38 commercial products, with most divided into basic information and products made from the crop. Includes: Rice (“The manures applied to rice fields” include “green manures, farm yard manures, composts, ordures, fish manures, Sake kasu, Shoyu kasu, rape seed cake, and soy bean [cake] {p. 11}”), barley (“It is much used as the material for making miso. Miso is prepared by pounding together boiled soy bean, salt, and the Koji {yeast}* prepared from common barley or naked barley; and is one of the most common articles of food in Japan.” (Footnote: “*Eurotium oryzae). It [barley] is also used for making *ame* {p. 23}”).

Wheat (“Wheat is used principally for preparing soy [sauce], vermicelli, onmen [sic, somen?], undon [sic, udon], and several kinds of confectionary” {p. 27}). It is also used for making *fu* or wheat gluten; “Roast ‘fu’ is used as food by boiling it with soup, soy, mirin, etc.” {p. 29}), naked barley (*Hordeum nudum*; *hadakamugi*), Job's tears (*Coix lacryma*; *hatomugi*), soy bean (*Soja hispida*; *daidzu*), adzuki (*Phaseolus Radiatus*, [azuki]), sasage (*Dolichos Umbellatus*), haricot bean (*Phaseolus vulgaris*), peas, buckwheat (“Sobakiri” and “Kôri-soba” are both seasoned with soy sauce {p. 46}), rape seed (*Brassica chinensis*, *natane*) and rape seed oil (*natane abura*), sesame seeds (yellow {*kigoma*}, white {*shirogoma*}, and black {*kurogoma*} are displayed) and sesame oil (made from only yellow and white sesame), yegoma (*Perilla occimoides*), hemp, shiitake, chilli (*Capsicum Longum*; *tôgarashi*; “The fresh unripe fruit and leaves of certain varieties are eaten by cooking them with soy, sugar, “Katsuobushi” [katsuobushi],* etc.” {p. 103}). Also discusses: Dried daikon (p. 109-11), konjak flour (*Conophallus konjak*; *konniak-ko*, *konnyaku*; “For cooking, it is cut into small pieces and boiled with soy, soup, mirin,

JAPAN.

AGRICULTURAL BUREAU,
DEPARTMENT OF AGRICULTURE AND COMMERCE.

A

DESCRIPTIVE CATALOGUE OF THE AGRICULTURAL PRODUCTS,

EXHIBITED IN THE

WORLD'S COLUMBIAN EXPOSITION.



TOKIO, JAPAN, 1893.
PRINTED BY SEISHIBUN-SHA.

sugar etc.” {p. 112}), *kampio* (*Lagenaria vulgaris*; *kampio* [*kampyo*, *kanpyo*]; “It is used as an article of food by boiling with water, soy, sugar, mirin etc.” {p. 113}), wine.

Concerning the soy bean: In 1887, the total area of arable land devoted to soy bean cultivation is 4,633,152 *tan* (1 *tan* = 0.245 acre; thus 1,142,472.2 acres or 462,352.16 hectares). The total production of soy bean in the Empire was estimated to be 3,253,790 *koku* [419,459 metric tons] (1 *koku* = 180 liters, and 1 bushel = 35.2390 liters; thus 585,682,200 liters = 16,620,284 bushels).

Note 1. From the above figures, a yield of 14.53 bushels per acre can be calculated.

From 1887 to 1891 the price of soybeans per *koku* ranged from 4.180 yen in 1888 to 5.319 yen in 1890. Four specimens of soybeans were exhibited:

No. 24. Green soy bean (*awo-daidzu*) The produce of Akumi-gun, in Yamagata prefecture.

No. 25. Black soy bean (*kuro-daidzu*). The produce of Sapporo-gun, in Hokkaido. No. 26. Common soy bean. The produce of Chikuba-gun, in Ibaraki prefecture. No. 27. Soy bean (Itachi-daidzu). The produce of Iruma-gun, in Saitama prefecture.

“Daidzu or soy bean is extensively used in Japan to

prepare various kinds of foods indispensable for the daily meal, such as 'soy' or 'shōyu,' 'tamari' (a kind of soy), tofu, and miso. It is also largely used as a food for horses and manure [bean cake].

Note 2. This is the 2nd earliest English-language document seen (April 2012) that mentions tamari, which it calls "tamari" (not "tamari shoyu").

A analysis of the percentage composition of 3 kinds of soy beans analyzed by the Sanitary Experiment Station at Tokio is given; Green soy beans have the highest crude protein content (42.85% with 12.28% water). White soy beans (*shiro-daizu*) have the highest ash content (5.00% with 13.46% water). Black soy beans have the highest fat content (18.26%, and the 2nd highest crude protein content 40.25%, with 11.09% water). Soy bean (*Itachi-daizu*) from Saitama prefecture.

Although daizu is abundantly produced in Japan, since its daily consumption by all classes of people is great, it is now imported from China and Korea in large quantity. However imported soy bean is never used to make first class shoyu or soy, since the imported beans are inferior to those produced in Japan.

A table shows the quantity (in *kin*) and value (in *yen*) of soy bean exported from Japan from 1887 to 1891; 2.1 million *kin* were exported in 1889.

Four specimens of soy sauce are on display. Two brands (the trade marks are shown) are made by Mr. Mogi Shichirouemon, and two are made by Mr. Mogi Saheiji. All are made at Noda-machi, Chiba prefecture, Japan. Brands (a) and (c) are of the first quality; brands (b) and (d) are of the second quality.

A table shows the amount of shoyu made in Japan each year from 1887 to 1891; the amount ranges from 1,304,551 *koku* in 1888 to 1,157,982 *koku* in 1890. Since 1 *koku* = 180 liters, the amount made in 1888 is 234,819,180 liters. The total number of shoyu manufacturers in 1889 was 10,682. A table shows the price (in *yen*) of various brands and quantities of shoyu from 1887 to 1892. A brief description of the process for making shoyu is given. The word "barm" is used instead of koji. Either barley or wheat can be used with daizu to make the barm. The "mixture is kept for about 25 months, stirring it occasionally with a paddle, say twice a day during winter and three times in summer, and when it is fermented to the required degree, soy is extracted by means of a soy press. The clear liquid thus obtained is pasteurized by heating to about 130° F. and when entirely cooled, it is transferred into casks."

As shoyu is manufactured from daizu, wheat, etc., "it naturally contains a large quantity of albuminous matter. Shoyu is used in Japan as table salt is in Europe and America; consequently it is indispensable for daily use for cooking fish, meat, vegetables. etc. It has a remarkable merit when applying it in the place of sauces (like 'worcestershire') for beefsteak, fry, stew, etc. It answers

better than salt when used with cold meat.

"Japanese soy or 'Shoyu' has long been exported to various parts of Europe where those who once taste it never fail in extolling its flavour. It is said that in Holland, Japanese soy has been used by many people from long years ago and highly esteemed by them." A table shows the chemical composition of shoyu.

"Since the fine flavour of Japanese soy has recently become known to people abroad, several trial consignments were made both to Europe and America, and the result, though it has obtained a high reputation among them, still it has not yet become a leading article of export." A table shows the annual amount and value of shoyu exported from Japan from 1887 to 1891. It ranges from 1,302.71 *koku* worth 11,091 in 1887 to 3,749.01 *koku* worth 41,028 *yen* in 1891. Thus the exports are growing rapidly.

Three specimens of tamari are on display, one dilute and one concentrated. The first two are made and sold by Mr. Ishima Mosaku. The 3rd (regular tamari) is made and sold by Mr. Morimoto Chōhachi. All are made at Yokkaichi in Miye [Mie] prefecture. Tamari is made chiefly in the prefectures of Miye, Aichi and Gifu [in central Japan]. Tamari is very similar to shoyu except that no wheat is used in manufacturing tamari.

Tofu (bean curd): "Tofu is one of the most favourite foods of Japanese and sold in all places both in towns and villages. The specimen here exhibited is called Yakidofu and is prepared by roasting partially dried 'Tofu' over a charcoal fire." "As 'Tofu,' sometimes called bean curd, being a coagulated vegetable albumen of soy beans, it contains a large proportion of nutritious matter, most important to human life, especially, to those who subsist mainly upon vegetables." The price of this Yakidofu is 18 *yen* per 10 dozen.

Note 3. This is the earliest English-language document seen (April 2013) that mentions grilled tofu, which it calls *Yakidofu*.

A specimen of Kōri-tōfu or frozen bean curd is displayed; it is made in Minami Adzumi-gun, Nagano prefecture. "As it can be preserved for many years it is a suitable for provision for vessels undertaking long voyages."

Concerning adzuki: There are both red adzuki and white adzuki. Early varieties are sown in the spring; late varieties {called aki-adzuki in the autumn}. "It is mostly used for preparing "An"—a pulpy mixture of boiled Adzuki flour and sugar, and in that state is largely used for making various kinds of confectionary." It is also used to make "Sarashi-an or refined flour of 'adzuki," and "shiruko—a juice prepared by boiling the flour with a suitable quantity of water and adding sugar..." Note 4. Shiruko could be described as adzuki bean soup with mochi (rice cake).

Concerning rape seed: "Rape was formerly cultivated to a great extent but since the introduction of Kerosene Oil, the acreage of its cultivation has been much diminished, yet

it is grown in nearly all parts of Japan and forms one of the important farm crops.”

176. Crocker, C.S. 1894. Compilation of analyses of fodder articles, fruits, sugar-producing plants, dairy products, etc. made at Amherst, Mass., 1868-1894. *Massachusetts State Agricultural Experiment Station, Annual Report of the Board of Control* 11:347-365. For the year 1893. Jan. See p. 349, 351-52, 354-55, 358, 361, 363.

• **Summary:** In Section A, “Analyses of fodder articles,” the following analyses are given (p. 348-55): I. Green fodders—Corn and soja bean ensilage. Soja bean [whole plant] (*Soja hispida*). Soja bean (early white). Soja bean (early green). Soja bean (medium black). Soja bean (late). Serradella (*Ornithopus sativus* Brot.). White lupine (*Lupinus albus*). Yellow lupine (*Lupinus luteus*).

II. Hay and dry coarse fodders—Blue melilot (*Melilotus coerulea* Desr.), Sainfoin (*Onobrychis sativa*), Sulla (*Hedysarum coronarium*), Summer rape (*Brassica napu*), Soja bean, Soja-bean straw.

IV. Grains, seeds, fruits, etc.—Soja beans. Red adzinki [azuki] beans. Daidzu beans. V. Flour and meal—Soja-bean meal (average 18.17% fat). VI. By-products and refuse—Gluten meal (avg. 9.13% fat), Gluten meal (Chicago) (avg. 7.89% fat).

For each product the following statistics are given: Number of analyses. Dry matter (Max., min., avg.). Percentage protein (Max., min., avg.). Percentage fat (Max., min., avg.). Percentage nitrogen-free extract (Max., min., avg.). Percentage fibre (Max., min., avg.). Ash.

In section B, “Analysis of fodder articles with reference to fertilizing ingredients,” the following analyses are given (p. 358-21): I. Green fodders—Corn and soja bean ensilage. Soja bean. Soja bean (early white). Soja bean (early green). Soja bean (medium black). Soja bean (late). White lupine. Yellow lupine. II. Hay and dry coarse fodders—Soja bean. Soja-bean straw. IV. Grains—Soja beans. Red adzinki [azuki] beans. White adzinki beans. Daidzu beans. V. Flour and meal—Soja-bean meal.

For each product, the following are given: Number of analyses. Moisture. Nitrogen. Ash. Potassium oxide. Sodium oxide. Calcium oxide. Magnesium oxide. Ferric oxide. Phosphoric acid. Insoluble matter. Valuation per 2,000 pounds, based on the following prices per pound of essential fertilizing ingredients: Nitrogen 17½ cents, potassium oxide 5½ cents, phosphoric acid 5 cents.

Note: This is the earliest document seen (Sept. 2004) that uses the term “medium black” (though written in lowercase letters) in connection with soybeans (one of two documents). Address: B.S., Asst. in General and Analytical Chemistry, Amherst, Massachusetts.

177. Zavitz, C.A. 1894. Report of the experimentalist. *Ontario Agricultural College and Experimental Farm*

(*Guelph*), *Annual Report* 19:53-130. For the year 1893. See p. 79.

• **Summary:** The section titled “Beans, comparative test of 17 varieties” (p. 79), states: “In 1893, 17 varieties of beans were grown on plots side by side... Each plot was one one-hundred and-sixtieth of an acre. The beans were planted in rows 25 inches apart on May 22nd...”

A table shows the names of the 17 varieties and the yield of each. “Yellow Soy” yielded 20.4 bushels/acre and Edamaine [Edamame] yielded 7.7 bushels/acre. The seed of the Yellow Soy was obtained from the United States, and that of the Edamaine [sic], a fodder plant, was obtained from the Kansas Experiment Station [from Prof. Charles C. Georgeson]. “Other varieties [sent by Georgeson] which did not mature their seed were Yamagata, Cha Daidzie [sic, Yamagata Cha-Daidzu], Kiyusuke Daidzie [sic, Kiyusuke Daidzu; both soy bean varieties] and Black Podded Adyuski [sic, Adzuki]. These varieties will be tested again in another year.

Note 1. This is the 2nd earliest document seen (Aug. 2019) that clearly refers to soybeans in Canada, or in Ontario province, Canada, or to the cultivation of soybeans in Canada, or in Ontario province, Canada (May 1893). The source of these soybeans was the United States, probably from Kansas.

Note 2. This is the earliest document seen (Aug. 2019) by or about C.A. Zavitz in connection with soybeans. Zavitz apparently does not realize that Yamagata Cha-daidzu and Kiyusuke daidzu are the names of soja bean varieties (see p. 79).

Note 3. This is the earliest document seen (Aug. 2019) in which C.A. Zavitz states that he obtained soybeans from Kansas. Between 1890 and 1893 the Kansas Agricultural Experiment Station and Prof. Charles C. Georgeson who worked there published more than twenty articles on soybeans; Prof. Zavitz probably read at least one of these before he contacted Kansas to request soybean seeds.

Note 4. Bound at the back of this volume is the 15th “Annual Report of the Ontario Agricultural and Experimental Union.” Address: B.S.A., Experimentalist, Ontario Agricultural College [Guelph, Ontario, Canada].

178. McCarthy, Gerald; Emery, F.E. 1894. Some leguminous crops and their economic value. *North Carolina Agricultural Experiment Station, Bulletin* No. 98. p. 133-54. March 1.

• **Summary:** This bulletin contains three parts, the first two of which discuss soy beans. It is not clear where these soy beans came from.

Part I, titled “Legumines as improvers of the soil,” by G. McCarthy, states: “Among the natural orders or families of plants, none hold a higher place in relation to human welfare than the *Leguminosae* or Pulse family. This family includes every variety of bean, pea, clover, medic, vetch, and many useful and poisonous drugs, besides a number of the finest

ornamental and timber trees. The legumines were among the first vegetables cultivated by mankind, and have ever been among those most esteemed. Nearly all of this family of plants have a peculiarly-shaped butterfly-like flower, and the seeds are enclosed in pods, which are often arranged in one-seeded joints. Both the stems and the seeds of all the legumines are very rich in albuminoids—the food which goes to form the muscular or lean-meat portion of flesh, and are therefore especially valuable for a young and growing stock and for working animals.

“In North Carolina, the most valuable and generally used forage and fertilizing plants of this family are the true clovers, medics [such as black medic (*Medicago lupulina*) and burr clover (*Medicago denticulata*)], Japan clover, vetches, cow-peas, and Japan peas... It is well known that most or all of this family of plants have a property possessed by no other family of plants—that of harboring in their roots a species or class of yet unnamed microbes which fix the free-nitrogen of the air which is then absorbed and utilized by the plant in its growth and fruition. We can therefore, by stimulating a luxuriant growth of legumines obtain at slight expense the nitrogen required by other nitrogen-consuming crops.”

On p. 242 we read: “Japanese peas—*Glycine hispida*.—The Japanese or Mongolian pea is more commonly called ‘soja’ and ‘soy’ bean, but it is not a bean. Recently there have been introduced several new varieties of this pea. All the following varieties were sown May 20 [1893] and received the same treatment:

“*The common Soja Bean or Soy Pea*.—Seed round, yellow. Vigorous growing, hairy, bushy plant attaining a height of 20 to 25 inches. Stems become woody soon after flowering. A very prolific bearer of round yellow seeds, which are sometimes used as a substitute for coffee. The peas, when properly cooked, are edible and palatable. The edible qualities of the soy bean are so highly esteemed in Japan that it is there rarely fed to stock.

“The following directions [recipe] for cooking the ‘soy’ pea are given by Dr. J.H. Mills, of the Baptist Orphanage at Thomasville, N.C. [North Carolina]: Soak the peas till the skins come off. Then stir the peas in the water until the skins rise to the surface and skim them off. Boil the peas with bacon until soft. Add pepper and butter to suit and serve hot. If the peas are green the preliminary soaking may be omitted. This makes a most palatable dish, well liked by children.

“*Japan Pea No. 9*.—A vigorous, bushy plant resembling the ‘soy,’ but smoother and has larger dark-colored seeds. This is the best of the new varieties.

“*Japanese Pea No. 7*.—A small, slender, bushy plant bearing a fair crop of small cream-colored peas—inferior to the soy and No. 9.

“*Japanese Beans—Phaseolus radiatus* [azuki beans]—*Japanese Bean No. 5*.—A low and slender-growing plant bearing numerous pods well filled with a small red bean

which makes excellent soup.

“*Japanese Bean No. 6*.—A plant scarcely distinguished from No. 5 and of about the same value. Both these beans are for table use only and not for forage.”

An illustration (p. 142, non-original) by “VAC” or “VC” shows the “Japanese or Soy Pea” plus several enlarged pods in the lower right corner.

In Part III, titled “The fungus and insect enemies of legumines,” by Gerald McCarthy, Section C, “Insect enemies,” discusses the following insects that damage leguminous forage plants in North Carolina: (1) The pea weevil, *Bruchus pisi*, is the larger of the two common weevils. But “*Bruchus fabæ* [the bean weevil] is our most destructive weevil and is the species which infests cow-peas and table beans [including soy beans] in store [storage].” This weevil is the smaller of the two, “is light yellow in color and quite hairy.” As soon as this bean weevil matures in stored beans or cow-peas, it immediately “lays eggs on the hard seeds and these soon hatch into devouring grubs, which, after eating their fill, again produce the winged form to lay more eggs, and so on while the food supply lasts. A few weevils in the stock of beans put into the bin in the fall may increase to millions by the spring and ruin a thousand bushels of beans or cow-peas.

Remedies: If the presence of weevils is suspected, the seeds of beans or peas “should be plunged into water nearly scalding hot—140°F for five minutes before sowing. As soon as the seed is threshed out and before bagging for storage, it should be placed in a tight bin, or hogshead, or piled in a conical heap on the floor of a tight room and subjected to the fumes of carbon bisulphide.”

(2) The clover-seed midge, a two-winged fly, is “a sister species of the notorious Hessian fly, *Cecidomyia destructor*. Also mentions the clover root borer and the clover hay worm.

Note 1. This is the earliest English-language document seen (May 2012) that uses the term “Japanese Pea” or “Mongolian pea” or “Japanese Pea No. 7” to refer to the soy bean. Since “Japanese Pea” is mentioned in only one other document (Soule 1907, p. 280-81, from Virginia) we conclude that this is not the name of a new soy bean variety.

Note 2. This is an early reference to the soybean in connection with Mongolia.

Note 3. This article contains one of the earliest American recipes for cooking whole soybeans.

Note 4. In the late 1800s, the adzuki bean was sometimes given the scientific name *Phaseolus radiatus*. In the U.S., Georgeson of Kansas gave it this name in 1890 and 1892. Later the name was used for the mung bean.

Note 5. This is the earliest English-language document seen (Aug. 2014) that contains the word “entomologist” in connection with soybeans.

Note 6. This is the earliest English-language document seen (March 2007) that uses the word “medic” to refer to a

leguminous plant, probably alfalfa (*Medicago sativa*). It is also the earliest English-language document seen (March 2007) that uses the word “medics” to refer to members of this plant family.

Note 7. This is the earliest English-language document seen (Feb. 2007) that uses the word “legumines” to refer to legumes.

Part II of this article (p. 147-50), titled “The cultivation of leguminous plants for forage,” by F.E. Emery, notes that the soy bean was one of the most common “legumines” used for hay, soiling, and silage. “The cow-pea and the soy bean will give better satisfaction for soiling or silage than for hay, unless sown broadcast...” For soiling: “Soy beans grow upright and may be planted alternately with corn in the same row and cut at the same time with it.” Address: 1. Botanist and entomologist; 2. Agriculturist. Both: Raleigh, North Carolina.

179. McCarthy, Gerald; Emery, F.E. 1894. The forage plant garden, including full notes taken during growth. *North Carolina Agricultural Experiment Station, Bulletin No. 98*. p. 157-70. March 1.

• **Summary:** Pages 169-70 contain sections with the following titles: “Japan or Mongolian Pea.—*Glycine hispida* and Red Bean, *Phaseolus radiatus* [azuki bean]. Japan Pea No. 9.—*Glycine hispida*, variety. Japan Pea No. 5.—*Phaseolus radiatus*. Japan Pea No. 7.—*Glycine hispida*, variety. Japan Pea No. 6.—*Phaseolus radiatus*. Japan Pea.—*Glycine hispida*, common Soy Pea or ‘Soja Bean.’ The Japanese Peas and Beans.”

Some of the information in these sections is very similar to that given in a previous section of this same bulletin, on pages 142-43 but pages 169-70 contain more details—and illustrate the confusion that existed about these plants and their names. The last section titled “The Japanese Peas and Beans” (p. 170) states: “As forage plants the common so-called Soja Bean, more properly named Soy Pea, is by far the best of all these plants. It is later than Nos. 7, 8 and 9, but grows much more luxuriant and will give 50 to 100 per cent. more forage per acre.” Address: 1. Botanist; 2. Agriculturist. Both: Raleigh, North Carolina.

180. Flag, Chas. O. 1894. Rotation of crops. *Rhode Island Agricultural Experiment Station, Annual Report 6*:176-95. For the year 1893. See p. 190-93.

• **Summary:** The section titled “Experiments with leguminous plants” (p. 190-93) states: “The trial of legumes was made upon three of our most uniform and thoroughly exhausted plots of the experiment land on the plain. The object, aside from studying the habits and growth of the most common leguminous plants, was to determine the effects of different applications of nitrogen. The three plots (permanently numbered 17, 19, and 21) each received an application of 1,200 pounds dissolved South Carolina Rock

(16.63 per cent. total phosphoric acid), and 180 pounds muriate of potash (50 per cent. potassium oxide), while in addition No. 19 received 150 pounds of nitrate of soda (15.50 per cent. nitrogen), and No. 21 received 450 pounds of nitrate of soda of the same strength, while no nitrogen whatever was applied to No. 17.”

Seeds of 32 legumes were sown on 29 May 1893 in duplicate rows 3 feet apart across on each of the three plots. Seven varieties of soja beans were planted. A “Table giving weights of short rows and computed yields per acre” (p. 191) shows the amount of nitrogen or soda applied to each plot and the computed yield of green fodder (in pounds per acre) for the 3 plots. The Soja Bean varieties and their yield range for the three plots are: Medium Green Soja Bean (4613–6597), Medium Black Soja Bean (4386–7108), Early White Soja Bean (1890–2646), Yamagata-cha Daidzu [brown] (2646–4915), Kiyusuke Daidzu (5369–7562), Edamame (3403–3781), Yellow Soy (2193–3856). The two varieties giving the highest yields were Kiyusuke Daidzu (7562 lb/acre) and Medium Black Soja Bean (7108 lb/acre). Yields are also given for Black Podded Azuki (3100–5218) and White Podded Azuki (4537–5596), White Lupine, Blue Lupine, Yellow Lupine, Serradella, and Spurry (*Ornithopus sativus*).

“In our last report (Fifth Annual Report, page 150) we called attention to the merits of the varieties of the soja or soya bean and cow pea as fodder crops especially valuable to the dairy man for summer feeding, soiling and for ensilage. They are tender plants and can only be sown when all danger of frost is past and must be harvested before frost in the fall, therefore their season of usefulness is somewhat limited. The farmer with a large herd of milch cows and limited pasture desires an abundant crop for soiling early in spring and late in autumn. We can find such among the leguminous plants.”

Note: This is the earliest document seen (Nov. 2020, one of two documents) that mentions the soybean varieties Medium Black or Medium Green. Address: Director of the Station, Agriculturist, and President of the Board of Managers, Providence.

181. True, A.C. 1894. Report of the Director of the Office of Experiment Stations. *Report of the Secretary of Agriculture*. p. 417-64. For the year 1893. See p. 439-40.

• **Summary:** In the section on “Practical experiments at the Agricultural Experiment Stations” (p. 365+), there is a long subsection titled “Soja beans” (p. 439-40) which states: “These beans are also known as soya and soy beans. Two distinct species have been called by these names. The small bean (*Phaseolus radiatus*) is largely used in Japanese confections, but is of no special value as a forage plant.

“The large bean (*Soja hispida* or *Glycine hispida*) is the true soja bean, and has been found by the stations in a number of States to be a valuable forage plant. In Japan this bean is largely used as food for man and animals.

“The soja bean is an animal leguminous plant

resembling the bunch or upright varieties of cowpeas. The growth is erect and from 3 to 4.5 feet high. The short pods are borne thickly on the stocky, bushy plant. Stems, leaves, and pods are densely covered with short hairs.

“The soja bean can not be said to be a new plant in the United States but was introduced from Japan before the organization of the experiment stations in 1888. However, the varieties first introduced were too late in maturing for localities in which early autumn frosts occur. The Massachusetts State Station and the Kansas Station introduced from Japan early varieties of soja beans. Repeated experiments at these stations indicated that these matured in Massachusetts with the same certainty as the common varieties of corn, and that they ripened in Kansas in any season. The varieties which experiments have shown to be early enough for Kansas are Eda mané [sic, Eda-mame; see Popenoe, Mason, and Marlatt 1891], Yellow Soy, Yamagata Cha-daidzu [brown], and Kiyusuké Daidzu. In Kansas soja beans have shown considerable ability to resist drought.

“The seed should be planted only after the ground is warm in the spring. In Kansas the latter part of May is the preferred season. The beans, at the rate of 5 to 10 per foot, are planted in drills from 2.5 to 3 feet apart. The cultivation is similar to that given the bunch varieties of the cowpea and should not occur while the leaves are wet with dew or rain. The vines are cut when the beans begin to ripen, cured in small, high piles, and threshed when dry.

“At the South Carolina Station the yield of beans was from 10 to 15 bushels per acre. At the Georgia Station soja beans yielded 1,307 pounds of beans per acre, while the yield of cowpeas on an adjacent plat was only 840 pounds. The weight of dry forage from the former was also greater than that of the hay from cowpeas. At the Massachusetts Hatch Station the variety Medium Early White soja bean yielded at the rate of 35 bushels per acre. The variety Black Medium made a ranker growth of vine than most of the other sorts. At the Massachusetts State Station soja beans yielded 5,949 pounds of dry matter per acre. The red varieties [probably azuki beans] have been found superior to the white in productiveness and in beauty of appearance. At the Georgia Station soja-bean forage was relished by stock and was more easily cured than cowpea vines. The yield of soja bean forage, exclusive of beans, was at the rate of 2,940 pounds of dry matter per acre, containing 88.2 pounds of crude fat, 438.06 pounds of crude protein, 730.29 pounds of fiber, 1,143.36 pounds of nitrogen-free extract and 186.39 pounds of ash. Analysis showed the beans to be much richer than cowpeas in protein and fat but poorer in starchy matters. One hundred pounds of air-dry beans contained 25.86 pounds of nitrogen-free extract. The nutritive ratio is very narrow. This very high percentage of fat and protein makes soja beans a suitable substitute for cotton-seed meal and linseed meal and other concentrated and costly feeding stuffs which dairymen often find it necessary to purchase. Soja bean meal

without any admixture was relished by milk cows at the Massachusetts Hatch Station.

“The soja-bean plant has been advantageously used for hay, for soiling, and for silage, and is believed to have, in common with most cultivated leguminous plants, the power of obtaining some of its nitrogen from the air, and hence acting as a soil renovator.”

Note: This is the earliest English-language document seen (Oct. 2006) that contains the term “cowpea vines” (or “cowpea vine”). Address: Director of the Office of Experiment Stations [USDA, Washington, DC].

182. Wheeler, H.J.; Towar, J.D. 1894. On the occasional ill-effect of sulphate of ammonia as a manure and the use of air-slaked lime in overcoming the same. *Rhode Island Agricultural Experiment Station, Annual Report* 6:206-267. For the year 1893. See p. 230. [59* ref]

• **Summary:** The section titled “Soja beans (*Soja hispida*)” (p. 230) describes tests in which soja beans were grown on 4 plots. Plot 23 was fertilized with sulphate of ammonia alone. Plot 25 was fertilized with sulphate of ammonia plus lime. Plot 27 was fertilized with nitrate of soda alone. Plot 29 was fertilized with nitrate of soda plus lime. The highest yield of soja beans and straw (either green or absolutely dry) was from plot 27. The authors conclude: “Here again as in the case of others of the leguminous plants, the nitrate of soda alone, gave better returns than when used with lime. We see by comparison of the yield of plots 23 and 25 that in this case, contrary to all the previous observations, nitrogen in the form of sulphate of ammonia gave greater returns when used alone than when used with lime.”

A photo (Fig. 8, opposite p. 264) shows soja beans growing in a field with cow peas. The caption reads: “Showing the comparatively uniform growth of two leguminous crops across four plots, two of which were manured with sulphate of ammonia, and two with nitrate of soda—one plot in each case being *with* and one *without* lime.”

The section titled “White podded adzuki” (p. 229) states: “This is a Japanese bean, introduced into this country by Prof. W.P. Brooks of the Hatch Experiment Station, of Amherst, Massachusetts, through whom the seed was obtained.”

Note: This is the earliest English-language document seen (Oct. 1999) that mentions the application of lime, as a fertilizer, to soja beans. Address: 1. Ph. D., Chemist; 2. B. Sc., Asst. Agriculturist. Both: Kingston, Rhode Island.

183. Crocker, C.S. 1895. Analyses of fodder articles with reference to fertilizing ingredients. *Massachusetts State Agricultural Experiment Station, Annual Report of the Board of Control* 12:438-45. For the year 1894. Jan.

• **Summary:** The soja bean is mentioned on pages 428-29, 432, 434-35.

Analyses of the following products are given (with

the valuation per 2,000 pounds in parentheses): I. Green fodders—Corn and soja bean ensilage. Ensilage of millet and white soja bean. Soja bean. Soja bean (early white). Soja bean (early green). Soja bean (early black). Soja bean (medium black). Soja bean (late). II. Hay and dry coarse fodders—Soja bean, Soja bean straw. IV. Grains—Soja beans (22.63). Red adzuki [adzuki] beans (14.07). White adzuki beans (14.14). Daidzu beans [actually soja beans] (22.96). V. Flour and Meal—Soja-bean meal (24.64). Peanut meal (-). VI. By-products and refuse—Gluten meal. Gluten feed (Buffalo). Peanut feed. Peanut husks.

For each product the following statistics are given: Number of analyses. Percentage of moisture. Nitrogen. Ash. Potassium oxide. Sodium oxide. Calcium oxide. Magnesium oxide. Ferric oxide. Phosphoric acid. Insoluble matter. Valuation per 2,000 pounds. ["The valuation is based on the following prices per pound of the essential fertilizing ingredients: nitrogen 17½ cents, potassium oxide 5½ cents, phosphoric acid 5 cents"].

Note: This "soja-bean meal" is probably ground soja beans; it was probably not defatted. Address: B.S., General and Analytical Chemistry [Amherst, Massachusetts].

184. *Sentinel (The) (Carlisle, Pennsylvania)*. 1895. Leguminous plants: extracts from a Rhode Island Agricultural Experiment Station Bulletin. Dec. 30. p. 3, col. 6. Evening edition.

• **Summary:** One part of this extract concerns soja beans: "All varieties of soja beans are used profitably either as silage, as green fodder or as a green manure. They grow readily. The common variety and the Early White are among the earliest to mature. One bushel of seed is required per acre. Black Podded Adzuki, White Podded Adzuki, Kiyusuke Daidzu, Yamagata Daidzu, Eda-mame and Yellow Soy are Asiatic varieties of beans similar [sic] to the soja beans. The seed of these varieties, as well as the soja beans, makes an excellent, rich meal for stock feeding, while the Black Podded Adzuki beans are said to be desirable and nutritious for table use."

Note 1. The writer is confused, failing to realize that the two varieties of Daidzu, as well as Eda-mame and Yellow Soy are all varieties of soja beans. Thus, the words "soja beans" and "soy beans" are synonyms.

Note 2. It seems unlikely that the writer of this article got the information from any Rhode Island Agricultural Experiment Station Bulletin. Rather, it is clear that he got it (and his confusion) from the *Eighth Annual Report of the Rhode Island Agricultural Experiment Station*, 1895, Part II, pages 312-325, and especially from page 321.

185. Agricultural Society of Japan (*Dai Nihon Nôkai*). 1895. Useful plants of Japan: Described and illustrated. Vol. 1. Tokyo: Agricultural Society of Japan. 233 p. See p. 5-6. 22 cm. [Eng]

• **Summary:** Discusses five varieties of *Glycine hispida* (p. 5-6) including: 21. Black soy-bean, Jap. *Kuro-mame*. "The beans have black skin. They are eaten either boiled or parched and also used to make *miso* (a kind of sauce with solid consistency), cakes, and *natto* (a cooked beans eaten as relish to rice)."

Note 1. The writer fails to mention that both miso and natto are fermented foods.

Note 2. This is the earliest English-language document seen (Jan. 2012) stating that natto is eaten with rice, or as a relish to rice.

22. White soy bean, Jap. *Shiro-mame*. Similar to No. 21 but the beans have yellowish-white skins. "Numerous varieties as to size, form, or duration of growth occur, and all are eaten either boiled or parched. Many important services are due to this bean. They are used to make malt [koji], *miso* (a kind of sauce), *shōyū* (bean sauce), and *yuba* (a kind of food). The *mamenoko* (bean flour) [probably roasted soy flour or *kinako*] is made of the beans and is eaten with *dango*, etc. It yields a dye called *Mame-no-go*. Oil is also pressed out from these beans. They are used in many other different ways."

Note 3. This is the earliest English-language document seen (Sept. 2021) that uses the word *mamenoko* to refer to roasted soy flour.

23. Green bean, Jap. *Ao-mame*. Similar to No. 21 but with larger seeds of greenish color. "One variety with green colour both of the skin and albumen called *Konrinzai* occurs, and is used to make *Aomame-no-ko* (green bean flour)."

24. Jap. *Goishi-mame*. The seed of this variety is flat and black. Eaten boiled.

25. *Gankui-mame*. "Closely allied to the preceding. The beans are larger and thinner in the middle, and eaten principally boiled."

Also discusses: Job's tears (*Coix lachryma*, Jap. *Tômuji*, *Hatomugi*, p. 5. The grain is pounded in a mortar, cleaned, and "consumed as meal and *mochi*. An infusion of the parched and ground grains is used instead of tea, and is called *Kosen*). Five varieties of adzuki beans (*Phaseolus radiatus*, p. 7-8).

Pea-nut (*Arachis hypogaea*, Jap. *Tôjin-mame*, *Nankin-mame*, p. 9. "They are eaten parched or used in confectionery, or to extract oil. A variety with larger nuts about 3 times bigger was introduced from America in 1873").

Kudzu (*Pueraria thunbergiana*, Jap. *Kudsu*, *Makudsu*, p. 69-70, 92. "The largest roots are about 3-4 ft. [long] and about the thickness of a man's arm. In winter they are taken, and an excellent starch is prepared from them. It is used for food or paste. The vine is used to make baskets, and its fibre is taken for cloth. The leaves are used to feed cattle").

Sesame (*Sesamum indicum*, Jap. *Goma*, p. 84. "There are three varieties, black, white, and brown colored. The latter variety is the best to take oil. The oil is principally used

for dressing food. The grilled seeds are used to add to cakes, salads, etc.”). Address: Tameike 1, Akasaka, Japan.

186. Agricultural Society of Japan (*Dai Nihon Nôkai*). 1895. Useful plants of Japan: Described and illustrated. Vol. 1. Tokyo: Agricultural Society of Japan. 233 p. See p. 7-8. 22 cm. [Eng]

• **Summary:** Discusses five varieties of *Phaseolus radiatus* L. (p. 7-8) including: 34. var. *subtriloba*. Jap. *Bundo*, *Yayenari*. “The shape and use resemble very much the *Phaseolus radiatus*, but its beans are green. Its stalks grow to the height of about 1 foot and the beans are used to make green *An* (made of crushed beans with sugar) or eaten boiled mixed with rice as meal or porridge. It is also used to brew *sake* (rice beer), and to make *dango* and macaroni. It is used also to make called *Tôgasai* in China.

35. Red-fruited dwarf bean, Jap. *Adsuki*; an annual leguminous plant cultivated in common dry land, consisting of numerous varieties. It grows to the height of about 2 feet. The beans are mixed with rice and eaten boiled, used to give a reddish color to *Kowameshi* (glutinous rice boiled with the bean [also called *sekihan*]), made into confections, or used as washing powder instead of soap.

35 b. *Shiro-adsuki* (*White adsuki*); a variety of the preceding with white beans specially used for making white *An* (crushed beans mixed with sugar) and also confections or used as washing powder instead of soap.

36. Var. *pendula*, Jap. *Tsuru-adsuki*; a climbing subspecies of *Phaseolus radiatus* (35). The beans are smaller and longer than those of common *Phaseolus radiatus* and are used in the same way.

37. Jap. *Dainagon-adsuki*; a variety of *Phaseolus radiatus*, L. (35) with larger beans and clear red colour. But the use and quality are the same with the common one (35).

Note: This is the earliest English-language document seen (Oct. 2021) that uses the word *Dainagon* or *Dainagon-adsuki* to refer to a variety of azuki beans. Address: Tameike 1, Akasaka, Japan.

187. Flag, Chas. O.; Towar, J.D.; Tucker, Geo. M. 1895. Field experiments. *Rhode Island Agricultural Experiment Station, Annual Report* 7:111-28. For the year 1894. See p. 114-19.

• **Summary:** The section titled “Experiment with leguminous plants” (p. 114-20) states: “The experiment with leguminous plants which began last year (see Annual Report for the year 1893, p. 190) upon plots 17, 19, and 21, was continued through this year with slightly varying results. The three plots received like quantities of potash and phosphoric acid, but plot 17 received no nitrogen, plot 19 received one-third ration, and plot 21 full ration. In nearly every case in 1893 the plot (19) that received one-third ration (150 lbs.) of nitrate of soda gave a larger yield than either plot 17 or 21. While in 1894 a majority of the plants on the full-ration

plot (21) gave the largest yields, although the gain was not great except in two or three cases; in no case was the gain in weight of plot 21 over plot 19 sufficient to cover the expense of applying the extra 300 lbs. of nitrate of soda.”

A table (p. 116) gives the names of the crops planted (all were planted on 13 June 1894), the weight of three fertilizers added (in lb/acre; phosphate rock, muriate of potash, and nitrate of soda) the height of the plants, usual method of sowing (broadcast vs. drilled; all the crops mentioned below were drilled in 24-inch rows), date of harvest, excess yield due to additional nitrogen. The crops include: Soja bean (common), Soja bean (Medium Green; plants or beans), Soja bean (Medium Black; plants or beans), Soja bean (Early White; plants or beans), Black podded adzuki (plants or beans), White podded adzuki (plants or beans), Kiyusuke daidzu (plants or beans), Yamagata daidzu (plants or beans), Eda-mame (plants or beans), Yellow soy (plants or beans).

“With most of the soja beans the increase of yield is not sufficient to cover the cost of applying any nitrogen at all the second year, while the first year there was a slight profit made by applying the one-third ration.”

A table (p. 118) shows the composition of dry matter of some leguminous green fodders (including 5 types of soja bean) as compared with corn, oats, and millet.

Page 119 states: “All varieties of *Soja Beans* are used profitably either as silage, as green fodder, or as a green manure. They grow readily; the *Common* variety and the *Early White* are among the earliest to mature. One bushel of seed is required per acre.

“*Black Podded Adzuki*, *White Podded Adzuki*, *Kiyusuke Daidzu*, *Yamagata Daidzu*, *Eda-mame* and *Yellow Soy*, are Asiatic varieties of beans similar to the soja beans. The seed of these varieties, as well as the soja beans, makes an excellent, rich meal for stock feeding, while the *Black Podded Adzuki* beans are said to be desirable and nutritious for table use.”

Note 1. The above text indicates that the investigators do not realize that soja beans, daidzu, eda-mame, and yellow soy are all different types of soybeans. Some of these are Japanese names.

Note 2. This is the earliest English-language document seen (June 1998) that uses the term “green manure” in connection with soybeans.

This is the earliest English-language document seen (June 2014) that mentions the use of “phosphate rock” or “rock phosphate” as a fertilizer, or in connection with soybeans. Address: Kingston.

188. Crocker, C.S. 1896. Compilation of analyses of fodder articles and dairy products, made at Amherst, Mass. 1868-1896. *Massachusetts (Hatch) Agricultural Experiment Station, Annual Report* 8:81-98. For the year ending June 30, 1895.

• **Summary:** Discusses: A. Fodder articles. Composition and

digestibility of cattle feeds: Corn and soy-bean ensilage. Millet and soy-bean ensilage. Soy bean (early white, early green, early black, medium black, late; all used as green fodders). Soja bean. Soja-bean straw. A table (p. 82-83) shows, for each fodder: 1. Composition. (a) Fresh or air-dry substance: Water, ash, cellulose, fat, protein, nitrogen-free extract. (b) Water-free substance: Cellulose, fat, protein, nitrogen-free extract. 2. Digestibility. (a) Fresh or air-dry substance: Cellulose, fat, protein, nitrogen-free extract. (b) Water-free substance: Cellulose, fat, protein, nitrogen-free extract.

B. Fertilizing ingredients in fodders. Green fodders: Corn and soy-bean ensilage. Millet and soy-bean ensilage. Soy bean (early white, early green, early black, medium black, late; all used as green fodders). Soja bean. Soja-bean straw. Soja beans (as seeds): Soja-bean meal. A table (p. 94-97) shows the following for each fodder: Analyses, water, nitrogen, potassium oxide, phosphoric acid, valuation per 2,000 pounds. C. Dairy products.

189. *San Francisco Chronicle*. 1896. Art of sword making by the Japanese smiths. March 8. p. 15.

• **Summary:** “Among the famous sword-makers were Masamune, who forged swords about 1290 of our era,... Of Masamune’s swords, it is often said that they are so fine that they will cut a hair falling in the air, or cut in two the very hard-skinned adzuki bean as it falls;...”

190. Flagg, Chas. O. 1896. Some suggestions for Rhode Island. *Rural New-Yorker* 55:528-29, cols. 3 & 1. Aug. 8.

• **Summary:** “We have leguminous plants which respond to cultivation, but most of those of which the seed is small and cheap when a sufficient amount for an acre is considered, require about the whole season for their growth. If some other than a leguminous plant were to be used, oats or barley would answer the purpose, and so, also, would round turnips or rape, of which the Dwarf Essex produces very abundant foliage in a very short time. Either of these four would be sure to do well until winter weather. I think that M. Morse could very safely try either the black or white podded adzuki Soja beans. These beans are about two-thirds the size of Canada peas, and the plant is quite prolific, so that a comparatively small area would yield sufficient seed for planting, at comparatively little expense. We have not sown any of these seeds so late in the season as August 1, but they grow rapidly in warm weather, and if the soil be mellow, I see no reason why sufficient growth should not be made by them before frost to protect the soil from washing. Southern cow peas would, probably, serve the purpose, but the seed would cost at least \$1 a bushel, or the same price as Canada peas, and, at least, two or three bushels would be required so late in the season in order to cover the ground. Much more seed would be required fairly to cover the ground than if sown early in the spring and given more time to grow.

Canada peas would have the advantage over Soja beans or southern cow peas, in that the first frosts would kill the latter while the former would grow well through the early fall months until severe freezing weather came on, perhaps, until the ground froze, so that their period of activity as nitrogen gatherers would be nearly twice as long as that of the tender varieties.” Address: Rhode Island Exp. Station.

191. Aston, W.G. trans. 1896. *Nihongi* (Nihon Shoki).

Chronicles of Japan from the earliest times to A.D. 697. 2 vols. London: Published for the Japan Society by K. Paul, Trench, Truebner. 443 p. [Eng]

• **Summary:** This incident appears in the first book, in the chapter titled “The Age of the Gods.” The Deity Uke-mochi no Kami, the Goddess of food, brought forth from her mouth all kinds of foods, which were prepared and set out on 100 tables for the entertainment of the Deity Tsuki-yomi no Mikoto. Seeing this, the latter “became flushed with anger and said:—‘Filthy! Nasty! That thou shouldst dare to feed me with things disgorged from thy mouth.’ So he drew his sword and slew her.”

Then the Sun Goddess, Ama-terasu no Oho-kami [also called Amaterasu-omikami, the Shinto Sun Goddess], sent another messenger, Ame-kuma-bito, to see the Goddess, who “was truly dead already. But on the crown of her head there had been produced the ox and the horse; and on top of her forehead there had been produced millet; over her eyebrows there had been produced the silkworm; within her eyes there had been produced panic [*Panicum* millet]; in her belly there had been produced rice; in her genitals there had been produced wheat, large beans and small beans.”

Two footnotes explain that, according to Hepburn, “large beans” refer to soybeans (*Soja hispida*), and “small beans” to azuki beans (*Phaseolus radiatus*).

“Ame-kuma-bito carried all these things and delivered them to Ama-terasu no Oho-kami, who was rejoiced, and said:— ‘These are the things which the race of visible* men (*as opposed to the unseen gods) will eat and live.’ So she made the millet, the panic, the wheat, and the beans the seed for the dry fields, and the rice she made the seed for the water-fields” (p. 27).

Note 1. Aston is a very famous early Japan scholar, born in 1841. Reischauer and Fairbank (1960, p. 464) cite this as *Nihon shoki* (*History of Japan*, also known as the *Nihongi*), compiled in A.D. 720.

Note 2. The 1896 edition of this book is very rare. In 1924 the original edition published by the Japan Society was reissued as two volumes in one. The story cited above appears on p. 32-33. In addition, the “five kinds of grain” (including hemp, millet, rice, corn and pulse) are mentioned on p. 21 and p. 278. Address: C.M.G., England.

192. Flagg, Chas. O.; Tucker, Geo. M. 1896. Agricultural division. *Rhode Island Agricultural Experiment Station*,

Annual Report 8(part II):312-326. For the year 1895. See p. 319, 321-22, 324, unnumbered, p. 325.

• **Summary:** The title page states: "Eighth Annual Report of the Rhode Island Agricultural Experiment Station, 1895. Part II. of the Eighth Annual Report of the Corporation, Board of Managers, of the Rhode Island College of Agriculture and Mechanical Arts, Made to the General Assembly at its January Session, 1896." Published in Providence, R.I., 1896. Across the top of the title page, in smaller bold letters, is written: "State of Rhode Island and Providence Plantation."

The section titled "Leguminous and other plants grown with and without different quantities of nitrogen" (p. 319+) has within it a full-page table (on page 320) titled "Table showing weights of some leguminous and non-leguminous plants grown with different quantities of nitrogen." Page 321 of this table shows that the following varieties of soja bean and adzuki bean were grown: Soja bean (medium green), Soja bean (medium black), Soja bean (early white), Black podded adzuki, White podded adzuki, Kiyusuki [sic, Kiyusuke] daidzu, Yamagata-cha [daidzu], Edamame, and Yellow soy.

Page 322 summarizes the results of the two previous tables: "With regard to the leguminous plants only one—the Japanese bean called 'Edamame'—gave a greater yield upon either plot 17 or 19 than upon plot 21. In this case the yield upon plot 17 without nitrogen was over 80 per cent. as great as that of plot 21, while plot 19 gave a crop over one-fourth greater than that from plot 21."

On page 324 is a "Diagram showing the relative cost of fertilizers and yields of crops on plots 17, 19, and 21. On this page values are given for: Soja Bean, Medium Green. Soja Bean, Medium Black. and Soja Bean, Early White.

On an unnumbered page containing 3 horizontal rows of photos of 9 upright, mature, soja bean plants, three varieties of soja beans are shown.

Fig. 4. Medium Green Soja Bean. Plot 21. Full ration nitrogen. Plot 22. One-third ration nitrogen. Plot 17. No nitrogen.

Fig. 5. Medium Black Soja Bean. Plot 21. Full ration nitrogen. Plot 22. One-third ration nitrogen. Plot 17. No nitrogen.

Fig. 6. Early White Soja Bean. Plot 21. Full ration nitrogen. Plot 22. One-third ration nitrogen. Plot 17. No nitrogen.

On page 326 is a "Diagram showing the relative cost of fertilizers and yields of crops on plots 17, 19, and 21." On this page values are given for: Black Podded Adzuki. White Podded Adzuki. Kiyusuki [sic, Kiyusuke] Daidzu. Yamagata-cha [Daidzu]. Edamame. Yellow Soy.

193. Holland, Edward B. comp. 1897. Compilation of analyses of fodder articles and dairy products, made at Amherst, Mass. 1868-1897. *Massachusetts (Hatch) Agricultural Experiment Station, Annual Report* 9:137-55.

Jan. For the year June 30, 1896.

• **Summary:** Table "A. Composition and digestibility of cattle feeds" (p. 138-50) gives detailed figures for many feeds. Soy beans are listed as follows under various categories: I. Green fodders: Soy bean (early white, medium green, medium back, late). II. Ensilages: Corn and soy-bean ensilage. Millet and soy-bean ensilage. III (c). Hay and dry coarse fodders: Soy-bean straw. V. Grains, seeds, etc.: Soy beans. Red adzinki [adzuki] beans. VI. Flour and meal: Peanut meal. Soy-bean meal. As "Fresh or air-dry substance, this soy-bean meal contains 16.3% fat, and 34.8% protein; thus it is actually ground whole soy beans. Category VI is 21 different gluten products.

Table "B. Fertilizing ingredients in fodder articles" (p. 151-53) gives detailed figures for many types of fodder. Soy beans are listed under approximately the same categories and in the same way as in table A. The following figures are given for each fodder article: No. of analyses, water, nitrogen, potassium oxide, phosphoric acid, and valuation per 2,000 pounds (using the figures for the retail cost of nitrogen, phosphoric acid, and potash in fertilizers). Address: Asst. Chemist (foods and feeding) [Amherst, Massachusetts].

194. Tokio Nurseries Co. 1897. General catalogue of plants, bulbs, seeds, &c. &c. Tokio, Japan. v + 53 p. 25 cm. [Eng]

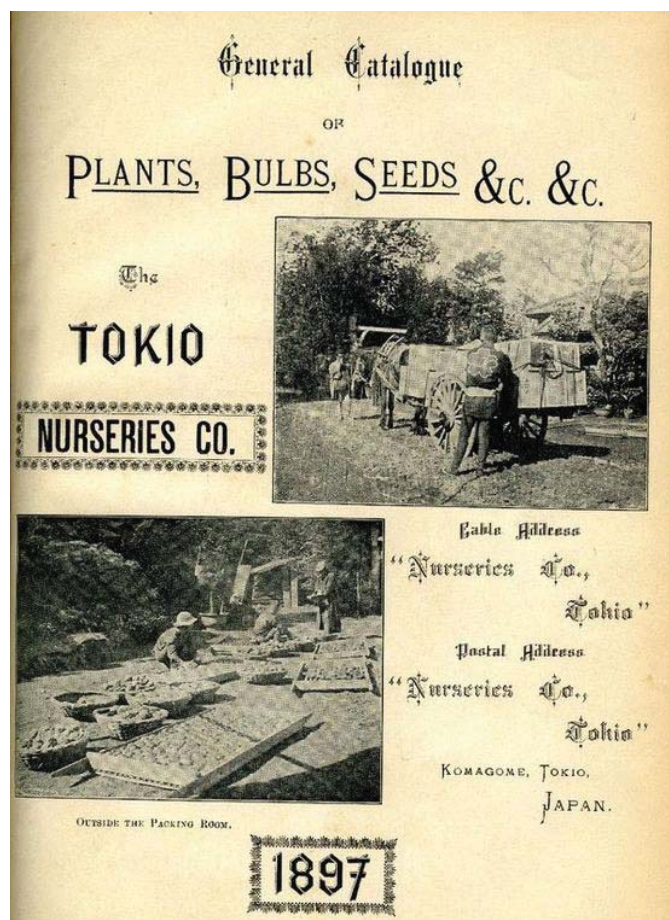
• **Summary:** In the section titled "Vegetable seeds" (p. 45-50) is a subsection on "Pulse" (p. 47-48). The first entry is: "Soya Hispida, glycine hispida, soy bean, wide cultivation of this bean in the East, is used in the preparation of Japanese Soy [sauce], of Vegetable Bean Cheese [tofu], as well as Green fodder and manure. Thus the bean forms one of the staple products of Japan.

"'Early Variety,' sow April, crop in June. \$1.20 per 10 lbs. \$12.00 per 100 lbs.

"'Late Variety,' sow May, crop in August, eaten only when fully boiled down. \$2.00 per 10 lbs. \$18.00 per 100 lbs."

Other species of pulse listed are: *Phaseolus Mungo* var. *subtrilobata* ([azuki], 4 varieties; "'Common,' a very hardy productive one, sending out bushy crowns. The beans are crushed and made into sweets. \$1.00 per 10 lbs." Also: White, Black-Eyes, New Prolific), *Phaseolus Mungo* var. *radiatus* ([mung beans]; "green podded, which when smashed is made into sweets, June-Sept., \$1.50 per 10 lbs."), broad beans, peas ("Ordinary pisum sativum, also used in the preparation of viscous soy" [sauce]), red pea, *Dolichos Lablab*, *Mucuna Capitata*, French beans, Speckled Partridge ("correct botanical name is not yet identified"), *Canavalia ensiformis*.

"Cable address: Nurseries Co., Tokio. Headquarters for lily bulbs, Cycas revoluta, Japanese plants and seeds." On the cover are two photos: (1) A horse pulling a two-wheeled cart loaded with boxes. (2) People packing things into trays and baskets outdoors.



Note 1. This is the earliest Japanese seed catalog seen (Oct. 2020) that offers soybeans.

Note 2. This is the earliest Japanese seed catalog seen (Oct. 2020) that contains one or more photographs.

Note 3. This is the earliest English-language document seen (April 2012) that mentions a non-soy sauce made from peas that resembles soy sauce. Address: Komagome, Denchu, Tokio, Japan.

195. Osborne, Thomas Burr; Campbell, George F. 1897. Proteid of the white podded adzuki bean (*Phaseolus Radiatus*). *J. of the American Chemical Society* 19(6):509-13. June. [1 ref]

• **Summary:** "This is a small red bean cultivated in Japan. The seeds used in this investigation were grown in Kansas and sent to us by Prof. C.C. Georgeson."

The authors found in the Japanese adzuki bean a globulin (protein) which was so like phaseolin, both in properties and composition, that it was stated to be that protein. "This globulin is at present being further investigated."

A footnote states that this article is "From the Report of the Connecticut Agricultural Experiment Station for 1896." Address: Lab. of the Connecticut Agric. Exp. Station.

196. *Semi-Weekly Times-Democrat (The)* (New Orleans, Louisiana). 1897. Agriculture: depredations to which the cowpea is subject. Directions for cutting and curing crops of hay. July 9. p. 6.

• **Summary:** "The Cowpea Weevil. The above name, which is proposed for *Bruchus chinensis*, will sufficiently distinguish it from *B. 4-maculatus*, since the latter is already known as the four-spotted bean weevil."

"Divisional records of Damage, Etc.—In the columns of Insect Life reference has been made to this species, particularly with regard to the heat evolved by its action in cowpeas. Its occurrence was noticed in injurious abundance in cowpeas at Holly Springs, Mississippi; in Chile, S.A. [South America]; in 'peas' at Fredericksburg, Virginia; in beans at the New Orleans Exposition, in Chinese beans at this department, and at the World's Fair in 1893. In the last instance it was seen by the writer in the greatest numbers in cowpeas and 'adsuki' beans, a variety of *Phaseolus radiatus*, exhibited respectively by Puerto Rico and Japan. In the Japanese exhibit it had ruined many bags of seed. It was present also in the cultivated legumes of Ceylon known by the native names of 'kolu' and 'muneta.'"

197. *Gettysburg Compiler* (Gettysburg, Pennsylvania). 1897. Lime and liming... The effect of liming upon the growth of various plants. Nov. 2. p. 4.

• **Summary:** "Year of 1891... Injured by liming... White Podded Adzuki Bean—0.88."

198. Osborne, Thomas Burr; Campbell, George F. 1897. Proteid of the white podded adzuki bean (*Phaseolus radiatus*). *Connecticut Agricultural Experiment Station, Annual Report* 20:387-90. For the year 1896. [1 ref]

• **Summary:** "This is a small red bean cultivated in Japan. The seeds used in this investigation were grown in Kansas and sent to us by Prof. C.C. Georgeson." The authors found in the Japanese adzuki bean a globulin (protein) which was so like phaseolin, both in properties and composition, that it was stated to be that protein.

A footnote states that this article is "From the Report of the Connecticut Agricultural Experiment Station for 1896." Address: Chemists, Lab. of the Connecticut Agric. Exp. Station, New Haven, Connecticut.

199. Prain, David. 1897. Some additional Leguminosae. *J. of the Asiatic Society of Bengal* Vol. 66 (Part II. No. II) p. 347-518. See p. 403-04. [3 ref. Eng]

• **Summary:** "The present paper contains descriptions of species that are new to India in the sense that they are not included in the account of this Order prepared in 1876 by Mr. J.G. Baker, F.R.S., the distinguished Keeper of the Herbarium, Royal Gardens, Kew, for Sir Joseph Hooker's *Flora of British India*, Vol. II. Some of the species are new to science or at all events are not to be traced in any of

the works in the library of the Calcutta garden and are not provided with names either in the Calcutta Herbarium or in that at Kew. Others are species already described elsewhere but not included in the *Flora of British India* because they had not been reported from within the limits of the Indian Empire up to the time when Mr. Baker's account of the *Leguminosae* was being prepared."

"Glycine Linn. 1. *Glycine javanica* Linn. 2. *Glycine pentaphylla* Dalz.

"3. *Glycine hispida* Maxim... The soy bean. Mr. Maximowicz in 1873 pointed out that *Glycine Soja* S.& Z. is not the cultivated 'Soy,' but is the wild species that was subsequently redescribed by Regel and Maack as *Glycine ussuriensis*. For this reason Mr. Maximowicz suggested the use of the name *Glycine hispida*, since Moench had named the 'Soy' *Soja hispida* and because that name had become almost classical owing to its use in the *Prodromus*. As Sir J.D. Hooker and Mr. Jackson have adopted Mr. Maximowicz' suggestion in their *Index Kewensis*, and as Mr. Duthie has also followed it in his *Field and Garden Crops*, it is necessary to indicate the fact here. There is however, no doubt that the 'Soy' is Roxburgh's *Dolichos Soja* and it is almost equally certain that it is *Dolichos Soja* Linn.; it would therefore, in the writer's opinion, be far better to retain the name *Glycine Soja* for our plant, citing as our authority Bentham in *Journ. Linn. Soc.* viii. 266, and allow the name *G. ussuriensis* to be substituted for that of the wild species previously name *G. Soja* by Siebold and Zuccarini.

"Mr. Baker says of the Soy, 'often cultivated'; this might lead to the supposition that it is a wild species in India. This it most certainly is not; even as an escape it is of rare occurrence. In connection with this it may be mentioned that in one of the few unequivocal instances of 'escape' among Herb. Calcutta examples, (specimens collected by Mr. Kurz on the banks of the Ganges at Sahebganj) the plant, instead of having suberect, has long trailing stems; but for their greater hispidity the specimens might well pass as representing the wild *G. ussuriensis*. Very probably, therefore, Mr. Maximowicz' suspicion that the Soy is only a cultivated variety of the Ussuri plant may be correct."

Observations on the soybean continue under *Phaseolus radiatus* Linn. (p. 422-23): "*Phaseolus Max* Linn. is a composite species. Wight and Arnott say that the plant from Hermann's herbarium included here, and on which the species was probably based, has no flowers. The American plant quoted by Linnaeus under *P. Max* is, according to Savi, a distinct species *P. Hernandezii*; the *Cadelium* [kadelee or kedel ] of Rumphius (*Herbarium Amboinense* [1747], vol. 5, t. 140) also quoted, is obviously a form of *Glycine hispida* Maxim., the Soy or *Soja*."

Piper and Morse (1923, p. 30-32) quote a long passage by Prain elucidating how Linnaeus was led to confuse soybeans and mung beans under one name. For the source of that quote, see: C.V. Piper. 1914. The name of the soybean:

A chapter in its botanical history. *Journal of the American Society of Agronomy* 6(2):75-84. See p. 78.

Note: This is the earliest document seen (Sept. 1996) by a native English speaker, that uses the word "Soy" or the phrase "the Soy" to refer to the soy bean rather than to soy sauce.

Also discusses: "11. *Phaseolus radiatus* Linn. *Species Plantarum* 725. The writer agrees with Mr. Baker in considering that *Phaseolus Max* Roxb. [Roxburgh]—the Krishna Mung, and *P. aureus* Roxb.—the Sona Mung, are only varieties of *P. Mungo* Roxb.—the Mung itself." The Mash or Urd is a totally different plant. "The three leading varieties of Mung (*P. radiatus* Linn.) may be readily distinguished as follows:" 1. Var. *typica*. Seeds green. *P. Mungo* Roxb. *Flora Indica* iii, 292. 2. Var. *aurea*. Seeds yellow. *P. aureus* Roxb. *Flora Indica* iii, 299. *Phaseolus Atsuki* [azuki] Siebold. *Verh. Batav. Gen.*, xii, 57. *Sona Mung*, the most esteemed form of Mung. 3. Var. *grandis*. Seeds black. *P. Max* Roxb. *Flora Indica* iii, 295. The "least esteemed form of Mung. It is certainly an introduced form, probably from the Chinese Empire where it is widely grown from Shanghai to Yarkand. In S. China it is called *Lutou* (pinyin: *Ludou*; 'green beans') (Aug. Henry 1893, no. 6 [p. 13]); in Yarkand Dr. Scully notes that this is what is known as *Mash*, a name that in India is restricted to *P. radiatus* Roxb. (*P. Mungo* Linn.)—the Mash-Kulai or Urd crop."

(2) "11b. *Phaseolus Mungo* Linn. Of this there are two fairly distinct forms:" *Vera* and *Roxburghii*. The latter is: "The Urd or Mash-Kulai; a very important Indian crop, totally different from, and much more important than, the Mung crop." Address: Probably India.

200. Otis, D.H. 1898. Root tubercles and their production by inoculation. *Industrialist (The) (Manhattan, Kansas)* 24(6):363-81. June.

• **Summary:** Contents: History and literature: Early opinions concerning the tubercles, recent investigations ("To test some of these questions, and others connected with them, experiments were carried on with the soy bean, *Glycine hispida*, Maxim."). Experiments in the field: Methods of inoculation, culture and growth, appearance of the roots, nitrogen content (of plants with and without tubercles), data and yield. Experiments in the greenhouse ("The test, in this case, was extended so as to include other varieties of the soy bean, namely, the edamame, kiyusuke daidzu, yamagata chadaidzu, early white, and the medium black"). Repetition and extension of field experiment, how soon do tubercles appear (13 days after the beans were planted), effect of sterilizing the soil, plants grown in pure Massachusetts soil, inoculating at top, middle and bottom of pot (to test the rapidity with which the organisms spread in the soil; with 3 illustrations). Further experiments in the greenhouse: Plants grown in pure Massachusetts soil II, inoculating with different amounts of Massachusetts soil (no effect), effect of light on the

microorganisms (none), inoculating at different temperatures, inoculating with Kansas soil, inoculating with tuberculous roots, effect of inoculating other legumes with Massachusetts soil (nodules were numerous on red clover and Canada peas, but none formed on adzuki beans or cow peas). Root tubercles under the microscope: Explanation of mycelium, explanation of microscopic drawing (2 figures). Extent of soy bean micro-organism in the United States (results from Agric. Exp. Stations shown in Table IV). Conclusion.

Pages 279-80: "After the success of inoculating the beans with imported soil was assured, it was thought to be an interesting point to ascertain how far these particular micro-organisms had spread in this country. Accordingly inquiries were sent to all the experiment stations of the United States and the following table constructed from the replies:" Table IV contains 6 columns which show:

(1) Microorganisms indigenous to the soil: Indiana, Louisiana, Massachusetts (Hatch), North Carolina, Rhode Island, Tennessee.

(2) Micro-organisms obtained thru inoculation: Connecticut (Storrs), Kansas.

(3) No tubercles found on the roots: California, Florida, Iowa, Michigan, South Dakota.

(4) Have made no examination for root tubercles: Arizona, Arkansas, Colorado, Connecticut (State), Georgia, Illinois, Maryland, Missouri, Mississippi, Nebraska, New Jersey, New York (Cornell), New York (State), Ohio, Texas, Vermont, West Virginia, Wisconsin.

(5) Too cold to successfully grow the soy bean: Minnesota, Washington.

(6) Have not grown the soy bean: Kentucky, Maine, Montana, Nevada, Pennsylvania, Utah, Virginia, Wyoming.

Note 1. This could be the earliest document seen (March 2021) concerning soybeans in Arizona, or the cultivation of soybeans in Arizona. This document might contain the earliest date seen for soybeans in Arizona, or the cultivation of soybeans in Arizona (June 1898). The source of these soybeans is unknown. But this is not strong proof.

Page 379: Three pairs of photographs show soybeans as follows: 1. Soy beans not treated: Medium Green and Yellow Soy. 2. Soy beans inoculated with soil: Medium Green and Yellow Soy. 3. Soy beans inoculated with extract: Medium Green and Yellow Soy. Note: Yellow soy has many nodules; Medium Green has few or none.

"Since 1890, soy beans have been grown at the Kansas Experiment Station, but frequent and numerous examination of the roots failed to reveal the presence of any nodules or tubercles. Knowing that the Hatch Experiment Station at Amherst, Massachusetts, had been successful in producing tubercles on the soy bean, it was proposed that an attempt be made to inoculate the Kansas beans with Massachusetts soil. Two quarts of the soil in which the beans had been grown the previous year was ordered by express for immediate use, and a half bushel by freight for additional

experiments in the greenhouse. In both cases the soil arrived in a dry, pulverized condition, not unlike the dust in our roads during a dry season."

Page 377-78:

"Conclusion: The above experiments were not planned with a view to obtain comparative results as to yields; and where yields have been given, they are only incidental. The main object was to ascertain whether or not a leguminous plant could be made to produce tubercles by inoculating it with a soil impregnated with the right kind of micro organisms. As the Kansas soil contained none of these organisms, the conditions were entirely under control, and results obtained which otherwise would have been impossible. The results show conclusively that inoculation is entirely possible; and this, taken in connection with the fact that it has been repeatedly proven that tubercles are valuable adjuncts to leguminous plants, both for yield and as a fertilizer, suggests the practicability of inoculating fields deficient in micro-organisms that would be beneficial to the particular leguminous crop to be grown. When we realize that in the eastern states many farmers are paying from \$6 to \$10 an acre for fertilizers, which in the aggregate amount to a tax of millions of dollars, and as we in the West are fast tending in the same direction, should it not behoove us to lay hold of one of nature's most effective means of maintaining and even increasing the fertility of the soil? Free nitrogen is around and about us in superabundance, it composing four-fifths of the air; but without the aid of these bacteria working within the tubercles of the roots, plants have no power to make use of it. By growing leguminous crops in rotation, and inoculating the soil when the latter is deficient in the proper species of bacteria and thus controlling the action of these microscopic plants, the farmer may find them to be among his best friends and strongest financial supporters."

Note: This is an original article, not published in any other periodical before or after it was published here. Address: Kansas State College of Agriculture.

201. Bretschneider, Emil V. 1898. History of European botanical discoveries in China. 2 vols. London: Sampson Low, Marston and Co., Ltd. xv + 1167 p. Indexes (names of persons, names of plants). 28 cm. 2nd ed. 1935. [200+* ref]
• **Summary:** This magnificent work has been digitized in full view on HathiTrust.

Vol. I ends on page 624. Vol. II is on pages 625-1167. National Union Catalog says Bretschneider's formal Russian name is Emilii Vasil'evich Bretshneider (1833-1901).

The soy bean (search for Soja OR hispida OR soy) is mentioned on 22 pages of this book.

In Vol. 1: On pages 401-03 the author discusses the life and work of George Benthham, the author of *Flora Hongkongensis*.

On pages 403-51 the author discusses the life and work of Robert Fortune. "The travels and explorations of R.

Fortune in China, beginning with the year 1843, inaugurate a new era in the history of botanical discoveries in that country. Previous to that time the Chinese plants known to our botanists in Europe and introduced into our gardens, came from Canton or Macao...

"R. Fortune was born in Berwickshire, Scotland, on the 16th of Sept., 1812, and was educated in the parish school of Edrom... Fortune visited China four times, 1843-45, 1848-51, 1853-56, 1861, and accordingly published four interesting accounts of his travels in that country." Fortune traveled in Japan during 1860, visiting the ports of Nagasaki, Kanagawa, and Yukuhami [Yokohama] near Yedo. He visited Yedo for 15 days. In the spring of 1861 he returned to Japan. His four books are "Three years wandering in the northern provinces of China" (1847), "A journey to the tea countries of China" (1852; in which he discusses the soy bean), "A residence among the Chinese" (1857), and "Yedo and Peking: A narrative of a journey to the capitals of Japan and China" (1863).

Pages 536-37 discuss Louis C.N.M. Montigny, who was born on 2 Aug. 1805 at Hamburg [Germany] of French parents. He first went to China in 1843, as *chancellor* accompanying the French Embassy. In 1847 he was appointed Consular Agent at Shanghai, where he stayed until about 1858. He died on 14 Sept. 1868 and his obituary appeared in the *Revue Horticole* (1869, p. 52). During his residence in Shanghai he rendered great services to natural science and horticulture by introducing into France interesting beasts and birds, and useful Chinese economic plants—including *Soja hispida* and its oil. These plants were cultivated and distributed by the *Société d'Acclimatation* of Paris.

Page 545 notes that Voisin, a French missionary who went to China in 1824, obtained from China several economic plants among which was the textile plant, *Ko*. Seeds were presented to the Museum of Natural History in Paris through Stanislas Julien and the plants raised from these seeds were examined by Prof. Jussieu, who found that it was a legume resembling *Dolichos bulbosus*. It was later identified as *Pueraria*.

Pages 554-55 discuss Stanislas Julien the great French sinologist, who was born in 1797. In 1832 he succeeded A. Rémusat as Professor of the Chinese language at the Collège de France. He translated several interesting Chinese treatises on economic plants, their cultivation and use, generally with a view to incite his countrymen to introduce these plants into France. In 1855 he wrote about *Soja hispida* in the *Bulletin of the Society for Acclimatization* (France) (p. 225). He died in 1873.

Contents: Preface (book includes, in addition to China proper, Manchuria, Mongolia, Eastern Turkestan, Tibet, Korea [Korea], and the Liu kiu [Loochoo] and Bonin [Ogasawara] Islands. Note: The latter are about 30 subtropical islands located about 1,000 miles directly south

of Tokyo, Japan).

Also discusses: azuki beans (*Phaseolus radiatus*, p. 76, 129), cowpeas (*Vigna sinensis*, p. 77), hemp (*Cannabis sativa*, p. 166, 169, 228, 493, 520, 522-23), kuzu (*Pueraria Thunbergiana*, p. 175, 738, 755, 1051), *Arachis hypogaea* (groundnuts; peanuts) (p. 231, 233, 451, 663, 844), sesame (*Sesamum orientale*, p. 11, 158, 165, 226, 487).

Concerning *Prunus mume* we read: "Near the entrance to the pass on the Canton side, Abel [Dr. C. Abel, 1816-1817] saw a species of *Prunus* in full flower, in Chinese *mei hwa shoo*; hence the name of the mountain. (The *mei hwa* is *Prunus Mume*, S. & Z. [Siebold & Zuccarini]) (184)" (p. 233). See also p. 893.

Note: This is the earliest English-language document seen (Dec. 2006) that uses the term *Prunus mume* to refer to the name of the tree whose fruit is used to make umeboshi salt plums. Address: Late physician to the Russian Legation at Peking; now at St. Petersburg.

202. Brinkley, Frank; Nanjô, F.; Iwasaki, Y.; Mitsukuri, K.; Matsumura, J. comp. 1898. An unabridged Japanese-English dictionary: With copious illustrations. Tokyo: Sanseido. xxvi + 1687 p. Illust. 19 cm. [Jap; Eng]

• **Summary:** "... with coöperation of Prof. K. Mitsukuri in zoological terms, Prof. J. Matsumura in botanical terms."

For each entry, the romanized word comes first, followed by the word written in hiragana and then in kanji (Chinese characters). Note: The authors often use the word "bean" when they should use the word "soybean." Soy related:

"Aburage: Bean-curd fried in oil.

"Amazake: Sweet *sake*; a kind of drink made of fermented rice. Syn. [Synonym]: Hitoyozake, Kozake.

"Ame: A honey-like jelly made of flour of various grains; starch-sugar.

"Ammochi: Mochi stuffed or covered with boiled and crushed pea-beans [sic, azuki beans] mixed with sugar.

"Azuki [bot.] Mungo.

"Azuki meshi: Rice and red pea beans mixed and boiled for food.

Azuki mochi: Same as Am-mochi.

"Dengaku: (2) (Coll.) *Tôfu* baked and covered with sweetened miso. *Dengaku wo yaku*: to bake or prepare *dengaku*.

"Dengaku-dôfu: See above.

"Daizu (Bot.) Soja bean.

"Edamame: (1) (lit.) Branch bean. (2) (coll.) [Soy] Beans boiled in pods on the stalks.

"Gobuzuke: Dried radish chopped into pieces of about 5 *bu* (of half an inch) in length and cooked with soy [sauce] and sugar.

"Gusokuni: Lobster chopped into transverse pieces and cooked with sugar and soy.

"Hachihaidôfu: *Tôfu* chopped into small pieces and

boiled in a soup composed of four cups full of water, two of soy, and two of sake.

“Hitasu–Shōyu ni hitasu: To steep in soy.

“Hiyakko: *tōfu* served cold.

“Ikanago-shōyu: Soy prepared in Sanuki [on Shikoku island], from a kind of fish called *Ikanago*.

Irimame: Parched peas or [soy] beans. *Irimame ni hana ga saku* (coll. Prov.) (lit.) blossoms on parched peas; something regarded as impossible.

“Iritori: Fowls boiled with a mixture of sugar, soy and *mirin* until the sauce is fully absorbed.

“Iritsuke: Any fish roasted or boiled in a pan until the sauce or soy is fully absorbed.

“Kabayaki: (1) A way of roasting fish. (2) Eels cut open on the dorsal line, covered with soy mixed with sugar, and roasted. (3) Unagi no kabayaki: Roasted eels.

“Kenchin: (Modern Chin.) (1) Black beans malted and fried, and eaten with soy or table salt. (2) A soup containing various vegetables and *tōfu* mixed together and fried.

“Kigaracha-meshi: Rice boiled with water and a small quantity of *sake* or soy (so called from its yellowish color).

“Kijiyaki: The flesh of bonito or tunny-fish covered with soy and sugar, and baked.

“Kinako: [Soy] Bean flour (of yellowish or greenish color).

“Kinome-dengaku: *Tōfu* or the fruit of the egg plant covered with a pasty mixture of *miso*, sugar, and the buds or leaves of the *sanshō*, and baked.

“Kiuri-momi: Cucumber chopped fine and seasoned with salt, vinegar and soy.

“Kōji: Yeast, barm [sic]. *Kōji wo nekasu*: To make yeast [sic, kōji].

“Kokushō: A soup prepared with *miso* and the flesh of *koi* [carp] (*cyprinus haematoperus*).

“Kombumaki: Roasted or cooked fish wrapped in a piece of *kombu*, tied and boiled with sugar and soy.

“Kuromame: (Bot.) Black soy bean.

“Kyarabuki: The stems of the *fuki* boiled with soy.

“Mamemaki: A ceremony of scattering parched peas [sic, soybeans] about in an occupied house to drive out evils spirits, celebrated on the last night of December, or the early part of January (o.s.) [old style] crying aloud the while *fuku wa uchi* (fortune inside), *oni wa soto* (devils outside). Syn. Oniyarai, Setsubun.

“Mame-no-ko: [Soy] Bean flour used for covering or sprinkling over *mochi*, *dango*. Syn. Kinako.

Note: This is the earliest document seen (Sept. 2021) which explains that kinako is used as a coating for mochi.

“Miso: A kind of sauce made of wheat, [soy] bean, and salt. *Miso wo tsukeru*: (a) (lit.) to spoil (as one’s coat) with miso. (b) (fig. coll.) to disgrace one’s self; *Tonda miso wo tsuketa*: (coll.) have met with a shocking failure.

“Misokoshi: A miso strainer.

“Misomame: (Bot.) Soja bean, Glycine.

“Misoshiru: A kind of soup made with miso.

“Moromi: The grounds or lees left in making soy or *sake* and used as food.

“Moromi-sake: A kind of sake with rice grounds not separated from the liquid. Syn. Doburoku, Nigorizake.

“Murasaki: Another name for the sardine, or for soy. Namaage or Nama-age: Not listed.

“Nattō: A kind of food made of boiled [soy] beans (usually sold in small packages made of rice straw).

“Nigari: The brine left by the deliquescence of salt.

“Nigashio: Same as Nigari.

“Oborodōfu: (1) A *tōfu* boiled down until it is almost dry and relished with soy and sugar. (2) A kind of *tōfu* [sic, unpressed tofu curds].

“Oname: (Bot.) Soy bean.

“Satsuma-iri: Food prepared by cooking a mixture of parched rice and finely chopped sweet potato, and relishing it with soy and sugar.

“Shitaji: Soy. See *Shōyu*.

“Shōyu: A kind of sauce made by pressing a fermented mixture of calcined barley meal, boiled [soy] beans, yeast, water, and salt; soy. Syn. Shitaji, tamari.

“Shōyu no moromi: Soy before it is pressed.

“Suiri: Cooked with vinegar. *Iwashi no suiri*: A sardine cooked with a mixture of vinegar and soy. Syn. Suni.

“Sukimi: Flesh of fish sliced thin, and eaten relished with soy and *wasabi* or horse-radish.

“Sukiyaki: Roasting sliced meat or flesh with soy, in a shallow pan. Note: This is the earliest document seen (April 2012) that contains the word “sukiyaki.”

“Sumiso: A kind of sauce made by rubbing together *miso* and vinegar in a mortar [suribachi].

“Suribachi: An earthenware vessel used in rubbing *miso*; a mortar.

“Sushi: (1) Fish seasoned with vinegar. (2) A general name for food made of boiled rice and fish, eggs, vegetable, etc. seasoned with vinegar and soy. As an affix the form is changed to *zushi*. *Inari-zushi*: food made of fried *tōfu* stuffed with a kind of *chirashi-zushi*.

“Tamari: Soy before it is pressed [sic].

“Tekkamiso: A kind of food made by roasting *miso* mixed with parched beans, chopped burdock, and a little oil.

Temae: (1) One’s own side. *O temae miso wa shio ga karai*: (coll.) Self approbation is disgusting.

“Teriyaki: Flesh of fish baked with a kind of sauce composed of soy, *mirin*, and sugar.

“Tōfu: A kind of food made from bean curd hardened by mixing with a small quantity of the brine left after the deliquescence of salt [nigari]. In composition the form changes into dōfu. *Tōfu ni kasugae*: (Prov.) (lit.) an iron clamp to connect pieces of tofu; no effect. Yaki-dōfu: Baked [grilled] *tōfu*.

“Tsukuru: To pickle in sake, brine vinegar, etc. *Shōyu wo tsukete yaku*: To bake [grill] seasoned with soy. Syn. Hitasu,

uruosu.

“Uchimame: The soy bean flattened with hammer and boiled in soup.

“Udondôfu: Tôfu cut into udon like pieces, and eaten boiled in a soup made of cups of soy, two of *sake* in four cups of water.

“Yuba: The skin of bean curd used as food. Syn. Uba.

“Yudôfu: Boiled *tôfu*.” Address: 1. Captain, R.A., Editor of the *Japan Mail*; 2. M.A., Bungakuhakushi; 3. Nôgakushi.

203. Osborne, Thomas Burr; Campbell, George F. 1898. Proteids of the soy bean. (*Glycine hispida*). *Connecticut Agricultural Experiment Station, Annual Report* 21:374-82. For the year 1897.

• **Summary:** Contents: Introduction. Yellow soy bean. Soy bean (*Kiyusuki diadzu*) [sic, *Kiyusuki daizu*]. Conclusion.

The article begins: “The proteids of the soy bean, so far as we are informed, have never been the subject of special investigation. The seeds used by us were grown in Kansas and kindly supplied by Prof. C.C. Georgeson. Two varieties have been examined, one known as the yellow soy bean and the other, called in Japan, *kiyusuki diadzu* [sic, *kiyusuke daidzu*].”

The authors then give a detailed discussion (6 pages) of the methodology used for extracting, filtering (or, where filtration was impossible, passing through a centrifugal separator), isolating, and measuring the proteids in the soy bean. A globulin, which the authors named “Glycinin,” was prepared by saturating a 10 per cent sodium chloride extract of the meal with ammonium sulphate, redissolving the resulting precipitate, and dialyzing the solution. A table (p. 377) gives an analysis of glycinin in terms of its content of carbon, hydrogen, nitrogen, sulphur, and oxygen—based on 9 samples. The authors then state: “It is probable, therefore, that we have here a definite proteid, distinct from legumin, containing 0.50 per cent. less nitrogen and 0.30 per cent. sulphur than that substance. We propose for this globulin the name *Glycinin*. They then describe its numerous reactions, as with sodium chloride, by dialysis or cooling (“it separates in the form of spheroids”), etc.

Other tables: (2) The composition of dried glycinin (p. 379). (3) Composition of the glycinin from *Kiyusuki diadzu* (p. 380). “These results agree well with those obtained from the yellow soy bean.” (4) Comparison of the composition of glycinin from the two soybean varieties (p. 381). The true composition of glycinin (p. 381). It consists of 52.12% carbon, 6.93% hydrogen, 17.53% nitrogen, 0.79% sulphur, and 22.63% oxygen.

“Conclusion: The soy bean contains as its chief proteid constituent *glycinin*, a globulin similar in properties to legumin, but of somewhat different composition, containing nearly twice as much sulphur, four-tenths per cent. more carbon and one-half per cent. less nitrogen... The soy bean contains a more soluble globulin which resembles phaseolin

in its composition, and, so far as we could ascertain, also in its reactions... Besides these globulins about 1.5 per cent. of the albumin-like proteid *legumelin* was obtained. We have found legumelin in a number of other leguminous seeds, the pea, vetch, horse bean, lentil, adzuki bean, and cow pea.”

Tables (p. 382) show the chemical composition of (1) legumin as found in the soy bean, and (2) the small amount of proteose obtained from the soy bean. “Owing to the small amount of proteose no evidence was obtained as to the purity or individuality of this preparation.”

Note 1. This is the earliest U.S. agricultural experiment station publication seen (July 2014) which is entirely about soy beans.

Note 2. This is the 2nd earliest English-language document seen (Dec. 2020) that uses the word “albumin” (or “albumins”), or the word “globulin” (or “globulins”), or the word “glycinin,” or the word “legumelin,” or the word “proteose,” or the word “phaseolin” in connection with the soy bean. It is also the first U.S. investigation of soy proteins, and the first attempt to classify them. Note 3. This is the earliest document seen (July 2014) that mentions the soybean variety *Kiyusuki daizu*. Address: 1. Ph.D.; 2. Ph.B. [Bachelor of Philosophy]. Both: Chemists, Connecticut Agricultural Experiment Station.

204. Tokio Nurseries Co. 1898. General catalogue of plants, bulbs, seeds, &c. &c. Tokio, Japan. v + 37 p. 25 cm. [Eng]

• **Summary:** In the section titled “Vegetable seeds” (p. 32-35) is a subsection on “Pulse” (p. 33-34). The entries concerning soybeans and other beans are very similar to those in the 1897 edition. However the prices in this English-language catalogue are all given in Japanese yen. A note at the bottom of each page states: “Yen is equivalent to about 50 cents U.S. currency, 2 shillings or 2½ francs.” Address: Komagome, Denchu, Tokio, Japan.

205. Blasdale, Walter C. 1899. A description of some Chinese vegetable food materials and their nutritive and economic value. *USDA Office of Experiment Stations, Bulletin* No. 68. 112 p. See p. 32-36. [19 ref]

• **Summary:** “According to Prinsen-Geerligs [*Chemiker-Zeitung*, 20 (1896) 67-69], ‘tao hu,’ or bean cheese, is prepared from the seeds of the white variety of soy bean. These are allowed to soak for three hours in water, are then reduced to a thick paste, and the mass cooked. The cooked mass is strained through a coarse cloth. The filtrate consists of a milky-white liquid containing protein and fat. As soon as this becomes cool some material is added (for instance, crude salt containing magnesium chlorid [chloride]), which precipitates the proteid material, the fat being inclosed in the coagulated mass. The coagulated material is pressed and kneaded into small cakes. The cakes may be dipped for a few moments into a saline solution of curcuma. Variations in the process give rise to a number of varieties of bean cheese.

This is essentially the method used by the Chinese of San Francisco in the preparation of the bean cheese used by them. It is sold either in the form of a freshly precipitated curd or in the form of small square cakes obtained by compressing the former material. It is usually cooked in peanut oil before being eaten and, in the author's opinion, is a palatable food. A partial analysis of one of the cakes gave 81.35 per cent, fat 5.19 per cent, and ash 0.80 per cent.

"The filtrate from the cooked soy beans resembles milk, and, on heating, a skin [yuba], not unlike that formed on milk, rises to the surface of it."

A large number of varieties of the soy bean are in cultivation in China and Japan, but only two were found in the Chinese markets in San Francisco, a yellow and a black variety. Aside from a difference in color, the two forms apparently do not differ materially from each other. The yellow variety is known as 'wong tau,' and is designated by the characters 'yellow' + 'bean' (2 Cc = 2 Chinese characters are given) while the black is known as 'hak tau,' and is designated by the characters 'black' + 'bean' (2 Cc).

"Both varieties obtained from the Chinese market in San Francisco grew readily in Berkeley, attaining a height of about 3 feet, and in spite of a very dry season produced an abundant crop of seeds... The composition of the seeds of the two varieties is shown in Table 10 (p. 33), the average composition of American-grown soy beans being quoted also for purposes of comparison." This table gives values for water, protein, albuminoids, amids [sic] (by difference), fat, starch, cane sugar, reducing sugars, crude fiber, ash, and undetermined.

On a dry-weight basis, the original black soy beans contained, on average, 0.35% more protein (39.62% vs. 39.27%) and 0.72% less fat (18.77% vs. 19.49%) than the yellow soy beans. The soy beans grown in Berkeley (average of 8 analyses) contained 38.1% protein and 19.00% fat. On a dry-weight basis, the black soybeans were found to contain 15.8% more starch than the yellow soybeans (7.41% vs. 6.40%).

Photos show: (1) The upper portion of a plant of the black soy bean (p. 33).

(2) "Mature plant of yellow soy bean" (showing only the pods and stems, no leaves, p. 35). Address: Instructor in Chemistry, Univ. of California.

206. Kano, S.; Iishima, S. 1899. Honpo-san shizenbutsu oyobi shikohin 18 shu no kyûshû ni suite [Digestion experiments on 18 Japanese foods]. *Gun-i Gakko Gyofu Koku Nobu (Bulletin of the Army Medical College)* No. 3. p. 101-33. [Jap]

• **Summary:** These human digestion experiments with single food materials were conducted at the Army Medical College in Tokyo. They are summarized in English by Oshima (1905, p. 168-73). Most of the experiments used shoyu as a seasoning. Experiment #89 used *kingyo fu* (a gluten

preparation) and raw red azuki (adzuki) beans. #92 used tofu. #93 use tofu cake or okara. #94 used yuba. #97 used kuzu starch (made from *Pueraria thunbergiana*). Address: Army Medical College, Tokyo.

207. Chamberlain, Basil Hall; Mason, W.B. 1899. A handbook for travellers in Japan: Including the whole empire from Yezo to Formosa. 5th ed., revised and augmented. London: John Murray; Yokohama, Shanghai, Hongkong, Singapore: Kelly & Walsh, Ltd. ix + 577 + 53 p. "With 28 maps and plans and numerous illustrations." Index.

• **Summary:** Contents: Introduction. Routes: 1. Eastern Japan. 2. Routes connecting Tokyo and Kyoto. 3. Central Japan. 4. Western Japan and the Inland Sea. 5. The island of Shikoku. 6. The island of Kyushu. 7. Northern Japan. 8. The island of Yezo [Hokkaido]. 9. Luchu and Formosa. Glossary.

Page 10: Provisions: "Curry-powder will often help to make insipid Japanese dishes palatable, and *shôyu* (soy [sauce]) adds a zest to soups." "The following Japanese articles of food are considered palatable by most foreigners: *Kaseteira* [*Kasutera*], sponge cake. *Miso-shiru*, bean-soup [miso soup],... *Sakana no tempura*, fish fritter. *Unagi-mesihhi*, layers of rice with eels done in soy. *Yokan*, sweet bean-paste" [azuki].

Gods and Goddesses (p. 56): Toyo-Uke-Bime, also called Uke-Mochi-no-Kami, is "the Shinto Goddess of Food or of the Earth. The *Nihongi*, one of the two principal sources of Japanese mythology and early history..." The Moon God killed the Goddess of Earth. From the body of the murdered Earth sprang cattle and horses, millet, silkworms, rice, barley, and [soy] beans, which the Sun-Goddess decreed should thenceforth be the food of the human race. In the *Kojiki* version of the myth, it is Susa-no-o who slays the Goddess of Food, and there are other differences of detail."

Eastern Japan (p. 225): "Tenjin-yama or Minato (Inn, Suiryô-kwan). This prettily situated place contains a few sake breweries and soy manufactories, the produce of which is shipped in junks to Tokyo;..."

Mountains of central Japan (p. 281): "Narada (accommodation at a Buddhist temple)" consists of but a few households; the people are isolated and poor. "Rice, *sake*, and soy [sauce] are with them luxuries to be indulged in on rare occasions, their ordinary food consisting only of millet and potatoes."

Central Japan (p. 334): "Yuasa (Inn, Edo-ya) is a dull town, noted for its manufacture of soy."

Central Japan (p. 336): "There is a current belief to the effect that Koya-san is so precipitous that such luxuries as bean-curd (*tôfu*) cannot be carried up to it, but that the priests place coppers on the temple balustrade, with which the crows fly off to Kumano and bring back bean-curd in return."

Central Japan (p. 389-90): Kasuga no Miya (a Shinto temple). The oratory "is now used by the townspeople on the evening of the Setsubun (3rd February) for the performance

of the ceremony of scattering [roasted soy] beans to expel evil spirits.”

Central Japan (p. 403): Matsudô. “Travellers will remark the great industry and economy practised in the agriculture of this district, even the ridges between the rice-fields being sown with beans or barley.” Note 1. Soy beans were often planted on such ridges, then harvested as green vegetable soybeans.

Note 2. The last 53 pages of this book are advertisements. Address: 1. F.R.G.S., Emeritus Prof. of Japanese and Philology in the Imperial Univ. of Tokyo, Tokyo; 2. Corresponding member of the Royal Scottish Geographical Society, and late of the Imperial Japanese Dep. of Communications.

208. Paillieux, Auguste; Bois, D. 1899. *Le potager d'un curieux: Histoire, culture et usages de 250 plantes comestibles, peu connues ou inconnues. Troisième édition entièrement refaite* [The inquisitive person's kitchen garden: History, culture, and uses of 250 edible, little-known or unknown plants. 3rd ed. completely redone]. Paris: Librairie Agricole de la Maison Rustique. xvi + 678 p. See p. 575-625. Illust. Index. 25 cm. [2 ref. Fre]

• **Summary:** The information about soy in this 1899 third edition is very similar to that in the 1892 second edition, but the page numbers are different. Contents of section on soy: Introduction: Work of the Society for Acclimatization with soy, structure of this book, excerpts on soy from past issues of the *Bulletin the Society for Acclimatization*. Botany of the soybean. 1. Soy in Japan: Kaempfer's writings, including miso and shoyu, Japan at the World's Fair of 1878, miso, shoyu, tofu. 2. Soy in Cochinchina: Black soybeans, various foods. 3. Soy in China: Soy oil, tofu and fermented tofu, soy sauce, other uses. 4. Soy in Austria-Hungary. 5. Soy in France: Historical, varieties, cultivation, utilization.

The author's full name is Nicolas-Auguste Paillieux (lived 1812-1898; he died on 8 Feb. 1898 at age 85). An illustration (non-original line drawing; p. 576) shows a mature soybean plant bearing many pods, plus a close-up of three pods to the lower right of the plant (from an original in J.R.F. 1882). Note: Desire Bois lived 1856-1946.

Other related or interesting subjects (listed alphabetically): Adzuki (p. 224). Amande de terre: See Chufa. Amarantus / Amarante (p. 14-16). Arachide / Arachis hypogaea (p. 32-35). Chufa / *Cyperus esculentus* / souchet comestible (p. 571-75). Daikon (p. 173). Gado-gado [Salad with peanut dressing] (p. 224). Gobo (p. 45). Jinenjo (p. 246). Katakuri (p. 336). Koniaku [konnyaku] (p. 289). Ko / kudzu (p. 300-315). Mioga (p. 396). Moyashi (from adzuki, p. 226). *Phaseolus radiatus* / azuki (p. 222-24). Pistache de terre: See arachide. Quinoa (p. 523-25). Udo (p. 448). Voandzou / *Voandzeia subterranea* (p. 650-53). Wasabi (p. 420). Yama gobo (p. 496). *Zingiber mioga* (p. 396). Address: 1. Honorary member of the Council of the Societe Nationale

d'Acclimatation 2. Asst. de la Chaire de Culture, Museum d'Histoire naturelle de Paris.

209. Cottrell, H.M.; Otis, D.H.; Haney, J.G. 1900. Soil inoculation for soy beans. *Kansas Agricultural Experiment Station, Bulletin* No. 96. p. 97-116. May.

• **Summary:** “The study of soil inoculation for soy beans was first made at this Station by D.H. Otis as part of his work for the degree of master of science. His investigations indicated that if practicable methods of soil inoculation for large fields could be developed they would prove of great value in providing a cheap method of enriching long cultivated soils. Mr. Otis completed his work in 1897 and in 1898 the Farm Department began the work of inoculation on a field scale. In this bulletin the work of Mr. Otis is given first, while the work of the department in inoculating large fields begins on page 112.

“Root Tubercles and their Production by Inoculation, by D.H. Otis, M.S.

“General Statement.—By examining the roots of such plants as clover, alfalfa, beans, and peas, one will usually find, scattered over their exterior surface, tubercles of various sizes and shapes. These tubercles are, with very few exceptions, peculiar to a certain order of plants known as Leguminosae. These tubercles are the outgrowths of the plants themselves, and are produced by the action of certain micro-organisms working within the tissues of the root. Formerly these tubercles were considered abnormal appendages and as injurious to the plants, but later observations revealed the fact that where these tubercles were wanting, the plants did not make the growth that was made by plants where the tubercles were present. Later examination has brought out the fact that these tubercles are the homes of minute microscopic bacteria (*Bacillus radicicola* Beyer). The bacteria have the remarkable property of taking the free nitrogen of the atmosphere and transforming it into available compounds for plant-food. So it is a case of symbiosis, the plant furnishing food and shelter for the bacteria, and the bacteria, in turn, furnishing the plant with nitrogen. This is what makes the leguminous plants so valuable as soil enrichers, and especially prized for green manuring.

“All the problems connected with the assimilation of free nitrogen through the intervention of root tubercles have by no means been solved. Even the best authorities seem to disagree on some points. However, it is pretty well settled that the tubercles are the result of a micro-organism, but it has been proven that the organism producing tubercles on the pea or bean will not produce tubercles on clover and alfalfa, and vice versa. Whether these organisms are different species for different plants, or a modification of the same species, is yet a disputed question. Again, as the organisms attack the root, it is supposed that they exist in the soil, and the question would naturally arise as to whether they could

be transported and spread with the soil, and, if so, whether that is the only way; or whether the seed from plants with tubercles will produce tubercles when grown in soil devoid of the organism adapted to that particular plant. To test some of these questions, and others connected with them, experiments were carried on with the soy bean (*Glycine hispida* Maxim).

“Experiments in the Field.

“Methods of Inoculation.—Since 1890 soy beans have been grown at the Kansas Experiment Station, but frequent and numerous examinations of the roots fail to reveal the presence of any nodules or tubercles. Knowing that the Hatch Experiment Station, Amherst, Massachusetts, had been successful in producing tubercles on the soy bean, it was proposed that an attempt be made to inoculate the Kansas beans with Massachusetts soil. The soil arrived in a dry, pulverized condition, not unlike the dust in our roads during a dry season.”

Goes on to discuss Culture and Growth. Appearance of the Roots. Nitrogen Content. Data as to Yield.

Page 105: “The benefits from inoculation lie largely in the increased fertility of the soil resulting from the decay of the nitrogenous roots, and would not be seen until after the growth of the succeeding crop.

“Experiments in the Greenhouse. Repetition and Extension of Field Experiment. How Soon do the Tubercles Appear? Effect of Sterilizing the Soil. Plants Grown in Pure Massachusetts Soil. Inoculating with Different Amounts of Massachusetts Soil. Inoculating at Top, Middle and Bottom of Pot. Inoculating with Kansas Soil. Inoculating with Tuberculous Roots. Effect of Inoculating Legumes with Massachusetts Soil (“Four pots each of the Adzuki beans {*Phaseolus radiatus*}, cow-peas, Canada field peas, and Red clover were planted...”)

“Extent of Soy Bean Micro-Organism in the United States.

“After the success of inoculating the beans with imported soil was assured, it was thought to be an interesting point to ascertain how far these particular micro-organisms had spread in this country. Accordingly inquiries sent out to all the experiment stations of the United States and the following table (Table II) constructed from the replies:”

(1) States with soybean micro-organisms indigenous to the soil were Indiana, Louisiana, Massachusetts [Hatch], North Carolina, Rhode Island, Tennessee;

(2) States which obtained the soybean micro-organism through inoculation were Connecticut [Storrs] and Kansas;

(3) States in which no tubercles were found on the roots of soybean plants were California, Florida, Iowa, Michigan, and South Dakota;

(4) States which have made no examination for root tubercles [on the soybeans grown in their state]: Arizona, Arkansas, Colorado, Connecticut (State), Georgia, Illinois, Maryland, Missouri, Mississippi, Nebraska, New York

(Cornell), New York (State), Ohio, Texas, Vermont, West Virginia, Wisconsin.

(5) States which consider the climate too cold to successfully grow the soy bean were Minnesota and Washington [because of category 6, this implies that they tried to grow soybeans]; (6) States which have not grown the soy bean were Kentucky, Maine, Montana, Nevada, Pennsylvania, Utah, Virginia, Wyoming.

“Conclusion: The above experiments were not planned with a view to obtain comparative results as to yields. The main object was to ascertain whether or not a leguminous plant could be made to produce tubercles by inoculating with the soil impregnated with the right kind of micro-organisms. As the Kansas soil contained none of these organisms, the conditions were entirely under control, and results obtained which otherwise would have been impossible. The results show conclusively that inoculation is entirely possible; and this, taken in connection with the fact that it has been repeatedly proven that tubercles are valuable adjuncts to leguminous plants, both for yield and as a fertilizer, suggests the practicability of inoculating fields deficient in micro-organisms that would be beneficial to the particular leguminous crop to be grown. When we realize that in the Eastern states many farmers are paying from six to ten dollars an acre for fertilizers, which, in the aggregate, amount to a tax of millions of dollars, and as we in the West are fast tending in the same direction, should it not behoove us to lay hold of one of nature’s most effective means of maintaining and even increasing the fertility of the soil? Free nitrogen is around and about us in superabundance; it composes four-fifths of the air; but, without the aid of these bacteria working within the tubercles of the roots, plants have no power to make use of it. By growing leguminous crops in rotation, and inoculating the soil when the latter is deficient in the proper species of bacteria, and thus controlling the action of these microscopic plants, the farmer may find them to be among his best friends and strongest financial supporters” (Continued).

Photos (p. 101-103) show the bare roots of soy bean plants: (1) Not inoculated. (2) Inoculated with Massachusetts soil, and (3) Inoculated with extract; these roots contain the most nodules. An illustration (line drawing; p. 110) shows a soy bean plant inoculated at the bottom of a pot (with relatively few nodules).

Note 1. This is the earliest document seen (March 2021) concerning soybeans in Florida, or the cultivation of soybeans in Florida. This document contains the earliest date seen for soybeans in Florida, or the cultivation of soybeans in Florida (May 1900). The source of these soybeans is unknown.

Note 2. This is the earliest document seen (March 2021) concerning the cultivation soybeans in West Virginia, This document contains the earliest date seen for the cultivation of soybeans in (May 1900). The source of these soybeans is

unknown. Address: Manhattan, Kansas.

210. *New-York Tribune*. 1901. Native inns peculiar. Generally clean and cheap, but cold in winter and draughty. April 14. p. A3.

• **Summary:** In Japan, at traditional inns, shoes must be taken off before entering and privacy is hard to obtain. "First of all the 'amah' brings out some flat cushions for the guests to sit on; then she brings a 'hibachi' from downstairs, and puts in it lighted coals and some fresh sticks of charcoal. The next thing is tea, and this is daintily served in little cups on bronze stands, and with it some delicious cakes of bean paste [made from azuki beans], or else wafers which fairly melt in your mouth." Then comes supper, which is "always served in your apartment."

211. Tokyo Plant Seed Co. (Tokyo Kônôen). 1901. Export price list: Seeds, plants, bulbs, implements, insecticides, books, etc. Tokyo, Japan. 12 p. Aug. 1. 21 cm. [Eng]

• **Summary:** Company name with diacritics is: Tokyo Kônôen. In the section on "Seeds" (p. 2+) is a subsection titled "Pulse." The first of the 11 different listings is: "Soya Hispida, *Glycine Hispida* [sic, *hispida*], (dozen var.) 3.50 per 100 lbs." (U.S. gold dollars). Note: We wish they had listed the dozen varieties.

Other types of pulse listed: *Phaseolus (radiatus [mung], subtrilobata [azuki], etc.)*. Hardy prolific red peas. Pod edible sugar peas. Prolific broad beans (*Vicia faba*). Large broad beans. Extra large broad beans. *Dolichos umbellatus*. Sword beans (*Canavalia incurva*). *Mucuna capitata*. Japan pole beans.

Company president: T. Watase. Cable address: "Watase," Tokyo. Address: 2 & 5, Tameike, Akasaka, Tokyo, Japan. Phone: Shimbashi 2421.

212. Bailey, Liberty Hyde. 1901. *Cyclopedia of American horticulture*. Vol. N-Q. New York and London: The Macmillan Co. See p. 1295, 1495. Illust.

• **Summary:** Near the front is a long list of collaborators (p. v-xiii) and a list of abbreviations (p. xiv).

Under *Phaseolus mungo* (p. 1295): "In habit it somewhat resembles the Soy bean (*Glycine*)... var. *glaber* is probably the Adzuki bean of Georgeson, Bull. 32, Kansas Exp. Station, where it is praised for the high quality of the bean. He describes two forms, the White-podded and Black-podded Adzuki, both with small red or brownish seeds..."

Under Quince (p. 1485): "The Quince orchard should never be left bare of ground cover in the autumn." In selecting cover crops: "Cow-peas, soy beans or buckwheat... are desirable plants." Address: Prof. of Horticulture, Cornell Univ., Ithaca, New York.

213. Hosie, Alexander. 1901. *Manchuria: Its people, resources, and recent history*. London: Methuen & Co. xii +

293 p. See p. 180-84, 218-24, 240-45, 252-53. Illust. Index. 23 cm.

• **Summary:** The Preface states that Hosie was in charge of the British consulate at Newchwang in Manchuria from Nov. 1894 to July 1897 and from April 1899 to April 1900. In 1900 he made the first careful estimate of soybean production in Manchuria, calculating the amount at 600,000 tons. He noted that during that period most of Manchuria's soybean exports went to southern China, through the ports of Swatow, Amoy, and Canton, where mills were erected for extracting the oil; the cake was used for fertilizing sugar plantations there and in Java. Nearly all of the soybean oil exported from Manchuria was consumed in China.

Note 1. This is the earliest document seen that gives soybean production or area statistics for Manchuria.

Chapter 2, titled "Recent events in Manchuria" (p. 39-72) begins with the Sino-Japanese war of 1894-95 (it began on 3 Aug. 1894 and concerned a dispute over the kingdom of Korea [Korea]), the Japanese invasion of Korea and Manchuria, Japanese victory and the treaty of

MANCHURIA ITS PEOPLE, RESOURCES AND RECENT HISTORY

BY
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WITH MAP, DIAGRAMS AND ILLUSTRATIONS

METHUEN & CO.
36 ESSEX STREET W.C.
LONDON
1901

Shimonoseki (17 April 1895), the complexities of railway construction and financing in Manchuria (from the start of construction of the Manchurian Railway on 28 Aug. 1897), and the expected effects of the new railroads on Manchurian trade. Manchurian trade currently labors under serious disadvantages due largely to climatic conditions, absence of good roads, and the slow and clumsy methods of transport. "I have said that it is practically impossible to sow, reap, and export [soy] beans, the most valuable trade product of the country, in the same year, and that they have to be carried by cart and stored at depots on the waterways to await shipment when the ice breaks up in the following spring. In this way capital is locked up for months and heavy storage charges are incurred" (p. 67). The Russian Central Manchurian Railway should greatly alleviate these problems. Bubonic plague struck Manchuria in 1899 (p. 69).

Note 2. This is the earliest document seen (Jan. 2008) concerning the transportation of soybeans by railway.

Chapter 7, titled "Agriculture and agricultural products" (p. 172-98) contains extensive information on "Beans" (which are actually soybeans). Beans are often used on large farms in the second year of a 4-year crop rotation consisting of millet, beans, rice (or barley or wheat), and millet. Other important cereal crops are Job's tears (*Coix lachryma*, used medicinally and in making sweetmeats) and tall millet (*Kao-liang*).

"A large variety of beans is grown in Manchuria, and, together with their resultants, bean-cake and bean-oil, they constitute by far the most valuable item in the export trade of the three provinces." In April they are sown by hand in drills, and the crop ripens in September. "The Chinese distinguish the beans of commerce by their colours, and they are known as Yellow (Huang Tou), Green (Ch'ing Tou), Black (Hei, or Wu Tou), White (Pai Tou), Red (Hung Tou) and Small Green (Lü Tou). The yellow, green and black are varieties of the soy bean (*Glycine hispida*, Moench., or *Dolichos soja*, L.)..." The white and red beans are "the ray-fruited dwarf bean (*Phaseolus radiatus*, L.)" [azuki bean]. The Lü Tou (small green bean, *Phaseolus mungo*, L.) [mung bean], "the smallest but one of the most important of the beans of commerce cultivated in Manchuria," is used to make vermicelli and bean sprouts (p. 184).

Concerning soy beans: The "yield per acre, which requires from 16 to 18 lb. of seed, is estimated at from 27 to 39 bushels, with a weight of about 40 lb. per bushel." [Note: A U.S. bushel of soy beans weighs 60 lb.]. "Each variety of soy bean has a number of sub-species. The yellow has three, known respectively as (a) Pai-mei (white eyebrow), from the white scar on the saddle or point of attachment to the pod; (b) Chin-huang, or Chin-yüan (golden yellow or golden round), from the golden colour and more rounded shape of the bean; and (c) Hei-chi (black belly), from the dark brown scar on the saddle. All the three sub-species are highly prized for the quantity of oil or fat which they contain, but sub-

species (a) and (b) are noted for the quality of the bean-curd (Tou-fu) or legumine obtained from them, as well as for the sprouts which are procured by soaking the beans in water, and which are greatly relished as a vegetable.

"There are two sub-species of the green bean (Ching-Tou)." One has a green epidermis (skin) but is yellow inside, while the other is green on both the surface and inside.

The black bean (Wu Tou) has three sub-species:—(a) To-wu-tou (large black bean), where the epidermis is black and the inside green. It yields oil or fat, and it is likewise boiled with millet or rice and used for food.

"(b) Hsiao-wu-tou (small black bean), where the bean is somewhat smaller than the sub-species (a), with a black epidermis and yellow inside. It is largely used for horse feed and also yields oil, the refuse being employed for feeding pigs. It is likewise pickled for food.

"(c) Pien-wu-tou (flat black bean), where the epidermis is black and the inside yellow. It is flattened and elliptical in shape, and is mostly used for pickling and for horse feed." (p. 181-82).

A detailed description is then given of Tou-fu, or bean curd, and how it is made (p. 183-84).

"Besides these beans of commerce there are several varieties of garden beans cultivated for food, such as...; the Mao Tou, or hairy bean [probably green vegetable soybeans], with short hairy pods, each containing one to three beans (epidermis white and inside green);... With the exception of the Mao Tou these are usually cooked and eaten with the pods" (p. 186).

"The plants grown in Manchuria whose seeds yield oil are six in number. They are (1) *Dolichos soja*, L., or soy bean," (2) Castor oil plant. (3) *Sesamum orientale*, or sesame. (4) *Perilla ocymoides*, L., or perilla. (5) The cotton plant. (6) *Cannabis sativa*, L., or the true hemp plant. "The names and uses of these [six] oils are the following: (1) *Tou yu* [soy bean oil]—cooking, mixing paints and lighting" [illumination]. All these six "oil-yielding seeds" (with the exception of *sesamum seeds*, which are roasted) are crushed, steamed and subjected to great pressure. A table (p. 188) shows the percentage and value of the oil and cake extracted from these six seeds.

A black-and-white photo shows a Chinese bean mill at Newchwang with a huge granite stone wheel (facing p. 220).

Also discusses: Job's tears or pearl barley (p. 180-81). *Phaseolus radiatus* (the ray-fruited dwarf bean [azuki] which is red or white, p. 182-83). Hemp, a valuable textile plant (p. 186-88, 251). Sesamum seed (p. 188). Ground-nuts [peanuts] (p. 188, 251). The ground nut (*Arachis hypogaea*, L.) is cultivated in Manchuria for food, however not to any great extent. The oil is not extracted from the nuts, as it is in the south of China. Seaweed (p. 258).

A second edition of this work was published in 1904 (London: Methuen & Co., 293 p.; New York: C. Scribner's Sons; see p. 181-87). In the 1910 ed. (published in Boston

by J.B. Millet Co.; 320 p.), see p. 75-79. Address: M.A., F.R.G.S., Once Acting British Consul, Tamsui; Now at Aberdeen (Scotland or Hong Kong).

214. Boehmer (L.) & Co. 1902. Wholesale catalogue: 1902-1903. Yokohama, Japan. 44 p. Illust. 26 cm. [Eng]

• **Summary:** The section titled “Plants and seeds of economic value” (p. 30+) gives the first detailed information seen (July 2014) in a Japanese seed catalog about the different varieties of soy-beans as follows: In large letters near just below the section title we read: “We are in a position to fill special contracts for the following food-, fodder-, vegetable-, and other plants, which are used in the textile and other industries.”

After describing 3 types each of rice and millet the text continues: “Soy-bean. *Dolichos soya* L. Jap. nom. [Japanese name(s)] Daidzu and O-mame. These Jap. soybeans have been well acclimatized in Central Europe and there yield very fine crops.” Three types, based on seed color, are described:

(1) “The white Soy-bean. Jap. nom. Shiro Mame. The following varieties are recommendable: Five-months bean. Goguwatsu Mame. Ripening in July. Summer bean. Wase or Natsu Mame. Small seeded, early. Middle-late bean. Nakate

Mame. Larger in seed than the foregoing. Late bean. Okute Mame. Bullet bean. Maru Mame. Very valuable as horse feed. Gun bean. Teppo Mame. This kind is principally used to make the famous Soyu-sauce” [shoyu, soy sauce].

Note: This is the earliest document seen (April 2012) that uses the term “Soyu-sauce (regardless of capitalization or hyphenation) to refer to soy sauce.

(2) “The black Soya-beans. Kuro Mame. Round middle-late bean. Kuro-Teppo Mame. Green Mame. Nicuri [Nikuri] Sei. Green throughout. Pale green-Kaje [Kage] Mame. Round seeds.”

(3) “Speckled Soya-beans. Jap. nom. Fuiji Mame. Green and black bean. Kuro-Kura Kake-Mame. Green and brown bean. Aka-Kura Kake-Mame. Flat and long bean. Yellow-green bean. Fuiji Mame. Marked with many dark spots.”

Other food legumes on this page include: Sword bean—*Dolichos incurva*, nata mame. Ray-fruited dwarf bean—*Phaseolus radiatus*, adsuki [azuki], small pealike bean of very fine flavor and therefore very popular. *Phaseolus typicus*—Oku Adzuki—Very large seeded bean. *Phaseolus pendulus*—Kuro Adsuki—Black fruited. Shiro Adsuki—White fruited. Tsuru Adsuki—Twining bean. *Phaseolus subtrilobatus*—Bundo [Yayenari], bearing each from 4 to 6 hanging pods. Also (p. 31): *Pueraria Thunbergi*—Kudzu.

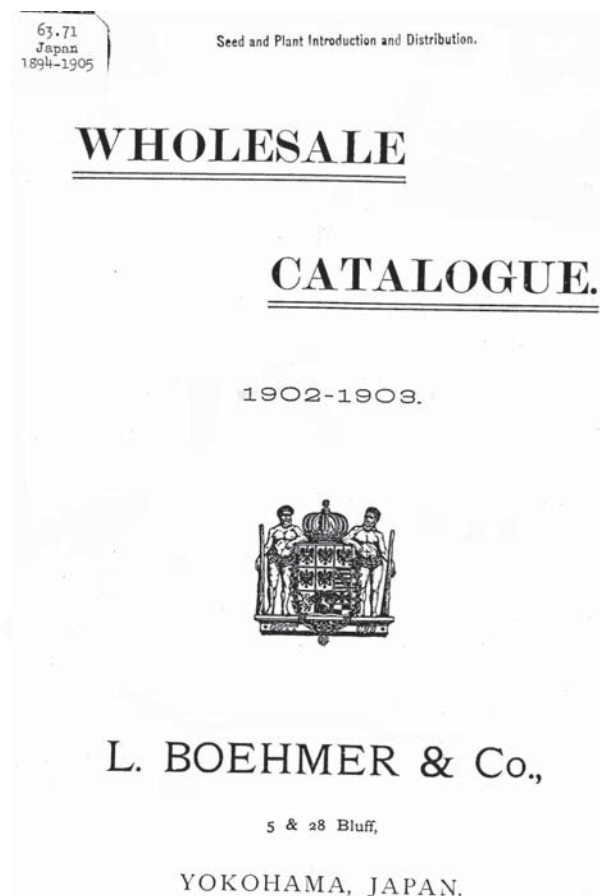
Note 1. The above information on soybean varieties and other economic plants appears to have been taken in large part from any of three books about Japan by Johann J. Rein published from 1884 to 1889, especially his 1889 book.

Photos show: (1) A characteristic Japanese garden, with many stone lanterns and trees, and people walking along the stone pathways around the central pond. (2) A Japanese woman seated, packing bulbs into baskets. (3) The company’s packing department, showing many Japanese and European workers and trays of bulbs. (4) A bamboo-walk in Japan.

Note 3. The title page of this catalog states: “Nurserymen & exporters. The only European nursery firm established in Japan. Established in 1882. Cable address: Boehmer Yokohama.” It suggests that the company’s main business is in “lily-bulbs, iris, peonies, and other Japanese flower roots.” Page 1 states that this is the first Boehmer catalog in which “photo-arto-prints” appear. Page 3 notes: “Prices are quoted and will be charged in Yen and Sen, 1 ¥ = 100 sen. The value of the Yen is subject to slight fluctuations, but about equal to 0.50 Gold \$; 2 shillings; 2 Mark; 1 Rubel [sic, Ruble]; 2.50 Frcs. [French francs]; 1.20 Fl. [Florins, probably Austria-Hungary], etc.” Address: Nos. 5 and 28 Bluff, Yokohama, Japan.

215. Osborne, Thomas B.; Harris, Isaac F. 1903. Nitrogen in protein bodies. *J. of the American Chemical Society* 22(4):323-53. April. [45 ref]

• **Summary:** This article begins: “To properly differentiate and classify the protein bodies it is necessary to employ



some method based on the structure of their molecules... Until recently, knowledge regarding the structure of the protein molecule has been chiefly obtained by detailed study of the decomposition products resulting from boiling the protein with strong acids."

In the section titled "Phaseolin" (p. 336-37), Osborne argues that adzuki beans and soy beans probably do not contain phaseolin. A table (p. 337) shows the percentage of nitrogen in the different forms of phaseolin in soy bean, adzuki bean (*Phaseolus radiatus*), and kidney bean (*Phaseolus vulgaris*). Address: Lab. of the Connecticut Agric. Exp. Station.

216. Scidmore, Eliza R. 1904. Japan is joyous in cherry time: Island empire covered with clouds of pale blossoms showing like dazzling snowdrifts. *Chicago Daily Tribune*. June 6. p. 1.

• **Summary:** "The neighborhood of Kaburenjo is declared by the strings of red lanterns decorated with a row of white dumplings and white lanterns with rows of red dumplings round them, the round dumplings filled with sweet bean paste [*an*, made from azuki beans] being the conventional accompaniment of such festivals and occasions. The bean paste tastes like marron glacé, and in some ingenious form is always served one as an accompaniment of the formal cup of tea."

"Other little mechanical dolls come with measured steps to present a small plate of bean paste dumplings laid on a folded bit of white paper. One eats the dumplings with the aid of a bamboo splinter."

"The bowl of tea is a frothing mixture of powdered green tea, beaten up with boiling water, the ceremonial green gruel... of the cha no yu ceremony..."

217. Bellows, E.C. 1904. Agriculture in Japan. *Monthly Consular Reports (U.S. Department of Commerce and Labor, Bureau of Statistics)* No. 287. Aug. p. 22-25.

• **Summary:** In 1901 the artificial fertilizer manufacturing companies of Japan produced 62,400 tons; 151,000 tons of fish fertilizers were produced, and 83,967 tons of Chinese bean cakes were imported for use as fertilizers. Artificial fertilizers are also imported from Great Britain, fish guano from Siberia, animal bone from China, and other fertilizing materials from different countries.

"The principal agricultural products, named in the order of their acreage, are rice, rye, barley, wheat, [soya] beans, mulberries, sweet potatoes, millet, buckwheat, rape, red beans [azuki], Italian millet [awa], tea, indigo leaves, potatoes, sorghum, tobacco leaves, cotton, and hemp. The area devoted to rice cultivation constitutes a little more than two-fifths of the total area of arable land." Address: Consul-General, Yokohama, Japan.

218. *Bulletin Economique de l'Indochine (Hanoi)*. 1904.

Analyses de graines alimentaires du Tonkin [Analyses of edible seeds from Tonkin]. 7(33):1022-23. Sept. New Series. [Fre]

• **Summary:** We give below three analyses of food grains from Tonkin [later the northernmost part of Vietnam]. The first analysis relates to the two main varieties of corn grown in Tonkin. The 2nd analysis concerns two varieties of the seeds of *Phaseolus radiatus* (Lin.) of the legume family; in Cochinchina, Annam and Tonkin it is known as *Dau xanh*—small green haricot. These two analyses were conducted by Mr. Pairault, senior pharmacist of the colonial troops in Hanoi.

The third analysis, conducted by Mr. Aufray, director of Tonkin's laboratory of agricultural and industrial analyses, refers to the seeds of the soybean: *Dolichos soja* (Lin.) of the legume family; in Cochinchina and Annam it is known as *Dau-nanh*; in Tonkin as *Dau-tuong*. It contains:

Nitrogenous materials [proteins]: 32.44%.
Fatty materials [oil]: 14.60%
Cellulose: 11.70%
Water: 9.81%
Ash: 4.88%
Starch: 2.77%.

219. Hosie, Alexander. 1904. Report by Consul-general Hosie on the province of Ssuch'uan. Presented to both houses of parliament by command of His Majesty. Oct. 1904. London: Printed for H.M. Stationery office, by Harrison and Sons. 101 p. See p. 10-11. 34 cm. China No. 5.

• **Summary:** Sir Alexander Hosie (lived 1853-1925) traveled to Ssuch'uan in June and July, 1884.

In Part A, titled "Agricultural and horticultural products," section II on "Pulse" (p. 10-11) states: "1. Soy Bean (*Glycine hispida*, Max.).—The soy bean does not play the same part in Ssuch'uan [Szechwan] as it does in Northern China, and especially Manchuria, where it is cultivated almost entirely for its oil and for the refuse cakes, which find a ready market not only in China and adjacent countries, but are winning their way as fertilisers into remoter regions. The great oil-yielding plant of Ssuch'uan is rape, and although oil is extracted from the soy bean, it is as an article of food, whether cooked whole or in the form of resultant products, that the latter is appreciated in Western China. Three well-marked varieties, each with two or more sub-species, are cultivated." A bushel of each weighs 40 pounds.

(1.) Yellow Soy Bean (all are ovoid in shape; oil is extracted from the first two): (a) "Pai Huang Tou" or White Yellow Bean. This is the lightest in color of the three sub-species of the yellow bean. A bushel of 40 lbs. costs T. [Taels] 0.8.8, or about 2s. 1d. There are about 150 beans per ounce. "As a rule they are cooked whole and served as a vegetable condiment." (b) "Ta Huang Tou" or Large Yellow Bean. Has a light tinge of green. Eaten in the same way as the white-yellow bean. (c) "Hsiao Huang Tou" or Small

Yellow Bean. This bean is much smaller and less expensive than the other two sub-species. “For this reason it is in demand for the manufacture of beancurd in its various forms. It is also used as a vegetable. “Oil is extracted from (a) and (b), and to a much less extent from (c); but this subject will be dealt with under the head of oil-yielding plants.

(II.) “Ch’ing Tou”—Green Soy Bean. “There are two sub-species of this bean, (a) where epidermis and inside are both green, and (b) where epidermis is green and inside yellow. The former is more commonly cultivated in Ssuch’uan, and both are eaten and cooked as a vegetable. They are also salted and put away in jars for winter use. The bean is of the same size, shape, and weight as the white-yellow bean. The above yellow and green varieties of the soy bean occupy the ground from April to August, whereas the next variety (black) takes a month longer to mature.

Note 1. This is the earliest English-language document seen (May 2009) that contains the word “Green Soy Bean.” It refers to mature dry soybeans with a green seed coat—not to green vegetable soybeans.

(III.) “Hei Tou”—Black Soy Bean. “There are two sub-species of this bean: (a.) The first is much larger, rounder, and heavier than the yellow and green variety. Only 88 are required to make up an ounce and the cost is T. 0.6.5 per bushel of 40 lbs. Like the green bean, it is used cooked in its fresh state as well as pickled. (b) The second is a small flattish bean, about 450 going to the ounce. It is used in medicine and for food, principally the former. The cost is T. [Taels] 0.8.0 for 40 lbs. Both these sub-species are black outside and yellow inside, the epidermis of the former being readily detachable when crushed.”

In section VI, “Products of cereals, pulse, and starch-yielding plants,” the first entry (p. 19) is for “1. Beancurd and Jellies.—In my book on Manchuria I have fully described the manufacture of beancurd from the yellow soy bean, and it is therefore unnecessary to go into details in this place; but in Ch’êngtu it is preserved and exported in jars like wine. The beancurd is cut into small pieces, drained of its water, and packed in jars with layers of salt. There they remain for forty days, when they are taken out, drained of the brine, packed in other jars with ground up bread, red rice (dyed), star-aniseed, and red wine. The jars are then closely stoppered and the preserved beancurd is ready for export. It is also preserved without the wine, which is replaced by the cold water which had previously drained from it, but with a seasoning of ground-up chillies, star-aniseed, &c.” Related products are “pea jelly,” “sweet potato jelly,” “rice jelly,” and “buckwheat jelly.” Note 2. This is the earliest English-language document seen (Oct. 2011) that uses the term “preserved beancurd” to refer to fermented tofu.

Note 3. This is the earliest English-language document seen (Oct. 2011) that uses the word “wine” (including rice wine or “sake” / “saké”) in connection with fermented tofu, and explains how that wine is used in the two-step

fermentation process.

We also read (p. 19): “3. Soy or bean sauce. Two kinds of soy are manufactured in Ssuch’uan—white or red—or, as the latter is frequently called, black:—(a) Red soy.—In describing the manufacture of soy, I propose to give the exact quantities employed, so that a better idea of the amount of soy yielded by them may be obtained.

“Twenty-eight catties of yellow soy beans are steeped overnight in cold water. In the morning they are removed in their swollen state and steamed for five hours. They are then taken from the steamer, spread out on mats, and allowed to cool, after which they are thoroughly mixed with 20 catties of wheat flour and placed in a basket made of split bamboo. [Note: The ratio by volume of soy beans to wheat flour is 1.4 to 1]. In six or seven days, as soon as yellow mould begins to appear, they are placed in an earthenware jar with 30 catties of cold water (well-water preferred) and 30 catties of granular salt and the whole is thoroughly mixed and the jar covered. In three or four days the jar, which has been placed in the sun, is uncovered and the contents stirred by hand, and the same takes place daily for three months. At the end of this time the liquid has all evaporated. During the following months the cover is removed during the day and replaced at night. The contents are now a black pickle, and may be eaten as such; but to obtain the soy they are divided up into equal parts and placed in two earthenware jars, to each of which is added 40 catties of boiling well-water. The contents of each jar are now thoroughly mixed and stirred up and a fine bamboo sieve in the shape of a basket is placed in the jar. The liquid escapes into the basket while the dregs are kept back by the sieve. In two or three days the liquid has all drained into the basket, when it is baled out and boiled with two catties of white sugar or glucose manufactured from glutinous rice, already described, with the addition of two or three ounces of mixed whole chillies and star-aniseed. Each jar will yield 35 catties of red soy, valued at 96 cash a catty, so that the 28 catties of yellow beans, with the other ingredients, yield 70 catties of soy. A whole year is required from the steeping of the beans to the production of this soy.

“(b) White soy.—In the case of white soy the beans are first roasted in sand which has been previously heated in an iron pan with a mixture of rape oil. This roasting is complete when the beans open or split, and the sand is removed by sieve. They are then placed in an earthenware jar and steeped in cold water for twelve hours. They are afterwards steamed as in the manufacture of red soy, and mixed with flour and salt; but, instead of 30, some 60 catties of water are added to prevent the blackening of the beans and the discoloration of the soy. The daily uncovering, stirring, and recovering take place as in red soy, but at the end of 120 days the solid matter is removed and the liquid alone is exposed in the jar to the sun. This soy is ready for use at the end of the 120 days, but improves by keeping and exposure to the sun. No sugar or glucose is used, and the seasoning is placed in the jar with

the 60 catties of water. Nor is there any boiling before use. The cost of white soy, which is more yellow than white, is from 80 to 96 cash a catty, according to quality.”

In the section on oil-yielding plants, p. 34 states: “(e.) ‘*Glycine hispida*, Max.’—In Ssuch’uan the soy bean of Northern China and Manchuria is replaced by rape seed, and it is cultivated more as a vegetable than for its oil. The production of the latter is insignificant from a commercial point of view.”

In 1922 a derivative work titled “Szechwan, its Products, Industries, and Resources,” was published in Shanghai by Kelly & Walsh, Ltd. (185 p.).

220. Hosie, Alexander. 1904. Report by Consul-general Hosie on the province of Ssuch’uan. Presented to both houses of parliament by command of His Majesty. Oct. 1904. London: Printed for H.M. Stationery office, by Harrison and Sons. 101 p. 34 cm. China No. 5.

• **Summary:** Sir Alexander Hosie (lived 1853-1925) traveled to Ssuch’uan in June and July, 1884.

In Part A, “Agricultural and horticultural products,” section I “Cereals and grain plants” includes a detailed discussion (p. 10) of Job’s tears or (*Coix lachryma-Jobi*, L.). “This grain plant is widely cultivated in China. The seeds, under the name of ‘pearl barley,’ are exported from Manchuria in the north to the West River in the south. The seeds are inclosed in hard globular or tear-shaped lustrous capsules, whence the plant derives the name of Job’s Tears. The seeds are said to possess diuretic and cathartic properties, and are more extensively used in medicines than as food. They are, however, boiled and made into gruel, and are also added in small quantities to flour cakes to attract buyers.”

Section II, “Pulse,” discusses: 2. “Lü Tou”—Green bean (*Phaseolus Mungo*, L.) [mung bean]. “This small green bean is widely cultivated in Northern China for the manufacture of vermicelli as well for its sprouts, which are highly esteemed as a vegetable. It is extensively grown in Ssuch’uan for both purposes.” Size: 600 beans/ounce. A bushel of 40 lb costs T. [Taels] 0.8.5.

3. Ray-fruited dwarf bean (*Phaseolus radiatus*, L. [adzuki bean]). “There are two species of this bean distinguished by their red and white colors. They are small, hard, glossy, ellipsoidal, with blunted ends and white inside. The white species is called ‘Pai Hung Tou,’ white red bean, to show that it belongs to the same family as the red bean. The red species is ground up and used for stuffing cakes and sweetmeats, being preferred to the white for this purpose owing to its red color... They occupy the ground from May to November and the price is T. 0.5.5 and T. 0.6.0 for red and white respectively.”

8. “Broad Bean (*Vicia Faba* L.).” 10. “Ground nut (*Arachis hypogaea*, L.)... The nut is grown as much for food as for the oil which it yields. It is eaten roasted or as a

favorite ingredient in confectionery of various kinds... The price in Ch’êngtu averages about 42 cash a catty.”

Section III, titled “Starch-yielding plants” (p. 13) describes “*Pueraria Thunbergiana*, Benth. [kuzu]—The dry roots of this plant, from which a starch is extracted, are exposed for sale in the streets of Ch’êngtu, but the meal enters very little into the diet of the people, nor are the fibres of the plant woven into cloth, as in some parts of China, especially in the neighbourhood of Kiukiang.”

In Section XI, titled “Varnish, tallow, soap, and oil plants,” the subsection on “Oil plants” (p. 31-35) includes discussions of: (a) “Rape oil (*Brassica juncea*, Hook, f. et T.). The Chinese distinguish three kinds of rape seeds according to colour—black [actually dark brown], yellow, and coloured.” Rape oil, called either *Ts’ai Yu* or *Ch’ing Yu* is the great cooking oil and lighting oil of Szechwan. The cakes are widely used as fertilizer. (b) “*Sesamum indicum*, L. Both the black and white seeded varieties of sesamum are cultivated in Szechwan, the former for the oil extracted from it and the latter in small quantities for medicinal purposes. This is the most expensive edible oil in the province,...” retailed at 320 cash per catty. It is called *Hsiang Yu* or fragrant oil, and is eaten raw mixed with cooked vegetables. The unusual method of manufacture is described.

(c) *Arachis hypogaea*, L. The ground nut. Two methods of extracting the oil from the nuts are described. The oil is used for cooking, lighting, adulterating rape oil, and making candles. (k) *Cannabis sativa*, L. Hemp oil. “Little attention is paid to the extraction of oil from the seed.” The seed is used mostly for feeding caged birds. (l) *Perilla ocymoides*, L. Perilla oil. The oil is rarely sold in shops. The seed is fed to caged birds. (p) *Linum usitatissimum*, L. Flax is grown, “not for its fibre, but for its seeds, which in addition to medicinal uses, yield an oil utilized locally for cooking and lighting. The plant is not sufficiently cultivated to make the oil of any commercial value.” (q) *Aleurites Fordii* yields T’ung oil (*T’ung Yu*; [tung oil]) and *A. montana* yields wood-oil (*Mu Yu*), the most important oils produced in Szechwan. They are boiled to make a varnish.

221. North Adams Transcript (The) (North Adams, Massachusetts). 1905. Old Japanese armorers. Strange legends of the temper and keenness of their swords. Feb. 9. p. 6.

• **Summary:** “Strange legends are told of old Japanese armorers. Masa-Mune, a gentle smith of the fourteenth century, could let fall a hair of the hard shelled adzuki bean across the edge of one of his swords, and it would split in two, or, like Regin, he would stand the weapon upright in a little stream of water and let the current carry along a scrap of paper, which, as it touched the edge of the blade, would float away in halves.”

222. Bui, Quang Chieu. 1905. Des cultures vivrières au

Tonkin [On the food crops of Tonkin, Indochina]. *Bulletin Economique de l'Indochine (Hanoi)* 8(48):1152-90. Dec. New Series. Many illust. and photos. [4 ref. Fre]

• **Summary:** This article begins with a foreword by H. Brenier, Director of Agriculture, Forestry and Commerce for Indochina. He notes the importance of soybeans, soy products (including soy sauce and tofu) and adzuki beans (*Phaseolus radiatus*), among the people of Asia. In Annamite (south Vietnamese), tofu is called *dau phu* and the soybean is called *dau nanh* or *dau tuong*.

Adzuki beans are discussed (p. 1153-55, 1157) and a nutritional analysis of the azuki bean, which has been cultivated in France, is given. The section on the soybean (p. 1153, 1157-68) discusses: The local names and varieties of the soybean, botanical characteristics, cultivation, utilization (to make soy sauce, *tuong*, tofu, etc.), commerce and trade (in the province of Hungyen, the stalks of the soybean plant are used to make a sort of incense). An illustration (line drawing, p. 1159) shows a Soja plant with pods.

A detailed description is given of the manufacture of *tuong* (a sort of soft miso) in Tonkin. First *moc*, or molded glutinous rice is prepared. After glutinous rice is cooked, it is covered with banana leaves and allowed to mold for 2-3 days. Then the soybeans are prepared. They are grilled, ground to a powder, boiled with water, and put into a jar for 7 days until sweet. Six parts of rice koji are then mixed with 5 parts soy. The mixture will be ready to eat after it has fermented for 15-30 days. If it is too thick, add salt. Good *tuong* is soft and mildly sweet. It is sweeter and smoother than *nuoc mam*. Annamites say that only the prosperous households succeed in making *tuong*. If the *tuong* starts well, then becomes sour, that is a bad omen.

Tuong can also be made from corn (*maïs*), which is grilled, ground, sifted, covered with taro leaves, and allowed to mold. Put it in salt water, then after 5-6 days add roasted soy flour as above. Stir it before sunrise and let it stand open in the sun for 15 days, putting on the cover as soon as the sun disappears. If this is done, it will last a long time.

Note 1. This is the earliest document seen (April 2021) that mentions *tuong*. The importance of this fermented seasoning, a close relative of Chinese *jiang*, is indicated by the local name for the soybean (*dau tuong*), or “the bean used to make *tuong*.” Vietnamese *tuong*, like Chinese *jiang*, has a consistency like applesauce, midway between that of a solid (miso) and a liquid (soy sauce).

Production of tofu (*dau-phu*): Lots of *dau-phu* is made in Tonkin, especially in Hanoi, where it constitutes the basis of the poor people's food. It is never made in large factories, only small shops. Soak the soybeans, wash them and remove their hulls, cook to soften them, then grind them with a hand-turned mill over a wooden bucket. The soymilk is extracted with cold water then boiled for 30 minutes. There remains in the sack a white residue (*un résidu blanc*) [okara] which is fed to the pigs. The next day, add some fermented whey

from a previous batch to coagulate the soymilk. Then press the curds. The finished tofu cakes are each 15 by 8 by 1 cm thick. Tofu is widely used in soups. A table (p. 1165) shows the costs of equipment to start a tofu shop, and a profitability analysis. Early analyses of the composition of the soybean, conducted by Fremy, Muentz and Pellet (in France) and Wechler (in Austria), are reproduced. Photos show key steps in the process: (1) A person is washing soybeans in a bamboo colander while standing in a stream near Hanoi. (2) The soybeans are ground in a small, traditional, hand-turned stone mill by a person sitting on the same wooden bench as the mill, in a bamboo hut, surrounded by various wooden tubs and colanders. (3) Using a sack to filter the ground puree from the stone mill. (4) Cooking the filtered liquid over a small wood fire in an earthenware pot. (5) Pressing the curds (outdoors) after precipitation of the protein. (6) More forceful pressing. Notice pressed cakes on woven bamboo, in lower left, behind person. (7) A merchant walking the streets selling tofu on two trays, each suspended by 3 ropes from the ends of a shoulder pole.

Note 2. This is the earliest French-language document seen (June 2013) that uses the term *un résidu blanc* to refer to okara. Address: Indo China.

223. De Becker, J.E. (Joseph Ernest). 1905. The nightless city: or, the “History of Yoshiwara Yûwaku.” 5th ed. revised. Shanghai, Yokohama, Bremen: Max Nössler & Co.; London: Probsthain & Co. xvi + 386 p. + 46 unnumbered leaves of plates. See p. 158-61, 221. Illust. 2 maps. 19 cm. Reprinted in 1971 by Tuttle & Prentice-Hall.

• **Summary:** A book about prostitution in Tokyo. Note 1. The approximate date of this 5th edition, Dec. 1905, is given on p. xvi, at the end of the “Preface to the fifth edition.” The first edition was published in 1899.

“It was not until after the City of Yedo had become the seat of the Tokugawa government that regular houses of ill-fame were established, and up to the period of Keicho (1596-1614) there were no fixed places set apart for brothels and assignation houses” (p. 1).

The section titled “Dai-ya no koto (Cook-houses of the Yoshiwara)” (p. 158-61) notes that “these cook houses supply every conceivable kind of food be it *sushi* (a fish and rice roll), *kwashi* [*o-kashi*] (cakes)...”

“By the way, there is, in the *Shôbai Orai* (Chinese characters) by Ikku, an item which shows a bill of fare in a *dai-ya* a hundred years ago. It is as follows;—The bill of the *Ki-no-ji-ya* consisted of:... *Teri-gomamé*—Dried young sardines roasted and boiled in sugar and soy... *Aburage*—Bean-curd fried in oil [fried tofu]... *Yaki-dôfu*—Roasted bean-curd... *Umani*—Any food cooked in a mixture of soy, *mirin*, sugar, and the shavings of dried bonito... *Ankake*—A kind of soup containing *tôfu* or arrowroot, etc., all of which foods are suitable to those persons who stop in brothels for several consecutive days.

Note 2. This is the earliest English-language document seen (April 1813) that uses the term “Yaki-dôfu” or the term “Roasted bean-curd” to refer to grilled tofu.

“Famous things of the Yoshiwara... *Sanya-tôfu*—Bean curd of Sanya... *Kobu-maki*—Rolled seaweed... *Ni-mamé*—Boiled [soy] beans... *Dengaku-Tôfu* baked and covered with sweetened miso... These things were very popular (even outside the Yoshiwara)” from 1772 to 1829.

Page 221: “The *yûjo* (prostitutes) did not all appear in the cages until the 20th of the 1st month, so the night aspect of the Yoshiwara did not resume its normal appearance until this date. The *saruhiki* (One who goes about getting money by leading a monkey who performs tricks) and *dai-kagura* (A kind of dance performed in the streets by boys wearing wooden lion-head masks) began to pour into the Yoshiwara from the 1st day of the 2nd month: on the night of the first ‘horse day’ the front of every brothel in the first and second wards of Yeido-chô and of Kyô-machi was illuminated by a large lantern on which was written the names of the *yûjo* in the house. Votive offerings of red rice [probably *sekihan*, azuki beans cooked with rice], fried bean-curd, and fruit were made to the family shrines of the god Inari.”

J.E. de Becker lived 1863-1929. Address: Kamakura, Twenty years a resident of Japan, an English [British] student of sociology.

224. Japan Year Book. 1905-1952. Serial/periodical. Published by The Japan Year Book Office, Tsukiji, Tokyo; and by Foreign Affairs Assoc. of Japan. Annual. Serial/periodical. Published by The Japan Year Book Office, Tsukiji, Tokyo; and by Foreign Affairs Assoc. of Japan. Annual. [Eng]

• **Summary:** 27 volumes. Merged with *Japan Times Year Book* (1933) and *Japan-Manchoukuo Year Book* (1934-1941).

In the *Year Book* for 1906, in the chapter on agriculture, page 104 gives statistics from 1895 to 1903 for the production of the following: Miscellaneous grains (millet, buck wheat [buckwheat], Italian millet, Sarva millet), beans (soja beans, red beans [azuki]), sweet potatoes and potatoes.

Production of soja beans increased from 2,943,478 koku in 1895 to 3,647,830 koku in 1903—an increase of 23% in 8 years. The frontispiece, facing the title page, lists “Weights, measures, and moneys.” 1 koku (dry) = 4.962 bushels.

225. Moeller, Josef. 1905. *Mikroskopie der Nahrungs- und Genussmittel aus dem Pflanzenreiche*. 2 Aufl. [Microscopy of foods and delicacies from the vegetable kingdom. 2nd ed.]. Berlin: Verlag von Julius Springer. xvi + 599 p. Illust. Index. 24 cm. [5 ref. Ger]

• **Summary:** In section titled “Legumes,” the subsection on the soybean (*Sojabohne*, p. 274-76) contains the following contents: Introduction. Seed coat (*Samenschale*). Embryo. Bibliography.

The soybean (*Soyabohne* or *Sojabohnen*) (*Glycine hispida* Maxim., *Soja hispida* Moench) is native to the Orient. In China and Japan it is grown mainly for its seeds, but in Europe and America, mainly as a fodder plant.

The seeds are yellow, brown, or black, 5-10 mm long, in some varieties somewhat flattened, but in others nearly globular / spherical. They contain no starch.

The seed coat (Fig. 294) or spermoderm is pressed tightly against the endosperm layer (*Naehrgewebe*). The palisade cells (*Palissadenzellen*) are about 50-60µ high and about 6-15µ wide, similar to those of the common bean and, like the latter, may or may not have colored contents, depending on the color of the seed. The column cells (*Die Trägerzellen*) are hour-glass shaped and located immediately below the palisade cells. They are about the same height as the latter (usually 35-50µ), but around the hilum (*Nabel*) they often reach a height of 150µ. Since they are easily separated from the adjoining layers and from one another, isolated cells are often found. The spongy parenchyma (*Schwammparenchym*) is strongly pressed against the endosperm layer (Fig. 294, E). The aleurone cells, which form a thick layer, are rectangular or polygonal.

The embryo (*Embryo*): The thin-walled cells of the cotyledons (Fig. 295) contain large (sometimes 25µ in diameter) aleurone grains, but no starch. Two detailed illustrations show the microscopic parts described above; the first is from Winton (1906).

Because of the large column cells and the distinctive endosperm layer, the soybean is easy to recognize.

Note 1. The title page states that this book contains 599 illustrations (woodcuts) by the author and by Andrew L. Winton. The extensive revision of the book was done in cooperation with A.L. Winton.

Note 2. Contains similar entries for: Adzuki bean (p. 269-70). Alfalfa (p. 288). Peanut (p. 288-93). Sesame (p. 323-25). The section on coffee substitutes (p. 408-09) lists many substances which can be used (incl. peanuts, lupin, chicory, figs, etc.), but soy is not mentioned. The names of many commercial coffee substitutes and their main ingredient(s) are also listed, but again no soy. Address: Full Public Prof. and Board of the Pharmacological Institutes (o. ö Professor und Vorstand des pharmakologischen Institutes der Universitaet Graz) [capital of Styria, Austria-Hungary].

226. Oshima, Kintaro. 1905. A digest of Japanese investigations on the nutrition of man. *USDA Office of Experiment Stations, Bulletin* No. 159. 224 p. See p. 20-33, 40-43, 46-47, 145-53, 168-73. [26 ref. Eng]

• **Summary:** One section titled “The Soy bean and its preparations” (p. 23-33) gives detailed discussions of tofu (including yuba, frozen tofu, kara [okara], and fried tofu), miso (incl. white miso, red or Sendai miso), shoyu, and natto. The nutritional composition of each is given, and many early studies by Western and Japanese scientists are cited.

“Next to rice in importance in the Japanese diet are legumes, which are universally used... Of the different legumes used as food in Japan, the soy bean (*Glycine hispida*) is by far the most important. According to agricultural statistics for the years 1879 to 1887, nearly 10 per cent of the cultivated land in Japan was devoted to the growth of this legume, an area somewhat larger than that devoted to wheat growing. In the northern Island [Hokkaido] in 1887 nearly 17 per cent of the total cultivated area was devoted to the soy bean. The average yearly production of soy beans amounts to about 360,000,000 kilograms... A part of the product is of course used for seed, and a not inconsiderable part is used as fertilizer.*” (Footnote: * “In northern China soy beans are used to some extent in the production of oil, which is used for cooking and illumination [in oil lamps]. The residue from this process [the presscake] is imported largely into Japan, where it is used as a fertilizer”). Other legumes widely used in Japan include the mungo bean (*Phaseolus mungo radiatus*) and the adzuki bean (*Phaseolus mungo subtrilobata*) (p. 23-24).

“Many varieties of soy beans are known, being designated according to the color, size or shape of the seed, and the time required for maturity. For example, there are black, green, yellow, and white varieties, and these are again designated as early, medium, or late, according to the season of maturity, and small, medium, and large, according to the size of the seed. The black soy beans are used chiefly for cooking, with sugar and shoyu; the green variety is also used in this way, either in the fresh state or after being dried. But the total quantity of soy beans used in Japan simply for cooking in the natural state is relatively small, the chief use being for the different leguminous preparations, the principal of which are tofu, miso, and shoyu, described beyond. For the preparation of these products either white or yellow soy beans are used, preference being given, however, to certain special varieties for each of these preparations” (p. 24). There follows a long section on tofu (detailed in a separate record).

The “larger part of the leguminous food in the Japanese diet consists of the preparations of soy beans, such as miso, shoyu and tofu,...” (p. 46).

In Japan, legumes supply about 8% of the protein and 11% of the fat in the diet (p. 137).

Many digestion experiments are described (p. 144-87), including those with tofu, shoyu, “tofu cake or kara, the soy-bean residue remaining from the preparation of tofu (see p. 26),” and yuba conducted in Japan by Osawa and Ueda (1887), T. Suchi (1887), Kano and Iishima (1899).

Table 91 (p. 191) is a “Summary of results of digestion experiments with legumes and legume preparations.” The percentages given are “coefficients of digestibility.” Experiments No. 6 and 7—soybeans (average): Protein 65.5%, fat (uncertain), carbohydrates (incl. crude fiber) 85.7%. Experiments No. 8 and 92—tofu (average): Protein

92.7%, fat 96.4%, carbohydrates (incl. crude fiber) 93.3%. Experiment No. 94—“yuba (soy legumin coagulated):” Protein 92.6%, fat 95.7%, carbohydrates (incl. crude fiber) 86.6%, crude fiber 35.5%. Experiment No. 93—tofu cake (soy-bean residue [okara]):” Protein 78.7%, fat 84.3%, carbohydrates (incl. crude fiber) 82.8%, crude fiber 89.6%.

Note: This is the earliest English-language document seen (June 2013) that uses the Japanese word *kara* to refer to okara.

Other Japanese foods discussed include adzuki or adzuke beans (*Phaseolus mungo subtrilobata*) (p. 24, 170), dried algae [sea vegetables] p. 34, and kuzu (p. 170). Address: Director, Hokkaido Agric. Exp. Station, Sapporo, Japan.

227. Pouchat, J. 1905. Légumes indigènes: Susceptibles d’être consommés par les Européens [Indigenous vegetables: Capable of being consumed by Europeans]. *Bulletin Economique de l’Indochine (Hanoi)* 8(48):1097-1151. New Series. [Fre]

• **Summary:** The short section titled “Soja: *Dolichos soja* (Lin.). Ann [Annamese]: Dau xanh” + Chinese characters (p. 1124) states that the soybean is cultivated abundantly by the Annamites, who consume it in large quantities and cook it in many different ways.

“The seed is very rich and very nourishing, however since it is a little hard, it should be soaked in water for 24 hours before cooking. It can be cooked in the same way as haricot beans.

The next entry, for Haricot mungo: *Phaseolus radiatus* (Lin.) Ann: Dau xanh + Chinese characters states: This bean can produce for the greater part of the year, except during periods of the greatest heat. An illustration shows a mound of mung bean sprouts [or perhaps azuki bean sprouts]. A Job’s tears plant (*Coix lachryma* (L.); *Larmes de Job*) with seeds is discussed on pages 1142-43, with illustration, Annamese name, and Chinese characters. Address: Prof. d’Agriculture, Directeur p.i. [par intérim] de l’Ecole Professionnelle de Hanoi [Indochina]. Phone: 00000.

228. Takenob, Y. 1905. Japan Year Book. Tokyo: Japan Year Book Office. 430 p. See p. 68, 104, 123, 126, 130, 348, 375, 382. [Eng]

• **Summary:** This book gives statistics for the Japanese empire: Japan Proper, Korea, and Formosa. At the beginning of the book, before the title page, are many pages of large advertisements on unnumbered pages. Likewise at the back of the book. For example, a full-page ad for Mitsui Bussan Kaisha (Mitsui & Co. in Europe & America) states that the company was established in 1876, and that they are “General Commission Merchants” for the import of [soy] beans, bean cakes, cotton,...

The population of Japan Proper (p. 14) was: 1873–33.3 million.

1883–37.0 million.

1898–43.7 million.

1903–46.7 million.

A table of “Weights, measures and moneys” is on the page after the Table of Contents.

Page 68. In chapter VII on “Finances” is a table titled “Budget for April 1905 to March 1906. Revenue.” “Tax on Soy” [sauce] brought in revenue of an estimated 4.541 million yen in 1904 and 5.149 million yen in 1905.

Page 104. In the chapter on “Agriculture,” a table shows production of beans, including Soja beans and red [azuki] beans, 1895–1903 (in 1,000 koku). Production of soja beans increased from:

2.94 million *koku* in 1895

3.16 million *koku* in 1896

2.99 million *koku* in 1897

3.10 million *koku* in 1898

3.10 million *koku* in 1899

3.41 million *koku* in 1900

3.10 million *koku* in 1899

3.56 million *koku* in 1899

3.10 million *koku* in 1901

3.13 million *koku* in 1902

3.64 million *koku* in 1903.

Page 123. In the chapter on “Forestry and fishery” is a section titled “fish fertilizers” which states: “The demand of fish-fertilizers has lately become quite marked, so active indeed that the supply can hardly keep pace with it. A large quantity of bean-cakes from North-China [Manchuria] is therefore arriving in Japan to make good this deficit. The following table shows the average amount of our fish-fertilizers made at home and of Chinese bean-cakes imported, during the recent ten years. The average for the last 10 years of “Homemade fish fertilizers” is 38.891 million kwan [kan] valued at 7.592 million yen, compared with “Chinese bean-cakes” weighing 20.282 million kwan valued at 2.524 million yen. Note: The soybean cakes are much less expensive per unit weight than the fish fertilizers.

Page 126, 130. The chapter on “Manufacturing industry” states (p. 126) that the manufacture of sake and soy [sauce] were among the principal forms of manufacturing in Japan before the country was opened to foreign commerce. A table titled “Quantity and value of chief manufactured goods” (p. 130) gives the amount of soy [sauce] made each year from 1894 to 1902. The quantity increased from:

1.329 million *koku* in 1894

1.409 million *koku* in 1895

1.505 million *koku* in 1896

1.528 million *koku* in 1897

1.532 million *koku* in 1898

1.838 million *koku* in 1899

1.557 million *koku* in 1900

1.717 million *koku* in 1901

1.762 million *koku* in 1902

Page 348. The chapter on “War finance” explains how Japan is financing its present Russo-Japanese war. One way is through extraordinary special taxes, including an addition 1.13 million yen tax on soy [sauce]. is a “Budget for April 1905 to March 1906.” The two main sources of tax revenue are Land tax 63.6 million yen, and Tax on liquors 60.5 million yen. Tax on Soy is only 5.1 million yen.

In the Appendix, page 13 (under Group VII) gives the import tariff list for “Beans, soja” and page 20 (under Group X) gives the import tariff for “Oil, bean.” There is both a “General tariff” and a “Extraordinary special tax.”

Page 368: A table gives statistics for “Beans and peas” exported from Korea, but none for soybeans alone. Address: Tsukiji, Tokyo, Japan.

229. Wheeler, H.J.; Adams, G.E. 1906. A comparison of nine different phosphates upon limed and unlimed land with several varieties of plants. *Bulletin (Rhode Island State College Agricultural Experiment Station)* No. 114. p. 115-37. June. See p. 122, 131, 132, 134. [1 ref]

• **Summary:** Front cover title: “A test of nine phosphates with different plants.”

Page 122: “5. Soy bean (medium green), 5 rows; 3 feet apart. Planted on May 22.

“6. Beans, white podded ‘Adzuki’ (*Phaseolus mungo* var.), 5 rows; 3 feet apart. Planted on June 7.

“7. Pea (Perfect), 5 rows; 3 feet apart. Planted on June 16.

“8. Hubbard squash, 3 rows; 6 feet apart. Planted on June 6...”

A table (p. 131) shows the yields of the Medium Green Soy Bean, cut and weighed green, using 10 different types of phosphate and different weights of lime.

Page 132: “The soy bean is a legume which can thrive quite well upon soil so acid and so deficient in carbonate of lime that beets, spinach, lettuce, onions, and certain other varieties of plants can not be grown successfully. These two factors help to explain its ability to utilize certain phosphates under conditions where the beet was a practical failure.”

Summary and comments (p. 134): “The foregoing is an account of the experience with nine different phosphatic manures in the years 1900 and 1901. In all cases a very large application of nitrate of soda and muriate of potash was made.”

“With the pea, oat, summer squash, crimson clover, Japanese millet (on the unlimed land), golden millet, white-podded Adzuki bean, soy bean, and potato (on the unlimed land) floats gave very good results; but with the flat turnip, table beet, and cabbage they were relatively very inefficient, notwithstanding that much more phosphoric acid had been applied in the floats than in any other of the phosphates.

“In the case of the pea, oat, summer squash, crimson clover, Japanese millet, golden millet, cabbage, soy bean, and potato the yields were less on the limed soil with than

without the raw Redondite. With but one or two exceptions the yields were raised somewhat by its use on the unlimed land.” Address: 1. PhD, Director of the Station, Chemistry and Agronomy; 2. Associate, Agronomy. Both: Kingston, Rhode Island.

230. Hearn, Lafcadio; Bisland, Elizabeth. 1906. The life and letters of Lafcadio Hearn [1890-1904]. 2 vols. Boston and New York: Houghton, Mifflin Co. 560 p. See Vol. 2, p. 28-30. Illust. Index. 23 cm.

• **Summary:** In a letter to Basil Hall Chamberlain, from Matsue, dated May 1891, Hearn writes: “Dear Professor Chamberlain,—I have just returned from a pilgrimage to the famous Kwannon temple of Kiyomizu—about 18 miles from Matsue—where it is said that the sacred fire has never been extinguished for a thousand years, to find your postal card.”

“The scenery at Kiyomizu is superb. But there is no clear water except the view of Nanji-umi from the pagoda and the hills. The mamori, I regret to say, are uninteresting. There is, however, a curious Inari shrine. Beside it is a sort of huge trough filled with little foxes of all shapes, designs, and material. If you want anything, you pray, and put a fox in your pocket, and take it home. As soon as the prayer is granted you must take the fox back again and put it just where it was before. I should like to have taken one home; but my servants hate foxes and Inari and tofu and azuki-meshi and abura-gi [aburage] and everything related to foxes. So I left it alone.”

“Through the goodwill of Basil Hall Chamberlain, Hearn gained a teaching position in the summer of 1890 at the Shimane Prefectural Common Middle School and Normal School in Matsue, a town in western Japan on the coast of the Sea of Japan. Most Japanese identify Hearn with Matsue, as it was here that his image of Japan was molded.” In “1896, with some assistance from Chamberlain, he began teaching English literature at Tokyo (Imperial) University, a post he held until 1903” (Source: Wikipedia, at Lafcadio Hearn, Oct. 2008). Address: Matsue, Japan.

231. Kaempfer, Engelbert. 1906. The history of Japan, together with a description of the Kingdom of Siam 1690-1692 (translated by J.G. Scheuchzer from the original edition of April 1727. 3 vols.). Glasgow, Scotland: James MacLehose and Sons. Vol. 1, xc + 334 p. Reprinted 1971 New York, NY: AMS Press Inc.

• **Summary:** Please see the original 1727 edition of this work for a long quote on soybeans, miso, shoyu, and azuki beans; it appears in this 1906 edition in Vol. 1, p. 187-88. Many of Dr. Kaempfer’s botanical specimens may still be seen in the Natural History Museum, South Kensington. The front matter in this book is very interesting: The frontispiece shows a full-page portrait (illustration, painting) of Sir Hans Sloane. List of illustrations. Publisher’s note. Biographical note of the Scheucher family, by Sir Archibald Geikie. To

the King, by J.G. Scheucher. The names of the subscribers [alphabetical]. The author’s preface. The life of the author, by the translator. An introduction, by the translator.

In the author’s preface Kaempfer explains (p. xxix-xxxiii) that the Swedish Embassy, where he was secretary, was dismissed by the Persian Court. Since his native country Germany was at war, he decided to travel rather than to return home. He joined the Dutch-East India Company and went to Japan, where most visitors find it very difficult to obtain any information about the country, since all Japanese are obliged by solemn oath not to discourse with foreigners. But Kaempfer developed a rare friendship with his interpreters and the Japanese officers on his island (Deshima in Nagasaki Bay). He assisted them in the fields of medicine, astronomy, and mathematics, and in turn was able to learn about their country. Kaempfer was especially fortunate in gaining “the assistance of a discreet young man, by whose means I was richly supplied with whatever notice I wanted concerning the affairs of Japan. He was about twenty-four years of age, well vers’d in the Chinese and Japanese languages, and very desirous of improving himself. Upon my arrival, he was appointed to wait on me, as my servant, and at the same time to be by me instructed in Physick and Surgery” (p. xxxii). The chief of the island allowed him “to continue in my service during the whole time of my abode in the Country, which was two years, and to attend me in our two journeys to Court, consequently four times almost from one end of the Empire to the other... As I could not well have obtain’d my end without giving him a competent knowledge of the Dutch language, I instructed him therein with so much success, that in a year’s time he could write and read it better than any of our interpreters: I also gave him all the information I could in Anatomy and Physick, and farther allow’d him a handsome yearly salary, to the best of my abilities... There was not a Book I desired to see, on these and other subjects, which he did not bring to me, and explain to me, out of it, whatever I wanted to know.”

A very interesting map of Japan shows each of the provinces and off-shore islands, with the name of each written in both English and Japanese characters (*kanji*).

Note: The long index in volume 3, which makes interesting reading, includes acupuncture, algae (marine, used for food), amasake (amazake, see sake), *Amoenitates Exoticæ*, atheists, Buddhism & pagan worship, cami [kami], Canagawa [Kanagawa], cannib, hempstuffs, Corea [Korea], Cublai-Tartar monarch, culis (see coolies), Deshima (island of Kaempfer at Nagasaki), Dutch East India Company, Fide Jori [Hideyori], Fide Joshi [Hideyoshi], Gendsii [Genji], gokokf [go-kokufu, chief kinds of peas], herbals, Hirando, Isje [Ise], Jejas [Ieyasu], Kami, Kioto (see Miaco), Koya [Koya], Marco Polo, Mikado, moxa, Nagasaki, oil seeds, opium, paganism, paper made by Japanese, pulse, Pythagoras, Quannon [Kwannon], religion, sago, saki [sake], salt, sasen [zazen], secular monarchs [Shogun], sesamum

(plant and oil), Siaka (Buddha), Shimonoseki, submarine plants, Tokaido, Tokio, transmigration of souls, umbrellas, Wilstach (Maria Sophia, wife of Dr. Kaempfer). Address: Physician to the Dutch Embassy to the Emperor's Court, Edo (Tokyo), Japan.

232. Winton, Andrew Lincoln; Moeller, Josef. 1906. The microscopy of vegetable foods: With special reference to the detection of adulteration and the diagnosis of mixtures. New York, NY: John Wiley & Sons. xvi + 701 p. Illust. Index. 24 cm. [49* ref]

• **Summary:** This book, containing 589 superb illustrations by the authors, is divided into ten parts including: II. Grain: Its products and impurities. III. Oil seeds and cakes. IV. Legumes. V. Nuts. VIII. Alkaloidal products and their substitutes (incl. coffee, cocoa bean, kola nut, tea, and tobacco).

In the part on Legumes, the section titled "Analytical key to leguminous seeds" (p. 235-37) includes the soy bean. The section titled "Soy bean" (p. 248-49) has the following contents: Introduction. Histology: The spermoderm (S) (palisade cells {pal}, column cells {sub}, spongy parenchyma {p}), an endosperm (E, consisting of aleurone cells and compressed cells), and embryo or cotyledon (C, with epidermis {ep} and aleurone cells {al}). Diagnosis: "The absence of starch, the presence of long (35-50 μ) I-shaped column cells readily isolated from the surrounding tissues, and the presence of an endosperm layer (E), furnish ready means for the identification of this seed." Bibliography (8 refs). An excellent illustration by Winton (p. 248) shows the outer portion of the soy bean seed in cross section, with each of the layers (X 160 magnification).

Note 1. This is the earliest document seen (Jan. 2016) concerning the detection of soybeans or soy protein in mixtures.

Note 2. This is the earliest English-language document seen (Oct. 2004) that uses the term "embryo" in connection with soy-beans. In a soy bean seed, the embryo and cotyledon appear to be the same.

The section on coffee has a subsection on coffee substitutes and adulterants (p. 435-38), with a long bibliography. Soja beans are listed as one of the many seeds most commonly used. Although the names and main ingredients of many commercial European and American coffee substitutes are given, none contain soy. The most popular ingredients seem to be chicory root, barley, and figs. Peanuts and *Cyperus esculentus* are each used in one product.

This book also discusses: Linseed (p. 202-05). Hemp seed (p. 212-17). Gluten flour, feed and meal (p. 54, 96). Legumes (general, p. 235-37). Adzuki bean (*Phaseolus Mungo* var. *glaber* Roxbg.; p. 241). Yellow lupine, white lupine, and blue lupine (p. 253-55). Almond (whole nuts, paste, cake, shells, coffee substitute; p. 333-37, 436). Peanut

(p. 266-73).

Note 2. Andrew L. Winton lived 1864-1946. The Preface begins: "The development of vegetable histology, both as a pure and an applied science, has been largely in the hands of continental [European] investigators." There is extensive German- and French-language literature, but little in English. It explains that this book was written with the collaboration of Dr. J. Moeller, author of *Mikroskopie der Nahrungs- und Genussmittel* (2nd ed.). "It is with the deepest gratitude that the writer acknowledges this generous coöperation of his honored teacher and friend. Had it not been for Professor Moeller's unselfish aid, the writer would never have undertaken investigations in this field, much less a comprehensive treatise." Address: 1. PhD, in charge of the Analytical Lab., Connecticut Agric. Exp. Station, New Haven, Connecticut; Instructor in proximate organic analysis, Sheffield Scientific School, Yale Univ.; 2. Prof. of Pharmacy, and head of the Pharmacological Inst., Univ. of Graz [Styria, Austria-Hungary].

233. Piper, C.V. 1907. Re: Kindly send to the Seed Laboratory immediately. Letter to Mr. E.Q. Knight. Office, Bureau of Plant Industry, Dep. of Agriculture, Washington, DC, Jan. 23. 1 p. Typed, with signature on letterhead.

• **Summary:** "Dear Mr. Knight: Will you kindly send to the Seed Laboratory immediately for tests of purity and of germination samples of the following lots of seeds:

"10527 *Phaseolus radiatus* [azuki].

"18641 Guar.

"18699 Melilot..."

"18459 Soybeans.

"18460 Soybeans..." And about 30 other forage crops, mostly legumes.

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-1929. Piper, C.V. Box no. 107.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., April 2017. Address: Head of Bureau.

234. Boehmer (L.) & Co. 1907. Wholesale catalogue: 1907 / 1908. Yokohama, Japan. 38 p. Illust. 27 cm. [Eng]

• **Summary:** The section titled "Plants and seeds of economic value" (p. 20) gives detailed information about different varieties of soy-beans quite similar to that found in the 1902 catalog, except that now a fourth type, green, is described; it was formerly accidentally included as part of the black type—no new information is given. Soybeans are again offered for sale under the same terms as before.

The information about azuki beans (p. 21) is identical to that in the 1902-1903 wholesale catalogue. Also: Kudzu. At bottom of p. 20: "Prices and full particulars on application."

Alfred Unger, F.R.H.S. [Fellow, Royal Horticultural

Society] is now the proprietor. Since this catalogue marks the company's 25th anniversary, the page following the title page states: "To our friends and customers: In this, the twenty-fifth year of our existence, we should like to review, for our patrons, the history of our firm, the founders of the export trade in Japanese Horticultural, Agricultural, and Forestry products.

"When in 1870 the Japanese government up the island of Yesso [Yeso, now named Hokkaido], a Commission of foreigners was appointed to aid in developing the island. Mr. Louis Boehmer joined this commission as head of the Horticultural Department, having been recommended for this position by Messrs Peter Henderson & Co. of New York. When this commission was dissolved in 1880, Mr. Boehmer, who had already seen the possibilities of a trade in Japanese horticultural products, came to Yokohama, founding in 1882 the firm of Louis Boehmer.

"By 1889 the trade had so increased, that Mr. Boehmer needed assistance and the present proprietor, Mr. Alfred Unger, was sent out by the great horticultural firm of J.C. Schmidt [named Haage & Schmidt by 1900], Erfurt, Germany, principally to look after the export of Cycas stems, which just at that time were in great demand. In October, 1892, he was made a partner and the firm of L. Boehmer & Co. was formed. This partnership lasted until 1896, in which year Mr. Boehmer died in Blankenburg am Harz, Germany, where he had gone to recuperate his health.

"Since that date Mr. Unger has been the sole proprietor..." Address: Nos. 5 and 28 Bluff, Yokohama, Japan.

235. Ball, Carleton R. 1907. Soy bean varieties. *USDA Bureau of Plant Industry, Bulletin* No. 98. 30 p. + 5 plates. May 27.

• **Summary:** This publication started a new system for naming soybeans, giving them common names such as Buckshot, Ogemaw, and Ito San.

Contents: Origin and introduction of the soy bean. Variability. Classification: Key to the varieties. Descriptions of the varieties (23—including the source of the name and the numbers and sources of lots grown, incl. Agrost. No. and S.P.I. No.): Black-seeded group (Buckshot, Nuttall, Kingston, Ebony, Flat King, Riceland), Brown-seeded group (Ogemaw, Eda, Baird, Brownie), Mottled-seeded group (Hankow {with patch or saddle, and usually eccentric lines or stripes outside the patch}, Meyer), Green-seeded group (Samarow, Guelph), Greenish-yellow-seeded group (Yosho, Haberlandt, Tokyo {incl. Best Green}), Yellow-seeded group (Ito San {"It has long and widely sold under the names, 'Yellow,' 'Early Yellow,' 'Early White,' etc."}), Manhattan, Butterball, Amherst, Hollybrook, Mammoth). List of synonyms.

Note 1. This is the earliest document seen (June 2020) containing a list and descriptions of early U.S. soybean

varieties. Details on each of the 23 individual varieties discussed by Ball are given in separate records in this database with titles of the format "Buckshot: New U.S. domestic soybean variety" (for Buckshot).

Note 2. This is the earliest document seen (June 2020) which tries to standardize early soybean varietal names / nomenclature to prevent confusion.

Note 3. This is the earliest English-language document seen (Feb. 2019) that uses the word "mottled" or the word "mottling" or the word "stripes" to describe the color of soybean seeds. Note that both the mottled Hankow and Meyer varieties came from China.

"Classification: The first separation of the numerous forms or agricultural varieties of this species will naturally be through the colors of the seeds. The varieties having seeds of the solid colors black and yellow are by far the most numerous and most striking. The greens and browns are much less common and are also very variable in shade. The browns are of various shades of reddish brown and are also closely related to the mottled group. The yellows vary commonly into greenish shades, and any line drawn between the yellow and greenish yellow is only arbitrary. The yellows also vary into paler shades, and some have even been called 'white' in Japan. This is most noticeable in old seeds, but is never carried farther than pale yellow. It seems likely that none of the legumes commonly cultivated in Japan can have pure white seeds, like our navy beans for example, or the term 'white' would never be applied to a pale-yellow form. All yellow soy beans gradually turn paler with age for at least three to four years, although some varieties are originally paler than others. Although the black group shows more variation in the size of the seeds, the yellow is much more variable in color shades... Figure 1 shows an attempt to represent graphically the relationships and importance of the various color groups." Six color groups are recognized and described herein.

Distribution numbers: Part I is "serial numbers under which soy beans were distributed by the former Division of Agrostology, with the name of the variety to which each has been referred." Part II is a "list of the serial numbers under which soy beans have been distributed by the Office of Seed and Plant Introduction and Distribution, with the name of the variety to which each is referred in this bulletin. Several S.P.I. numbers representing soy beans not studied by the writer are not included in the list. 3870–Hollybrook. 4285–Mammoth. 4912–Hollybrook. 4913–Amherst. 4914–Tokyo. 5764–Hollybrook," etc. up to "17852–Meyer."

Note 4. One variety was often introduced several different times under different S.P.I. numbers, and that many varieties have an "Agrostology No." [Number] separate from their S.P.I. number. Description of plates.

"Origin and introduction of the soy bean (p. 7-8): The soy bean (*Glycine hispida* (Moench.) Maxim.) is an annual leguminous plant from the Orient. Its native home is said to

be from southern Japan southward through eastern China and Indo-China to Java. In China and Japan it has been in cultivation for many centuries, certainly since before the beginning of the Christian era. In those countries it is easily the most important legume grown, and in some provinces it is the most important of all crops. Owing, perhaps, to the almost complete isolation of that part of the Orient, its cultivation spread only slowly to other lands. It is now grown to some extent in India, but its introduction there seems to be of recent date. It reached Europe probably in the latter part of the eighteenth century, and its arrival in England is credited to 1790. For several decades it was grown merely as a curiosity in botanic and private gardens. Investigation of the economic value of this plant began more than thirty years ago in Europe, rather earlier than in this country, but the soy bean has not yet attained any great prominence there.

“The soy bean has been known in the United States for more than three-quarters of a century. In the *New England Farmer* of October 22, 1829, Thomas Nuttall wrote of its possibilities as a crop for this country. For many years it was grown only in gardens as a curious plant from the Far East. The Perry expedition to Japan in 1853 brought back two varieties, a yellow and a red sort [azuki?], which were tested here in a limited way.

“During the last twenty years the soy bean has been the subject of many experiments to determine its agricultural value and adaptations. The agricultural experiment stations of Kansas and Massachusetts were pioneers in these investigations and seed was imported directly from Japan by both stations. Through these efforts considerable interest was aroused, and two or three varieties soon became available commercially. The number of forms and varieties in this country was further increased by additional importations made by enterprising seedsmen. Since 1898 the Office of Seed and Plant Introduction of the United States Department of Agriculture has secured from seven different countries of the old world no less than 65 different lots of soy bean seeds, representing about twenty varieties.”

Page 2 lists the 28 people and divisions in the Bureau of Plant Industry. Beverly T. Galloway is chief of the Bureau. Merton B. Waite and Irwin F. Smith are pathologists. Walter T. Swingle is physiologist in charge of plant life history investigations. Mark A. Carleton is cerealist in charge of grain investigations. David Fairchild is in charge of seed and plant introduction. Charles V. Piper is agrostologist in charge of forage crop investigations. Palemon H. Dorsett is pathologist in charge of the plant introduction garden, Chico, California.

Note 4. This is the earliest document seen (Aug. 2011) that mentions Palemon H. Dorsett in connection with plant introduction or with soy beans.

List of synonyms (p. 27): Adzuki = Ito San. Black = Buckshot. Brown Eda Mame = Eda. Crossbred No. 6 = Ogemaw. Early Black = Buckshot. Early Green = Guelph.

Early Japan = Butterball. Early White = Ito San. Early Yellow = Ito San. Extra Early Black = Buckshot. Green = Guelph. Green Samarow = Samarow. Hollybrook = Hollybrook [sic]. Ito San = Ito San [sic]. Japanese No. 15 = Kingston. Kaiyuski Daizu = Ito San. Kiyusuki Daidzu = Ito San. Kysuki = Ito San. Large Black = Buckshot. Late Yellow = Mammoth. Mammoth Yellow = Mammoth. Medium Black = Buckshot. Medium Early Black = Buckshot. Medium Early Green = Guelph. Medium Green = Guelph. Ogema = Ogemaw. Southern = Mammoth. Yellow = Mammoth. Yellow Eda Mame = Ito San.

A color illustration (frontispiece, facing the title page) shows one or two views of the seeds of 22 different soy bean varieties, lined-up and numbered. Diagrams show: The probable relationships of the different groups of soy beans (block style; p. 10).

The number of days required to reach maturity and the height of the plant in inches, with averages, for each variety of soy bean (graph plot; p. 13).

The 1st plate, facing the title page, showing the seeds of 22 soybean varieties, is in color. Four full-page photos at the end show the pods (side view) and seeds (side and front views) of (typically) five soybean varieties.

Note 5. This is the earliest document seen (Nov. 2020) that mentions the following soybean varieties: Amherst, Baird, Brown Eda Mame, Brownie, Buckshot, Butterball, Ebony, Eda, Flat King, Guelph, Haberlandt, Kingston, Large Black, Manhattan, Meyer, Nuttall, Riceland, Samarow, Tokyo, Yoshio.

Note 6. This is the earliest document seen (Nov. 2020) which states that Black, Early Black, Extra Early Black, Large Black, Medium Black, and Medium Early Black are all the same as Buckshot, or that Early Japan is the same as Butterball, or that Brown Eda Mame is the same as Eda, or that Early Green, Green, Medium Early Green, and Medium Green are all the same as Guelph, or that Yellow is the same as Mammoth. Address: Agronomist, Grain Investigations, USDA Bureau of Plant Industry.

236. Voorhees, Edward Burnett. 1907. Forage crops: For soiling, silage, hay and pasture. New York & London: The Macmillan Company. xiii + 384 p. Sept. Illust. Index. 20 cm. The Rural Science Series, edited by L.H. Bailey.

• **Summary:** Chapter 2, titled “Forage crops for hay and for improving the land” notes (p. 21): “The value of the frequent introduction of cowpeas and soybeans, which not only keep the land occupied, but add to the forage capacity of the farm, can hardly be overestimated...”

Chapter 11, titled “Combination crops with legumes,” in the section on “Warm-season combinations” (p. 190, 193-94) states: “For summer soiling, the advantages of growing kafir corn with cowpeas or soybeans... are usually abundantly apparent.” “In the case of maize-and-cowpeas or soybeans, the advantages of the combination

are usually not so apparent, although in certain regions the combinations have been found to be very desirable, and have been recommended particularly for silage, since the combined crop provides a practically balanced ration for winter feeding.” “Sorghum-and-soybeans make an excellent summer forage so long as the sorghum is seeded rather thickly and harvested before it has nearly reached maturity.”

In Chapter 14, titled “Other leguminous forage crops,” the section on “Soybeans” gives an introduction to the plant and discusses its seeding, growth, and use. The soybean “is now generally grown in the southern coast and middle states. Soybeans are also grown successfully in Illinois, Michigan and Wisconsin, being better adapted to the climatic conditions of those states than cowpeas. There are numerous varieties, but Green seems to be the one most generally used. Soybeans are similar in many respects to cowpeas. “Experience thus far shows that the soybean is slightly more difficult to handle, and that the yields are not so heavy, but the plant contains more nitrogen in the dry matter than the cowpea.” “The soybean is not so well adapted to pasture as the cowpea, but it is quite as good for hay and less difficult to cure. The crop is well worthy of wider use.”

In Chapter 19, “Composition, fertilizer, and coefficient tables,” the soybean appears in most of the many tables, including green fodders, combination crops, silage, straw, grain and other seeds, and concentrated feed stuffs (soybean meal [probably ground whole soybeans]).

Also discusses: Alfalfa (p. 209-30). Cowpea (p. 253-64). Red adzinki [sic, adzuki] beans (p. 352). Corn products–Gluten meal (p. 352-53). Peanut vines (p. 369). Address: Director of the New Jersey experiment stations, and Prof. of Agriculture in Rutgers College [New Brunswick, New Jersey].

237. Benedict, Francis G.; Osborne, Thomas B. 1907. The heat of combustion of vegetable proteins (Open Access). *J. of Biological Chemistry* 3:119-34. [7 footnotes]

• **Summary:** “Very few determinations of the heat of combustion of vegetable proteins are to be found in the literature. The earliest appear to be those made by Danilewsky (1881), who found for ‘Pflanzenfibrin’ 6231, for legumin 5573 and gluten 6141 calories per gram.”

Values are given for glycinin (a globulin forming the greater part of the protein matter of the soy bean, *Glycine soja*). For yellow soy beans, the values range from 5,147 to 5,255 calories/gram on an “as is” basis. For Japanese soy beans, the values range from 5,016 to 5,056 calories/gram. Calculated to an ash- and water-free basis, the two values are 5,667-5,672 and 5,619-5,665.

Values are also given for amandin (a globulin forming the greater part of the protein matter of the seeds of the almond, *Prunus amygdalus* var. *dulcis*), edestin (from hemp seeds), phaseolin (from the Japanese adzuki bean, *Phaseolus radiatus*), conglutins α and Beta (from yellow and blue

lupins), glutenin (from wheat gluten), and hordein (from barley).

A table (p. 133) summarizes the percentages of carbon, hydrogen, nitrogen, sulfur, and oxygen in each type of protein and the average heat of combustion—which ranges from 5,358 for globulin (wheat) to 5,916 for hordein (barley). “In general the higher heats of combustion are found for those proteins which have a higher carbon content and similarly for those with a lower oxygen content.” Address: Chemical Lab. of Wesleyan Univ. [Middletown, Connecticut] and the Lab. of the Connecticut Agric. Exp. Station.

238. Hurrier, Paul. 1907. Matière médicale et pharmacopée Sino-Annamites [Chinese and Annamite (Vietnamese) materia medica and pharmacopoeia]. Paris: Vigot Frères. viii + 292 p. Illust. Index. 25 cm. Preface by Prof. Em. Perrot. [25 ref. Fre]

• **Summary:** The book begins with a chapter titled “History of medicine in China,” which includes many abbreviated bibliographic references in the text. Pages 21-22 discuss acupuncture and a large fold-out illustration (facing p. 20) shows several views of the meridians on the human body. Part two of the book, titled “Special Chinese and Annamite drugs with therapeutic uses,” contains four chapters: 1. Mineral kingdom. 2. Animal kingdom. 3. Vegetable kingdom. 4. Five indexes: Latin names, Chinese names, Annamite names, Japanese names, and Cambodian names.

In chapter 3, “Vegetable kingdom,” in the section on Legumes (p. 144) is a subsection titled *Dolichos soja* L. (p. 147). It begins with the three Chinese characters for “Yellow soy bean” = *Teou-Ko* (Mérat); *Mau-tau* (Porter Smith); *Houang-teou* (in Chinese), *Dan-dèn* (in Annamite). The laxative seeds of this variety are used to make a special condiment, soy sauce (*le soy*; *Tsiang-yu*) composed of soybean flour, tea, and salt. From the cooked seeds, the Annamites make a vegetable cheese (*fromage végétal*; *Teou-fou*), which resembles goat cheese, and of which they consume very large amounts. Mr. Bloch, in a recent study on tofu (“*Quelques mots sur la fabrication et la composition du Teou-Fou*,” published in *Bulletin des Sciences Pharmacologiques* (Paris), March 1906, p. 138-43), described the process of making tofu, which is coagulated with magnesium chloride. The entire plant is used to make a decoction for treating smallpox and rheumatism.

Glycine javanica (*no-mame* in Japanese is also mentioned on p. 148).

Also discusses: Various sea vegetables (*kombu*, *kanten*, *funori*, *amanori*; p. 71-72). *Cannabis sativa* (hemp; p. 102). *Phaseolus radiatus* = small red bean (azuki in Japanese; p. 150). *Sesamum orientale* (sesame seeds; kuro-goma [black sesame] and shiro-goma [white sesame] in Japanese; p. 178). Address: Pharmacien de 1re class, Docteur de l’Université de Paris, France.

239. Takenob, Y.; Takeda, G. 1907. Japan Year Book. Tokyo: Japan Year Book Office. 616 p. See p. 325, 327, 467, 584, 602. Third annual issue. [Eng]

• **Summary:** A full-page ad near the front of the book (on an unnumbered page) for “Mitsui Bussan Kaisha. (Mitsui & Co. in Europe and America.) Established 1876” states that they are “General Commission Merchants” for the... Import of [Soy] Beans, [Soy] Bean Cakes,” etc.

Page 325. A table titled “Manure. Consumption” gives the approximate volume consumed in Japan at the end of 1905 in 1,000 yen:

Night soil 53,000,000.

Stable manure 47,000,000.

Bean cakes [soy] 13,000,000.

Fish guano 10,000,000.

Artificial fertilizers 8,000,000...

Page 327. Chapter 14, “Agriculture” (p. 320-337) has a section that gives production data on “Soja beans” from 1900 to 1905 in *koku*.

3.562 million *koku* in 1900

4.069 million *koku* in 1901

3.136 million *koku* in 1902

3.647 million *koku* in 1903

3.710 million *koku* in 1904

3.261 million *koku* in 1905.

The same table gives production of “Red [azuki] beans which ranged from a high of 924,573 *koku* in 1901 to a low of 708,712 *koku* in 1902. Thus, in 1901 production of azuki beans in Japan was about 23% of that of soja beans [soy beans].

Page 467. In chapter 28, “Foreign trade” (p. 467-95), is a list for the “New import tariff schedule.” “Import tariff,” with an entry in Group II (Grains and seeds) for “Beans, soja.” The tariff is 0.43 yen per 100 *kin*. On the next line is an entry for “Beans, red or white (small) (*Phaseolus subtrilobata*).

Page 605. A table gives the amount of ash, animal manure and [soy] bean cake used on cotton fields in Korea.

There is no information specifically on soja beans in the chapters titled Formosa, Karafuto [South Sakhalin Island], or Manchuria. However there are statistics for “Peas & beans” (1901-1905) in tables on pages 584 (Formosa [Taiwan], production in *koku*) and 602 (Korea, exports, 1902-1906, value in yen). Address: 1. Prof. at Waseda Univ. and Late of the *Japan Times*; 2. Editor of the *Pacific Ocean* and Late of the *Kokumin*. Both: 9, Yariya-cho, Ginza, Tokyo, Japan.

240. *Monthly Consular and Trade Reports (U.S. Bureau of Manufactures, Department of Commerce and Labor)*. 1908. Agriculture. Farm crops and methods. Japan. No. 337. p. 95-99. Oct.

• **Summary:** “Consul Hunter Sharp, of Kobe, transmits the following review of agricultural conditions in Japan,...”

According to the 1906 census, Japan has a population of 48,304,397. “Sixty per cent of the people are agriculturists, and yet on account of the mountainous nature of the country, only about one-sixth of the total area is under cultivation.”

“On the land known as rice fields, wheat, barley, or rape seed are sown about November, the crop being gathered the following June. Immediately afterwards the rice is planted, and is harvested in October. On the upland fields either wheat, barley, or rape seed is sown and harvested at the same season as above mentioned; after which corn, cotton, beans, panicum miliacum [millet], and various vegetables are sown, maturing at different times.”

“Fertilizers freely used:... In 1906 the importation into Japan of oil cake alone amounted to \$7,793,766, of which China supplied \$7,436,958; ammonium sulphate, \$2,637,751, to which Great Britain contributed \$2,543,264, while the United States sent nitrate of soda to the value of \$34,236; oil cake, \$3,823; and phosphorites, \$74,211, aggregating \$112,270.” Note: We are not told what kind of oil cake the USA exported to Japan, but it was not soja bean cake.

“One year’s crop: According to the statistics of 1906 the agricultural products of Japan are given as follows: Rice, the chief crop, has an acreage of 7,104,072, with a production of 229,794,826 bushels; barley comes next, with 3,359,238 acres and a production of 81,407,291 bushels; wheat, the principal crop in other grain-producing countries, occupies only 1,086,118 acres, with a yield of 19,664,325. An average crop for these three is about 30 bushels per acre. Other agricultural products are:” The first two crops shown in this large table are: Soy beans 17,655,973 bushels. Small red [azuki] beans 4,449,408 bushels.

A table titled “Exports of agricultural products” in U.S. dollars for 1902-1906 lumps together “Beans, pease, and pulse,” which grew from \$45,903 in 1902 to \$76,051 in 1906. Exports of peanuts decreased from \$175,585 in 1902 to \$150,102 in 1906. Japan’s largest agricultural export, tea, accounted for about 90% of total exports (worth \$5+ million) during this period.

A table titled “Imports of agricultural products” in U.S. dollars for 1902-1906 lumps together “Beans, pease, and pulse,” the second largest import category, which grew from \$2,881,780 in 1902 to \$4,839,708 in 1906. Most of these beans are supplied in about equal proportions by China and Korea. Japan’s largest agricultural import, rice, accounted for about 70% of total imports (worth \$13 to \$39 million) during this period.

“Agriculture in Formosa and Sakhalin:... Japanese Sakhalin has a total area of 12,582 square miles, of which 89,296 acres can be cultivated, and in 1906 the population was 8,569. The agricultural products are barley, wheat, rye, oats, potatoes, peas, kidney beans, soja beans, red beans, hemp, flax, and vegetables. Of these the most successful are potatoes, barley, rye, oats, and wheat, and in a lesser degree

peas, hemp, and flax.” Soy beans are not mentioned under Formosa. Address: Washington, DC.

241. Takenob, Y.; Takeda, G. 1908-1909. Japan Year Book. Tokyo: Japan Year Book Office. See p. 334, 336, 391. Fourth annual issue. [Eng]

• **Summary:** In chapter 18, “Agriculture,” the section titled “Manure. Consumption.” states that the value of the top seven sources (in million *yen*) in 1905 were: Night soil (53), stable manure (47), bean cakes [soybean] (13), fish guano (10), artificial fertilizers (8), rice bran (4.3), and bones (0.9). Total 136.2.

In the section on “Staple farm products” is a subsection titled “Beans, sweet potatoes, and potatoes,” which includes production figures for Soja Beans and Red Beans [Azuki] from 1902 to 1906.

Note: According to the table of weights and measures at the front of this Year Book, one *koku* dry = 4.962 bushels.

For Soja beans: 1902–3,130,000 *koku* [= 15,531,060 bushels]. 1903–3,647,000 *koku*. 1904–3,710,000 *koku* [= 18,409,020 bushels]. 1905–3,261,000 *koku*. 1906–3,557,000 *koku*.

For azuki beans, production ranged from a low of 708,000 *koku* in 1902 [23% as much by volume as soja beans that year] to a high of 918,000 *koku* in 1903 [25% as much as soja beans that year].

By contrast in 1903, production of rice was 46,473,000 *koku* (12.7 times as much as soja beans), and production of barley was 7,462,000 *koku* (twice as much as soja beans).

A section on “Japanese wine and soy” is also in Chapter 18, titled “Industry.” The second part of this section, titled “Soy” (and meaning soy sauce or shoyu) states (p. 391): “For soy the prefecture of Chiba, which is contiguous to Tokyo municipality, heads all other places on the list. Parched wheat mixed with salt and beans is a principal ingredient. The process is still far from scientific, and several patented processes, notably that by Mr. Suzuki, do not seem to have attained ideal perfection. The production in recent years is as below:”

The part on “*Saké*” above this notes: “For *sake*, the national liquor brewed from rice, the ‘Five villages of Nada,’ situated about midway between Osaka and Kobe, are the most noted center of production in Japan. What is interesting is that the fame of ‘Nada sake’ is generally attributed not so much to the long experience of the brewers at Nada as to the peculiar quality of water in certain wells existing in the five villages. The general opinion is that certain bacilli found in the water possess the virtue of imparting peculiar agreeable flavor to the liquor.” Address: Japan.

242. Agricultural Bureau, Department of Agriculture and Commerce. 1908. Agriculture in Japan. Tokyo: Agricultural Bureau, Department of Agriculture and Commerce. x + 455 p. See p. 225-29, 434, 439, 448, 453-54. No index. 23 cm.

[Eng]

• **Summary:** A table of moneys, weights and measures (p. x) includes British equivalents of the following Japanese units: Money—*yen*, *sen*, *rin*. Length: *ri*, *chô*, *ken*, *shaku*, *sun*. Area: *cho*, *tan*, *sé*, *bu* or *tsubo*, *kô* (9.724 *tan*). Capacity / volume: *koku*, *tô*, *sho*, *go*. Weights: *kwan* or *kwamme*, *kin*, *momme*.

In Chapter 6 titled “Agricultural products,” in section 2 on “staple food stuffs” is a subsection titled “Soja beans” (p. 225-29) which begins: “In point of production and use, soja beans occupy an important position among the various beans, they are extensively cultivated from the Hokkaido in the north to Formosa in the south. They find a congenial soil to prosper, the acreage for 1906 was 460,895 *cho* (1 *cho* = 2.45 acres) which with the exception of the acreage of barley (503,498 *chô*) is equalled by no other products from the upland fields. Their use is quite extensive. They are eaten boiled, baked and powdered while *soy*, *miso* and *tofu* (bean curd) made out of beans, are found even in the remotest villages. They are found on the table both of high and low. In making *soy* [*sauce*], a by-product in a shape of soy-cakes is obtained and may be used as excellent manure, while in making *tofu*, the remaining ingredients [*okara*] may be used as a subsidiary diet and as food for cattle. Soja beans may also be pressed, and its oil used for the purpose of diet and for various technical uses, while the residue forms excellent manure. The fresh stalks of soja beans may be used as forage or as effective green manure. In short, soja beans, either as an article of Japanese diet, or as agricultural manure or as food for cattle are indispensable.

Note 1. This is the earliest document seen (Nov. 2017) that contains the term “technical uses”.

“The cultivation of beans under the circumstances was developed from ancient times, and numerous varieties are most extensively cultivated while by its peculiar nature of root, it absorbs nitrogen from air so that high priced nitrogenous manure may be dispensed with, and therefore the cultivation of beans like other agricultural products do not exhaust the productive power of the soil, but on the contrary, it operates favourably to improve the soil. As for rotation of crops of wheat, millets, corns and potatoes, beans are indispensable. Seeds are sown early in the beginning of May.”

Tables show: (1) Output of soja beans in Japan, 1897-1906.” For each year is given the area (in *chô*), the production (in *koku*) and the yield (in *koku* per *tan*) (1 *koku* = 4.962 bushels; 1 *tan* = 0.245 acres). The area increased from 435,605 *chô* in 1897 to a peak of 482,044 *chô* in 1898, then slowly fell to a low of 446,844 *chô* in 1904, then rose to 460,895 *chô* in 1906. Production increased from 3,100,973 *koku* in 1897 to a peak of 4,069,619 *koku* in 1901, then slowly dropped to 3,557,592 in 1906. The yield in 1897 was 0.712 *koku* per *tan*, rising to a peak of 0.830 in 1904. Hokkaido has the largest area (43,924 *chô*) and production (392,140 *koku*). The principal soja bean producing districts

are Ibaraki (33,000 *chô*), Saitama (29,000 *chô*), Iwate (26,000 *chô*), Nagasaki (26,000 *chô*), Kumamoto (26,000 *chô*), Niigata (22,000 *chô*). There is no prefecture where the production does not exceed 10,000 *koku*.

(2) “As mentioned above, soja beans are used either boiled, baked or powdered or as material for *tofu* (bean curd), frozen *tofu*, *soy* and *miso* (bean-cheese), and particularly the latter two products besides meeting with domestic demands, are exported abroad in large quantities, as may be seen in the following table.” This table shows amount and value (in *yen*) of *miso* and *soy* [sauce] exported from Japan each year from 1903 to 1907, inclusive. *Miso* exports increased from 1,670,092 *kin* (1 *kin* = 1.322 lb) in 1903 to a peak of 5,199,957 *kin* in 1907 (a 3.1 fold increase in 4 years), while *soy* [sauce] exports increased from 1,974,119 *shô* (1 *shô* = 1.9 quarts) in 1903 to 4,403,851 *shô* in 1907 (a 2.2 fold increase). The total *yen* value of these two exports rose from 489,213 *yen* in 1903 to 1,354,517 *yen* in 1907 (a 2.8 fold increase). In American units: *Miso* exports increased from 2.20 million lb (worth \$347,647) in 1903 to a peak of 7.50 million lb (worth \$132,652) in 1905, dropping to 6.86 million lb (worth \$135,833) in 1907.

Shoyu exports increased from 5.92 million lb (worth \$204,959) in 1903 to 13.21 million lb (worth \$541,425) in 1907. Note that in 1907 *shoyu* exports are worth about 4 times as much as *miso* exports.

(3) Because of increasing exports, Japan now needs to import soja beans from abroad. This table (p. 227) shows the amount and value of soybeans imported by Japan for the years 1903-1907, inclusive. They rose from 146,971 tons (worth \$3.18 million) in 1903 to a peak of 193,479 tons (worth \$4.92 million) in 1905, dropping to 177,365 tons (worth \$4.79 million) in 1907. They are mostly imported from Manchuria and Korea. “While a greater portion of these imports is used as material for *soy* and *miso*, it is also used in making bean-cakes and is sown for obtaining green manure, or used as manure or for feeding cattle.”

(4) This table (p. 228) shows the quantity and value of [soy] bean-cakes imported into Japan for the years 1903-1907, inclusive. The cake was used mostly for fertilizer. Cake imports rose from 216,198 tons (worth \$3.81 million and representing 57.8% of all fertilizers) in 1903 to 367,210 tons (worth \$8.71 million and representing 44.8% of all fertilizers) in 1907. (5) This table (p. 229) shows acreage and production (output) of [soy] beans in Formosa [today's Taiwan]. Acreage doubled in 3 years from 11,226 *kô* in 1901 to a peak of 22,641 *kô* [53,886 acres] in 1904, then decreased slightly to 21,220 *kô* in 1906. Note 2. 1 *kô* = 9.724 *tan*, and 1 *tan* = 0.245 acres. Therefore 1 *kô* = 2.38 acres.

Production in Taiwan increased more than 3-fold from 44,661 *koku* in 1901 to 135,271 *koku* in 1904, then decreased slightly to 100,803 *koku* in 1906.

Note 3. This is the earliest document seen (May 2014) that gives soybean production or area statistics for Formosa /

Taiwan.

Note 4. Production of soja beans in Formosa in 1904 was only 3.6% as much as production of soja beans in Japan in 1904.

The next section, titled “Red-beans” (p. 229-30) gives similar detailed statistics on acreage, production, and yield for azuki beans in Japan. *Sarashi-an* (the powdered red bean) is made in Osaka, Tokyo, Niigata, and Aomori. A second table gives annual imports of red [azuki] beans to Japan from 1903 to 1907. They are imported mainly from China, Korea, and British India.

In Chapter 9, titled “Agricultural products in commerce,” section 2 is on imports to Japan. A table (p. 433-34) gives imports of the following grains and seeds (in quantity / piculs and value / *yen*) from 1903 to 1907: Italian millet, soja beans, red beans [azuki] (small white), and sesame seeds. Another table (p. 438) titled “Miscellaneous” includes imports of “bean's oil cake” for the same period. An explanation titled “Soja-beans” (p. 439) states: “Not only as foodstuffs, but also as a manure a large quantity of beans are consumed each year, as that from China and Korea a considerable amount is imported. Besides beans, bean-cakes are imported from China in large quantity.” Imports of sesame seeds, rice, wheat and rape-seed are also discussed on the same page. In this same chapter, section 3 is on Exports and imports in Formosa. Soy is mentioned on pages 434, 439, 442, 448, 453-54. “Beans, Soja: The demand for soja beans in Formosa is enormous and as the Formosan product was not sufficient to meet the demand, a large amount is imported from abroad. Soja beans produced in Manchuria, and Chin-kiang [Chinkiang, Zhenjiang] are imported from China and Hongkong.” “Oil, Beans [soybean oil]: This is principally produced in Manchuria and is brought here through China and Hongkong. Originally it was used as an [sic, for] illumination, but the demand has greatly increased as it is used in making cut tobacco” [to keep it moist]. Ground-nut oil is used for the same purpose (p. 453-54).

Note 5. The preface, by Chuzi [Chuji] Shimooka, explains that this book was compiled for the International Agricultural Association meeting to be held in Italy in the autumn. The compiler did not have time to explain all the terms [and units] adequately. Address: Tokyo, Japan.

243. Colby, Frank Moore. ed. 1908. The new international year book: A compendium of the world's progress for the year 1907. New York, NY: Dodd, Mead and Company. [6] + 860 p.

• **Summary:** The section titled “Manchuria” (p. 475-76) states: “By the treaty of Portsmouth (September 1905) Manchuria was practically divided into a northern or Russian sphere of influence, and a southern or Japanese sphere of influence. The Russian section is crossed by the Trans-Siberian Railway, which runs from east to west for a length of 960 miles over Manchurian soil until it reaches

Vladivostok; and by the Central Manchurian Railway, which runs southward from Harbin, on the Trans-Siberian, to Changchun, with a branch line of 70 miles from Changchun to Kirin. The Japanese section is crossed by the continuation of the Central Manchurian line from Changchun to Port Arthur and Dalny, now known as the South Manchurian Railway [sic], which was surrendered by Russia to Japan; by the new Japanese line from Antung to Mukden, 187 miles long... Extensions of the Chinese Northern Railways are permitted by Japan only on condition that the capital, if not Chinese, be borrowed from the South Manchuria Railway Company."

"The leading exports are [soya] beans, bean cake, and bean oil, raw wild silk, maize, and millet. Newchwang and Dalny are the principal ports (p. 476).

"History-Reorganization of the Province: On April 20, 1907, an Imperial Chinese edict reconstituted the government of Manchuria. Instead of three provinces governed by three separate Tatar rulers, the whole country was placed under one viceroy, with a governor in each province."

The long and interesting section on Japan (p. 420-30) contains a map of the country. The section on agriculture states: The percentage of land owned by the tillers of the soil is 50.21 in rice field and 60.93 in upland. The rest is rented by tenants. In 1905 the production of soya beans was 3,261,881 koku and of red beans [azuki] was 804,485 koku (1 koku = 4.66 bushels). There is also detailed information on: Population (47 million in 1903) and immigration, fisheries, religion, education, mining, forestry, number of establishments [businesses] and employees, manufactures (incl. vegetable oils; "The Japanese Government is the greatest employer of labor in the country"), foreign commerce, shipping, railways, post and telegraph, banks and money, government (a constitutional monarchy; the Imperial Diet consists of a House of Peers and a House of Representatives; in 1904, 1.67% of the population could vote), finance (in 1907-08 projected internal revenue taxes on alcoholic beverages, soy [sauce] etc. totaled 96,331,881 yen), army, navy. History: Political parties, relations with the United States (incl. persecution of Japanese in San Francisco, California), relations with Great Britain, with France, with Russia, navy and military development, territorial expansion (retention of some troops in Manchuria as "railway guards," gradual absorption of Korea, and conquest of interior portions of Formosa, expansion of lumbering along the Yalu river, opening of 16 cities and towns in Manchuria as 'places of international residence and trade').

244. Shimooka, C. 1908. Agricultural products: Products for food stuffs and special use. In: 1908. Agriculture in Japan. Tokyo: Govt. of Japan. x + 455 p. See p. 157-61, Chap. 6. [Eng]

• **Summary:** A table (p. 157-58), titled "Comparative Table

of Yearly Acreage of Staple Food Stuff," shows the area planted every 5 years from 1877 to 1906 to major crops. The area planted to soja beans grew from 188,233.1 *chô* in 1877, to a local peak 466,315.2 *chô* in 1887, decreasing slightly to 460,895.1 *chô* in 1906. 1 *chô* = 2.45 acres. Area statistics for the following crops for the same years is also given: Ordinary rice, glutinous rice, upland rice (non-irrigated), total rice, barley, wheat, naked barley, total wheat and barley, red beans [azuki], foxtail millet, proso millet, barnyard millet, buckwheat, sweet potatoes, potatoes (regular), cotton, hemp, indigo-leaves, tobacco leaves, rape-seed.

A ranking of Japan's major crops in 1906 shows ordinary (irrigated) rice to be far the largest with 2,557,958 *chô*, followed by naked barley (*hadaka mugi*) 700,887, wheat 669,838, soja beans 460,895, and barley 443,187 *chô*.

A table (p. 158-59), titled "Comparative Yield of Staple Food Stuff," shows that production of soja beans on this land increased from 1,882,331 *koku* in 1877 to 3,557,592 *koku* in 1906. 1 *koku* = 47.6 gallons or 180 liters. Production statistics for the other crops mentioned above are also given, along with the output of sugar from 1878 to 1906.

Finally, a table (p. 161), titled "Comparative Table of the Output per *Tan* of the Food-Stuffs," shows the yield of each crop in *koku* per *tan*. A *tan* is about 0.245 acres. The yield of soybean has risen from 0.698 in 1887 to 0.772 in 1906. The 1906 yield is equivalent to about 18.7 bushels/acre.

Note: This is the earliest document seen (Jan. 2005) that gives historical statistics for soybean production and area in Japan.

245. Visser, M.W. de. 1908. The fox and the badger in Japanese folklore. *Transactions of the Asiatic Society of Japan* 36(1):1-159. See p. 126. [100+* ref]

• **Summary:** "The words and deeds of the persons so possessed are very strange. They ask, for example, for azuki-meshi (rice and red pea-beans mixed), tōfu-juice (bean curd) and tai fish laid in miso (sauce made of wheat, beans and salt), and after having eaten very greedily the possessing fox demands through the mouth of the patient a piece of ground belonging to the family of the latter (in behalf of the fox keeper), menacing the life of the patient if it is refused."

Contains a long discussion about "Inari, the fox-shaped spirit of rice" (p. 129+), but does not mention Inari-zushi. Address: PhD, Japan.

246. *USDA Bureau of Plant Industry, Inventory*. 1909. Seeds and plants imported during the period from January 1 to March 31, 1908. Nos. 21732 to 22510. No. 14. 64 p. Jan. 9. Also titled *USDA Bureau of Plant Industry, Bulletin No. 137*.

• **Summary:** Adzuki bean introductions to the USA (p. 17, 43, 50-51, 59): 21824. "From Hokkaido, Japan. Presented by Mr. K. Hashimoto, Kuchchau Agricultural Society, Abutagun. Received January 14, 1908. *Phaseolus angularis* (Willd.) W.F. Wight. (*Dolichos angularis* Willd.) Adzuki

bean. Red. 'Used in making ari' [sic, *an* or sweetened bean paste made of red/azuki beans], (*Hashimoto*)."

22310. "From Shanghai, Kiangsu, China. Presented by Rev. J.M.W. Farnham, Chinese Tract Society. Received March 11, 1908. Red."

22383. "From Canton, Kwangtung, China. Presented by Dr. J.M. Swan, Cooks Hospital. Received March 20, 1908. Red."

22410. "From Hongkong, China. Presented by Mr. S.T. Dunn, Botanical and Forestry Department. Received March 26, 1908. Red. Note: It is not clear whether or not these adzuki beans were ever cultivated in Hongkong.

22508-22509. "From Yokohama, Japan. Purchased from L. Boehmer & Co. Received March 31, 1908." 22508. "Red." 22509. "Shiro" [white]. Address: Washington, DC.

247. *SoyaScan Notes*. 1909. What ever happened to H.T. Nielsen of the Bureau of Plant Industry, USDA? (Overview). Compiled by William Shurtleff of Soyinfo Center 20 June 2012.

• **Summary:** The earliest document we have seen concerning the work of H.T. Nielsen at USDA is a letter he wrote on 10 Aug. 1907 to Dr. C.V. Piper, his boss at USDA's Bureau of Plant Industry, concerning his work helping Mr. Morse re-arrange the grass garden at Arlington Farm, Virginia; the letter does not mention soy beans.

The earliest document we have seen in which H.T. Nielsen mentions soy beans is a letter he wrote two weeks later, on 24 Aug. 1907, to his colleague, Mr. J.M. Westgate (Asst. Agrostologist in Charge of Alfalfa and Clover Introductions, Seed Introduction and Distribution, Bureau of Plant Industry) about his work with cowpeas and soy beans. Writing from the Glenmore Hotel in Montgomery, Alabama, H.T. Nielsen's letter begins: "Dear Mr. Westgate: I have spent a very interesting week in my cowpea and soybean work." At that time Nielsen's title and affiliation were Scientific Assistant, Forage Crop Investigations, Bureau of Plant Industry, USDA, Washington, D.C.

The earliest publication we have seen in which H.T. Nielsen is an author is titled "Soy Beans," by Charles V. Piper and H.T. Nielsen. It was published on 7 Oct. 1909 in *Farmers' Bulletin* No. 372. 26 p. This bulletin was a USDA periodical.

Throughout 1907, 1908, and until Feb. 1909, H.T. Nielsen may well have been the most knowledgeable person at USDA concerning both soybeans and cowpeas, with the possible exception of his boss, C.V. Piper. He was almost certainly more knowledgeable than William J. Morse, age 24, who had started work at USDA on 22 June 1907, having just graduated (two days earlier) from Cornell University [Ithaca, New York] with a Bachelor of Science in Agriculture degree. See letter from Nielsen to C.B. Williams dated 12 March 1908.

On 15 Jan. 1909 H.T. Nielsen wrote a 5-page "Report of

Trip South, December 19 to 25, 1908." The purpose of this trip was to study cowpea varieties, threshing machines and winter legumes.

By 17 Feb. 1909, Mr. Nielsen had left the USDA's Bureau of Plant Industry and Washington, DC for Abeline, Kansas, for on that date Dr. C.V. Piper (USDA Agrostologist in Washington, DC) wrote Mr. Nielsen: "We are shipping you today 60 pounds of Kafir corn, 20 pounds of Sumac sorghum and 20 pounds of Orange. Nielsen appears to be farming. It is not clear why Nielsen left USDA or why he moved to Abeline, Kansas. Yet when he left, W.J. Morse took his place as the USDA's man in charge of soybeans and cowpeas. He also acquired Nielsen's title, "Scientific Assistant" in Forage Crop Investigations at USDA's Bureau of Plant Industry.

The following is a summary of the last 22 pages of documents in the H.T. Nielsen file at the National Archives.

Also on 17 Feb. 1909 Dr. C.V. Piper wrote Prof. C.B. Williams, Experiment Station, West Raleigh, North Carolina, and stated in passing that Mr. Nielsen had "resigned from the Department."

On 22 March 1909 the Assistant Agrostologist (probably Oakley) at USDA wrote Nielsen in Abilene: "While you were still with us you asked that we send you a full set of blue slips as soon as they were received from the printer... I hope that you are having success with your farming proposition so far, and will be glad to hear from you whenever you have an opportunity to write. With very best regards, I am, Very sincerely yours." This confirms that Nielsen is farming, and suggests that he is on friendly terms with Oakley.

On 10 May 1909 C.V. Piper wrote a 2-page typed letter to Nielsen in Abilene, Kansas. "Dear Mr. Nielsen: In going over the soybean seeds for distribution this year, there are several numbers that we could not find that were contained on your list, and we do find a good many numbers that were not on your list. Of the numbers that are missing, the only one of importance is #22381A, the variety that we decided to call Canton. Number 22381 is also missing. I am wondering if you can make any suggestion as to where these seeds might be.

"I have also been struggling to straighten out the group of varieties confused under Hollybrook. In going over your notes and comparing them with those of Professor Mooers of the Tennessee Experiment Station, I find that you arrived at quite different conclusions. I have about decided to get all of their numbers from them and grow [them] alongside of ours again, and get some of the Hollybrook from Woods so as to compare them again this coming season.

"I also want to know the name of the new very late variety that we considered the best. If you can give me the number of name that we applied to this variety, I should very much like to have it. Yours very truly.

On 17 May 1909 in a 2-page handwritten letter to

"Prof. C.V. Piper" Nielsen (in Abilene, Kansas), says that he is unable to answer any of Piper's questions. He says he tried "to straighten out the tangle" that the soybean variety Hollybrook is in. He concludes: "I very much doubt if your getting the collection from Mooers and growing [it] alongside the S.P.I. stuff is sufficient to enable you to speak with authority regarding the Hollybrook soybean. I believe you should get it from all the Experiment Stations that have it.

"I am wondering how the Farmers' Bulletin on Soybeans is coming along. It seems to me it should be issued by this time. With kind regards to yourself and the other members of the office force, I am, Very sincerely..."

On 28 May 1909 Piper replied to Nielsen in a 1-page typed letter. "Dear Mr. Nielsen. I have your letter of the 17th instant in reference to the lost packages of soybeans. We have been unable to find these, and I guess they are gone. All we have left is the vial of seed of #22381, and I am having most of this planted again this year."

"I am glad to learn what you say about the Hollybrook... I will endeavor to get all of the different numbers involved in this Hollybrook tangle to grow this year.

In regard to the Farmers' Bulletin, I have revised it very extensively, and hope to send it to the printer within a few days now. Yours very truly..."

On 10 Nov. 1909 Piper wrote Nielsen (in Abilene) a 1-page typed letter. "I understand that you have had a very strenuous season in Kansas this year, and, therefore, that you did not get much out of the legumes [sent free of charge by USDA]. I should be very glad, however, to learn the outcome of your trials, especially in view of the very bad season. If you want to try any of them again, let me know and the seed will be sent. Give my best regards to Mrs. Nielsen. Sincerely yours..."

On 20 Nov. 1909 Piper again wrote Nielsen (in Abilene) a 1-page typed letter. "Dear Mr. Nielsen. I have your letter of the 16th instant and the interesting report on the adzukis [azuki beans], cowpeas and soybeans. I am sorry to learn that you have had such a disastrous season and that you feel it will be necessary for you to give up the proposition that you have undertaken. I should be very glad to send you seeds of anything we may have next spring, and when you have definitely settled where you will be write me regarding the quantities that you want and I shall be very glad to send them. Give my best regards to Mrs. Nielsen. Yours very truly..."

On 7 Dec. 1909 Nielsen wrote Piper a 2-page handwritten letter on the letterhead of the Hotel Briggs in Great Bend, Kansas. "Dear Prof. Piper: I am out on a two weeks Farmers' Institute trip for the Kansas Agricultural College and I have found a place here where I think red clover will do well. The country needs the crop and I hope you can arrange to send some seed for trial." He gives the name and address of two farmers in Great Bend. The Kansas

Experiment Station has been very successful in Eastern Kansas Canada peas and are also anxious to make a test there with the Tangier pea." Please send seed. He gives more names and addresses in Manhattan and Great Bend, Kansas.

On 9 Dec. 1909 Nielsen wrote Piper a 2-page handwritten letter on the letterhead of the Hotel Larkin in Larned, Kansas ("Steam heat. Electric lights. Rooms equipped with long distance telephones. Rates \$2.00; with Bath \$2.50"). "Dear Prof. Piper: Remembering our occasional arguments as to what forage crops could be grown in Southwestern Kansas, I am again sending you some names of really good farmers who want to try each an acre of red clover... I case you cannot furnish the seed kindly let me know so I can write the parties. Seed should reach them no later than March 1st. Yours truly,... P.S. I am preaching cowpeas the best I can and find a few have grown them on a small scale with excellent results."

On 15 Dec. 1910 [sic, 1909] Piper wrote Nielsen (in Vesper, Kansas) a 1-page typed letter. "Dear Mr. Nielsen. Immediately after the New Year I am going over to the Philippines on a mission for the War Department, primarily in connection with growing hay for the use of the cavalry horses there... I feel very confident that I can secure you a position there in case you are willing to accept it, at a salary of \$2,000 or perhaps as high as \$2500. Will you kindly let me know at an early date whether you would consider such a proposition." Nielsen would probably need to leave in the early spring of 1910.

On 20 Dec. 1909 Piper (in Washington, DC) wrote Nielsen (in Abilene, Kansas). "Dear Mr. Nielsen. I have your letter, of Dec. 7th, recommending two farmers who wish to try red clover." Piper will send them clover seed in the spring.

On 27 Dec. 1910 Piper wrote Nielsen (in Vesper, Kansas). "Dear Mr. Nielsen: I have your letter of the 23rd instant, and am very glad, indeed, that you will accept a position in the Philippines." Note: We do not know exactly when Nielsen was in the Philippines, where he probably worked with Piper on forage crops.

On 13 Feb. 1911 Nielsen (in Vesper, Kansas) wrote "Dr." R.A. Oakley (at USDA, Washington, DC) a handwritten letter that begins: "My Dear Oakley: I have some 5000 or 6000 sq. feet of lawn space which is in sad need of some grass. Just at present I can't water the ground but hope to be able to another year." He requests a "good lawn mixture" of seed and any suggestions Oakley might have.

On 15 Feb. 1911 the Acting Agrostologist (Oakley) replies to Nielsen (in Vesper, Kansas) in a 1-page typewritten letter. "I am in receipt of your letter of the 13th instant, and will be very glad, indeed to send you a liberal supply of grass seed suitable to your conditions. I am very much afraid that you will have some difficulty in establishing a satisfactory lawn until you are able to irrigate it by some means... Yours

very truly.”

Note: This letter is the last in the Nielsen file at NA.

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-29. Box 95—Newhouse-Nixon.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., June 2012.

248. Russell, W.P.M. 1909. China. Report for the year 1908 on the trade of Antung. *Diplomatic and Consular Reports, Annual Series (Foreign Office, Great Britain)*. No. 4185. 18 p. March.

• **Summary:** The section titled “Exports for 1908” (p. 7-8) discusses the amount and value of Beans [soybeans], bean cake, and bean oil exported from this port. An excellent full-page map shows the Eastern Manchuria and Shenking Province, including all the major ports, rivers (Antung is a port on the Yalu River), railroads, and bodies of water.

“Products of Eastern Manchuria.—The following are some of the principal agricultural products of Eastern Manchuria: -

“Beans.—Many varieties are produced, of which the chief are: -

“1. Huangtou, yellow [soy] beans.—These are most extensively grown and are used for making bean cake and bean oil. The average bean cake weighs 50 catties and is worth 1 dol. 20 c to 75 c. small money at the place of production. The oil sells for about 15 c. a catty. The beans themselves fetch 10 dol. a picul on an average. [Note: 1 picul = 133.3 pounds weight.] They are also used for making bean curd, which is one of the chief foods of the people. It has the appearance of curds of milk and is made by a somewhat similar process. The beans are also used for feeding cattle.

“2. Hsiaotou, small beans [azuki].—These are used as a vegetable and also for feeding cattle. They are also used for making vermicelli. Note: This is the earliest English-language document seen (March 2006) that uses the term “small bean” to refer to the azuki bean.

“3. Lutou, green beans [mung beans].—The young sprouts of these are used as a vegetable. The bean is principally used for making vermicelli.

“4. Hetou [Heitou], black [soy] beans, are much grown and much used for feeding cattle and also for making oil and bean cake.”

The section on “Exports for 1908” under “Beans” states that “owing to an exceptionally heavy supply coupled with a weak demand from the consuming quarters in Japan and South China, there was speedily a very heavy fall in price and 5 taels 50 c. was quoted [down from 7 to 8 taels last year]... It is stated that the restriction of the opium crop has caused an expansion of the area of the bean crop. The returns show an export of bean cake more than doubling that of

the year 1907. Beans largely figure in the money market as a standard for deferred payments.” Address: Acting Vice-Consul.

249. Piper, C.V. 1909. Re: In reference to the Haberlandt soybean. Letter to Prof. C.A. Mooers, Tennessee Experiment Station, Knoxville, TN, April 2. 3 p. Typed, without signature (carbon copy).

• **Summary:** “Dear Professor Mooers: I have your letter of the 29th ultimo in regard to soybeans. In reference to the Haberlandt, which is our Number 17271 grown from the same original stock as #1194, I can let you have, I think, about 600 pounds of this. Kindly let me know how much of it you want to grow at the Experiment Station and give me the addresses of other good people to whom I can send it. In writing this letter I will indicate that it is sent on your recommendation and add anything else that you think desirable from the nature of our cooperation. I am sorry to learn that you have so little of the Austin soybean. Here, at Arlington Farm [Virginia], it is certainly superior to Haberlandt.

“In your letter of the 25th instant [sic, ultimo] you do not mention the amount of seed that you want of the varieties or the size of the plots that you are going to grow. Kindly let me know in regard to this at once and also regarding the amounts to go to the West Tennessee Station. I want to get this seed into your hands not later than the 15th of April and think I can do that if I can learn the amounts at once.

“I might add that of nearly all the varieties that I can send you one-half pound of seed, and of most of them more. There is a considerable list, however, of which the amount of seed I can send you will be at most a few ounces. As a basis for figuring on the amount of seed you will need one acre will accommodate a four-rod row of each of the 200 varieties. If it is possible, I think it would be better to grow an eight-rod row of most of the varieties, and of the more desirable ones as large a plot as you may indicate. Of course, there will be a considerable number of varieties of which I cannot seed to plant one or two linear rods.

“I shall be glad if you will write me at once in reference to these matters.

“I had expected to send you a letter in reference to the adzuki beans (*Phaseolus angularis*). We have about 30 varieties of these. The six best of these yielded grain at Arlington Farm last year at rates of from 21 to 28 bushels per acre. I am not sure whether these are as good grain yielders as the soybeans or not but I am anxious to compare them further with the soybeans to see if they can compete with that crop. I will send you some information in regard to them in a few days, but in the meantime would like to have you consider the growing of at least twentieth-acre plots of the six best. I think you have never grown these before.

“Yours very truly, Agrostologist.”

Location: National Archives, College Park, Maryland.

Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—Correspondence with State Agricultural Experiment Stations, 1899-1928. S.C.—Tenn. Box no. 33.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., April 2017. Address: Agrostologist, Bureau of Plant Industry, USDA, Washington, DC.

250. Piper, C.V. 1909. Re: Adsuki beans. Letter to Prof. B.W. Kilgore, State Chemist. Experiment Station, Raleigh, N.C., April 7. 1 p. Typed, without signature.

• **Summary:** “Dear Professor Kilgore: For several years we have been conducting investigations on the adsuki bean (*Phaseolus angularis*) of which there are many varieties. At Arlington Farm [Virginia] last year the six best yielded at the following rates per acre:

“#9419—27.3 bushels.

“16791—22.9 bushels.

“17323—21.1 bushels.

“17324A—24.6 bushels.

“17847—26.4 bushels.

“17851—24.8 bushels.

The stands on the last two numbers were imperfect. Allowing for this the yield of #17847 would have been 10 per-cent greater and of #17851 15 per-cent greater. The seeds of these adsuki beans are smaller and much harder than the soybeans so that they would undoubtedly have to be ground in feeding. I am in considerable doubt as to whether this can compete with the soybean as a grain crop but the showing they make is such that it is well worthy of trial. I am wondering if you can arrange to grow 1/10 or 1/20 acre plots of each of these six numbers? If you can do so, or even smaller plots, I shall be very glad to send you the seed.

“Yours very truly,...”

Note: Did Prof. Piper not realize that adsuki [azuki] beans are almost always used as human food in East Asia (especially Japan) and almost never used as animal feed?

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—Correspondence with State Agricultural Experiment Stations, 1899-1928. North Carolina. Box 26. P.I. 66, Entry 68.

Sent to Soyinfo Center by Matthew Roth, Dec. 2016. Address: Agrostologist [Bureau of Plant Industry, Washington, D.C.].

251. Piper, C.V. 1909. Re: Adsuki beans. Letter to Prof. C.B. Williams, Experiment Station, West Raleigh, N.C., April 7. 1 p. Typed, without signature.

• **Summary:** “Dear Professor Williams: For several years we have been conducting investigations on the adsuki bean (*Phaseolus angularis*) of which there are many varieties. At Arlington Farm [Virginia] last year the six best yielded at the

following rates per acre:

“#9419—27.3 bushels.

“16791—22.9 bushels.

“17323—21.1 bushels.

“17324A—24.6 bushels.

“17847—26.4 bushels.

“17851—24.8 bushels.

The stands on the last two numbers were imperfect. Allowing for this the yield of #17847 would have been 10 per-cent greater and of #17851 15 per-cent greater. The seeds of these adsuki beans are smaller and much harder than the soybeans so that they would undoubtedly have to be ground in feeding. I am in considerable doubt as to whether this can compete with the soybean as a grain crop but the showing they make is such that it is well worthy of trial. I am wondering if you can arrange to grow 1/10 or 1/20 acre plots of each of these six numbers? If you can do so, or even smaller plots, I shall be very glad to send you the seed.

“Yours very truly,...”

Note 1. Did Prof. Piper not realize that adsuki [azuki] beans are almost always used as human food in East Asia (especially Japan) and almost never used as animal feed?

Note 2. Prof. Piper sent an identical letter to Prof. Kilgore at the same place, on the same date.

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—Correspondence with State Agricultural Experiment Stations, 1899-1928. North Carolina. Box 26. P.I. 66, Entry 68.

Sent to Soyinfo Center by Matthew Roth, Dec. 2016. Address: Agrostologist [Bureau of Plant Industry, Washington, D.C.].

252. Piper, C.V. 1909. Re: Sending you various soybeans. Letter to Prof. C.A. Mooers, Tennessee Experiment Station, Knoxville, TN, April 13. 2 p. Typed, without signature (carbon copy).

• **Summary:** “Dear Professor Mooers: I have your letter of the 5th instant relative to the Haberlandt soybeans No. 17271 which is the only direct progeny of No. 1194. I am sending 200 pounds of this to you at Knoxville and 200 pounds to the West Tennessee Experiment Station at Jackson. I am also sending a bushel to W.P. Ridley, Columbia, Tennessee and half a bushel to W.J. Gilbreth, Lawrenceburg, Tenn. and to Col. John Thompson, Nashville, Tenn. It may be some days before this seed is sent out from the office but it will reach you this month at the latest.

“I note also what you have to say about growing larger plots of some of the most promising new varieties and I am taking pleasure in sending you four pounds each of the following varieties both to Knoxville and to Jackson.

“Cloud No. 16790

“Wilson No. 19183

"Meyer No. 17852

"Jet No. 17861

"Ebony No. 17254

"Morse No. 19186

"Of these varieties, Cloud, Wilson, Meyer and Jet are erect long stemmed varieties which I think you will find can easily be harvested with a binder. The Wilson is the one which impressed us best of all for this purpose. The Cloud is likewise an exceedingly good yield but the seeds are small and we are under the impression that growers will object to this. The point is well worth careful consideration, however, as the yield in bushels per acre is heavier and the small size of the seeds will make it go a great deal further than sowing larger seeded varieties.

"I have also made a memorandum about Adsuki beans [azuki] and in a few days will send you enough of the six varieties for 1/20 acre plots, both to Knoxville and Jackson.

"Yours very truly, Agrostologist."

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—Correspondence with State Agricultural Experiment Stations, 1899-1928. S.C.—Tenn. Box no. 33.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., April 2017. Address: Agrostologist, Bureau of Plant Industry, USDA, Washington, DC.

253. Morgan, H.A. 1909. Re: Adsuki bean. Letter to Prof. C.V. Piper, Bureau of Plant Industry, U.S. Dept. of Agriculture, Washington, D.C., April 14. 1 p. Typed, with signature on letterhead.

• **Summary:** "Dear Mr. Piper: I have your letter of the 6th, which came while I was away; and as you had written Mr. Mooers about the adsuki bean and he had replied that we would be glad to test them, I hope that you will be able to send them to us. We are exceedingly anxious to test all promising things in the way of legumes.

"We have a fine opportunity to compare the two ends of the State this year in soy beans, as Mr. Mooers tells me he has asked you to send duplicates of all varieties to both stations—the one here and the one at Jackson. The soy bean proposition is warming up considerably in this State.

"With kindest regards,

"Very truly yours, Director."

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—Correspondence with State Agricultural Experiment Stations, 1899-1928. S.C.—Tenn. Box no. 33.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., April 2017. Address: Director, Tennessee Experiment Station, Knoxville, TN.

254. Piper, C.V. 1909. Re: Sending you adsuki beans

and seeta bean for testing. Letter to Prof. W.R. Perkins, Mississippi Agric. Exp. Station, Agricultural College, Mississippi, April 22. 2 p. Typed, without signature (carbon copy).

• **Summary:** "Dear Professor Perkins: I am in receipt of your letter of the 12th instant in regard to adsuki beans and take pleasure in sending you a three-pound package of each variety and also a three-pound package of a seeta bean (*Phaseolus calcaratus*), #21291.

"These should all receive about the same culture as the soybean. Yours very truly..."

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—Correspondence with State Agric. Exp. Stations, 1899-1928. Box 21—Minnesota-Mississippi. P.I. 66. Entry 68. Folder—Mississippi Experiment Station—#1.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., June 2012. Address: Agrostologist, Seed Introduction and Distribution, Bureau of Plant Industry, USDA, Washington, DC.

255. Takahashi, Y. 1909. [Botanical studies on the adzuki plant]. *Sapporo Norin Gakkaiho* (*J. of the Society of Agriculture and Forestry, Sapporo*) No. 1. p. 140-163. [Jap]* Address: Sapporo, Japan.

256. Takahashi, Y. 1909. Daishomame ni kansuru tôkeiteki kenkyû shohô [A biometrical study of adzuki and soy beans]. *Sapporo Norin Gakkaiho* (*J. of the Society of Agriculture and Forestry, Sapporo*) No. 2&3. p. 163-66. April. [Jap] Address: Sapporo, Japan.

257. *Monthly Consular and Trade Reports* (U.S. Bureau of Manufactures, Department of Commerce and Labor). 1909. Oleaginous products: Oil cake and seed. No. 344. p. 153-55. May.

• **Summary:** Exports of [soy] beans and [soy] bean-cake from Newchwang, China, are increasing rapidly. The United States Consul at Newchwang, "Thomas E. Heenan, calls attention to the exports of Chinese beans to the United Kingdom as the beginning of what is expected to develop into considerable proportions.

"Since the closing of the river to navigation, large numbers of carts have been entering the town with inland produce, and great quantities of beans have been stored for export in the spring. It is difficult to obtain reliable figures concerning the quantity brought by rail, but up to date 64,000 tons have been brought by carts, and it is estimated that the total quantity brought in by rail and carts during the four Months December-March will reach 88,000 tons, against 30,000 tons for the same period last winter. This quantity, however, is small compared with the stocks shipped to Dalny by rail from the north, and when the thaw sets in, putting a

stop to cart traffic, unless there are early spring rains, there is very little prospect of large supplies coming down by river boats, as the snow thus far has been insufficient to give the requisite draft of water in the up-river reaches.

“Countries to which shipments are made: Beans, bean cake, and bean oil are the principal products of Manchuria. The prices of these during the past season have been higher than ever before, but how much of this is due to the ability of Japan, a gold-standard country, to pay more in silver, because silver has been cheap, can not be positively stated. The bean cake and bean oil go chiefly to Japan, but shipments have gone to England, France, and the United States during the past year. The American shipment was a small quantity sent from Newchwang merely as a sample... During the year the exports to England amounted to about 70,000 bags. This is a new development, said to have been brought about by English experts who have made a study of the beans. They have discovered, it is said, a means of extracting an oil therefrom, for culinary use as well as for lubricating purposes., the residue being converted into cattle feed. The exports of bean cake from Newchwang to foreign countries in 1908 amounted to 246,608 tons, valued at \$5,518,508.

“The exports of beans from Newchwang to foreign countries and other Chinese ports during 1908 were as follows, in tons:” Yellow [soy] beans 75,996. Green beans 31,873. Black [soy] beans 16,489. White beans 4,315. Red [azuki] and small green [mung] beans 3,634.

“United Kingdom: An experiment with the soya bean in Manchuria.” U.S. Consul Walter C. Hamm of Hull [England] writes, under date of January 20,...” The soya bean “has been exported to some extent to the United States, and a few samples have been brought to England, but the present shipments to Hull are the first on a large scale. Three steamers, the Maroa, the Javorina, and the Matoppo, are now on their way from Dalny or Vladivostok with about 10,000 tons each, and the Claverdon and the Bannockburn are loading similar quantities at Dalny, making 50,000 tons in all.”

A long quotation from an article in the *Eastern Morning News* describes the arrival at Hull, England, from China, of the first cargo of soya beans on board the Javorina. “The beans arrived in good condition, and this is due to the excellent arrangements made for ventilation in the hold.” Experimental “soya cakes have been made in Hull and have been tested by a practical and scientific dairyman in the East Riding, who has reported that one cow set aside for this test and fed with half a cake a day, in addition to other food, yielded a considerable extra quantity of milk daily and was much improved in general condition. The large proportion of oil in the cake makes sparing use of it advisable... The Japanese have adapted the bean to commercial uses, not for the food of animals, but for that of man. It is not an unpopular article of diet in many parts of the Far East. It possesses sustaining qualities, and is the basis of a Japanese

sauce [shoyu].

“Chinese beans in Scotland: Tests in crushing mills for oil and stock meal.” U.S. Consul Rufus Fleming reports on Feb. 12 from Edinburgh: “In the production of oil cake and seed oil the crushing mills in this district have long used only Bombay and Egyptian cotton seed. Recently some of the mills have experimented with small quantities of ‘soya beans’ from Manchuria. The Chinese bean, which is about the size of a pea, has been found to contain from 15 to 16 per cent of oil suitable for soap making. The usefulness of the oil for other industrial purposes has not yet been demonstrated. The cake produced, containing about 6 per cent of oil, is said to be good feed for stock... The mills in this part of Scotland have undertaken to carry out thorough tests, and a shipment of 1,700 tons is expected to soon arrive at Leith for this purpose.”

Note 1. This is the earliest document seen (March 2021) concerning soybeans in Scotland. They were imported from Manchuria. Rufus Fleming filed his report on 12 Feb. 1909.

Note 2. This is the earliest English-language document seen (March 2021) that uses the term “Chinese beans” (or “Chinese-beans”) to refer to soybeans.

Note 3. This is the earliest document seen (March 2021) concerning soya beans imported to or processed in Hull, England. Address: Washington, DC.

258. Piper, C.V. 1909. Re: Adsuki beans. Letter to W.J. Morse, [Arlington Farm], Rosslyn, Virginia, June 7. 1 p. Typed, without signature (carbon copy).

• **Summary:** “Dear Mr. Morse: I have packed up to plant at Arlington Farm this season the list of adsuki beans indicated on the enclosed list. Where I have sent two pounds of seed I want you to plant one-twentieth of an acre. In all other cases plant an eighth-rod row where the seed is sufficient. Some of these numbers have been planted at Arlington before, but were too late to mature. Nevertheless, I want to try them again. Among these very late numbers are 17231, 21310, 22383, 13384, 13388 and 13406. I would suggest that these be planted just like the soybeans. Yours very truly,...”

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-29. Box 92—Morgan-Morse.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., March 2012. Address: Agrostologist [Bureau of Plant Industry, USDA, Washington, DC].

259. Takeuchi, T. 1909. On the occurrence of urease in higher plants. *J. of the College of Agriculture, Tokyo Imperial University* 1(1):1-14. June 16. (Chem. Abst. 2:213). Also in Tokyo Kagaku Kaishi (*J. of the Chemical Soc. of Japan*) 30:343 (1909). [5 ref. Eng]

• **Summary:** This classic article, which is about the soy-

bean, begins: “Although much has been written about urease no mention is made of its occurrence in higher plants. Its presence has been proved only in Urobacteria and certain fungi. In the course of my investigations on a desamidizing enzyme [one which hydrolyzes amino compounds with the removal of the amino group] in higher plants, I have discovered a very powerful urease in both the resting seeds and seedlings of soy-bean (*Glycine hispida*).”

He then describes in detail how he isolated urease from the cotyledons of 30 seedlings (each about 3 cm high), and from air dry seeds. He found that this enzyme, urease, is capable of hydrolyzing urea into ammonia and carbon dioxide. The urease liberates ammonia from urea at ordinary temperatures, but does not act on other nitrogenous compounds. It is readily soluble in water, so that an infusion of soy beans may be employed to detect traces of urea in a mixture of organic matter, the ammonia liberated by the action of the urease being indicated by means of phenolphthalein. The author suggests the use of the seeds for the conversion of the nitrogen of urine into ammonium sulphate for manurial purposes.

Page 7 states that the urease from soy beans was tested but did not act on the following compounds: “Guanidine (carbonate), arginine (both nitrate and methylester hydrochloride), benzamide, allantoin, leucine, alanine, tyrosine, kreatine, histidine (hydrochloride), guanine (hydrochloride), glycocoll (ethylester hydrochloride), uric acid, hippuric acid.”

Seven types of seeds were tested (p. 8, incl. *Phaseolus radiatus* = azuki bean) but the urease from the soy-bean liberated much more ammonia than that from any of the other seeds.

Takeuchi concludes: “It is strange that the urease acts exclusively on urea and not on allied substances. Its natural function in the plant body has still to be made out.

“There is no doubt that the enzyme is important, and its urea-splitting property can be turned to account for determining the presence of urea even in minute quantities in various organs and juices.

“Another application of the enzyme consists in its strong ammonifying action on fresh urine, and its application for the recovery of the chief nitrogen of fresh urine is undoubtedly a step in advance in the economy of manures.

Note 1. This is the earliest document seen (Dec. 2020) that mentions urease in connection with soybeans. An enzyme which can hydrolyze urea into ammonia and carbon dioxide, urease was first discovered by Musculus in urine in 1874.

Note 2. This is the earliest English-language document seen (Dec. 2020) with the word “urease” in the title (or in the article), or that contains the word “urea,” in connection with soybeans.

260. *Los Angeles Times*. 1909. Activities in the Far East.

Nov. 21. p. VIII.

• **Summary:** “The Soya bean of China is competing in Europe with American cotton-seed products,” according to consular reports.

“Japan proposes, at an expenditure of \$50,000,000 gold, during the period of fifteen or twenty years, to develop Hokkaido, or Yezo, the most northern of the main group of Japanese islands, by improving its rivers and harbors, building bridges, roads, etc.

The Shantung Railway of China, owned by a German company, carries a great diversity of products including [soya] beans.

In Japan, rice is the leading crop in size on wet fields, followed by “wheat, large beans [soya beans], millet, sweet potatoes, buckwheat, red beans [azuki beans], Indian corn and Irish potatoes.”

“Japan has become the principal market for Manchurian products. The price of [soya] beans and bean cake has risen 15 per cent., and Manchurian farmers are enjoying unprecedented prosperity, in spite of the financial depression prevailing in China during the past few years.”

261. *Christian Science Monitor*. 1909. The housekeeper. Dec. 13. p. 6.

• **Summary:** The section titled “Azuki meshi” contains a recipe which states: “One large cupful of red rice, one small cupful of small red beans, two large cupfuls water, one half teaspoonful salt. Place beans in saucepan with two cupfuls of water and salt, bring to a boil, then add the rice which has been thoroughly washed; cook until soft, stirring occasionally. The result will be a pretty dish of rice, pinkish in color. Rice cooked in this way is eaten by the natives of Japan on most of their festal days—Delineator.”

Note: This may well be an excerpt from a periodical titled *Delineator*.

262. Osborne, Thomas B. 1909. The vegetable proteins. New York, NY: Longmans, Green, and Co. xiii + 125 p. Index. 25 cm. Series: Monographs on Biochemistry. 2nd ed. 1924. [608* ref]

• **Summary:** Note: This is the first edition of this book, and it is the earliest book seen (Dec. 2020) that uses the term “vegetable proteins” or “vegetable protein” in its title. Soy is not listed in the index, but appears on pages 15, 49, 74, and 78.

Contents: Preface. 1. Historical review. 2. Occurrence of proteins in the different parts of plants, and their general characteristics. 3. Isolation and preparation of seed proteins. 4. Basic and acid properties of proteins. 5. Solubility of vegetable proteins. 6. Precipitation of vegetable proteins. 7. Denaturing of vegetable proteins: Denaturing by acids, denaturing by alkalies, denaturing by alcohol, denaturing by metallic salts, denaturing by heat. 8. Physical constants of vegetable proteins.

THE VEGETABLE PROTEINS

BY
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LONGMANS, GREEN, AND CO.
39 PATERNOSTER ROW, LONDON
NEW YORK, BOMBAY, AND CALCUTTA
1909

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9. Products of hydrolysis of vegetable proteins. 10. Classification of vegetable proteins: Simple proteins (albumins, globulins, glutelins, prolamins, albuminoids, histones, protamines), conjugated proteins (nucleoproteins, glycoproteins, phosphoproteins, haemoglobins, lecithoproteins), derived proteins (primary protein derivatives, secondary protein derivatives {proteoses, peptones, peptides}). 11. Some physiological relations of vegetable proteins to the animal organism and the biological relations of seed proteins to one another.

Tables show: (1) The heat of combustion of vegetable proteins, including glycinin from the soy-bean (5,668 calories per gram) (p. 48-49). (2) The best characterized vegetable albumins include legumelin (found in the seeds of the soy-bean, lentil, adzuki bean, and cow-pea), and ricin (found in the seeds of the castor bean) (p. 74).

Globulins: "Globulins are here defined as proteins insoluble in water but soluble in saline solutions. In this group must be included, for convenience, a large number of vegetable proteins which do not strictly conform to this

definition." "While the animal globulins are precipitated their solutions with magnesium sulphate, many of the vegetable globulins cannot be thus precipitated, but saturation with sodium sulphate, at 33°, precipitates all of them as yet thus tested." The animal globulins are all coagulated by heating their solutions to various temperatures. Most of the seed globulins are only imperfectly coagulated by heating their solutions even to boiling, and some of them can thus be heated for a very long time without showing any apparent change" (p. 75-77).

(3) The principal globulins include glycinin (found in the seeds of the soy bean), conglutin (in the seeds of lupines), edistin (in hemp seeds), and avenalin (oats) (p. 78).

The section on toxalbumins (p. 92-93) discusses various proteins (abrin, ricin, and crotin) that agglutinate the red blood cells of animals. Abrin, from the seeds of *Abrus precatorius* was isolated and named by Warden & Waddell in 1884. Ricin, from the seeds of *Ricinus communis* was named by Stillmark in 1888. Crotin, from the seeds of *Crotin eluteria* was discovered and named by Elfstrand in 1897.

The "General preface" begins: "The subject of Physiological Chemistry, or Biochemistry, is enlarging its borders to such an extent at the present time that no single text-book upon the subject, without being cumbrous, can adequately deal with it as a whole, so as to give both a general and a detailed account of its present position" (p. vii).

The Preface states: "The isolation and purification of vegetable proteins present so many difficulties that for a long time the available methods were too crude to enable those who understood such work to succeed in their task" (p. ix).

Chapter 1, a long and excellent "Historical review," begins by showing that the study of vegetable proteins began with wheat gluten; most publications during the 1700s were on this subject. Fourcroy (1789) was the first to demonstrate the presence of two kinds of protein in plants: coagulable and non-coagulable. He obtained preparations of what he supposed to be pure plant albumin, which he found to have all the properties of animal albumin. "In 1836 Boussingault published elementary analyses of several plant proteins, which marked a new epoch in the development of their study, for these analyses were soon followed by those made in 1839 by Mulder and by those made by Liebig and his pupils in 1841 and the years immediately following... Liebig asserted in 1841 that the different forms of plant proteins known at the time were identical with the proteins of animal origin which bore similar names. He recognized four such substances, namely vegetable albumin, plant gelatin, legumin or casein, and plant fibrin.

"Throughout the previous history of the development of knowledge of plant proteins and up to the time of Liebig, the idea of their identity with the animal proteins appears to have been universally accepted, and every effort had evidently been made by those who studied them to discover

similarities between the proteins from these two sources. In the year following, however, Dumas and Cahours (1843) presented the results of an elaborate study of the elementary composition of a considerable number of animal and vegetable proteins, which formed the foundation of a new advance in the knowledge of protein substances in general and contributed especially to the future studies of the proteins of plants. By means of their then newly developed method for determining nitrogen, they were able to clearly establish differences in the elementary composition between many of the proteins, and they showed that these differences were particularly great in the case of some of the vegetable proteins. The identity which Liebig assumed to exist between the vegetable and animal proteins was thus disproved and the further accurate study of the proteins of vegetable origin became a matter of importance.”

“In 1860 Ritthausen began the first serious study of the vegetable proteins, and devoted himself for many succeeding years to the production of preparations of the highest attainable purity, and to accurate determinations of their composition. As a result of these investigations the prevailing knowledge was greatly extended, and it became plain that these substances occurred in many diverse forms in the different seeds. Ritthausen’s work, therefore, furnished the first broad foundation for a knowledge of the vegetable proteins, and the service which he rendered in developing this field of knowledge deserves far more recognition than it received during his lifetime” (p. 4-5).

“Stillmark in 1888 ascribed the toxic action of *Ricinus* seeds to a protein which he obtained by precipitating a sodium chloride extract of the seed with magnesium sulphate or sodium sulphate, dissolving the precipitate in water, and dialysing away the salts. Stillmark named this substance ricin and considered it to be either a globulin or a ferment. He also found that, in addition to its toxic properties, it caused agglutination of a suspension of red blood corpuscles” (p. 92).

Chapter 3, “Isolation and preparation of seed proteins,” begins: “Various methods have been employed to isolate the different protein constituents of the several seeds which have been examined...” but complexities make it impossible for “the reader to make practical use of them in isolating and purifying preparations of the individual proteins.” “The solvents used to extract the proteins of seeds are water, neutral saline solutions, 70 to 80 per cent. alcohol, and very dilute acids and alkalies” [acidic and alkaline solutions]. A section discusses each solvent. Extraction with water works well for most legumes. “Many of the leguminous seeds, such as peas,... lentils, and soy beans, yield relatively much protein to water, which on adding a little acetic acid, and passing carbonic acid through the extract, or on standing until the extract becomes slightly acid, is largely precipitated” (p. 15). This method has long been used; also discusses enzyme action, dialysis, globulins, crystallisation.

Note 1. This is the earliest English-language document seen (Aug. 2003) that uses the word “isolation,” “isolated,” “isolate,” or “isolating” in connection with vegetable proteins—including soy-bean proteins.

Note 2. This is the earliest English-language document seen (Dec. 2020) that uses the term “plant proteins.” Address: Research chemist, Connecticut Agric. Exp. Station, New Haven, CT; and Research Associate, Carnegie Institution of Washington, DC.

263. Piper, C.V. 1909. The search for new leguminous forage crops. *Yearbook of the United States Department of Agriculture* p. 245-60. For the year 1908. See p. 248, 257. • **Summary:** The section titled “Soy beans” (p. 257) states: “Recent explorations in China and extensive correspondence with missionaries and others have yielded during the past few years a very large number of varieties of soy beans. Fully 200 distinct varieties have now been obtained, showing a diversity of growth and of possible value wholly unsuspected. Previous to these investigations only 5 or 6 varieties were known to American agriculture. The rapidly increasing prominence of the soy bean, especially in the Southern States, makes it important to secure the very best varieties. It is a curious fact that the variety most widely grown in the United States, the Mammoth, which was introduced at least thirty years ago, has never again been obtained. It is equally strange that of the other numerous new varieties obtained, nearly all of them, except certain Japanese varieties, have been secured in only a single locality. The truth is that throughout most of the Chinese Empire every variety is grown locally. Mr. F.N. Meyer, who has traveled widely in China, states that this extreme localization of these varieties is a very striking fact in Chinese agriculture, due, as he thinks, to the fact that for ages every Chinese farmer has grown his own seed, and there has been little or no exchange of seeds from province to province. It would therefore appear likely that numerous other varieties yet remain to be obtained.”

“Among the new varieties of soy beans are some from far north in Manchuria and Siberia, which mature in seventy to eighty days, and others from southern China that are so late that they scarcely mature in our warmest States. Several of these new varieties in the trials thus far conducted promise to be decidedly superior to the Mammoth variety.

“Especially valuable are the Riceland soy beans, grown by the Chinese in rotation with rice. These varieties are very distinct from others and on account of their numerous slender stems, large size, and leafiness make hay of unusually fine quality.

“While at the present time soy beans are most important in the Southern and Middle Southern States, they will doubtless in time become of great value in the arid regions on account of their marked drought resistance. Unfortunately, rabbits are extremely fond of soy beans, causing so much

destruction that it is practically impossible to grow this crop where these animals abound, as is still the case throughout our semiarid regions.”

Soy beans are also mentioned briefly on p. 248. There are long sections on the “Florida velvet bean” (p. 247-49), “Kudzu” (p. 249-51, with a photo facing p. 48 of “A patch of kudzu (*Pueraria thunbergiana*) growing at Washington, DC”), “Adzuki bean” (p. 253-54, with two photos, plate xi, of a “Field of adzuki beans (*Phaseolus angularis*) grown at Arlington Farm, Virginia, in 1908),” “Cowpea” (p. 254-56), “Bonavist bean or hyacinth bean (*Dolichos lablab*)” (plate XII, p. 258), “Bur clovers” (p. 259-60) and “Vetches” (p. 260; many species of *Vicia*; common vetch, hairy vetch, scarlet vetch, black-purple vetch, woolly pod vetch).

Note: This is the earliest English-language document seen (June 2008) that uses the term “bonavist bean” to refer to *Dolichos lablab*. Address: Agrostologist in Charge of Forage Crop Investigations, Bureau of Plant Industry [USDA].

264. Piper, C.V. 1909. The search for new leguminous forage crops: Adzuki bean (Document part). *Yearbook of the United States Department of Agriculture*. p. 245-60. For the year 1908. See p. 253-54.

• **Summary:** “The adzuki bean (*Phaseolus angularis*) is a native of southeastern Asia, being largely grown for human food in China and Japan, and to a less extent in India. The plant is erect growing, leafy, and strictly ‘bunch’ in habit, growing 1 to 3 feet in height according to variety and soil. It possesses root tubercles in great numbers and is probably very efficient as a nitrogen gatherer. The numerous varieties are distinguished most markedly by their different times of maturity and by the color of the seeds, which may be yellow, brown, red, gray, or variously mottled. For several years this plant has been tested as a hay plant, but it does not possess sufficient ability to fight weeds to enable it to compete with the cowpea. When grown in cultivated rows, however, it has produced very heavy crops of seed, up to 40 bushels per acre on the relatively poor soils of the Arlington Experimental Farm [in Virginia], a yield that is not exceeded even by the soy bean. It is somewhat doubtful whether this bean will become popular in this country as human food. On account of the high yield of grain per acre it will doubtless become valuable as stock feed, as no other legume, with the exception of the soy bean, will yield larger seed crops.” Address: Agrostologist in Charge of Forage Crop Investigations, Bureau of Plant Industry [USDA].

265. Yukawa, Genyô. 1909. Ueber die absolut vegetarische Ernahrung japanischer Bonzen [On the strict vegetarian (vegan) diet of Japanese Buddhist monks]. *Archiv fuer Verdauungs-Krankheiten* 15:471-524. [5 ref. Ger]

• **Summary:** The author studied a group of 12 strict vegetarian [vegan] Buddhist monks in Japan and found them

to be in good health. He estimated that their daily diets, if evaluated for a 150-pound male, supplied 3,575 calories and 113 gm of protein. The older men ate somewhat less. The diet consisted chiefly of rice and barley, with soy products, vegetables, and rape seed oil.

A table (p. 478-79) summarizes the author’s research on the protein content of vegetarian meals by previous Japanese researchers. These meals contained various soy products: Miso (*Soybohnennmus*), soy sauce (*Soy*), and tofu. On pages 489-91 are definitions of miso soup, miso, soy sauce (*Soy*) koji, grilled tofu (*Yakidofu*), cooked soybeans (without the hulls removed), azuki bean paste, and mochi, which are served at Nanshuji temple. A table (p. 497-98) gives the nutritional composition of these and other foods. Amounts served at each meal are shown on p. 501, 514, 522, including daikon pickled in miso. The terms “Makrobiotik” and “Makrobier” are used. Address: Aus der Privatklinik fuer Magen- und Darmkrankheiten von Dr. Yukawa in Osaka, Japan.

266. Japan, Bureau of Agriculture (Norinsho, Nomukyoku), Dep. of Agriculture and Commerce. 1910. Outlines of agriculture in Japan. Tokyo: Agricultural Bureau, Department of Agriculture and Commerce. 132 p. March. Illust. No index. 23 cm. [Eng]

• **Summary:** This book was compiled to acquaint foreigners with agriculture in Japan. Company name with diacritics is: Nôrinshô, Nômukyoku. A map near the front shows Japan and its empire (incl. Korea, Formosa, Kwantung, Karafuto, and the Kurile Islands, with an inset pie chart showing the value of Japan’s agricultural products). Oval photos show Japan’s six top agricultural officials, including Baron K. Oura, Minister of the Dept. of Agriculture and Commerce, C. Shimooka, Director of the Agricultural Bureau, and Dr. Y. Kozai, Director of the Imperial Experiment Station.

A full-page table shows the moneys, measures and weights of Japan with English equivalents.

Contents of the first part of the book: Introduction: Geographical location, area, population, topographical position, climate. 1. General remarks. 2. Condition of farmers. 3. Condition of agricultural land.

The section titled “Upland fields” (p. 18) states: “Upland fields are those portions of land being located in high and dry places which by wanting means of irrigation could not be converted into paddy fields. The utilization of these fields is commonly made by the rotation system and crops are raised twice a year. The commonest instance is that barely, naked barely, and wheat are raised as the first crop in winter whereas soja beans, sweet potatoes and millets are raised during the summer as the second crop.” The profits from upland fields are generally smaller than from lowland / paddy fields. The average yield of soja beans over the past 10 years is given in Japanese units (p. 19).

In Japan only cows and horses are kept as work animals.

MONEYS, MEASURES AND WEIGHTS OF JAPAN
WITH THE ENGLISH EQUIVALENTS.

Moneys	Yen... ..	2.080	Shilings.
	Sen $\frac{1}{100}$ yen	0.246	Pennies.
	Rin $\frac{1}{1000}$ yen... ..	0.025	„
Long Mea- sures	Ri	2.440	Miles.
	Chō	5.422	Chains.
	Ken	1.988	Yards.
	Shaku	11.930	Inches.
	Sun	1.193	„
Square Mea- sures	Chō	2.450	Acres.
	Tan $\frac{1}{10}$ chō	0.245	„
	Se $\frac{1}{100}$ chō	0.025	„
	Bu or Tsubo	3.953	Sq. Yards.
	Square Ri	5.955	Sq. Miles.
Capacity Measures...	Koku	4.963	Bushels.
	To... ..	1.985	Pecks.
	Shō	0.198	„
	Go... ..	0.019	„
Weights	Kwan or Kwamme	8.267	Pounds (avoir)
	Kin	1.323	„ „
	Momme	2.116	Drams.

In 1907 Japan had 1,008,922 cows and 2,204,031 horses. But they were used more for their manure than for plowing.

A table (p. 28) shows the value (in yen) of the principal commercial fertilizers in Japan from 1905 to 1907. “Soja bean cakes” (a key source of nitrogen) is by far the largest, averaging 12.9 million yen for these three years, followed by superphosphate of lime, mixed manure, rape-seed oil cakes, herring cakes, bone dust, and cotton-seed oil cakes. Note 1. This is the earliest English-language document seen (July 2016) that uses the term “cotton-seed oil cakes” (plural or singular) to refer to cotton-seed cakes.

A table (p. 37) gives the cultivated area (in 1,000 *cho*) of major Japanese crops in 1887, 1892, 1897, 1902, and 1907. In 1907 rice had by far the largest area (2,906), followed by naked barley (694), barley (658), soja bean (471), wheat (444), mulberry tree (390), sweet potato (288), Indian millet (202), rape seed (143), small red bean ([azuki], 135). Soja bean area remained almost unchanged between 1887 (466) and 1907 (471).

A table (p. 39) gives average yield (in *koku/tan*) of the same major Japanese crops for the same years shown in the previous table. Yield of soja beans rose from 0.698 in 1887 to 0.777 in 1907. Since 1 *koku* = 4.963 bushels and 1 *tan* = 0.245 acres, the 1907 yield is 15.74 bushels/acre.

A table (p. 40) gives the production (in 10,000 *koku*)

of the same major Japanese crops for the same years shown in the previous table. Production of soja beans rose from 325 in 1887 to 366 in 1907. Since 1 *koku* = 4.963 bushels, and 10,000 *koku* = 49,630 bushels, then 366 *koku* is 18.164 million bushels. The next table (p. 42) shows the value (in yen) of each of these agricultural products in 1905-07, and a table (p. 46) compares the cultivated area of each of these crops with rice; soja beans are 16.2% of rice.

In the section on “Food crops” (p. 47+) is a detailed discussion of each. Concerning “Soja bean” (p. 50-51) we read: “The use of this bean is extremely extensive since they are used for the purpose of supplying to the people low priced starchy food by being made into *miso* (pea cheese), soy, *tofu* (bean curd), and other food-stuffs required by the Japanese. The residue obtained from making these food-stuffs from the bean is used for the purpose of feeding cattle or of pressing oil while as manure it is highly valued. Soja bean is easily cultivated requiring less amount of manure and labour. It is therefore cultivated all over the country and occupies the principal position among summer crops of upland fields. Within recent years the demand for it has considerably increased at home and also the export of various food-stuffs prepared out of bean has shown some increase so that no small amount of bean is imported either from China [Manchuria] or Korea. The amount imported actually reaches 10,000,000 *yen*. Over and above these, the import of bean cakes is approximately figured at 20,000,000 *yen* so that the domestic output has somewhat been affected.”

Also discusses: Barley and naked barley. Indian millet, Barnyard millet and sorghum. Small red bean [azuki] (“A large amount of small red bean is used as a material for cakes [confections], Hokkaido being the principal producing district.” p. 51). Flax and hemp. Green manure crops, incl. *genge* (*Astragalus sinicus*, *umagoyashi* (*Medicago denticula*)), soja beans, etc.

Note 2. This is the 2nd earliest English-language document seen (Oct. 2021) that uses the term “small red bean” to refer to the azuki bean.

Chapter 4, titled “Animal industry and poultry” (p. 69+) contains many statistics which may be of interest to vegetarians. Japanese traditionally ate fish rather than meat. “Even at present, the amount of meat consumed per capita a year does not exceed 1.7 pounds while that consumed in America is 150 pounds and in England 118 pounds per capita.” etc.

Page 70 contains 4 tables with statistics about the number of cattle, horses, swine, sheep and goats, from 1897 to 1907. The number of slaughter houses decreased from 2,163 in 1897 to 938 in 1907. During this same period the number of slaughtered horses increased from 41,049 to 65,655 and the number of slaughtered swine increased from 107,034 to 177,351.

Note: An excellent history of meat eating in Japan, by Zenjiro Watanabe, is available online at <http://www.>

kikkoman.co.jp/kiifc/foodculture/pdf_09/e_002_008.pdf.

In 1906 the government perceived the necessity for developing a poultry industry in Japan so it established a poultry plant as a branch of the Imperial Stock Breeding Farm in the suburbs of Tokyo (p. 75).

A table (p. 85) shows imports of principal agricultural products (quantity and value) each year from 1906 to 1908. Imports of soja beans increased from 286 to 352 (x 10,000 piculs) during this period, while imports of [soja] bean cake increased from 433 to 776. Both were imported mainly from China. However “the output of soy [sauce] and *miso* made of soja bean is exported to the amount of 1,200,000 yen, while bean cake forms the principal fertilizer in Japan” (p. 86).

Page 95: The Imperial Agricultural Experiment Station, with its headquarters near Tokyo, under the direct control of the Minister of Agriculture and Commerce, “originated in 1886 and the system was practically completed in 1893.” Address: Tokyo.

267. *Corpus Christi Caller-Times* (Corpus Christi, Texas). 1910. The Altrurians visit Japan. April 10. p. 2.

• **Summary:** “When the Altrurians left Mrs. Timon’s hospitable home they felt as if they had indeed been to Japan.

“A notable feature of the party was the manner in which the Japanese lunch was served and what was served. Mrs. Timon was assisted in this by Mrs. A.L. Wright and they were quite proficient in their art.

“Menu cards were hand-decorated by Mrs. Timon, in various Japanese scenes of most artistic design, and contained the following menu headed by ‘O Kaeri,’ meaning ‘Honorable welcome.’

“Nippon Kondate

“(Japanese Menu)

“Azuki Meshi (Red Rice)

“Ni-Sakana Shoyu

“Fish in Soy sauce...”

268. Nippon Shubyo Kabushiki Kaisha (Japan Seed & Plant Co., Ltd.). 1910. Eigyō annai [Sales information]. Tokyo, Japan. Spring. 26 cm. [Jap]

• **Summary:** On the cover of this Japanese-language catalog we read (in characters from right to left): Number one seed store in the Orient (*tōyō*). Capitalization: 700,000 yen. 43rd year [of Meiji], spring. Sales information.

Page 3 is devoted entirely to beans (*mamé rui*). Shipping and tax free. Each small bag costs about 2 *sen*. The first section described 7 varieties of soybeans: (1) Large white soybeans (*Ooshiro daizu*). 5 *sen* per *gō* (100 *sen* = 1 *yen*; 1 *gō* = 180 cc = 0.763 cups {U.S.}). 32 *sen* per *shō* (1 *shō* = 1.8 liters = 1.903 quarts {U.S.}). Large, shiny beans. Good tasting. Good for making *nimame* (boiled, seasoned whole soybeans) or *kinako* (roasted soy flour) (2) Black soybeans (*Kuro daizu*). 5 *sen* per *gō*. 32 *sen* per *shō*. Black beans, large beans, extremely productive. (3) Large green soybeans (*Ao*

ōmamé). 5 *sen* per *gō*. 23 *sen* per *shō*. The seed coat is green. Good for making *kinako* and roasted soybeans (*irimamé*).

(4) Black soybeans for rice fields (*Ta no kuromamé*). 5 *sen* per *gō*. 32 *sen* per *shō*. Planted on the sides of the foot paths between rice fields (*azé*), these will produce a big crop.

Good for making a type of boiled (?) soybeans and *miso*.

(5) Branch and pod *Sangorō* soybeans (*Eda saya sangorō daizu*). 7 *sen* per *gō*. 60 *sen* per *shō*. Pull up the whole plant, boil the beans in the pods, and enjoy. Satisfies large demands. (6) “Little bells” soybeans (*Suzunari daizu*). 5 *sen* per *gō*. 40 *sen* per *shō*. Although the beans are small, they grow in many clusters, so you get a big crop and a big profit.

(7) “Goose eating” soybeans (*Gan-kui mamé*). 5 *sen* per *gō*. 40 *sen* per *shō*. Black, large-seeded soybeans. Good for making *nimame* (boiled, seasoned whole soybeans).

Next come 5 varieties of azuki beans: (1) Summer azuki (*Natsu shōzu*). 5 *sen* per *gō*. 35 *sen* per *shō*. Early type, therefore if you grow them, they could be profitable. (2) White azuki (*Shiro shōzu*). 6 *sen* per *gō*. 40 *sen* per *shō*. Small and white, they are used to make high quality sweet azuki bean paste (*an*). (3) Dainagon *shōzu*. 5 *sen* per *gō*. 35 *sen* per *shō*. Large and high quality, they are the best to make sweet azuki bean paste (*an*). You can get a large crop on any type of land. (4) “Thin seed coat” azuki (*Usu kawa shōzu*). 5 *sen* per *gō*. 35 *sen* per *shō*. Although small seeded, they have thin seed coats and are good quality. (5) Mottled azuki (*Kasuri azuki*) 5 *sen* per *gō*. 40 *sen* per *shō*. White beans with white kasuri pattern. Tasty. Note 1. Kasuri is a famous type of Japanese dyed cloth with a splashed or mottled pattern, usually white on blue. (6) Green beans (*Yainari*. [Also written “yaenari”]). 7 *sen* per *gō*. 60 *sen* per *shō*. The very small green seeds can be used [ground] to make green *kinako* (*ao kinako*) or sweet azuki bean paste (*an*). Note 2. Yainari / yaenari is the most expensive variety of azuki.

Note 3. This is the earliest document seen (Nov. 2020) that mentions *Eda saya sangorō daizu*. Address: Near Shinjuku Station, Tokyo, Japan.

269. Piper, C.V. 1910. Re: Legumes received from Mr. R.A. Haden, of Soochow, China. Letter to Mr. [David] Fairchild [in Charge of Foreign Seed and Plant Introduction], Bureau of Plant Industry, U.S. Dep. of Agriculture, Washington, DC, July 16. 2 p. Typed, without signature (carbon copy).

• **Summary:** Dear Mr. Fairchild: In regard to the legumes received from Mr. R.A. Haden, of Soochow, China, I beg to report as follows:

“Nos. 24180-24184, inclusive, and Nos. 25133-25138, inclusive, are soy beans. These varieties are all very interesting and are all distinct from those we have obtained from any other source. It is too early to give very definite reports on them. Several of the numbers are too late for use in this country; but Nos. 24180-24193, and especially No. 25137, are decidedly promising.

“The seeds also contained six different cowpeas;

namely, 25144-25149, inclusive. Most of these also are distinct from varieties obtained from other sources. Until another season's trial, however, no definite opinion can be expressed.

"Nos. 25139-25141 are adsuki beans (*Phaseolus angularis*), and Nos. 25142-25143 are *Phaseolus calcaratus*. Some of these varieties are distinct from others in our collection, but we have reached the general conclusion that none of these varieties can compete with the cowpea.

"Number 25132 is a variety of *Dolichos lablab*. Judging from a single season's test, it is probably too late.

"Numbers 24177-24179, inclusive, are field peas, on which no report can be given at present. The varieties are very interesting; in fact, nearly all of them are distinct. Until a second season's experience with them, however, I hesitate to make any definite report of their value.

"Yours very truly, Agrostologist."

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-1929. Piper, C.V. Box no. 107.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., April 2017. Address: Agrostologist, USDA Bureau of Plant Industry, Forage Crop Investigations.

270. Lemarié, Charles. 1910. Les sojas du Japon [The soybeans of Japan]. *Bulletin Economique de l'Indochine (Hanoi)* 13(85):493-98. July/Aug. [4 ref. Fre]

• **Summary:** "As a contribution to the study of the question of soybeans, so clearly revealed by the Inspector-Consul Mr. Brenier in a recent edition of this Bulletin, he judged it useful to ask me for the notes hereafter collected as much over the course of my lectures as upon the occasion of my voyage to Japan in 1903.

"I borrow much from Rein (*The industries of Japan*) and from Messrs. Paillieux and Bois (*Le Potager d'un Curieux* or *The Kitchen-garden of a Curious One*) who summarized all that we know about soybeans (*soja*) in Europe up until recently" (p. 493).

Describes and gives the names of more than twenty cultivated varieties, using the classification system of Rein and the Japanese based on seed coat color.

"I have already said that it [the soybean] needs heat and frequent watering. These considerations explain, in part, the failures encountered up to now in the attempts to introduce this crop into Europe. I fear the same obstacles for Mr. Li-yu-Ying, of Chinese nationality, formerly a student at the school of practical agriculture at Chesnoy, near Montargis (Loiret).

Note: Loiret is a department of France just south of Paris. Montargis is a commune in the Loiret department; the ancient town is located about 110 km (68 mi) south of Paris.

According to a lecture he gave last year to his former

classmates, Li set himself the task of taking up these trials on the outskirts of Paris: or was it on the manure fields / sewage farms (*champs d'épandage*) of Gennevilliers or Achères.

"But even if the cultivation of soybeans in France is not profitable, nevertheless the popularization of the diverse products that come from them is no less useful; Indochina, if the need be, could provide for new industrial ventures. With Mr. Albert Demolon, a scientifically educated agriculturist (*ingénieur-agronome*), then professor at Chesnoy, and today director of the Agricultural Station of Aisne [northeast of Paris] and of the Laboratory of Bacteriology at Laon, Mr. Li-yu-Ying again took up his previous studies related to these various products. In particular, he compared soymilk, which he calls *Caséosojaïne*, with animal milk, and he believed [it] possible, employing the highly developed procedures of handling and fermentation used [in France] with cow's milk, to obtain forms of tofu (*Téou-fou*) acceptable for our Western palates. That is to say: first, before any fermentation, a liquid [form of tofu] lends itself to the same uses as milk, especially useful for artificial feeding of livestock; then, after coagulation: 1. a hard cheese, corresponding to cheese of the firm sort (*fromage à pâte ferme*), cooked egg, or cooked meat in richness of protein; 2. a soft cheese, corresponding to fresh cheese (*fromage frais*) and able to be consumed as a legume; 3. a fermented cheese, after sterilization then inoculation with microorganisms of certain special cheeses, corresponding to these diverse fermented animal cheeses" (p. 497-98).

Also discusses: Azuki (p. 497). Address: Directeur des Services agricoles et commerciaux du Tonkin.

271. Piper, Charles V.; Morse, W.J. 1910. The soy bean: History, varieties, and field studies: Early agricultural history in the United States (Document part). *USDA Bureau of Plant Industry, Bulletin* No. 197. p. 26-27. Dec. 31. [14 ref]

• **Summary:** "The first mention of the soy bean in American literature is by Thomas Nuttall, in the *New England Farmer*, October 23, 1829. Nuttall grew a variety with red flowers and chocolate-brown seeds in the botanic garden at Cambridge, Massachusetts.

"In the same journal two years later, November 23, 1831, is an account of the successful culture of the plant at Milton, Massachusetts, the seed having been obtained from Nuttall. No further mention of the plant in American literature appears until 1853, when a brief account appeared under the name 'Japan pea,' by A.H. Ernst, Cincinnati, Ohio...

"In the following year, 1854, the Perry expedition brought back two varieties of 'soja bean' from Japan, one 'white' seeded, the other 'red' seeded. These, together with the Japan pea, were distributed by the Commissioner of Patents in 1854, and, thereafter, frequent references to the plant occur in agricultural literature under such names as Japan pea, Japan bean, and Japanese fodder plant. Most of

these articles speak of the plant as the Japan pea, none of them as the soy or soja bean. It is apparent from the early accounts that there were at least two Japan peas, one early enough to mature in Connecticut (Patent Office Report, 1854, p. 194), the other very late (American Agriculturist, 1857, vol. 16, p. 10). Judging from all the accounts, we suspect that the early Japan pea may be the Ito San variety, which, however, has red flowers, while the late variety may be the Mammoth. The Ito San is still occasionally called the Japan pea, while the introduction and source of the Mammoth has never been definitely determined. From these early accounts the Mammoth may well be the 'white-seeded' soja bean obtained by the Perry expedition. The 'red-seeded soja bean' was perhaps, the Adzuki bean [azuki] (*Phaseolus angularis*), as no red-seeded soy bean is known.

"Prof. G.H. Cook, of New Brunswick, New Jersey, obtained seed of the soy bean at the Bavarian Agricultural Station in 1878. In the same year Mr. James Neilson obtained seeds of several varieties at Vienna, Austria. Both of these gentlemen planted the seeds and gathered crops of the different varieties in 1879. These varieties were without doubt those grown and distributed through Europe by Professor Haberlandt, of Vienna.

"A yellow-seeded soy bean was grown at the North Carolina Agricultural Experiment Station in 1882 and reported on in some detail. The source of the variety is not given, but by implication it is the same as the variety stated to be grown by a number of persons in the State, and is probably the Mammoth.

"Two varieties, one black seeded, the other with white seeds, were grown at the Massachusetts Agricultural Experiment Station in 1888. In 1890 Prof. C.C. Georgeson secured three lots of soy beans from Japan which were grown at the Kansas Agricultural Experiment Station in 1890 and subsequently. Prof. W.P. Brooks, of Amherst, Massachusetts, brought with him from Japan in 1889 a number of soy-bean varieties, including the Medium Green or Guelph, and the Ito San. It is quite certain that other importations of soy beans from Asia were made by others, but no definite records have been found. [Note: The Guelph variety was NOT developed in Canada.]

"Since 1890 most of the agricultural experiment stations have experimented with soy beans and many bulletins have been published dealing wholly or partly with the crop." Address: 1. Agrostologist; 2. Scientific Asst., Forage-Crop Investigations, Bureau of Plant Industry, USDA, Washington, DC.

272. Hosie, Alexander. 1910. Manchuria: Its people, resources, and recent history. Boston, Massachusetts: J.B. Millet. x + 320 p. Illust. Index. 25 cm. Oriental Series Vol. 14

• **Summary:** This book is similar in many ways to the 1901 edition with the same title except: (1) It contains 25 more

total pages. (2) Chapters 7-10 in the 1901 edition have the same titles, are in the same order, and contain most of the same information as chapters 4-7 in the 1910 edition. (3) Most of the information on soybeans and soyfoods in this 1910 edition is identical or similar to that in the original 1901 ed, but usually on different pages. For example, the long, excellent section on tofu and related products on pages 183-84 in the 1901 edition is identical to that on pages 78-79 in this 1910 edition. And the description of how a traditional crush-stone mill and wedge press are used to make bean-cake and bean-oil, on pages 218-24 of the 1901 edition is identical to that on pages 121-27 of this 1910 edition. Many more such examples could be cited. (4) There is extensive and very interesting new information on railways, which are discussed at great length in this 1910 ed.; they are found in a separate record in this database as a "document part."

Editorial note by Charles Welch (p. ix-x): The whole world is now closely linked together as newspapers keep us informed of the events in far-of lands. Manchuria was practically unheard of until the last two wars which Japan had to fight there against China (1894-1895) and Russia (1904-1905). Port Arthur fell easily when held by the Chinese, but its strong defense by the Russians "turned the eyes of the world to the citadel which lay at the point of the far Eastern peninsula called Manchuria." The Trans-Siberian Railway, started in 1889, ran east-west, eventually connected St. Petersburg (the capital of Russia from 1712 to 1918) to the Pacific Ocean port of Vladivostok—a distance of 5,772 miles. The Chinese Eastern Railway, started in 1897, ran north-south, connecting Mukden and Port Arthur. The building of these two railroads has shown to the world the great wealth of Manchuria, a province of China.

The war between Japan and Russia was fought in large part because Russia claimed special exclusive rights to mining, timbering, etc. in Manchuria. Japan fought for an "open door" policy in this wealthy region, the right to trade and commerce in Manchuria. Sir Alexander Hosie has been a resident of China for practically 40 years.

The Chinese call Manchuria the Tung-san-shêng (Three Eastern Provinces); it "is an agglomeration of petty Tartar or Manchu principalities, lying to the north-east of China Proper" (p. 3).

Soy beans or [soy] beans, bean oil, bean cake, or soyfoods are mentioned or discussed on the following pages of this 1910 edition: 69 (outer leaves of kao-liang or tall millet are woven into mats used for packing loads of grains and beans), 71 (barley in large amounts is ground with peas or beans as a ferment in the distillation of native spirit {*Shao chiu*} from tall millet / kao-liang), 75-80 (beans are the most important agricultural crop for external trade, and the second most important article of cultivation after kao-liang. The most important bean, considered together with its products bean-cake and bean oil, is the soy bean—*Glycine hispida*; discusses the many varieties of soy beans and soy bean

products), 82 (Mao-Tou, soy beans cultivated as a garden bean for food), 84 (soy bean is one of six plants grown in Manchuria whose seeds yield oil), 101 (each skein or hank of silk is dipped in bean-flour water), 121-28 (how the oil is expressed from soy beans; Recent prices of soy beans and products. 1896 bean oil factory driven by steam), 142 (how boats carry soy beans and other export crops down the Liao River each spring after the ice breaks up), 146-47 (value of exports of soy beans and products; total value in Manchuria), 168 (the flourishing bean-oil and bean-cake industry at Dalny started in 1908, practically speaking), 172 (the 1907 depression in Manchuria's soy bean market), 174 (the 1907 depression is now over and the outlook for American goods in Manchuria is hopeful), 181-84 (value and amount of exports of soy beans and products from Dalny and other ports, mostly in 1908; ports of destination and uses at each), 196 (the matting, woven by hand from the outer sheaths of millet stalks, that rises high around every large cart carrying loads of loose beans and millet), 208-11 (city of T'ieh-ling on the Liao and its growing importance in the soy bean trade; met 1,000 carts heavily laden with produce from the interior), 216 (a large cart carrying beans and pulled in an ongoing sort of race by mules or ponies, has overturned, and the beans are scattered all over the roadway; such accidents are taken as a matter of course, and the way is cleared so that traffic can resume), 234 (Yi-t'ung [pinyin: Yitong, in central Jilin province] Chou, like T'ieh-ling [pinyin: Tieling], is a great storehouse for beans and grain, and there is extensive trade between the two cities), and 237 (met several caravans laden with empty "bean-oil boxes." Beans are carried from Newchwang by boats when the river is open and by carts when it is closed by ice).

Also discusses (see index): Job's tears or pearl barley. *Phaseolus radiatus* (the ray-fruited dwarf bean [azuki] which is red or white). Hemp (*Cannabis sativa*) and Abutilon hemp, the true hemp plant, *Abutilon avicennae*, both valuable fiber crops. Sesamum seed. Ground-nuts [peanuts] (*Arachis hypogaea*, L.) Seaweed. Address: British Consul-General at Tientsin [Tianjin, China].

273. Hosie, Alexander. 1910. Manchuria: Its people, resources, and recent history. Railroads (Document part). Boston, Massachusetts: J.B. Millet. x + 320 p. Illust. 25 cm. Oriental Series Vol. 14

• **Summary:** Railroads in Manchuria are discussed at great length in this book. These include the Chinese Eastern Railway Co., the Siberian Railway (incl. the Trans-Baikal and the Southern Ussuri sections), South Manchuria Railway, Trans-Manchurian Railway, and the Trans-Siberian Railway.

The South Manchuria Railway, the newest, is discussed in the most detail, especially in Chapter 7, titled "Trade of Manchuria" (p. 138-191). Page 145: "In addition to the purely foreign imports, however, there should be mentioned an item of \$10,000,000 worth of railway materials imported

from the United States by the South Manchuria Railway Company, on which no duties were paid, and which was omitted from the Chinese Customs Returns."

Page 149: "Although considerable interest in the mineral deposits of Manchuria has been evinced by American, British, and German engineers during the year, but little has been accomplished by them toward the development of the country's mineral resources. The South Manchuria Railway Company, on the other hand, has pushed forward development work on the Fu-shun (pinyin: Fushun) coal mines with great energy, and extensive additions to the equipment of the mines have more than doubled the output" daily during the year from 500 tons the beginning to 1,200 tons by the end of December. The Fu-shun coal mines constitute one of the chief assets of the Company."

Page 153. "Railway developments: The South Manchuria Railway has been standardised and the installation of new rolling stock has greatly increased the road's carrying capacity. Under the narrow-gauge regime the line's daily carrying capacity was about 2,000 tons, whereas at the present time, with its standard gauge, new American rolling stock, and improvement in its freight service, the capacity is more than 6,000 tons. Similar improvement has been made in the passenger service."

Page 154: "These trains are thoroughly modern in every respect, the cars and locomotives being of the latest designs of American make. Each train is composed of a mail car, a Pullman sleeper, a diner, and a combination day coach and baggage car. In addition to these improvements the South Manchuria Railway Company has established a weekly steamship service between Dalny and Shanghai, which shortens the time of travel between the latter city and Manchuria by two to five days, and will also bring about a reduction of freight rates. The Company is already issuing through bills of lading between Shanghai and Manchurian points."

Page 162: "The net increase of the Japanese population in Manchuria for the year 1908 was 14,149, of whom 5,296 settled in the leased territory and 8,853 scattered throughout the country, mostly along the line of the South Manchuria Railway. A conservative estimate of the number of Chinese immigrants during the year would place the figure at 25,000, the majority of the newcomers being of the agricultural class, who have come to Manchuria to find permanent homes and have settled in the fertile regions surrounding Fakumen and Chengchiatun. Should the plans of the Government for the settlement of waste lands meet with success, the number of Chinese arrivals will rapidly increase."

Page 165: "The general plans sanctioned by the management of the South Manchuria Railway provide for a northern terminal at Suchiatun, a station on the main line of the South Manchuria Railway some 10 miles south of Mukden. Suchiatun is already the junction of the branch line to the Fu-shun collieries, having the necessary yards

and transshipping facilities. By making Suchiatun instead of Mukden the terminal of the line the company will obviate the necessity of bridging the Hun River and at the same time will save several miles of track.”

Page 169-70: “First place in the import trade of Dalny is held by goods from Japan, which were valued by the customs last year at \$6,824,440, but which Japanese figures place at \$8,429,393. This total is made up of a large variety of articles, from lumber and railway material to notions and a great part simply represents the supplies of food, clothing, furniture, etc., drawn from Japan by Japanese residents in Manchuria for their own use. Of the staple goods for the Chinese market, the most important are cotton goods and cigarettes.”

“The United States is second in the import list, with \$3,762,653, according to customs figures, or about 32 per cent. This was almost entirely trade with the Japanese in Manchuria, and was made up mainly of supplies for the South Manchuria Railway Company. The figure seems to be too small, as the value of railway supplies ordered in America and received during 1907 and 1908 was approximately \$10,409,000, of which much less than half came in during 1907. The explanation may be that entries of duty-free goods for the railway or for general consumption in the leased territory are less carefully prepared, as to details, by the consignees.”

Page 171: “The domestic goods brought in from Chinese ports were valued at \$1,310,622. The rails, locomotives, bridge work, and most of the cars purchased on the first orders for supplies for the South Manchuria Railway were bought in the United States and delivery was completed in 1909. Of the new purchases under this head, the most important were an order placed in Russia for some 6,600 tons of steel rails worth about \$250,000, a new electric-power outfit costing \$135,000, ordered in the United States; rails, cars, and trucks for the Dalny street railway, ordered in Germany and England and costing approximately \$277,000; and a gas-generating plant and distributing pipes, purchased in Germany and Great Britain, respectively.”

Page 182-83: “Coal seems destined to become an important item among the exports, but the business is still in an experimental stage. In 1908 shipments to foreign countries amounted to 4,686 long tons. Already the South Manchuria Railway Company has a contract for furnishing coal to the mail steamers of the Osaka Shosen Kaisha, which come here twice a week from Osaka and Kobe. The price has not been made public, but it would seem to be not far from \$2.75 to \$3 per ton delivered on board, and at this low cost it is said to be quite satisfactory. With the exception of \$239,828, representing the customs valuation of [soy] beans shipped to England, and \$1,209 for exports to Korea, the entire foreign export trade of Dalny is with Japan, the total value of exports to that country being \$4,574,057.”

Page 186: “In August, 1908, the South Manchuria

Railway Company began a weekly freight and passenger service between Dalny and Shanghai, and while little business offered at first, both the number of passengers and the freight tonnage seem to be steadily increasing, as the railway company is making special efforts to develop this line by selling through tickets and by offering through bills of lading to interior stations at moderate rates.

“The trade to South China ports continues in the hands of two leading British coasting lines, whose business has greatly increased of late, so that they have had as many as eight ships in port at one time loading cargo or waiting for berths.” Address: M.A., F.R.G.S., Once Acting British Consul, Tamsui; Now at Aberdeen (Scotland or Hong Kong).

274. Inouye, Jukichi. 1910. *Home life in Tōkyō*. Tokyo, Japan: Printed by the Tokyo Printing Co. vii + 323 p. No index. Illust. (some color). 23 cm. Facsimile edition reprinted in 1985 by KPI (London & Boston). [Eng]

• **Summary:** Chapter 5, “Meals,” states (in a description of making breakfast): “But in point of utility the soy bean comes next to rice, for our soy sauce which enters into almost all dishes is made from the bean, wheat, and salt. So extensively is this sauce employed that table salt is comparatively little needed. The bean is also the principal ingredient in *miso*, which is a mixture of the soy bean, steamed and pounded, with rice-yeast [*koji*] and salt. This *miso* is largely used in making soup; and the soups into which it does not enter are usually flavoured by boiling shavings of sun-dried bonito and straining them off” (p. 58).

“After the rice-pot is removed, another pot is put over the hearth for making *miso*-soup... *Miso*-soup contains strips of garden radish [*daikon*], edible seaweed [*alopteryx pinnatifida*] [*wakame*], bean-curd [*tofu*], egg-plant, or other vegetables according to season. These two, the rice and the soup, are all the cookery required in the morning. There must, of course, be hot water for tea.” Pickled vegetables (called *kōkō* or *kō-no-mono*) especially garden radish, invariably accompany Japanese meals (p. 58-59).

“The breakfast, then, is very simple. Sometimes the family take their meals at a large low table which is set before them [as they sit on their heels in the *seiza* position on tatami mats] at each repast; but often a small tray, about a foot square and standing six inches or more high, is placed before each member. In the left corner of the tray near the person before whom it is set, is a small china bowl of rice, while on the right is a wooden bowl of *miso*-soup. A tiny plate of pickled vegetables occupies the middle or the farther left corner, while any extra plate would fill the remaining corner. This plate also holds something very simple, such as [*umeboshi*] plums preserved in red perilla leaves, boiled kidney beans, pickled scallions, minute fish or shrimps boiled down dry in soy sauce, a pat of baked *miso*, shavings of dry bonito boiled in a mixture of soy and *mirin*.” An illustration (line drawing) shows such an individual meal

tray, with chopsticks resting on the rim of the tray (p. 59-60).

“Soy [sauce] is usually sold in wooden kegs as it does not change [spoil] with time; but the poor buy it in half-pint bottles” (p. 68).

The midday meal is very simple. But the “evening repast is the principal meal of the day... fresh fish is more frequently served than at noon. The fish may be boiled in a mixture of *mirin* and soy, be put into a soup made with an infusion of dried bonito shavings, be roasted on the iron netting with a sprinkling of salt or repeated coatings of soy, or be taken raw in thin slices [*as sashimi*]. This raw fish is a peculiarly Japanese dish” (p. 70).

Note 1. In Japan, almost everything is done in an orderly way, followed by nearly everyone. There are rules (often unwritten) for how to do almost everything.

Chapter 6, “Food,” states: “Sea-weeds are also in great demand. Of these the principal are the *konbu* (*Laminaria japonica*), which is largely exported into China, and the laver [*Porphyra tenera*], which is obtained in this sheets [*nori*] and taken with soy alone or with rice rolled into it.” Yellow chrysanthemum flowers are also used as food, “either fried with a coating of *kuzu* (*pueraria Thunbergiana*) or boiled in brine and pressed” (p. 72).

Eels are eaten, with bamboo skewers passed through them; “they are roasted over a fire, being from time to time dipped in a gravy [sauce] of *mirin* and soy. Tokyo is especially noted for eels served this way.” Sun-dried cuttlefish, which are flat and hard, “are cut into slices which are roasted and dipped in soy” (p. 73).

“As we do not use a knife and fork at table, all fowls have to be cut up before they are served... The commonest method with the domestic fowl and duck is to boil them in small slices in a shallow pan with bits of onion in a gravy [sauce] of soy, *mirin*, and sugar.” “It is only of recent years that we have begun to eat beef and pork; but we have in Tokyo a large number of shops where they are sold.” One kind of shop is “a sort of restaurant where beef is served in the same manner as the domestic fowl and duck above mentioned” (p. 74).

“Though cooking is mostly done at home, no small quantity of small quantity of prepared food is bought for the meals. The most important of such food is the bean-curd [tofu]. For this the soy bean is soaked in water, ground, steamed, and strained; and the liquid is allowed to coagulate by the addition of brine [*nigari*] and then pressed in a square box with a cotton-cloth bottom until the water has been drawn off, leaving behind a soft white curd. This curd is cut into small slices and put into soup in the morning; it is sometimes thrown into hot water, and as soon as it is warmed [*as yudofu*], dipped into a mixture of soy and *mirin* and eaten. It is also fried. Indeed, the bean-curd shares with the *tai* [sea-bream] the distinction of having a special treatise dealing with a hundred ways of dressing [cooking / serving] it” (p. 74).

“As there is no dessert at a Japanese meal, fruits are commonly eaten at odd hours, especially by children.” Apples are grown mostly in Yezo [Hokkaido], “the most northerly of the larger islands” (p. 75).

A common dish for the bever [a light lunch eaten between meals] is the (*soba*) or buckwheat noodles. Soba “is dipped before eating, into an infusion of bonito shavings flavoured with a little soy and *mirin*, to which small bits of onion [*negi*] and Cayenne pepper have been added” (p. 77).

Another inexpensive food “is a kind of cracknel [*senbei*] made by baking and dipping small disks of rice or wheaten flour in soy” (p. 78).

“The bulk of confectionery is made of rice, red beans [*azuki*], millet or sugar. Glutinous rice is steamed, pounded in a wooden mortar into a pasty consistency, and left to cool” [to become mochi]. “The red bean is boiled, pounded, and strained through a coarse cotton bag to get rid of the skin, though the latter is sometimes retained, in which case the straining is unnecessary, and finally mixed with sugar” to make “red bean jam” [*an*], which “is the most important ingredient of Japanese sweetmeats as there is in our confectionery no other equivalent... The red bean jam is also used in making soup into which small rice dumplings are thrown; this soup is much in demand, especially in winter, to while away the tedium of long evenings. The red bean is also boiled with rice to give it a colour; the red-bean is eaten in old-fashioned families three times a month, on the first, fifteenth, and twenty-eighth” (p. 80).

Note 2. This is the earliest document seen (Oct. 2021) that uses the term “bean jam” or “red bean jam” to refer to Japanese *an* [sweet azuki bean paste].

“Starch extracted from the root of the *kuzu* (*pueraria Thunbergiana*) is also much employed in confectionery.” “By steaming a mixture of red beans, sugar, wheat, and *kuzu*, we get a sweet dark-red cake, which is almost as popular as the sponge-cake” (p. 80).

Inouye, who lived 1862-1929, lived to witness the Meiji period end and westernization begin. A scholar, journalist, translator and Japanese diplomat, he served at Japanese embassies in Belgium and the United States. Returning to Japan in 1918, he devoted the remaining years of his life to compiling English-Japanese and Japanese-English dictionaries.

Note 3. This book comes in an elegant, traditional “folding case” (*chitsu*), consisting of five stiff pieces of paperboard, covered with cloth, and held in place by two ivory-looking pegs (each 3 cm long), each of which slips into a cloth sleeve. This folding case performs much the same function as a Western slipcase. Address: Tokyo, Japan.

275. Sawamura, S. 1910. The diet of the Japanese. In: Ile Congrès International d’Hygiène Alimentaire et de l’Alimentation Rationnelle de l’Homme (2nd International Congress of Food, Hygiene and the Rational Feeding of

Man). 2 vols. Brussels, Belgium: M. Weissenbruch, Printer to the king (imprimeur du roi). Sec. 2, p. 215-30. See p. 217-18. Held 4-8 Oct. 1910 at Brussels, Belgium. Under the patronage of His Majesty the King and the Government [soy ref. Eng]

• **Summary:** Section B. “Legumes” (p. 217-18) discusses: Soya bean. Tofu or “vegetable cheese. Table showing percentage composition of the soya bean, *Go*, tofu and yuba. Natto. Table showing nutritional composition of natto. Table showing the forms of nitrogen and soluble organic substance in air-dry Natto that is 14 hours old and 7 days old. Miso (a fermented food made with barley koji). Table showing the nutritional of common Miso.

“*Phaseolus Mungo* [sic] chiefly used for making *An* [sweetened azuki paste], an important material that enters into the making of sweet cakes. *Vicia faba*, *Pisum sativum*, *Arachis hypogaea*, etc. are also consumed to some extent.”

The opening paragraph of this paper notes: The Japanese diet “is on the whole vegetarian. Forty years ago the flesh of domestic animals, except fowls, was never eaten by the Japanese. This was owing to the abundance of marine products, besides that under the influence of Buddhism the people avoided meat.” Address: PhD in Agriculture (Nogakuhakushi), Tokyo Imperial Univ. [Japan].

276. Wheldale, Muriel. 1911. The chemical differentiation of species. *Biochemical Journal* 5(10):445-56. Jan.

• **Summary:** In the section on “Proteins” (p. 454): “Definite names, for instance, have been given to the following globulins:—Leguminosae: legumin in *Pisum sativum*, *Vicia faba*, *V. sativa*, *Ervum lens*; vignin in *Vigna sinensis*; glycinin in *Glycine hispida*; phaseolin in *Phaseolus vulgaris*, *P. radiatus*, *P. lunatus*; conglutin, *Lupinus* sp; vicilin, *Pisum sativum*, *Vicia faba*, and *Ervum lens*.” Address: Fellow of the Newnham College, Cambridge [Univ., England].

277. USDA Bureau of Plant Industry, Inventory. 1911. Seeds and plants imported during the period from April 1 to June 30, 1910. Nos. 27481 to 28324. No. 23. 88 p. April 29.

• **Summary:** Soy bean introductions: *Glycine hispida* (Moench) Maxim.

“27498-27501. Grown at Arlington Experimental Farm, Virginia, season of 1909. Numbered for convenience in recording distribution, April 14, 1910. Seeds of the following. Notes by Prof. C.V. Piper:

“27498. ‘Chromium green; late. Grown under temporary number 0867, from seed found in cowpea No. 23307, from Peking, China.’

“27499. ‘Straw yellow; very late. Grown under temporary number 0869, from Mr. W.W. Williams, Ingang, Fukien [Fujian], China.’

“27500. ‘Straw yellow; very late. Grown under temporary number 0888, from Rev. J.M.W. Farnham, Shanghai, China.’

“27501. ‘Olive yellow; very late. Grown under temporary number 0889, from Rev. J.M.W. Farnham, Shanghai, China.’”

“27531/27537. From San Giovannia Teduccio, near Naples, Italy. Purchased from Messrs. Dammann & Co. Received April 11, 1910. Seeds of the following:

“27535. Brown.”

“27553/27558. From Choon Chun, Korea. Presented by Mr. J. Robert Moose. Received April 4, 1910. Seeds of the following:

“27557. Yellow seeded.”

“27704/27713. From Hankow, China. Presented by Mr. A. Sugden. Received April 14, 1910.

“27707. Yellow seeded.”

“28048/28058. From Manchuria. Procured by Mr. Edward C. Parker, agriculturist, Bureau of Agriculture, Industry and Commerce, Mukden, Manchuria. Received June 2, 1910. Seeds of the following; descriptive notes by Mr. Parker:

“28049. Large yellow. ‘*White Eyebrow* soy bean. Chinese name, *Paimei*. A well-known and famous variety of the soy bean grown over large areas on the alluvial bottom lands of the Liao Ho River in Manchuria. This seed sample came from valley lands near Kwangning, 42° north latitude, where the variety has been commonly grown for several centuries. Valuable in America as foundation stock for selecting and breeding improved varieties of oil-producing seeds.’

“28050. Small yellow. ‘Small, round soybean. Chinese name, *Chinyuan*. This variety is grown in Manchuria as far as 47° north latitude. This seed sample came from a district northeast of Harbin, Manchuria, 46° north latitude. The beans of this variety, grown in northern latitude, are highly prized because of their heavy weight and large percent of oil. This variety should be especially valuable to plant breeders in the upper Mississippi Valley.’

“28051. Black. ‘Black curd bean. Chinese name, *Heitou*. Commonly grown in central Manchuria. This seed sample comes from Mukden, Manchuria, 42° north latitude. These beans are principally used for the production of bean curd. The beans are soaked, ground into coarse meal, and a filtrate formed that is coagulated with salt. The coagulated mass is pressed into a curd with stones. A meal made from these beans is mixed with corn meal for baking cakes.’”

28052 is Adzuki bean (*Phaseolus angularis* (Willd)). “Red bean. Chinese name, *Hungchiangtou*. Commonly grown in Central Manchuria for human food.”

28053 is mung bean (*Phaseolus radiatus*, *Lutou*) and 28054 is hemp. The latter is grown in large quantities in Manchuria for the production of fiber. Address: Washington, DC.

278. Morse, W.J. 1911. Re: Report on trip to Monetta, South Carolina. Letter to Mr. R.A. Oakley, USDA, Washington,

DC, Aug. 15. 3 p. Handwritten, with signature on hotel letterhead.

• **Summary:** “My dear Oakley: Spent Monday with Mr. Jos. [Joseph] M. Johnson at Monetta [South Carolina] and thought I would write you concerning the condition of our experiments there. You will no doubt recall that soybeans grown previously at Monetta were failures and an examination of the plant roots gave no evidence of tubercles. The plants last year reached a height of about 16 inches. In sending seed of the best soy beans, that is those found most resistant to wilt and root-knot [nematodes] last year, soil was sent from the soybean plat at Arlington Farm [Virginia]. The soy beans this year at Monetta are excellent. The plants of the two best varieties are three feet high. The plants are vigorous, have an abundant growth and a very extensive root system. The roots are covered with nodules of all sizes, some as large as a small-sized marble. Not a variety is less than two feet high. A very striking contrast to the previous year.

“The other crops are doing fairly well, except the adzuki beans. The wilt has played havoc with the adzuki and mung beans. As yet there has been very little wilt in the soys and no evidence of root-knot.” “With best wishes,…”

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-29. Box 92—Morgan-Morse.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., March 2012. Address: The Albion [hotel], S.J. Newcombe managing director, Augusta, Georgia.

279. Piper, Charles V. 1911. Forage crops and forage conditions in the Philippines. *Philippine Agricultural Review* 4(8):394-428. Aug. See p. 400, 407.

• **Summary:** “Soybeans are not a native crop in the Philippines, but several varieties have been tried at different times with fair success. During the present season the ‘Acme’ variety was sown in March at Alabang and Lamao. The plants grew normally in every way but are 1/3 smaller than plants of the same variety in Virginia. Further testing should be carried on with this crop, especially the varieties from southern China, Java, and India. At the present time they can not be recommended for general culture.”

Also mentions chufas (p. 400, 408, 428), adsuki bean (*Phaseolus angularis*) (p. 409, 428), and mayuen (*Coix lachryma-jobi* var. *mayuen*) (p. 402, 428). Address: USDA, Washington, DC.

280. Hartwell, Burt L.; Pember, F.R. 1911. The gain in nitrogen during a five-year pot experiment with different legumes. *Bulletin (Rhode Island State College Agricultural Experiment Station)* No. 147. 14 p. Dec.

• **Summary:** “The ability of legumes to secure nitrogen from the air is now so generally recognized that progressive

farmers avail themselves of every opportunity to grow such crops whenever the accumulation or maintenance of nitrogen is of importance.” Yet relatively few experiments have been conducted “showing the actual amount of gain in nitrogen which results when different legumes are grown in ordinary soil” (p. 3).

“This bulletin contains the details of a five-year experiment in pots 12 inches in diameter, to ascertain the amount of nitrogen secured from the air, whether through the influence of nodule bacteria or of other micro-organisms, during the growth of legumes in a light gravelly soil, without the addition of nitrogenous manure but with optimum amounts of other manures” (p. 13).

The legumes used in the experiment were cowpea, soy bean (*Glycine hispida*, Maxim), white-podded adzuki bean (*Phaseolus angularis*, Willd.), and crimson clover. Examination of the roots revealed the presence of nematodes, which injured the clover and vetch, but not the soy bean or cowpea plants. Detailed tables (p. 8 and 11) show the changing amounts of nitrogen in the plants and soil, and the gain in nitrogen for each pot during the 5 years.

“The large amount of nitrogen secured from the air during this experiment, should still further impress the farmer with the desirability of attempting to introduce into his rotations such legumes as cowpea and soy bean” (p. 14). Address: 1. Ph.D., Chemistry (in charge of experiments in plant physiology); 2. M.Sc., Asst., Plant Physiology.

281. Pammel, Louis Hermann. 1911. A manual of poisonous plants: Chiefly in eastern North America, with brief notes on economic and medicinal plants, and numerous illustrations. Cedar Rapids, Ohio: The Torch Press. viii + 977 p. See p. 520. Illust. 24 cm.

• **Summary:** The chapter on Leguminosae, under “Economic plants” (p. 520) states: “The seed of the Adzuki bean (*Phaseolus mungo*, var. *glaber*), is used as a food in Japan. The soy bean... is used in large quantities by the Japanese and Chinese for food, but is little used in the United States, being here cultivated as a forage plant.

“Soy beans can only be fed in moderate quantities to cattle because of their purgative properties. A loss of a considerable number of cattle occurred in England recently where soy bean cake has been used. When fed mixed no trouble was caused, but when fed alone it caused poisoning.”

A non-original illustration (line drawing, p. 520; see Jared Smith 1896) shows the upper part of a soja bean plant with two pods. L.H. Pammel was born in 1862. Address: Ph.D., Prof. of Botany, Iowa State College of Agriculture and Mechanic Arts.

282. Proteine [Proteins]. 1911. In: Emil Abderhalden. 1911. *Biochemisches Handlexikon*. IV. Band [Biochemical pocket dictionary. Vol. 4]. Berlin: Julius Springer. vi + 1190 p. p. 1-197. Index. 26 cm. [4 ref. Ger]

• **Summary:** This long chapter contains 6 parts, each by a different author. In the first part, titled “Proteins of the plant world,” by Thomas Osborne (Yale Univ., New Haven, Connecticut), the section titled on “Glycinin” (p. 7-8) notes that glycinin, which is a globulin, is the main component of the protein of the soybean (*Sojabohne*, *Glycine hispida*). The section on “Legumelin” (p. 35-36) discusses both the soybean and the adzuki bean.

283. Stuart, George A. 1911. Chinese materia medica: *Phaseolus radiatus* [Azuki beans] (Document part). Shanghai, China: American Presbyterian Mission Press. 558 p. See p. 316. Extensively revised from Dr. F. Porter Smith’s work. 23 cm.

• **Summary:** This contains good summaries of the information on foods found in the famous *Pen-ts’ao kang-mu* (1578-1597) by Li Shih-chen. Rev. Stuart, a physician (M.D.), minister, and missionary in China, adds a number of observations on medicinal properties ascribed to these foods by the Chinese.

“*Phaseolus radiatus*.—Chinese characters for “red + small + bean” (Ch’ih-hsiao-tou), 141, Hung-tou. The leaves are called Hou. On account of the second name, the Chinese sometimes confound *Abrus precatorius* with this, and Tatarinov and other western botanists have fallen into the same error. This bean is largely cultivated north of the Yangtse [Yangtze River, later Chang]. The plant, in its character and growth, is very similar to *Phaseolus mungo* [the mung bean], of which it is sometimes considered to be a variety. It is considered to be good food for donkeys, but is too heavy and heating for mankind. Medicinally, it drives away dropsy and scatters carcinomatous and purulent swellings. Otherwise, its properties are similar to those of *Phaseolus mungo*, and it is prescribed in even a larger number of similar difficulties than is this latter. Threatened abortion, menstruation during pregnancy, difficult labor, retained placenta, post-partum troubles, and non-secretion of milk constitute a series of obstetrical difficulties for which its use is recommended. The leaves are recommended in fever and urinary difficulties, and the sprouts in threatened abortion whether from an abortive tendency or from injury.” Address: Rev., M.D., Shanghai, China.

284. Ward, Artemas. 1911. The grocer’s encyclopedia—Encyclopedia of foods and beverages. New York, NY: Published by the author. 748 p. Illust. (color). 29 cm.

• **Summary:** Soy-related entries: Bean (p. 49-54): “The bean of European history is the Broad or Windsor variety,...” “The principal beans of United States cultivation are the Kidney and Lima, both of them believed to be native to South America.

“The Kidney Bean is the Haricot of the French and in Great Britain is sometimes called the French bean.” The many varieties can be classified into “tough podded” and

edible podded.” “The ‘tough podded’ class produces the bulk of the dried beans of commerce, variously known as ‘Kidney Beans,’ ‘Navy Beans,’ ‘Marrow Beans,’ ‘Black Beans,’ ‘Turtle Beans,’ etc., in many colors, shapes and sizes.” “‘Flageolets’ are cultivated with special regard to the consumption of the fresh seeds or beans.” To the “edible podded” class of kidney beans belong Wax or Butter Beans, the Cranberry Bean or Red Speckled Bean, String Beans, Snap Beans, French Beans. “Pea Beans are the Cowpeas of the agriculturist.” “Among numerous other ‘special’ varieties are the Soy Bean (which see), Asparagus Bean, Frijole, Lab-lab (or Egyptian Kidney), Red Bean [Azuki?], and Scarlet Runner.” Asparagus Beans are known as *Tou Kok* by Chinese gardeners in California.

“Catsup, Catchup, Ketchup: a word derived from the name of an East Indian pickle, which was formerly applied specifically to the boiled spiced juice from salted mushrooms, but is now freely attached to various sauces (sold both bottled and in bulk) which consists of the pulp—bottled, strained and seasoned—of various fruits, as tomatoes, green walnuts, etc.” Note 1. At “Catchup” and “Ketchup” we are told to see “Catsup.”

Locksoy ([Lock Soy], p. 346): “Rice boiled into a paste and drawn into threads, imported from China. It is used to thicken soups.”

Nuts (p. 412-13): A table shows the nutritional composition of all major American nuts, including almonds, chincapin [chinquapin] or water chestnut, chufa (earth almond), cocoanut, peanut, and peanut butter. “Many special nut foods, such as malted nuts, meat substitutes, etc., have been devised and extensively advertised by manufacturers for general dietetic use and for the special needs of vegetarians and fruitarians. It is said that some of these products contain soy beans, but apparently the peanut is very important in their composition.

Sauces (p. 552-53): In bottled sauces, vinegar is the most common liquid ingredient. “Commercial sauces of the Worcestershire kind, if of good quality, generally have Soy (which see) as their chief character ingredient. A typical formula of Worcestershire-style includes, in addition to Vinegar and Soy, a considerable percentage of lime juice, onions and tamarinds and small quantities of garlic, fish (as anchovies or pickled herrings), red chilies and spices. The product, after cooking, is strained through fine hair sieves. Leicester Sauce resembles Worcestershire in general characteristics but is less pungent.”

Soy (p. 576-577): “A brown sauce, valuable to the commercial sauce market, made from the Soy Bean, a native of Southeastern Asia [sic] and widely grown in China and Japan. The beans are boiled, mixed with ground wheat or other grain, salt, etc., and allowed to ferment for a month or 6 months. The liquid is then strained off and clarified. Molasses is frequently added. In appearance it resembles Worcestershire Sauce, of which it is an important ingredient.

It should not be too salt [salty] or too sweet, and although thick and syrupy, should be clear. When shaken in a bottle or glass it should, if it is genuine, leave a bright yellow film on the glass. Being a very desirable article, it is often counterfeited.”

Soy bean (p. 577): “Commercial and government circles, both in Europe and this country are devoting increased attention to the cultivation of the Soy Bean as a food product, as it contains a large percentage of protein and a fair amount of fat, thus resembling meat in general nutritive value. The cell-walls of the raw bean are very tough, but thorough cooking makes it readily digestible. Boiled with bacon and other fatty broths until soft and then seasoned, the result is a vegetable dish very pleasing to the average palate. If the beans are dry, a preliminary soaking to remove the skins is necessary.

“The Soy Bean is largely consumed in Japan, China and other parts of Asia as an adjunct to rice and other foods, taking the place of meat in the popular dietary. It is most popular in these countries in fermented form, the best known types being *Shoyu* or Soy Sauce; *Tofu*, a kind of cheese; *Miso*, Soy Bean ‘Milk’ [sic]; *Yuba*, the evaporated product of ‘Miso’ [sic], and *Matto* [sic, *Natto*], a product obtained by simple fermentation of the boiled beans. The various degrees and styles of fermentation serve the double purpose of rendering the beans more easily digestible and producing new flavors, just as by the fermentation of milk and cream we produce the different flavors of cheese.

Note 2. This is the earliest English-language document seen (Aug. 2013) that uses the term “Soy Bean ‘Milk’” (regardless of capitalization) in to refer to soy bean milk.

“The plant is an annual, growing chiefly in bush form...” The different varieties are classified principally by the color of the beans: “Black, Yellow, White and Brown,... Types of all these four classes are grown to some extent in Germany, Austria, and Switzerland, and the first three also in this country, in North Carolina and other Southern States. Under favorable conditions a single plant may bear a hundred or more pods.

“Because of the fact that the beans contain little if any starch, they have been recommended as a desirable food for diabetics, and Soy Bean Bread and Soy Bean Meal are prepared for that purpose in Paris. The dried beans are also used in Switzerland and elsewhere as a coffee substitute.” An illustration shows the top of a soy bean plant, with leaves, pods, and flowers.

Note 3. This book is full of fascinating information about the food system in the USA in 1911, with entries such as cold storage (first attempted in 1860, it has grown to extraordinary proportions), coloring matter (great improvements, no longer harmful), ice and refrigeration (ice manufacture dates from about 1870; today nearly 200 companies produce ice for general sale, mostly using the compressor and anhydrous ammonia). Dictionary of food

names in five languages (English, French, German, Italian, and Swedish, p. 710-724) and a dictionary in English of “Culinary and bill-of-fare terms” (p. 741-45). Note: Soy is not mentioned in either the dictionary or the list of terms.

Note 4. The author, Artemas Ward, lived 1848-1925. His father was Henry Dana Ward (1797-1884), his grandfather was Thomas Walter Ward (1758-1835), and his great-grandfather was Artemas Ward (1727-1800), the first Commander-in-Chief of the colonial troops before the arrival of George Washington (a little-known Virginia planter) on 3 July 1775. Thereafter he served as second in command after Gen. Washington and was a Major General in the American Revolutionary War. Address: Formerly (from 1874) founder and editor of *The National Grocer*, 30 Union Square, New York.

285. Piper, C.V. 1912. Re: Trip to Japan. Adzuki bean meal or flour used in confections. Letter to Mr. [David] Fairchild, in Charge of Foreign Seed and Plant Introduction, U.S. Dep. of Agriculture, Washington, DC, Feb. 16. 1 p. Typed, without signature (carbon copy).

• **Summary:** Dear Mr. Fairchild: I was much interested while in Japan, especially in Yokohama and Tokio, in the bean meal shops in which a considerable variety of cakes and confections are made from bean meal, the bean meal being, in practically all cases, produced from the Adzuki bean. I did not have time to investigate the manufacturing process in detail, but inasmuch as the adzuki bean does so well in this country it seems to me very desirable that we should get full information in the way of how the Japanese utilize this food product. Can you not write to correspondents in Tokio, possibly the American Consul, and ask him to investigate fully the preparation of the bean meal, or bean flour, and also the products manufactured from it. It would be very desirable if he could send us samples of the flour and the manufactured products made therefrom.

“Yours very truly, Agrostologist.”

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-1929. Piper, C.V. Box no. 107.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., April 2017. Address: Agrostologist, USDA Bureau of Plant Industry, Forage Crop Investigations.

286. Piper, C.V. 1912. Re: Adzuki beans and cowpeas. Letter to W.J. Morse, Bureau of Plant Industry, [Arlington Farm, Rosslyn, Virginia], April 30. 2 p. Typed, without signature (carbon copy).

• **Summary:** “Dear Mr. Morse: I am sending to Arlington Farm today one-half pound of Adzuki beans No. 17847 and of Groit cowpea No. 32862. I have had these seeds picked over so they should be perfectly pure.

"I want you to grow at Arlington Farm four one-rod rows of each of these, thinning out the plants to a uniform distance of six inches in the rows. Of one row of each of these I desire the seed saved and enough of the other row cured to make a half pound sample of hay at the time when the first pods are yellowing. The data I desire kept with these are as follows:

"1. Date of planting. 2. Date of germination. 3. Date of blooming. 4. Date first pod ripens. 5. Date all of most of the pods are ripe.

"Also please notice carefully whether all of the plants behave uniformly or whether there are any variations. In this case make careful note of the variations.

"These same things are being grown at New London, Ohio; Chico, California, and Chillicothe, Texas, the idea being to determine whether there is any local effect of the soil or climate which affects the chemical character of the seeds or of the hay. The experiments are to continue at least three or four years, interchanging the seed each year between the different places.

"Very truly yours,..."

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-29. Box 92—Morgan-Morse.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., March 2012. Address: Agrostologist [Bureau of Plant Industry, USDA, Washington, DC].

287. *USDA Bureau of Plant Industry, Inventory*. 1912. Seeds and plants imported during the period from April 1 to June 30, 1911. Nos. 30462 to 31370. No. 27. 99 p. May 31.

• **Summary:** Soy bean introductions: *Glycine hispida* (Moench) Maxim.

"30593-601. From Manchuria. Procured through Mr. Edward C. Parker, Agricultural Experiment Station, Mukden, Manchuria. Received April 19, 1911. Seeds of the following; quoted notes by Mr. Parker:

"30593. 'Yellow. Chinese name *Huang tou*. Sample collected at Ninguta, in Kirin Province, 45° north latitude. Ninguta is a Chinese town about 10 miles south of the Trans-Siberian Railway and halfway between Harbin and Vladivostok. The Ninguta beans are famous as seed beans, large quantities being distributed among the Chinese in Kirin province for seed purposes. The date of maturity for this variety is the last weekend in September, the crop having occupied the land about 130 days. This variety is known to have been grown in the Ninguta district for 40 years, or since the time the country was opened for settlement. Chinese state that the variety is prized for its thin skin, heavy weight per bushel, and its high oil content.'

"30594. 'Green. Chinese name *Ching tou*. Sample collected at Ninguta (See No. 30593). No information is

available concerning time of maturity or special qualities of this varieties. It has been grown at Ninguta for about 40 years.'

"30595. 'Big, round, green. Chinese name *Tah ching yuan tou*. Sample collected at Antung, in southeast Shengking [Liaoning] Province, 40° north latitude. Antung is west of the Yalu River, which divides Chosen (Korea) and Manchuria. No information is available concerning the time of maturity, special qualities, or length of time this variety has been grown in the Antung region. From my own observations, however, I will say that the green soy beans of the Antung region require more time to mature than the small, yellow soy beans of the north. Antung has been settled by Shantung Province people for about 75 years and the variety is doubtless somewhere near the same age. The first recorded exports of soy beans from Manchuria took place from a port in this region (Takushan) about the year 1830.'

"30596. 'Small, round, green. Chinese name *Hsiao ching yuan tou*. Sample collected at Antung (See No. 30595).'

"30597. 'Big, iron corner, green. Chinese name *Tah tie chiao ching tou*. Sample collected at Antung (see No. 30595).'

"30598. 'Small, iron corner, green. Chinese name *Iliao tie chiao ching tou*. Sample collected at Antung (see No. 30595).'

"30599. 'Compact, round. Chinese name *Chin yuan tou*. Sample collected near Ninguta. Probably the same variety as the 'yellow soy bean' (No. 30593). No description can be furnished other than that given under that number.'

"30600. 'Compact, round. Chinese name *Chin yuan tou*. Sample collected at Shuangchengfu in Kirin Province, 45° north latitude. Shuangchengfu is a Chinese town about 40 miles south of Harbin on the Southern division of the Russian railway. One of the most extensive and fertile soil areas in Manchuria is tributary to Shuangchengfu. This variety is undoubtedly the same common stock as Nos. 30593 and 30599. It matures in about 130 to 140 days and is prized (according to Chinese report) for its thin skin, heavy weight per bushel, and high oil content. It has been grown in this district for about 40 years.'

"30601. 'Compact, round. Chinese name *Chin yuan tou*. Sample collected near Petuna, southwest of Harbin, at the confluence of the Nonni and the Sungari rivers, about 45° north latitude. Soy beans have not been grown more than 15 years in this district because the land was held until recently as an imperial preserve. The variety is doubtless the same common stock as Nos. 30593 and 30599.'

"30744/30748. From Wulukai, 20 miles north of Kirin, the capital of Kirin Province, Manchuria, 44° north latitude. Procured by Mr. Edward C. Parker, agriculturist, Bureau of Agriculture, Industry, and Commerce, Mukden, Manchuria. Received May 3, 1911. Seeds of the following; quoted notes by Mr. Parker:

“30744-30747.

“30744. ‘Black-eyebrow soy bean. Chinese name *Hei mei tou*. This variety is classified by the Chinese as being medium late in date of maturity.’ Note: This is the earliest document seen (Aug. 2004) that uses the term “Black-eyebrow”; it is apparently a descriptive term rather than a variety name.

“30745. Yellow. ‘White-eyebrow soy bean. Chinese name *Pei mei tou*. This variety is classified by the Chinese as being late in date of maturity.’

“30746. Yellow. ‘Compact, round soy bean. Chinese name *Chin yuan tou*. This variety is classified by the Chinese as being late in date of maturity.’

“30747. ‘Big black soy bean. Chinese name *Tah hei tou*. This variety is classified by the Chinese as being very early in date of maturity. It is used principally as a feed for work horses and mules, also for bean curd and for oil production.’”

“30839-41. From Bengal, India. Presented by Mr. E.J. Woodhouse, Department of Agriculture. Received May 9, 1911. Seeds of the following:

“30839. Black.

“30840. Yellow.

“30841. Chocolate.

‘These varieties of soy beans are cultivated to a very small extent on the plains of Bengal, mostly north of the Ganges. They have probably spread outward from the Himalayas, as their vernacular name, *Bhetmas*, is the same as that used by the Bhutias. They have been grown here for two years and breed true; they have been analyzed by Mr. C.S. Taylor, agricultural chemist to the government, who finds that the black-seeded variety yields an average of 38.4 per cent of proteid (N x 6.3), the yellow variety 36.5, and the chocolate 32.6. They are all decumbent plants with small violet flowers and with the upright end of the branches more twining. The black-seeded variety is not so tall growing and has rather small bullate leaves, so that can be easily distinguished in the field from the other two varieties. Plate II, fig. 2, of Bulletin 197, Bureau of Plant Industry, U.S. Department of Agriculture, gives a fair idea of the vegetative stage of the chocolate and yellow seeded varieties.

“‘The seeds are sown here in June at the break of the monsoon and are harvested in December. The plants die out very easily if water-logged early in growth and yield badly if the moisture fails at the flowering season.’ (Woodhouse.)” Address: Washington, DC.

288. Etheridge, W.C. 1912. Report of Division of Agronomy. *North Carolina Agricultural Experiment Station, Annual Report* 34:16-21. For the year ended June 30, 1911. See p. 17-18.

• **Summary:** Variety testing: Peas and beans. “Among the varieties of soy beans in 1910 Hollybrook, Haberlandt, and Jet were in the lead, 22.9, 22.5, and 19.5 bushels per acre. Jet, Guelph, Ebony, Amherst, Kingston, and Haberlandt

are the earliest maturing varieties. Mammoth Yellow is a better variety for hay than any of the others. Jet, Amherst, Kingston, Haberlandt, and Guelph do not ripen uniformly and on this account it is practically impossible to gather all their seed because the pods that are more forward in ripening split and shatter their seed before the other pods mature. These varieties would make an excellent pasture for hogs. They grow in short, thick, heavily fruited bunches, and if planted with a drill or broadcast would make a very heavy yield of seed...

Fertilizer tests were done on corn and cotton with phosphate slag and phosphate rock. “Under test last year were [the commercial products] Solubilized Organic Nitrogen, Potash Manure, Beet Refuse Compound, and Calcium Cyanamid. These were tested in comparison with the better known nitrogenous materials, Dried Blood, Sulphate of Ammonia, and Nitrate of Soda.” Peruvian Guano was also used.

Etheridge was later a soybean pioneer in Missouri.

Note: This is the earliest English-language document seen (Oct. 1999) that mentions the application of slag or phosphate slag, as a fertilizer, to soy beans. Address: Assoc. Agronomist [West Raleigh, North Carolina].

289. Maynard, Lester. 1912. Manchurian trade and commerce: Harbin. *Daily Consular and Trade Reports (U.S. Bureau of Manufactures, Department of Commerce and Labor)* 15(214):1281-91. Sept. 11.

• **Summary:** This report is filed by four different U.S. consuls from Harbin, Antung, Dairen, and Newchwang—starting with Harbin. “The Harbin consular district includes all of North Manchuria north of Changchun and Kirin, and is bounded on the west by Mongolia and Siberia, on the north by the Amur River, and on the east by the Maritime Provinces of eastern Siberia. Harbin, the chief commercial center, is on the banks of the Sungari River and at the junction of the main line of the Chinese Eastern Railway with the branch running south to Changchun, which connects with the South Manchuria Railway. This location, in the center of the soya-bean area of Manchuria, accounts for its rapid growth and prosperity.”

“As the customs statistics of the five customhouses of North Manchuria do not cover the entire foreign trade of this [consular] district, a careful estimate has been made of the value of the imports and exports through Changchun and Kuangchengtzu, which are the junction points of the South Manchuria and Chinese Eastern Railways.” A large table (p. 1284) shows northbound and southbound movement of goods. For example, 90 tons of “Soy” [sauce] worth \$5,450 was northbound. Beancake (1,366 tons), [soya] beans (289 tons), small red beans ([azuki], 16,628 tons) were all southbound.

“By far the most important increase in the exports of this district was that of \$5,014,495 in soya beans, which was due

to increased shipments as well as to a substantial increase in market value.”

A table (p. 1286) shows the value in 1910 and 1911 of the principal exports of native goods to foreign countries through the customhouses of Aigun, Harbin, Manchouli, Sansing, and Suifenhö [Suifenhe]. During these two years: Bean cake decreased from \$146,371 to 124,674. [Soya] Beans increased from \$3,591,197 to \$8,965,692. Oil, [soya] bean and hempseed decreased from \$539,524 to 351,154.

The section title “Soya beans” states (p. 1286-87): “Practically the entire soya-bean crop of North Manchuria is shipped over the Chinese Eastern Railway through Suifenhö, for exportation from Vladivostok. All the beans shipped from that port come from North Manchuria, so that the exports from Vladivostok give the most accurate figures obtainable of the foreign shipments of North Manchurian beans.” “The southern movement of soya beans through Kuangchengtzu and destined for the oil mills of South Manchuria or for exportation from Dairen or Newchwang is relatively small... To take advantage of the lower freight rates of the South Manchuria Railway, which are designed to encourage the exportation of beans through Dairen, farmers in the southern part of this consular district cart their beans to Changchun rather than ship them north to Vladivostok via Harbin.”

“Scattered throughout this district are a number of small oil mills, but the methods used are very crude and the production is only sufficient for local consumption.”

“The Sungari River, the largest watercourse in North Manchuria, is navigable from the southern to the northern end of this district and as a trade route ranks second to the Chinese Eastern Railway. In 1911 the total number of vessels entered and cleared at the river customhouses of Harbin, Aigun, and Sansing was 8,600 or 965,053 tons. Of these, 2,142 of 837,749 tons were Russian steamers, 46 of 11,081 tons were Chinese steamers, and 6,412 of 116,173 tons were Chinese junks.” “The United States purchases a very small amount of Manchuria’s exports.” Address: Consul.

290. Yabe, Yoshitada. 1912. Minami Manshû shokubutsu mukuroku [An enumeration of plants hitherto known from South Manchuria, &c.]. Dairen, Manchuria. South Manchuria Railway Co. xvi + 184 p. See p. 79. Illust. Map. Series: Central Lab. S. Manchurian Railway Co. [Jap]*

291. Fuerst, Valentin. 1912. Weitere Beiträge zur Ätiologie des experimentellen Skorbutus des Meerschweinchens [Further contributions to the etiology of experimental scurvy in guinea pigs]. *Zeitschrift fuer Hygiene und Infektionskrankheiten* 72:121-54. [14* ref. Ger]

• **Summary:** The author was the first to show that whereas dry cereals or pulses (e.g. oats, barley, lentils, peas, and beans) are unable to prevent scurvy, they nevertheless acquire antiscorbutic properties if soaked in water or allowed to germinate for 2-3 days. Note: These results were later

confirmed at the Lister Institute as regards pulses.

Pages 149-50 mention “Glutencakes.” Page 153 mentions sprouted *Phaseolus radiatus* (probably azuki beans). Address: Assistenten der Medizin, Klinik B des Reichshospitals in Christiania; Aus dem hygienischen Institut der Universitaet Christiania [Oslo, Norway?].

292. Hartwell, Burt L.; Pember, F.R. 1912. The gain in nitrogen during a five-year pot experiment with different legumes. *Proceedings of the Society for the Promotion of Agricultural Science* 32:43-46. For the year 1911. Held 13-14 Nov. 1911 at Columbus, Ohio.

• **Summary:** Soy beans and adzuki beans were among the legumes tested. No nitrogenous manures were used during the 5 years, beginning in 1906, but optimum amounts of other nutrients were supplied. The soy bean added the equivalent of 1,844 lb/acre of nitrogen to the soil. This nitrogen is worth \$0.16 per lb. 70% of this nitrogen is removed when the plants are harvested; the rest is left in the soil. Address: Rhode Island Experiment Station.

293. Iinuma, Yokusai [Chôjun]. 1912. Zôtei sômoku zusetsu. Kusa-bu Sômoku-dzusetsu; or an iconography of plants indigenous to, cultivated in, or introduced into Nippon (Japan). Part I. Herbaceous plants. Revised and enlarged by Omitaro Makino. 3rd ed. III (Vol. 11-15). Tokyo: Seibidô (Tôri 3-chôme, Nihonbashi-ku). See vol. XIII, p. 929, 945-51, 964 (p. 1, 17-23, 36 in this volume’s pagination). [Jap; eng]

• **Summary:** This work consists of 20 volumes bound in 4 physical volumes. Volume I (containing vols. 1-5) was published in 1907, Vol. II (vols. 6-10) in 1910, Vol. III (vols. 11-15) in 1912, and Vol. IV (vols. 16-20) also in 1912. Soybeans are discussed only in Vol. III (vol. 13).

The English-language title page lists the author’s name as Yokusai Iinuma but it is often catalogued as Chôjun Iinuma; he lived 1782-1865. Omitaro Makino was a “Lecturer in Botany in the Science College, Imperial University of Tokyo.” The text, a taxonomy of the soybean and its varieties, is mostly in Japanese, but with key terms romanized and simple illustrations (line drawings) describing the various varietal shapes. For each species, the text is on pages with Arabic page numbers, while the illustrations (line drawings) are on pages with only Japanese page numbers. Three main species of soybeans are listed, all members of the genus *Glycine* and the family Leguminosae:

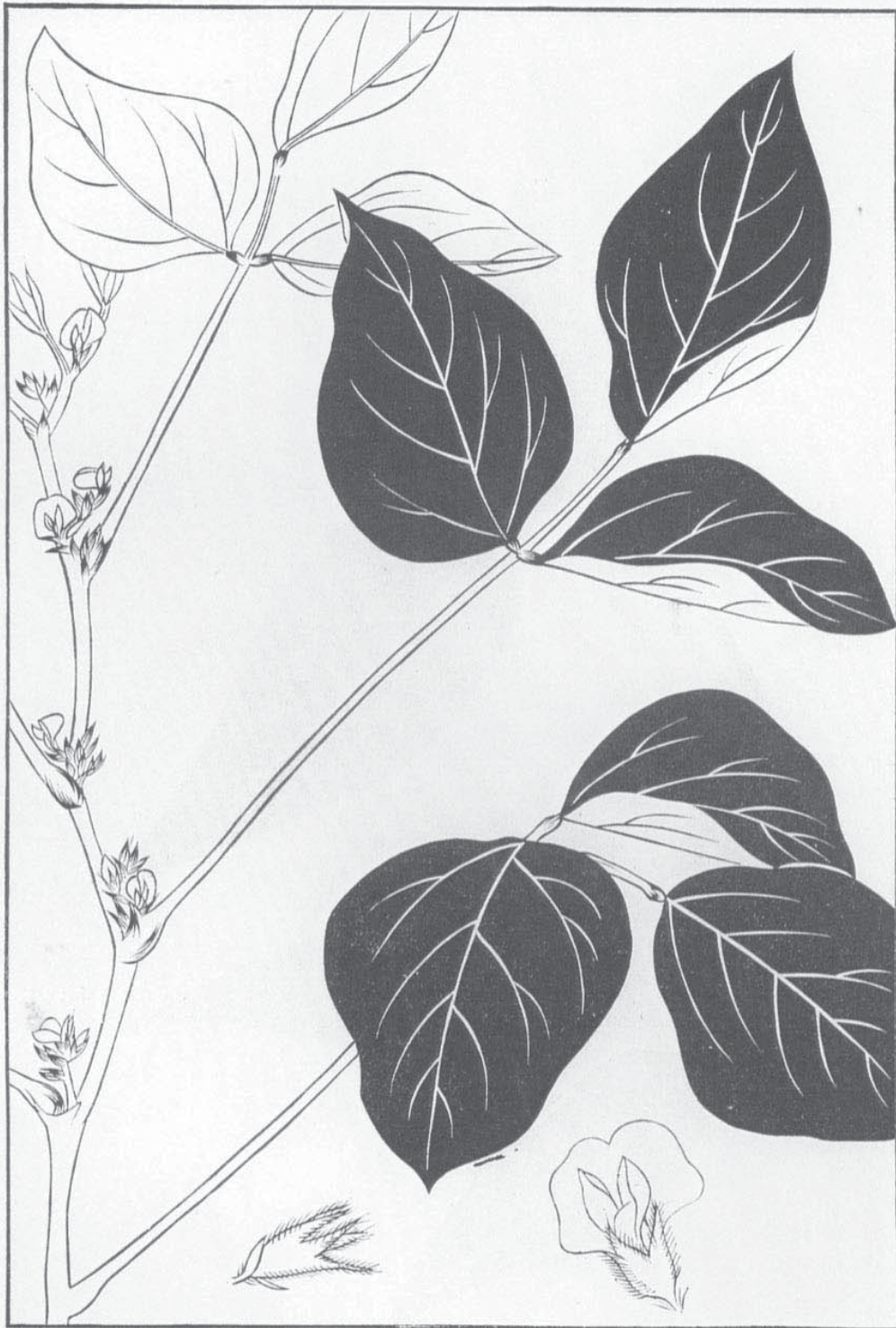
(1) *Glycine Soja* Benth. (the cultivated soybean; ôname, mame). Text: p. 945-51. Illustration: (Ch. 13, Pl. XVII, p. 793). Also called: *Dolichos Soja* or *Japansche Slingerboon*. It has 15 forms, each based on the seed shape and color, and first named by Makino. Two simple illustrations (line drawings) show the shape, and hilum size and location, of each soybean form. Note that *mame* means “bean” in Japanese: Forma Gogatsu-mame (5th month bean), Forma

卷十三 第十七圖版

13. Pl. XVII.

草部
マメ科
(豇科)

七九三



オホマメ (Ō-mame)
Glycine Soja Benth.

Wase-mame, Forma Nakate-mame, Forma Okute-mame, Forma Maru-mame, Forma Shiroteppo-mame, Forma Kuro-mame (black soybean), Forma Kuroteppo-mame, Forma Goishi-mame, Forma Aomame (green soybean), Forma Kage-mame, Forma Aka-mame (red soybean, with 4 additional forms and colors), Forma Chamame (brown soybean, with 2 additional forms and colors), Forma Kurokurakake-mame, Forma Akakurakake-mame, Forma Fuiiri-mame [speckled].

(2) *Glycine Soja* Benth. *forma lanceolata* Makino. (*midzu-kugiri*). Text: p. 951. Illustration: p. 794 (Ch. 13, Pl. XVIII, p. 794).

(3) *Glycine ussuriensis* Regel et Maack. (wild soybean; *Tsuru-mame*). Text: p. 964. Illustration: p. 808 (Ch. 13, Pl. XXXII, p. 808).

Vol. III also discusses: *Pueraria lobata* (kudzu; *kuzu*). Text: p. 954-55. Illust.: p. 798. *Arachis hypogaea* (the peanut; *rakkase*, *nankin mame*). Text: p. 971. Illust.: p. 816. *Sesamum indicum* (sesame seeds; *goma*). Text: p. 854-56. Illust.: p. 696. *Phaseolus radiatus* L. *var. aureus* Prain. (*adzuki*). Text: p. 956-58. Illust.: p. 800. Forma Natsuadzuki Makino. Forma Akiadzuki. Forma Oadzuki. Forma Udzuraadzuki. Forma Hokorikadzuki. Forma Shiroadzuki. Forma Akaadzuki. *Phaseolus radiatus* L. *var. flexuosus* Matsum. (*tsuru adzuki*). Text: p. 959. Illust.: p. 801. *Dunbaria villosa* Makino. (*no-adzuki*). Text: p. 964. Illust.: p. 809.

Note: The is the earliest document seen (Oct. 2004) that uses the word “Forma” in connection with soybean variety names. Address: Japan.

294. McCay, David. 1912. The protein element in nutrition. London: Edward Arnold; New York: Longmans, Green & Co. xv + 216 p. Illust. Index. 22 cm. Series: International Medical Monographs. [30+* ref]

• **Summary:** Indian legumens [legumes], with their Indian and scientific names, include the following dals (p. 57): Arhar dal (*Cajanus indicus*). Massur dal (*Erbum lens*). Gram dal (*Cicer arietinum*). Mung dal (*Phaseolus mungo*). Mattar dal (*Pisum sativum*). Kalai dal (*Phaseolus radiatus*). Urid dal (*Phaseolus radiatus*). “These dals all resemble the European pea in appearance, but vary considerably in size.” A table (p. 57) gives the protein, carbohydrates, and fat content of each. The soy bean is not included.

In Asia, these legumens play a very important in the dietaries of the people, “and take the place of animal food to a considerable extent. They are extensively used all over India and the tropics, and one member, the soy bean, has been employed for centuries by the Chinese and Japanese in the manufacture of food preparations. Taking the different countries together, they rank next to wheat and maize [corn] in importance among vegetable foods, and as a source of protein are superior to most of the cereals. The chief protein of the pulses is legumin,...” (p. 58).

A married vegetarian couple is mentioned on p. 118.

The author sides with Voit (against Chittenden) in advocating a relatively high protein requirement per kg (or pound) of body weight. David McCay was born in 1873. Address: Major, M.B., B.Ch., B.A.O., M.R.C.P., I.M.S., Prof. of Physiology, Medical College, Calcutta [British India].

295. Ingle, Herbert. 1913. A manual of agricultural chemistry. 3rd ed. Revised and largely rewritten. London: Scott, Greenwood & Son. vii + 397 p. Feb. Illust. Index. 23 cm. 1st ed. March 1902. [soy ref]

• **Summary:** In Chapter 12, “Crops,” the section on “Leguminous seeds” (p. 241) simply mentions: “*P. radiatus*, Adzuki beans; *Glycine hispida*, Soy or Soja beans;...” A table (p. 242) gives the general composition of 15 leguminous seeds, incl. soy beans, cow peas, pea nuts, and three kinds of lupines.

In Chapter 14, “Foods and Feeding,” the section on “Bye-products from oil-bearing seeds” includes (p. 282-83) a comparison of the composition of: Decorticated cotton-seed cake, earth-nut or pea-nut cake, soy-bean cake, almond cake, and sesame cake. One multi-page table of digestion coefficients shows the following for ruminants (p. 288-89): Soja beans: Protein 89%, carbohydrates 69%, fat 90%, and crude fibre 36%. Soja bean straw: Protein 50%, carbohydrates 66%, fat 60%, and crude fibre 38%. Another multi-page table shows the composition of food-stuffs, including both total constituents and digestible constituents (p. 292-95). Values are given for many crops, incl. Soja beans, soja bean hay, almond cake, earth-nut cake, sesame cake, and lupines (blue or yellow).

Also discusses: Pea Nuts, Ground Nuts, or Monkey Nuts (*Arachis hypogaea*, p. 241-42). Lupines (*Lupinus spp.*, p. 242). Flax or linseed (p. 243). Address: B.Sc. (Leeds), Scarborough [North Yorkshire, England]. Formerly lecturer on agricultural chemistry at the Leeds Univ. Also chief chemist to the Transvaal Dep. of Agriculture.

296. Sessions, H.A. 1913. Crops for vineyards: cow peas and other legumes for adding fertility in orchards and vineyards. *Pomona Progress* (Pomona, California). March 15. p. 15.

• **Summary:** “Gain in Nitrogen: The amount of nitrogen which may be added to the soil through the growing of cover crops is almost beyond belief. The best demonstration of this I know is described in a bulletin issued by the Rhode Island State College of Agriculture as follows:

“Vetch was grown in all the pots each winter in the greenhouse and was mixed with the soil at blossoming time. This was followed separately each summer by the cowpea, soy bean, white podded adzuki bean and crimson clover. Summer legumes, exclusive of the roots, were usually removed from the soil and their nitrogen content determined.

“The amount of nitrogen was determined in the soil at the beginning and the end of the five-year experiment,

in the seeds and other material added, as well as in those crops which were removed. From these data the net gain of nitrogen was ascertained.” Address: Fresno, California.

297. Suzuki, U.; Shimamura, T.; Odake, S. 1913. Ueber Oryzanin, ein Bestandteil der Reiskleie und seine physiologische Bedeutung [On Oryzanin, a component of rice bran and its physiological significance]. *J. of the College of Agriculture, Tokyo Imperial University* 1(4):381-474. March. [23 ref. Ger]

• **Summary:** The writers coin the name Oryzanin for this unknown enzyme in rice bran. They found that an enzyme called phytase splits phytin. Phosphoric acid (P_2O_5) is one of the essential manurial elements.

Azuki beans are the subject of trial 8 (p. 464-66). Soybeans are the subject of trial 9 (p. 466-68). Miso and shoyu (soy sauce) are the subjects of trial 15 (p. 472-73). At the end are English-language suggestions for further research. Address: Japan.

298. Griffis, William Elliot. 1913. *The Mikado's empire*. 2 vols. New York, NY: Harper & Brothers, Publishers. 754 p. Illust. Index. Map. 23 cm.

• **Summary:** The material in this book up to page 578 is identical (page for page) to that in the 1876 edition. Thereafter begins “Book III: Supplementary chapters, including history to the beginning of 1912”—about 129 pages of new information in the following chapters:

1. Japan in 1883. 2. Japan in 1886. 3. Japan in 1890. 4. Japan in 1894. 5. War with China (Sino-Japanese War, 1894-1895). 6. Facing the twentieth century. 7. Japan a world power (including a detailed description of the Russo-Japanese War, 1904-1905). 8. Japan on the Asian continent. A separate index covers this supplementary material; soy is not mentioned.

The author reveals his basic viewpoint on the last page of this book (p. 734) by expressing his fervent hope that all of Japan's traditional religions will be “transformed by the spirit of Christ.” Address: D.D., L.H.D., Late of the Imperial Univ. of Tokio; presently in New York.

299. Wilson, Ernest H. 1913. *A naturalist in Western China, with vasculum, camera, and gun: Being some account of eleven years of travel, exploration, and observation in the more remote parts of the flowery kingdom*. 2 vols. London: Methuen & Co. Ltd. See vol. 2, p. 49, 54-56, 61, 87-88. Introduction by Charles Sprague Sargent, LL.D. Illust. Index. 23 cm.

• **Summary:** In volume 2, chapter VI (p. 48-63) is titled “Agriculture: The principal food-stuff crops.” “The Chinese nation is to a very large extent vegetarian, flesh being eaten only in small quantities except on festival occasions... The Chinese fry most of their vegetables, and for this purpose a vegetable oil is nearly always used. The oils expressed

from members of the Cabbage (*Brassica*) family [such as rapeseed], the Soy Bean (*Glycine hispida*), and Sesamé (*Sesamum indicum* [sesame]) being most in request” (p. 49). The seeds of ground-nut (*Arachis hypogaea*, called “Lao-hua-tsen”), opium poppy, sunflower, and cotton seed are also used as oilseeds (p. 61).

Beans are discussed on pages 55-56. “Since the Chinese are to such a large extent a vegetarian people, the various members of the pea and bean family are necessarily most important crops... The soy bean is everywhere a summer crop.” The country's most important legume, it is “planted everywhere—in fields by itself, around rice and other fields, and as an undercrop to maize and sorghum. It yields seeds in three colours, namely yellow, green, and black. The Chinese distinguish three kinds of the yellow and two kinds each of the green and black. These varieties yield a succession of beans, the black being fully a month later than the others. The ‘Huang-tou’ [yellow soybean] is cooked and eaten as a vegetable, or ground into flour and made into vermicelli; preserved in salt it makes an excellent pickle. It is also extensively used in the manufacture of soy sauce and soy vinegar. A variety with small yellow seeds is largely employed in making bean-curd [tofu]. While in Central and Western China the soy bean is cultivated exclusively as a food-stuff, in Manchuria it is grown almost solely for the oil which is obtained from the seeds by pressure, and for the residual-cakes that remain after the oil has been expressed. From Newchwang, the port of Manchuria, there is an enormous export trade done in ‘Bean-cake,’ which is in great demand as an agricultural fertilizer in all parts of China. The soy bean has recently been exported to Europe in large quantities and the soy-bean oil is employed in soap making and for culinary purposes.

“Two kinds of Gram, *Phaseolus mungo*, ‘Lu-tou’ and *P. mungo*, var. *radiatus*, ‘Hung-tou,’ are grown as summer crops. The seeds of the ‘Lu-tou’ (green bean [= mung bean]) are especially valued for their sprouts... Of the ‘Hung-tou’ (red bean [azuki bean]) there are two or three varieties. The seeds of these are used as a vegetable or ground into flour and employed for stuffing cakes and sweetmeats.”

“Both sesamum and soy bean are cultivated extensively in Western China, but for local consumption only. The large exports of these products that pass through Hankow [located on the Yangtze River near Wuhan and Wu-ch'ang] are brought down by the Peking-Hankow railway. Szechuan is capable of growing enormous quantities of these valuable plants, but cheaper and better facilities for transport are necessary before the products can become articles of external trade. When the much-discussed Hankow-Szechuan railway is *fait accompli* the raw products of the west will be available as articles of export, and a much-needed stimulus given to the agricultural industries of the regions concerned” (p. 87-88).

Note: *Webster's Dictionary* defines vasculum (derived

from the Latin meaning “small vessel”; the term was first used in 1844) as “a usually metal and commonly cylindrical or flattened covered box used in collecting plants.” Address: V.M.H., England.

300. Yamazaki, F. 1913. February festivals. *Japan Magazine (The): A Representative Monthly of Things Japanese* 4:607-08.

• **Summary:** “Hatsu-uma, the first horse day in the month, is another festival of February, so called because Japanese weeks in the year are given the names of animals, such as the ‘rat,’ the ‘ox,’ the ‘tiger,’ the ‘rabbit,’ the ‘dragon,’ the ‘snake,’ the ‘horse,’ and so on. The festival is really in honour of the god *Inari*, whose shrines may be seen in every part of the country, distinguished by their red torii and fox guardians. *Inari* is the guardian of the rice fields; he corresponds with the deity known as *Ceres* in ancient Roman mythology.

At the shrine of *Inari* in Yamashiro there is a great festival on this day: “There is a good deal of drum-beating and dancing the *kagura*. *Hatsu-uma* is decidedly a children’s day; for they have the time of their lives. There is a good deal of feasting as well as play. Rice and red beans are cooked, as well as *aburage*, a bean curd, fried. It is not to be wondered that *Inari* is a very popular deity, since he gives the crops and enables the younger generation to have much pleasure.”

301. Piper, C.V. 1914. Re: Please get negatives ready to ship to photographer. Letter to Miss Buckley, Forage Crop Investigations, Bureau of Plant Industry, USDA, Washington, DC, Jan. 5. 1 p. Typed, with signature on letterhead.

• **Summary:** Dear Miss Buckley: Will you kindly have the following list of negatives gotten together for me and advise me when they will be ready to send over to the photographer:”

Prof. Piper requests negatives for up to 8 varieties of sorghum, soy beans, cowpeas, brome, millet, alfalfa, melilotus, Rhodes grass, orchard grass, Lablab grass, Hairy vetch, baling, disking, tedding, mowing, haying, proso millet, peneillaria, Reed canary, adzuki bean, mung bean, Pisum, Pea pratensis, crimson clover, red clover, white clover, grass pea [*Lathyrus sativus*], bur clover.

The numbers of the soy bean varieties are: 8322, 8269, 8310, 8306, 7794, 4162, 8291, 2664, 2467 [?].

“Yours very truly, Agrostologist.”

Note: It is not clear what sort of numbers these are and by whom they were assigned. Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-1929. Piper, C.V. Box no. 108.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., April 2017. Address: Agrostologist, USDA Bureau of

Plant Industry, Forage Crop Investigations.

302. Anderson, George E. 1914. Soya bean as food in China. *Daily Consular and Trade Reports (U.S. Bureau of Manufactures, Department of Commerce and Labor)* 17(23):362-63. Jan. 28.

• **Summary:** “The soya bean is not [sic] generally used for food by the Chinese, though at times it is so used, and its use seems to depend largely upon whether or not supplies of the more usual food products of the people can be had at prices within their reach rather than upon any element of preference. Various other beans, notably a large flat white bean, are used extensively both in the manufacture of flour and as bean ‘curd.’”

Note 1. Virtually all beans used to make ‘bean curd’ in China and worldwide are soya beans.

“Soya bean has been raised by the Chinese chiefly for its oil and for the residue, known as ‘bean cake,’ for fertilizer. Its cultivation on so large a scale as that witnessed in Manchuria in recent years is a matter of development in the past five years or so and represents the response of Chinese farmers to the demand of Europe and the United States for cheap vegetable oil rather than any great Chinese production in the first place.”

“The varieties of beans and their uses: There are six varieties of beans commonly grown in North China and shipped more or less extensively to this part of the country and also grown to some extent in South China as well. These varieties are distinguished among the Chinese by their colors and are known as the yellow, the green, the black, the red, the white, and the small green. Of these, the yellow, green, and black are soya beans and are distinguished from the others by their size and ovoid shape. The red bean [*xiaodou*, *azuki*] is used by the people as food in much the same shape it is used in other parts of the world, being used largely while green, the pods and all being cooked and served, chopped, with oil or other dressing.

“The white bean is used for the manufacture of a cheap meal or flour like other beans, but is used chiefly in manufacture of what is known as ‘bean curd,’ one of the most common food products used by the people of central and northern China and used to some extent in South China. The beans are partially cooked and are then ground in a stone mill which often is one of the picturesque features of a Chinese village picture, the mill consisting of a large millstone set in a stone cup, operated by a buffalo or donkey passing around and around the mill, turning the heavy stone directly by a beam it draws. With these beans as they are ground a considerable quantity of water is mixed and the ground product is gathered on a tray and is drained of most of the water. It partially solidifies or rather ‘jellies’ or ‘curds.’ When drained it is cut in slices and is eaten with soy sauce, which in itself is the fermented liquor of ground soya beans, ripened for several months. This curd also is dried to a fair

degree and is made into cakes, which are fancifully stamped with red or yellow designs or characters, and are sold in shops as cakes. The curd, as it is freshly made, sours in a comparatively short time, while the dried cakes keep longer.

“A substitute for flour—soy sauce: The use of the soya beans, properly so called, as human food among the Chinese is comparatively small, and is, as above indicated, more in the way of substitution. Whenever wheat flour from abroad or from north or central China itself rises in prices beyond the convenient reach of the average Chinese consumer, beans of various sorts, including the soya bean, are brought into use in the manufacture of a substitute. For such purposes the small green variety of soya beans are usually employed in South China, though apparently other varieties are also used in the north, and the small black variety is sometimes used in Canton. Considerable quantities of such flour are imported into Hongkong at times, but the Chinese of South China regard such flour as a substitution, however, and it is not popular.

“Bean oil, of course, which constitutes on an average substantially 20 per cent of the soya bean, is used for all purposes by the Chinese, both as food and as illuminant, and at times in paints. As a food it is used in substantially the same way, and with more or less interchanging with peanut oil, though the bean oil is less readily absorbed by articles cooked in it.

“Soy, the Chinese sauce which is the basis for most modern table sauces, is manufactured extensively in Hongkong from the soya bean, the process simply being that of grinding the beans and mixing the meal with water and a Chinese yeast. The mixture is then allowed to stand for from three to four months, the resulting liquor being the sauce. The United States imports about \$50,000 worth of soy [sauce] annually from Hongkong in addition to quantities imported from Japan.” Address: Consul General, Hongkong.

303. Piper, C.V. 1914. Re: Mung beans and adzuki beans. Letter to W.J. Morse, [Arlington Farm, Rosslyn, Virginia], April 29. 1 p. Typed, without signature (carbon copy).

• **Summary:** “Dear Mr. Morse: Evidently somebody has been writing an article on the mung bean in one of your papers. I would suggest that you send to each of the correspondents a package of adzuki beans, and if we have them to spare also a small package of mung beans.

“Yours very truly,...”

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-29. Box 92—Morgan-Morse.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., March 2012. Address: Agrostologist in Charge, [Bureau of Plant Industry, USDA, Washington, DC].

304. Oshima, Kintaro; Ariizumi, Katamatsu. 1914. Mame-ruishujitsu-chû kureachinin no sonzai ni tsuite [On the presence of creatinine in beans]. *Tokyo Kagaku Kaishi (J. of the Tokyo Chemical Society)* 35(4):383-91. April. [4 ref. Jap]

• **Summary:** Includes analyses of azuki beans, black soybeans, and yellow soybeans. He discusses previous research by Sullivan (1911), Skinner (1912), Jaffé, Weyl, and Salkowski.

Note: *Webster's Dictionary* defines creatinine, a term first used in 1851, as “a white crystalline strongly basic compound $C_4H_7N_3O$ formed from creatine and found especially in muscle, blood and urine.” Address: 1. Nôgaku-hakushi; 2. Nôgakushi. Both: Japan.

305. Piper, C.V. 1914. The name of the soy bean: a chapter in its botanical history. *J. of the American Society of Agronomy* 6(2):75-84. April. Includes long letter by Sir David Prain. [4 ref]

• **Summary:** Note 1. This is the earliest document seen (March 2021) that gives the soybean the name *Soja max*. It shows conclusively that the oldest specific name for the soybean is *Phaseolus max* L. and indicates that because all but one of the original species of the genus *Glycine* L. having been removed from the genus, the generic name *Soja* should be taken up.

It contains a lengthy analysis of the evolution of soybean taxonomy and of the name, starting with Linnaeus' early classifications of *Phaseolus max*, *P. radiatus*, and *P. mungo*, and including a lengthy elucidation by Sir David Prain, director of the Royal Botanic Gardens, Kew, of how and why Linnaeus had initially confused the soybean and mung bean, then later corrected his confusion. Linnaeus eventually realized that the plant he had described as *Phaseolus max* was the same as the one he had named *Dolichos Soja*.

Prain noted: “It is very fortunate that Linnaeus's specimen of *P. max* came from *Hortus Cliffortianus* because it so chances that this is one of the Cliffortian plants of which there is no example in the British Museum. The record that the plant was grown in *Hort. Cliffort.* from seed secured in Virginia is one as to which I must leave you to decide upon the accuracy of. All that I know is that whether the plant was raised from seed secured in Virginia or not Linnaeus was perfectly well aware that the species in question is a native of the old world.”

“As regards *P. mungo* L. the fact remains that whatever may have been the origin of the plant he describes, no specimen appears ever to have been added by Linnaeus to his herbarium and all that we are justified, by the evidence available, in assuming is that Linnaeus, in 1767, as already in 1753 deemed *Mungo* the precise equivalent of *Max*. If this be so, it may very fairly be asked why, in 1753, did Linnaeus use *Max* in preference to *Mungo* and why in 1767 did he drop *Max* and use *Mungo* instead?

“The answer in both cases seems to me self evident.

Of the two synonyms *Mungo* and *Max*, clearly *Max* was the oldest because *Mungo* occurs for the first time in Garcia del Huerto while *Max* goes back to Avicenna. Linnæus chose *Max* because of its greater age.

“In the other case Linnæus in all good faith supposed that “Buncæ” of Hermann and the plant he saw in Clifford’s Garden were the same thing as *Mungo* and *Max*, at the time he wrote the *Flora Zeylanica*. He had no suspicion that the plant he had described was different from the plant who name he had adopted when he published the first edition of the *Species Plantarum* in 1753. He was still unconscious of the extraordinary blunder he had committed when he published the second edition in 1763. But some time after he had published the second edition of the *Species Plantarum* he obtained from some one seeds of the plant he had described in 1753 as *Dolichos Soja*. He raised plants from these seeds at Upsala [Uppsala, Sweden] and put specimens into his herbarium some time before 1767 when he for the first time recorded its existence in his collection.

“Linnæus was at last in a position to see that the plant he had described as *Phaseolus max* was the same as the one he had named *Dolichos Soja* and that the *Mungo* crop (*Mungo* or *Max*) was still without a name. It may be that in putting matters right Linnæus felt that to continue for the “*Mungo*” or “*Max*” crop the name *Max* might lead to confusion and that to obviate this confusion it was desirable to substitute the other name *Mungo*...

Piper concludes: “The fact that the name *Phaseolus max* belongs to the soy bean makes it necessary to revise the botanical designation of the latter plant. Inasmuch as the specific name *max* as applied to the soy bean appears on a previous page to the name *soja*, it has priority according to all botanical codes and hence must be adopted as the specific botanical name of the soy bean.

“In most botanical works the soy bean is called *Glycine hispida* (Moench) Maximowicz. By a few writers it is named *Soja hispida* Moench. The use of either of these names is based on the idea that the wild soy bean *Glycine soja* Siebold and Zuccarini or *Glycine ussuriensis* Regel and Maack is a different species. As Piper and Morse (*Bureau of Plant Industry, Bulletin* 197), have shown, this view is untenable, the wild and the cultivated plants representing but one species. The cultivated plant was first named *Dolichos soja* L. (*Species Plantarum*, 2:727, 1753), but as the specific name *soja* was used later by Siebold and Zuccarini for the wild plant, it has since been generally used in that sense. With the recognition of the fact that there is but one species and not two the name *Glycine soja* (L.) Siebold and Zuccarini designates the cultivated as well as the wild plant. But the specific name *soja* must now give way to that of *max*.

“Unfortunately there is also question as to the proper generic name to be attached to the soy bean. Nearly all botanists have used the name *Glycine* for the genus containing the soy bean and related species, but a few have

used *Soja*. *Soja* was proposed by Moench in 1794 and included only the soy bean.”

Page 84: The article concludes with this sentence: “Following this interpretation the soy bean must be named *Soja max*.”

Note 2. This is the earliest document seen concerning soybean cultivation in Sweden. This document contains the earliest date seen for soybeans in Sweden, or the cultivation of soybeans in Sweden (by 1767). The source of these soybeans may have been Clifford’s Garden in the Netherlands. Address: U.S. Dep. of Agriculture, Washington, DC.

306. Oshima, K.; Ariizumi, M. 1914. On the occurrence of creatinin in leguminous seeds. *J. of the College of Agriculture, Tohoku Imperial University* 6(2):17-25. June. [7 ref. Eng]

• **Summary:** “The presence of creatinin was confirmed for the first time, in the seeds of Adzuki bean, black soy bean, yellow soy bean, kidney bean, horse bean and green peas. The amounts of creatinin in the seeds of Adzuki bean, kidney beans and soy beans are apparently in much larger quantity than in horse bean and green peas, though its absolute amount seems to be very small.” Address: Japan.

307. Hanson, George C. 1914. Commerce and industries of Kwantung. *Daily Consular and Trade Reports (U.S. Bureau of Foreign and Domestic Commerce, Department of Commerce)* 17(153):7-17. July 1. See p. 11-12, 15-16.

• **Summary:** “The Dairen (Dalny) consular district embraces the Kwantung Leased Territory (Japanese), comprising the tip of the Liaotung Peninsula and the islands adjacent thereto... Its area is 1,221 square miles and its population in 1913 was 517,147, of whom 469,651 were Chinese [90.82%], 47,381 Japanese [9.16%], and 115 foreigners.”

A table (p. 8) of “Foreign trade by countries” shows that the lion’s share of its imports (71.5% of gross value) come from Japan, followed by Germany, UK, Belgium, and USA.

A table (p. 11) shows “Shipments from Manchuria into Kwantung during 1912 and 1913, including: Bean cake 103,787 / 127,690 tons. [Soy] beans 553,438 / 622,205 tons. Beans (small=azuki) 16,794 / 16,297. Sauce, bean and soy 50 / 78 pounds.

The export trade in soybeans and products expanded. A table (p. 12) shows the “native exports” (to within China; quantity and value), including bean cake, [soy] beans, and bean oil.

The section titled “Last year’s improvement in bean trade—unfavourable outlook” includes a table which shows exports (incl. reexports) of [soy] beans and bean oil “in 1913, by countries of destination. Exports of bean cake to foreign countries increased in 1913 to 527,507 short tons, of which 520,947 tons went to Japan and the remainder to Chosen [Korea]. The amount shipped to Chinese ports was 38,629

tons in 1913, as against 76,172 in 1912.” “A large proportion of the bean oil shipped to Japan is transshipped to the United States.” Address: Vice Consul, Dalny (Dairen), Japanese Leased Territory.

308. *Journal and Tribune (The) (Knoxville, Tennessee)*. 1914. Japanese plant immigrant a desirable addition to agriculture. Aug. 10. p. 8.

• **Summary:** “A plant immigrant from Japan that seems likely to prove a most desirable addition to American agriculture, is the adzuki bean, which has been successfully grown on the government’s farm at Arlington, Virginia, and at many other places. Its most valuable feature lies in its large yield of seed. Owing to its texture, the bean is easily ground into meal or flour and has proven far superior to any other bean for that purpose. Its flavor is delicate and it lacks any objectionable ‘beany’ taste. The adzuki bean is a most popular food in Japan, and there seems no reason why a food so rich in protein should not become popular in the United States.

“The first adzuki bean brought to this country most probably the ‘red-seeded bean,’ which Commodore Perry brought back in 1854 after his famous trip to the Far East, when he first established communications between this country and Japan...”

Note 1. This long, interesting article is based on the following U.S. Department of Agriculture publication: Piper, C.V.; Morse, W.J. 1914. “Five Oriental species of beans.” *U.S. Department of Agriculture Bulletin* No. 119. 32 p. Sept. 2. However this newspaper article bears a slightly earlier date than the USDA bulletin, indicating that a summary of the article was sent to newspapers shortly before the bulletin was published—to get maximum exposure for the story and for adzuki beans.

Note 2. This same article appeared in *The Montgomery Advertiser* (Montgomery, Alabama). 1914 Aug. 10, p. 8; *St. Louis Globe Democrat* (St. Louis, Missouri). 1914 Aug. 10, p. 5; *The Paducah Sun-Democrat* (Paducah, Kentucky). 1914 Aug. 11, p. 4; *The Miami Herald*. 1914 Aug. 12, p. 4; *The Bridgeport Times and Evening Farmer* (Bridgeport, Connecticut). 1914 Aug. 13, p. 13; *The Pomona Progress* (Pomona, California). 1915 Feb. 13, p. 9; *The Honolulu Advertiser* (Honolulu, Hawaii). 1915 June 12, p. 2; *The Culver Citizen* (Culver, Indiana). 1920 March 10, p. 2; *The Pinckneyville Advocate* (Pinckneyville, Illinois). 1926 May 14. p. 6; etc.

309. Morse, W.J. 1914. Re: Report on continuation of trip to Alabama, Mississippi, and Louisiana. Letter to Prof. C.V. Piper, Washington, DC, Aug. 17. 3 p. Handwritten, with signature on Mississippi Agricultural and Mechanical College letterhead.

• **Summary:** Morse is apparently writing from Mississippi. “Dear Prof. Piper: On Monday, Aug. 9, I was at the Alabama

Experiment Station and found the forage crops in general rather poor due to the extreme drouth. A few of the soy bean varieties showed up rather promising where the planting was made a little early. The adzuki beans are a failure this year. Of the cowpeas the Buff catjang 22888 looked very promising. The amount of growth being good, very prolific, and the pods about all mature. Some late plantings of varieties of cowpeas also were making good growth. The Sudan grass is very much of a failure, very poor stands in all plantings and very little growth.

On Wed. I was at Prof. Tracy’s, Biloxi. Soy bean varieties 23211 and 23232 appear very promising and look like good varieties for Louisiana and Mississippi. Buff catjang of which Prof. Tracy has two lots looks very promising, giving a good plant growth, a good yield of seed and about 90% mature (sown June 2). I made some crosses between *Vigna lutea* and *V. Catjang* (22888). *Vigna lutea* is of rather a prostrate habit...

“On Saturday I was at the Louisiana Experiment Station, Baton Rouge. Although they have had a very dry spell there the soy bean varieties look very good. Some of the best at Monetta, South Carolina last year shown by the largest growth at this station though they are rather late. The buff catjang 22888 again shows up remarkably well... It looks very promising and all of the station people look to its use for their conditions. The station plans to do quite a little work with the soy bean as a silage crop. The adzuki beans show up very well here, both as to amount of fruit and plant growth.

“This week I expect to be at the following places:

“Monday, Aug. 17. Starkville, Mississippi.

“Tuesday, Aug. 18. Jackson, Tennessee.

“Thurs. Aug. 19. Columbia, Tennessee.

“Friday, Aug. 20. Knoxville, Tennessee.

“Sat. or Monday. Aug. 21 or 23. Lexington, Kentucky.

“Very truly yours,...”

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-29. Box 92—Morgan-Morse.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., March 2012. Address: Forage-Crop Investigations, Bureau of Plant Industry, USDA, Washington, DC.

310. Piper, Charles V. 1914. Forage plants and their culture. New York, NY: The Macmillan Co. xxi + 618 p. Aug. See p. 513-38. Illust. Index. 20 cm. Series: The Rural Text-Book Series, ed. by L.H. Bailey. [9 ref]

• **Summary:** Note: This is the best book on the subject to date. It was reprinted (with a new publication date but without changes) in 1916, 1919, and 1921.

Contents: 1. Introduction. 2. Preservation of forage. 3. Choice of forage crops... [chapters on various grasses (incl. Velvet grass {*Holcus lunatus*}), sorghums, and millets]. 4.

Seeds and seeding.

5. Meadows and pastures. 6. The statistics of forage crops (“In the same way as the straw of cowpeas, Canada and garden peas, soybeans and other leguminous seed crops has also a considerable value as forage,” p. 114). 7. Timothy. 8. Blue-grasses, meadow-grasses and redtop. 9. Orchard-grass, tall oat-grass and brome-grasses.

10. Other grasses of secondary importance. 11. Perennial grasses of minor importance. 12. Southern grasses. 13. Sorghums. 14. Millets and other annual grasses.

15. Alfalfa. 16. Red clover. 17. Other clovers—Alsike, Hungarian, White and Sweet. 18. Crimson clover and other annuals. 19. Peas and pea-like plants (incl. Chick-pea [*Cicer arietinum*] and Grass-pea, vetchling or chickling vetch [*Lathyrus sativus*]).

20. Vetches and vetch-like plants: Common vetch (*Vicia sativa*), hairy vetch (*Vicia villosa*), narrow-leaved vetch (*Vicia angustifolia*), purple vetch (*Vicia atropurpurea*), wooly-pod vetch (*Vicia dasycarpa*), scarlet vetch (*Vicia fulgens*), ervil or black bitter vetch (*Vicia ervilia*), narbonne vetch (*Vicia narbonensis*), horse bean (*Vicia faba*), bird or tufted vetch (*Vicia cracca*), tangier pea (*Lathyrus tingitanus*), flat-podded vetchling (*Lathyrus cicera*), ochrus (*Lathyrus ochrus*), fenugreek (*Trigonella foenum-græcum*), lupines (*Lupinus* spp.), serradella (*Ornithopus sativus*), square podded pea (*Lotus tetragonolobus*).

21. Cowpeas. 22. Soybeans. 23. Other hot-season annual legumes: Lespedeza or Japan clover, Florida velvet bean (*Stizolobium deeringianum*) [later renamed simply “Velvet bean” (*Mucuna pruriens*)], peanut (*Arachis hypogæa*), Florida beggarweed, the jack bean (*Canavalia ensiformis*). “Owing to confusion with the similar species cultivated in Japan, China, and India, it has also been called the sword bean and the knife bean, but those names properly belong to the Asiatic species [*Canavalia gladiata*], used principally as a vegetable), mung bean (*Phaseolus aureus*), urd (*Phaseolus mungo*), moth bean (*Phaseolus aconitifolius*), adzuki bean (*Phaseolus angularis*), bonavist or hyacinth bean (*Dolichos lablab*), guar (*Cyamopsis tetragonoloba*).

24. Miscellaneous perennial legumes: Sainfoin (*Onobrychis cicioefolia*), sulla or Spanish sainfoin (*Hedysarum coronarium*), kudzu (*Pueraria thunbergiana*), flat pea (*Lathyrus silvestris* var. *wagneri*), kidney vetch (*Anthyllis vulneraria*), goat’s rue (*Galega officinalis*), bird’s foot trefoil (*Lotus corniculatus*), Astragalus falcatus, furze (*Ulex europæus*).

25. Miscellaneous herbs used as a forage (incl. Sunflower [*Helianthus annuus*]). 26. Root crops and other comparable forages (incl. rape [*Brassica napus*], Jerusalem artichoke, chufa [*Cyperus esculentus*], and cassava).

The Introduction (p. 1) states: “1.—Forage includes any vegetable matter, fresh or cured, eaten by herbivorous animals, such as grain, hay, pasturage, green feed, roots and silage. The term *feed* is synonymous with forage, although

sometimes restricted to grain. Fodder and stover are also identical in original meaning, but in the United States are used with special significations.

“Forage crops include only those plants grown primarily for feed and of which animals consume all or much of the vegetative parts; that is, herbage, or roots. Most cereal crops are also grown for hay, pasturage or silage, and when thus grown may be considered forage crops. Several plants cultivated in other regions as cereals are in the United States grown mainly or wholly for forage. Among these are the grain sorghums, penicillaria, foxtail millet and proso or broom-corn millet. The distinction between cereals and forage crops in such cases is arbitrary. Such a plant is a cereal when grown primarily for the grain, and a forage when grown primarily for the herbage.

“Fodder (German *futter*) really means the same as feed. In the United States the term is used mainly in reference to corn cut before the plant is fully mature, and from which the ears are not removed. The stems and leaves when dried and after the ears are removed is called stover. In the Southern States the term fodder is applied to the dried leaves and tops of the corn plant, removed while green, and before the ears are fully mature.

“The terms *fodder* and *stover* are also used in connection with the sorghums and similar coarse grasses.

“Hay consists of the entire dried herbage of comparatively fine-stemmed grasses or other forage plants. It is commonly dried or cured in the sun, but artificial drying apparatus has been used.” Address: M.S., Agrostologist in Charge of Forage Crop Investigations, Bureau of Plant Industry, USDA [Washington, DC].

311. Piper, Charles V. 1914. Adzuki bean (*Phaseolus angularis*) (Document part). In: C.V. Piper. 1914. Forage Plants and Their Culture. New York, NY: MacMillan Co. xxi + 618 p. See p. 554-55.

• **Summary:** “The adzuki bean is probably native to eastern Asia, but the wild plant is not known. It is extensively cultivated in Manchuria, Korea and Japan, and is rarely found in the hill country of northern India. In Japan about 350,000 acres are grown annually. It is readily distinguished from the mung bean, to which it is closely related, by the pods and seeds. The seeds of this species are about the size of an average garden pea, but are oblong in shape, and red, cream, orange or mottled in color. The pods are mostly pale colored and smooth, resembling small cowpea pods, while those of the mung bean are dark colored, smaller, and hairy. This bean resembles an upright cowpea in its habits of growth, but the stems are not as large and hardly as woody. It is adapted to essentially the same conditions as the soybean.

“In Japan and Manchuria the adzuki bean is grown entirely for human food, and as a producer of seed it excels any other bean adapted to the region in which it will grow, excepting the soybean. On account of its heavy yield of

seed it is likely to become of some importance in the United States, either for human food or for growing to feed animals. The plants are smaller than cowpeas or soybeans, so the yield of herbage is but moderate.

“The adzuki bean does not compete satisfactorily with weeds and therefore must be planted in cultivated rows which may be from 18 inches to 3 feet apart, depending on the variety and the method of cultivation. The earliest varieties mature in about 90 days, while the latest varieties require 140 days.” Address: Agrostologist in Charge of Forage Crop Investigations, Bureau of Plant Industry, USDA.

312. Piper, C.V.; Morse, W.J. 1914. Five Oriental species of beans. *U.S. Department of Agriculture Bulletin* No. 119. 32 p. Sept. 2. [22 ref]

• **Summary:** The five beans are the adsuki [adzuki, azuki] bean, the rice bean (*Phaseolus calcaratus*), the mung bean (*Phaseolus aureus*), the urd (*Phaseolus mungo*), and moth bean (*Phaseolus acontifolius*). Soy is mentioned only briefly.

“The adsuki bean (*Phaseolus angularis* (Willd.) W.F. Wight; Pl. I) is much cultivated for human food in Japan and Chosen [Korea] and to a less extent in China and Manchuria, but is apparently unknown in India and elsewhere in Asia. No mention of its cultivation in Europe has been found in agricultural literature. Next to the soy bean it seems to be the most important legume grown in Japan.”

A table shows that in 1910 345,634 acres of adsuki beans were grown in Japan (yield 969 pounds/acre), compared with 1,171,438 acres of soy beans (yield 1,002 pounds/acre).

The first knowledge of the adsuki, or atsuki [azuki] bean to Europeans is the brief description by Kaempfer (1712, fasc. 5, p. 837). Kaempfer’s drawing of the plant was later published by Banks (Kaempfer, 1791, p. 40). This illustration is excellent and unmistakable. Willdenow (1801), named the plant *Dolichos angularis* on the basis of Kaempfer’s description and illustration.

The adsuki bean was grown at Arlington Farm, Virginia, in 1906 (6 varieties), 1908, 1909, 1912, and 1913 (8 varieties).

“Use in Japan: In Japan the adsuki commands a higher price than any other bean, the varieties with maroon-colored seeds being most widely used. In every Japanese city are shops where adsuki beans and adsuki-bean meal are sold, and among the most common cakes and confections are those made wholly or in part from adsuki-bean meal.

“Adsuki-bean meal is sometimes prepared simply by grinding the dry beans and then removing the seed coats with sieves. More commonly, however, a wet process is employed. The wet process seems to vary somewhat in different parts of Japan, but consists essentially of 4 stages:

“(1) Boiling the beans until soft, usually after a preliminary soaking.

“(2) Crushing the cooked beans.

“(3) Removing the skins by forcing the mass through sieves or by putting the bean paste in cold water, when the skins are easily separated.

“(4) Drying the bean paste.

“The fresh, undried bean paste is called *an* and the dried product *sarashi-an*.

In whatever way prepared, the bean meal “is eaten in soups and gruels of various kinds, often sweetened. It is also used for making various kinds of cakes and confections.”

“Adsuki beans are also eaten popped like corn, as a coffee substitute, and candied by boiling in sugar, the last product being called *amanatto*. The flour is also used for shampoos and to make facial cream.

“The use of beans to make sweetmeats seems to be purely a Japanese invention as there are no similar foods used by Europeans or Americans. There seems no good reason why food so rich in protein and lacking any objectionable ‘beany’ flavor might not become popular in the United States. No other bean lends itself so well to grinding into meal or flour, as the seeds are hard and brittle.

“Comparison with Other Similar Legumes: The most valuable feature of the adsuki bean lies in its large yield of seed, which under Arlington farm conditions is excelled only by the soy bean. These beans are exceedingly popular as food among the Japanese and Koreans. Owing to their texture they are easily ground into meal or flour and for such purposes are far superior to any other bean. The flavor, too, is very delicate, lacking any objectionable taste. The green pods quickly become fibrous, and therefore they are not desirable as snap beans.

“As forage plants the adsuki beans can not compete with the cow-pea and the soy bean, as their initial growth is slow and their total yield of herbage inferior. In the South they are subject both to wilt (*Fusarium* sp.) and to root-knot caused by the nematode *Heterodera radiculicola*. Neither of these diseases has, however, caused any serious destruction of the plants.

“Previous introductions: Among the seed brought back from Japan by the Perry expedition in 1854 was a ‘red-seeded bean.’ (Browne, 1855, p. XV.) The identity of this bean has never been definitely determined, but it was doubtless the most common form of adsuki bean.

“Two varieties of the adsuki bean were tested at the Kansas Agricultural Experiment Station in 1891 by Prof. C.C. Georgeson (1891, p. 237). Both of these had red seeds, one having the pods ‘white,’ the other ‘black.’ The white-podded variety yielded 16.3 bushels per acre; the black-podded, 8.7 bushels. In thrashing, the beans were found to crack easily, and so they were flailed. The beans were tested only as human food. ‘These beans have been submitted to several housekeepers for trial, who all, with two exceptions, give them most favorable recommendations.’ The professor of household economy, in a letter to Prof. Georgeson, praised

the beans highly both for use in soups and baked.

“Two varieties of the adsuki bean were grown at the Rhode Island Agricultural Experiment Station in 1893 and 1894, and yields both of forage and seed based on row tests were recorded. These two varieties were later obtained from the Rhode Island station and given S.P.I. numbers 17315 and 17317.

“The North Carolina Agricultural Experiment Station (McCarthy and Emery, 1894, p. 143) gives a very brief report on two varieties of Japanese beans which are unquestionably the adsuki bean. No recommendations are made beyond stating that the beans are for table use only and not for forage.

“The following notes on adsuki beans imported by the Office of Foreign Seed and Plant Introduction or obtained from other sources have been assembled for convenient reference. The S.P.I. number is shown in every case.

“226. A maroon-seeded variety from North China, March, 1898, under the name ‘wei-tou (vay-do).’ No cultural notes.

“494. From Amur Province, Siberia, March, 1898, imported there from China and called “wei-tou (vay-do).” No cultural notes.

“5072. From Wahiawa, Oahu, May, 1900, where introduced from China. A maroon-seeded variety. No cultural notes.

“6318. From Tokyo, Japan, April, 1901, under the name ‘muroan.’ Stocks of seed grown from this were also numbered 8488 and 17316, and it has been sold by seedsmen under the name ‘Japanese muroan bean.’ Plants erect, 20 to 24 inches high, maturing at Arlington farm in about 100 days; pods straw colored; seeds maroon.

“6417. See No. 17323.

“6418. See No. 17324.

“8487. Progeny of No. 6417. See No. 17323.

“8488. Progeny of No. 6318.

“9419. Grown from No. 6417. See No. 17323.

“10523. See No. 17316.

“13384. Found mixed with soy beans No. 6558 from Hankow, China, May, 1901. Plants erect, 2 to 3 feet high, late, only half the pods maturing at Arlington farm in 140 days; pods 31 to 4 inches long, straw colored; seeds orange yellow.

“13385. From the same source as No. 13384. In habit and maturity like No. 13384; pods straw colored; seeds pale greenish.

“13386. From the same source as No. 13384. Plants erect, 16 to 24 inches high; late, about half the pods maturing at Arlington farm in 130 days; pods straw colored; seeds straw colored.

“13387. From the same source as No. 13384. Plants erect, 30 inches high, the rows 24 inches broad; only about 30 per cent were mature on October 29, 1912, at Arlington farm, 151 days after planting; pods straw colored, 4 inches

long; seeds straw colored.

“13388. From the same source as No. 13384. This seems identical in every respect with No. 13386.” Address: 1. Agrostologist in Charge; 2. Scientific Asst., Forage-Crop Investigations, Bureau of Plant Industry, USDA, Washington, DC.

313. Annett, Harold Edward. 1914. The urease content of certain Indian seeds. *Biochemical Journal* 8(5):449-52. Oct. [4 ref]

• **Summary:** The author, working in Dacca, Bengal, India, tested “certain varieties of soy-beans to in order to see if there were any large variation in their urease activity. During the course of the work a seed (the sword bean [sic, jack bean], *Canavalia ensiformis*) was found whose urease activity was many times greater than that of soy-bean...” The authors ground the various seeds (including yellow, spotted, chocolate, black, and common soy beans) finely in a mill. When an extract of the soy beans was added to urea solution, ammonium carbonate was produced rapidly. Urease was present in all varieties of soy-beans tested. Summary: “The urease activity of five of the six varieties of soya bean examined is practically identical. The sixth variety is distinctly more active.”

“The method indicated the absence of urease in the following seeds: French beans (*Phaseolus vulgaris*), Velvet beans (*Mucuna pruriens*), Sona mung (*Phaseolus radiatus*), Sida sp. (from Burmah) *Sida cordifolia*, White til (*Sesamum indicum*), Black till (*Sesamum indicum*), Mati kalai (*Phaseolus mungo*), Cow pea (*Vigna catieng*), White mustard (*Brassica campestris* var. *sarson*), Red mustard (*Brassica campestris* var. *dichotoma*), Niger (*Guizotia abyssinica*), Taramira (*Eruca sativa*), Sweet pea (*Lathyrus sativus*).

“The above test is by no means a reliable one,...”

Note: This document contains the earliest clear reference seen (March 2021) for soybeans in what is today Bangladesh. This document contains the earliest clear date seen for soybeans in Bangladesh (1914). The source of these soybeans is unknown. The article does not say where these soybeans were grown. Address: Agricultural Research Lab., Dacca, Bengal.

314. Williamson, Adolph A. 1914. South Manchurian notes. *Daily Consular and Trade Reports (U.S. Bureau of Foreign and Domestic Commerce, Department of Commerce)* 17(292):1149. Dec. 14.

• **Summary:** “Standard weights for bags of staples established: The Manchurian Staple Products Dealers’ Association has established standard weights for bags of cereals and legumes as follows: [Soya] Beans, 150 kin (1 kin = 1.32277 pounds);... red beans [azuki] 160 kin; kaoliang (tall millet), 154 kin,” millet 166 kin, sesame 113 kin, linseed 134 kin, wheat 136 kin, buckwheat 118 kin, peanuts 50 kin.

The containers are generally gunny bags.

“Depression in soya-bean business: The business depression in the countries affected most by the present war on account of lack of shipping, markets, etc., has brought about... Exchange is very favorable to buyers paying in gold, being to-day (Oct. 26) 79 gold yen to 100 silver yen.

“An attempt has recently been made to organize a bean millowners’ union, modeled after the cotton spinners’ union about Osaka, Japan, to regulate the output of oil and cake and keep prices up, but a number of Chinese owners would not join and the attempt failed. The promoters estimated the daily potential output at 90,000 pieces (cakes) and the daily demand at about 50,000.”

Note: This is the earliest document seen (Jan. 2009) concerning World War I and soya beans. Address: Consul, Dalny (Dairen) [Japanese Leased Territory].

315. Agricultural Bureau, Dep. of Agriculture and Commerce Japan (Norinsho, Nomukyoku). 1914. Outlines of agriculture in Japan. Tokyo: Agricultural Bureau, Department of Agriculture and Commerce. 20 + 35 p. Dec. No index. 15 x 22 cm. [Eng]

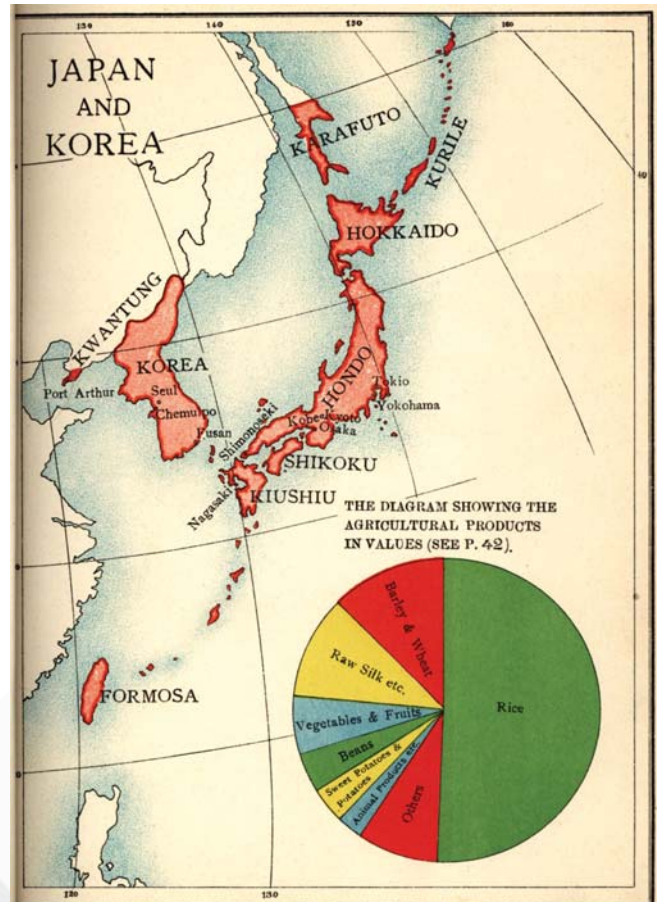
• **Summary:** Name of organization with diacritics is: Nôrinsho, Nômukyoku. The structure of this book is unusual. The table of contents (p. 1-3) is followed by a list of “illustrations” [all photographs] (p. 1-2), a colored map of Japan and pie chart, 20 unnumbered pages of black-and-white photos, and finally the text in four chapters (p. 1-34).

The pie chart (average of the 3 years 1910-1912, excluding Chosen, Taiwan, and Karafuto) shows the percentage of agricultural products in value; Rice has about 60% of the total value, followed by barley, naked barley and wheat, cocoon and silk worm eggs, and vegetables. Leguminous beans are one of the smallest categories.

Interesting photos include:

(1) The hall [building] of the Imperial Department of Agriculture and Commerce. (2) The Agricultural College of Tokyo University (fields, with buildings in the background). (3) The Agricultural College of Tohoku University (trees and walkways, with buildings in the background). (4) The Imperial Agricultural Experiment Station. (13) Interior of filature at Okaya, Nagano prefecture (many women kneeling in two long rows like machines behind silk spools). (15) Silk conditioning house. (16) The sericulture institute. (20) Shibuya live-stock breeding farm, and long-tailed fowl (on a perch with a 9-foot tail).

Chapter 1—Condition of agriculture. At the end of 1912 about 60% of all households in Japan are farming households. Of these 5,510,000 farming households, 32% have occupations in addition to farming—primarily sericulture, followed by making items from straw (fancy matting, braids), tea manufacture, then chicken raising. There are three classes of farmers: Land-owners, peasant proprietors (32% of total number of farmers; cultivate their



own land), and tenants (28% of total number; rent farms from land-owner). Both peasant proprietors and tenant farmers (40% of total). About 15% of Japan’s land is under cultivation. Of this, about half is taken up by paddy fields (for raising irrigated rice) and half by upland fields. Many paddy fields give two crops a year. Soja beans are mostly grown as a summer crop on upland fields in rotation (p. 5). Because of the smallness of its scale, Japanese agriculture traditionally relied mostly on human labor. But in recent years the number of farm animals has increased. In late 1912 there were 2,290,000 of which 1,220,000 were horses, 1,070,000 cattle, and 300,000 swine. About 20 years ago, fertilizer meant mainly human excrement, weeds, and stable manures, plus small amounts of oil-cake [soja bean cake], fish-guano, and rice bran. Today the value is three times what it was 10 years ago, and now includes soybeans [okara]. “Of these market manures, the bean cake, which is imported from China and Kwantung Peninsula, is most important and demanded the sum of 25 million yen [25% of the value of all fertilizers]. Next came the various composition manures [chemical fertilizers], the material of which is imported in large quantities, and super-phosphates of lime” (p. 8). There are more than 10,400 agricultural cooperatives in Japan with 1.16 million members; they are promoted by the Co-operative Societies Law of 1900. There are four types:



Credit, Purchase, Sales, and Productive Societies (p. 9).

Chapter 2—Agricultural products. The value of all agricultural products is estimated at 1,720 million yen for the 3 years preceding 1912. These fall into six groups (value shown in million yen): 1. Cereals (incl. soja beans)—1,246 (72.4% of total). 2. Industrial crops (incl. tea, rape, tobacco, sugar cane)—65.3 (3.79%). 3. Horticultural products (fruits, vegetables, and flowers)—196.8 (11.4%). 4. Livestock and poultry—42.27 (2.45%). 5. Cocoons and silkworm egg cards—164.2 (9.5%). 6. Miscellaneous—5.1 (0.03%). Looking now at the value of individual cereals in million yen: Rice 966.4 (56.2% of total of 6 groups). Naked barley 74.2. Barley 63.3. Wheat 52.5. Soja beans 35.95 (2.1% of total). Indian millet 15.84. Miscellaneous 38.1.

A table (p. 12-13) shows the acreage of the principal crops (in units of 1,000 *cho*) at 5-year intervals from 1887 to 1912. For soja beans: 466 in 1887, 443 in 1892, 435 in 1897, 466 in 1902, 471 in 1907, 475 in 1912. Thus, the area planted to soja beans was roughly static. For small red bean [azuki] it was: 109 in 1897, 129 in 1902, 135 in 1907, 136 in 1912. So azuki area was about 25-28% of soja bean area.

Another table (p. 13-14) shows the yield of the principal crops (in units of 10,000 *koku*) at 5-year intervals. For soja beans: 325 in 1887, 311 in 1892, 310 in 1897, 313 in 1902, 366 in 1907, 351 in 1912. Again, fairly static. By comparison, between 1887 and 1912 the average yield of wheat increased by 70%, naked barley by 39%, barley by 38%, and rice by 26%—but only 8% for soja beans.

Japan's top three export items (value on 1,000 yen) are raw silk (166,963), tea (12,639), and sugar (10,384). The main imports are cotton (193,735), rice (32,128), soja bean cake (for manure; 27,469), sugar (20,694), wool (14,531), and soja beans (8,571). Peanuts are exported to the USA.

Chapter 3—Agricultural administration. The highest organ is the Department of Agriculture and Commerce, which is divided into five sections. The highest organ of agricultural research is the Imperial Agricultural Experiment Station; there are 39 local agric. exp. stations. Agricultural statistics are compiled at the Section of Correspondence in

the Secretariat of the Department. A statistical report on all matters concerning agricultural products is issued once a year.

Chapter 4—Outline of agriculture in the colonies. I. Agriculture in Formosa. Rice is the principal crop, followed by sugar cane, sweet potatoes, tea, beans, and peanuts. No statistics are given. II. Agriculture in Chosen [Korea]: A table (p. 32-33) shows area (in 1000 *cho*) and production (in 1,000 *koku*) in 1912: Rice 980 / 8,969. Indian millet 403 / 3,118. Barley 386 / 4,293. Soja bean 375 / 2,452. Wheat 169 / 1,094. Small red bean (azuki) 165 / 835. The largest export from Chosen in 1912 was rice, followed by soja beans. But the largest export from Chosen to Japan was soja beans, worth 4,917,000 yen. III. Agriculture in Karafuto (the Japanese name for Sakhalin Island). In 1875 it came entirely under Russian control when Japan ceded it in exchange for the Kuril / Kurile Islands. It was occupied by Japan in 1905, and the southern half (below 50°N) was granted to Japan by the Treaty of Portsmouth, which ended the Russo-Japanese War. It was returned to the USSR in 1945 after the Allies defeated Japan in World War II. It is too far north to grow soybeans. But barley, naked barley, wheat, oats, rye, and rape grow well.

Note: This is the earliest document seen (May 2021) that gives clear soybean production statistics for Korea. Address: Tokyo, Japan.

316. Bosse, Sara; Watanna, Onoto. 1914. Chinese-Japanese cook book. Chicago and New York: Rand, McNally & Co. 120 p. Index. 17 cm.

• **Summary:** A remarkable and pioneering East-Asian cookbook. It may be the earliest Japanese cookbook published in America. It is the 2nd earliest Chinese cookbook published in America. The cover illustration shows a well dressed Japanese woman in a Japanese room kneeling and cooking over a brazier. Contents: Preface. Part I: Chinese recipes (12 sections, p. 9-64). Part II: Japanese recipes (7 sections, p. 74-110). List of Chinese and Japanese groceries.

The Preface begins (p. 1): "Chinese cooking in recent years has become very popular in America, and certain Japanese dishes are also in high favor. The restaurants are no longer the resort of curious idlers, intent upon studying types peculiar to Chinatown, for the Chinese restaurants have pushed their way out of Chinatown and are now found in all parts of the large cities of America." "There is no reason why these same dishes should not be cooked and served in any American home."

Concerning shoyu, or Japanese-style soy sauce (p. 2-3): "Soyu, sometimes called Soye, is similar to Worcestershire and similar European sauces. In fact, the latter are all said to be adaptations of the original Chinese syou, and most of the European sauces contain syou in their makeup. It lends a flavor to any meat dish, and is greatly esteemed by the Oriental peoples."



SARA BOSSE ONOTO WATANNA

Note 1. This is the earliest English-language document seen (April 2012) that uses the word “syou” to refer to shoyu or soy sauce.

Syou (soy sauce) is an ingredient in at least 55 recipes in this book, both Chinese and Japanese—starting with Chinese soups (p. 12-17). When first mentioned here it is called “syou (Chinese sauce),” but thereafter simply “syou.”

“Miso paste” appears in 5 Japanese recipes: Satsuma soup (“one quarter pound of aburage {oil-fried Tofu}; one quarter pound of miso paste {soy bean and rice cheese},” p. 71-72). Uwo shiru (Fish soup) (“one pound of miso paste {bean and rice paste}; one half cupful of syou sauce,” p. 73-74). Shika shiro (Pot-roasted venison) (“one cupful of syou sauce;... one quarter pound of miso paste,” p. 80). Tamago bolan (Peony eggs) (“finely mashed miso,” p. 91-92). Shiro uri (Stewed squash) (“syou sauce... two tablespoons of

miso,” p. 95).

“Aburage (oil-fried Tofu)” and regular tofu appears in Satsuma soup (p. 71, see above). Yaki zakana (Fried fish) (with “oil-fried Tofu... Note: Tofu is made from a mixture of syou bean [soy bean] and rice. It is mashed and rolled into a thin cake, and fried in oil, very much like pancakes,” p. 77-78). Note 2. A poorer definition of tofu would be hard to find. Yaki udzura (Broiled quail or pigeons) (“aburage {bean cheese paste}” and “Tofu cakes,” p. 79). Fried squab (with “fried Tofu,” p. 81). Tamago tofu (a tofu-like custard made with eggs and syoyu sauce, but no real tofu, p. 89-90).

Bean sprouts are used in many recipes, but we are never told what type of beans are sprouted [probably mung beans]; a recipe for homemade bean sprouts (p. 109) calls for “ordinary white beans, or dried lima beans.” Other interesting ingredients include: “Adzuki (purple beans)” (mentioned once in Yohan candy). Goma seeds [sesame] or goma-seed oil (mentioned 15 times). Kudzu starch (6 times, misspelled once as “kudze”). Peanut oil (at least 10 times). Seaweed (1 can of seaweed; small piece of seaweed), seaweed jelly or gelatine, or Kanton [kanten, agar] (15 times). Sweet rice [mochigome].

The authors, “Winnifred and Sara Eaton were sisters, daughters of a Chinese-born mother and an English-born father, and grew up in a large family in Montreal, Canada. Winnifred Eaton was a very successful fiction writer who, by taking on a Japanese identity, both exploited the public’s craze for ‘Japonica’ at the time, and obscured her Chinese heritage during an age of anti-Chinese sentiment and policies. This cook book was her first collaboration with Sarah, who may have done very little of the writing. A painter, Sarah (1868-1940) lived out her life with her German artist husband, Karl Bosse, in New York. Winnifred (whose Japanese pseudonym was Onoto Watanna) lived 1879-1954, knew almost nothing about Japanese cooking. Winnifred’s biographer and granddaughter, Diane Birchall, says that the authors’ claim in the Preface that the Chinese recipes are “... secret recipes handed down from Vo Ling, worthy descendant of a long line of noted Chinese cooks...” is just a hoax. “According to Birchall, Eaton was awful at cooking Chinese dishes” (MSU introduction and biography).

317. Davison, Mrs. 1914. Domestic economy in Japan. [Tokyo, Japan]: Kyo Bun Kwan (Methodist Publishing House). Tokyo Katei Mondai Kenkyu Kurabu. v + 73 + [16] p.; 17 + 1157 + 6 p. No index. 19 cm.

• **Summary:** On the title page: “Compiled by the Home Problem Club, Tokyo.” Contents: Soups. Fish. Meats and substitutes. Vegetables. Salads. Puddings. Pudding sauces. Sweets. Cakes. Breads. Native cereals. Preserves. Jams. Pickles. Suggestions. Japanese disinfectants. Useful addresses. Menu-maker (from *Ladies Home Journal*).

The front part of this book (p. v + 73 p.) is in English. The back part (17 + 115 + 6 p., reading from back to front)

is in Japanese, and numbered separately. In the middle is a 16-page “Advertising section,” mostly in English, on unnumbered pages. Each recipe is numbered sequentially, from 1 to 1-186, in each part. The recipe numbers in the English part correspond exactly to the numbers in the Japanese part.

Soy related recipes: “Tofu” (bean curd) soup (p. 2). [Soy] Bean roast (p. 12). “Tofu” roast (3 types; calls for 1 *cho* or 1 square of tofu, p. 12-13). “Tofu” and celery stew (p. 14). In the chapter on vegetables: “Daizu” (p. 23): “Soja or Soy bean. There are white, green and black soy beans. This bean is used in the preparation of *miso*, *tofu*, etc. A drink is made from the black soy bean and unhulled barley. These are parched and then boiled in a tea, sweetened with sugar and used in the summer time.” Soya beans (p. 24): “Hull and boil; remove the skins and dress like lima beans. *Azuki* a little red bean may be prepared in many ways. One way, boil, place in center of a mound of rice, and serve with a curry sauce made with apple and onion in it.”

Tofu (p. 26-29): “Tofu is a most nourishing inexpensive curd made from the bean. It may be served in many ways. The process of preparation takes away part of the bean difficult to digest and leaves one of the most wholesome of foods. It is especially good for diabetic patients. It may be bought in any part of Japan. Always pour boiling water over it before using.” These recipes follow: Scrambled “tofu”. “Tofu” and cheese. “Tofu” croquettes (3 recipes). “Tofu” box. “Tofu” and tomatoes. “Tofu” and peanut butter. “Tofu” and cheese (2 recipes). “Tofu” and corn.

“Tofu” (bean-curd) salad (with 2 *cho* [= cakes] of “tofu,” p. 38). “Tofu” custard (p. 40).

This book also calls for peanuts in many recipes. A few recipes call for *goma* (sesame seeds), *kanten* (“a kind of gelatine made from seaweed. A substitute for gelatine,” p. 61). in a few. Pudding sauces and sweets include many recipes for “mizu-ame” (“1 pint of golden-colored mizu-ame.” Some is made from millet, and some from rice). “Health food” is mentioned on p. 52. Address: Tokyo, Japan.

318. Fujimoto, Taizo. 1914. *The nightside of Japan*. London: T. Werner Laurie, Ltd.; Philadelphia: Lippincott. xii + 233 p. Plus 40 p. plates on unnumbered pages. Illust. No index. 21 cm.

• **Summary:** “Howling of a ‘oinarisan’ pedlar [peddler] (oinarisan is a kind of sushi, and its pickled rice is wrapped with a piece of fried bean-curd flavoured with sugar and soy [sauce]) and flute of a Chinese buckwheat seller are faintly heard in a distant street” (p. 39).

“To classify the labourers who are staying in these lowest lodging-houses, according to the kinds of their work or business, one half of them are stall-keepers who sell... *amé* (wheat gluten [sic, candy based on malt syrup]),... *shiruko* (a dish made of rice cake [mochi] and sugared beans), *inarisushi* (another name of *oinarisan*, which is a mass of

pickled rice wrapped up with a piece of fried bean curd),...” (p. 44-45).

Note: This is the earliest English-language document seen (April 2013) that contains the word *inarisushi* (one word without hyphenation).

“Consequently, every night till midnight the streets in the vicinity of these lowest inns are full of small shops and stalls of cheap food and drinks, awaiting the customers from those *kichinyado*. Stalls of hot wine and *oden*, *inarisushi*, *shiruko*, *mochi* (rice-cake), *tsuke-yaki pan* (pieces of bread toasted and flavoured with soy [sauce]),...” (p. 47). Note: Mochi is also mentioned on pages 172, 173, and 202.

“In this book you read often of stalls of *odenya*, but the Marugin is a large house situated at the cross-roads of Sudachō, and though it belongs to the eating-houses of the lowest class, it may probably be the first and largest *odenya* in Tokyo. The room, lighted with electric lights, is furnished with tables and chairs, in place of mats and futon, very common in the shops of the lower rank. Oden is, as previously explained, a special kind of food boiled down with soy, its chief materials consisting of fish, bean-curd, konnyaku, and taro” (p. 63-64).

“You often find little boys of nine or ten years at the temple, and their true object of the visit seems not to be prayer to the temple, but they are ambitious to taste the sweet *amazake* (hot beverage made of fermented yeast [sic]), which the temple entertains to the visitors” (p. 153).

319. Terry, Thomas Philip. 1914. *Terry’s Japanese empire: Including Korea and Formosa, with chapters on Manchuria...* A guidebook for travelers. Boston and New York: Houghton Mifflin Co.; London: Constable & Co., Ltd.; Tokyo: Kyo-Bun-Kwan, Ginza, Shichome. cclxxxiii + 799 p. See p. 515. Maps. Index. 16 cm. [75 ref]

• **Summary:** This guidebook, after its 283-page introduction, is organized geographically into: 1. Central Japan. 2. Northern Japan. 3. Yezo, the Kuriles, and Saghalien. 4. Western Japan. 5. Kyushu and the Loochoo and Goto islands. 6. Korea, Manchuria, and the Trans-Siberian Railway. 7. Formosa (Taiwan) and the Pescadores. Abbreviations (p. ix). List of maps (13).

In the Introduction: Japanese inns (p. xxxvi, xxxix-xl): The best food is not always to be had in the most pretentious places. In certain modest inns, where the rooms are as bare as a monk’s cell, and the general appearance of austerity might argue a strict economy, there will often come, as an agreeable surprise, dainty food served in dishes that delight the lover of beautiful porcelain or lacquer. Later the traveler may learn that the place enjoys fame for some savory specialty—eels boiled in soy, broiled crayfish, stewed octopus, buckwheat-macaroni, or the like.”

“Food is served in the guest’s room on a lacquered tray... One of the soups may be made of... lobster, or seaweed, in which case it is amazingly thin and unpalatable; the other of

beans [miso], bean curd or something of that nature. Salt is not provided unless asked for. Many of the dishes are cooked in soy; a tiny dish of which is supplied for dipping bits into before eating them.”

Japanese food (p. xliii-xlvii): “Rice is a luxury with thousands of the peasants; it takes the place of bread with the well-conditioned; and wherever it is eaten to the exclusion of other foods it produces (because the thin phosphorous skin is polished off it) the prevalent beriberi. The proportion of animal food is small. Beans eaten in a variety of ways occupy a conspicuous place in the food of all classes and they supply the nitrogenous matter essential to those who rarely eat meat and who do not get the casein obtained by cheese-eating peoples. The soy-bean (*daizu*; *omame*) ranks first in extent, variety of use, and value among the pulse of Japan, and in point of nutriment is quite near to meat. It contains nearly two fifths of its weight in legumin, nearly one sixth in fat, and is rich in nitrogen. It is to the Nipponese what frijoles are to Mexicans and garbanzos (chick-peas) to Spaniards. Of the numerous varieties some are made into curd [tofu], and into the widely celebrated bean-sauce (the Worcestershire of Asia) called shoyu (sho, soy; yu, oil), and which is almost as indispensable as rice. It forms the daily relish of the rich man and the beggar, and is in as general use as tea and tobacco.”

Fish (*sakana*)... Teriyaki: Fish in a sauce of soy, mirin, and sugar... Sashimi: raw fish cut in thin slices and eaten after being dipped in shoyu... Kabayaki: fish which is first steamed then dipped into soy and roasted (or eels cut open on the dorsal line, covered with soy mixed with sugar, and roasted). The latter dish, usually called Unagi-no-kabayaki, is a favorite with the Japanese,...

“Rice:... Azuki-meshi: rice and red pea-beans mixed (boiled).—Mochi: small dough-cakes made of rice and sold throughout Japan.—Sushi: a general name for food of boiled rice and fish, eggs, vegetables, etc., seasoned with vinegar and soy...—Inari-zushi: fried tofu stuffed with chirashi-zushi.

Note: This is the earliest English-language document seen (April 2013) that contains the term *Inari-zushi*.

- Maki-zushi: boiled rice and other vegetables rolled and wrapped in a sheet of the sea weed called Asakusa-nori...—Kombu-zushi: fish seasoned with vinegar and wrapped in a piece of the edible seaweed known as *Laminaria japonica*. A differentiation of this popular food is the Kombumaki: baked or roasted fish wrapped in kombu, then tied, and boiled in sugar and soy.

Various:... Tsukudani: small fish boiled in soy and used as a relish or condiment (named for Tsukudajima, a place in Tokyo famous for its preparation).—Oden: a stew (greatly enjoyed by the proletariat) of fried bean-curd, lotus-roots, potatoes, etc.” Ame and midzu ame.

“Soup (*shiru*): Tôfu-jiru: bean-curd soup.—Miso-shiru: bean-soup with vegetables.”

Railways—Dining cars (p. lxxxiv): Discusses “The

unique and not unpalatable bento,—a sort of national sandwich,—put up (usually cold) in thin, flat, twin boxes (*bento-bako*) of dainty white wood (1 in. high, 5-7 in. long), along with a paper napkin (*kuchifuki*) and a pair of chopsticks (*hashi*), and sold at many stations, is distinctively Japanese and widely popular... Besides the full box of plain boiled rice, the ordinary (15 sen) bento contains usually... a few boiled black beans (*nimame*)... seaweed (*kobu*)...” Rice cakes (*mochi*) with the kernel of *yokan*, or sweet [azuki] bean paste, which usually forms their center.

Buddhism (cxc): Again the rice-flour cake [*mochi*] is offered at the domestic altar. It now takes the form of a lotus-petal with capsule of [azuki] bean-paste.” (an).

Yokohama (p. 13): “The return gifts from the emperor and princes included...jars of soy [sauce]; coral and silver ornaments;...”

Tokyo (p. 199): “The hill beyond the intersecting roadway is called *Suribachi-yama* because of the similarity in shape to a *suribachi*—an earthenware vessel in which bean-soup [miso soup] is prepared.”

Nikko—Shops: “... the *kuri-yokan* (so-called from the chestnuts mixed with the sweetened bean-paste [azuki]) is good and cheap (10 sen).”

Kyoto—The Shinto Shrine of Inari. There are many local festivals, the most important of which is the *Inari-matsuri* which usually falls on June 5. There are trick riders on horseback and decorated sacred cars [carts] are “placed in the procession, and the day is devoted to general jollity—and pocket-picking. On this occasion the people eat *Inari-zushi*, or fried tofu stuffed with boiled rice, since tofu [fried, as *aburage*] is the favorite food of the fox popularly believed to be the messenger of Inari (and by extension, the God of Rice).”

Kyoto—Miidera (p. 504-05): Travelers visit Benkei’s Iron Pot (*Benkei-no-shiru nabe*), a very old, rusted, and broken contraption (about 5 ft. wide and 3 deep) resembling a soap-boiler, and from which Yoshitsune’s devoted servitor (and popular hero) is supposed to have eaten his bean-soup [miso soup]—which may well be doubted.”

Kyôto to Kôya-San (p. 515): For the Western traveler there is “a tiny kitchen, a blessed refuge wherein, if he is making a prolonged stay, he may cook his un-Christian food without the vegetarian priests knowing (or caring) that such a sacrilege is being committed! Meals are served in one’s apartment; the food is purely vegetable, and after the second day distressfully unpalatable. Fish, flesh, fowl, butter, cheese, eggs, milk, bread, coffee, and other necessities of life are absent, and are replaced by seaweed, greens, bamboo-shoots, cabbage, daikon in various unappetizing forms, and other garden-truck which one eats as a novelty the first meal and rejects with an involuntary tightening of the throat when it is offered at the second and third. In addition there are flabby mushrooms boiled in very thin water without seasoning; the omnipresent boiled rice without sugar, milk, or salt; a bean-

curd (*tofu*) for which one acquires a liking only after much patient effort; a yellow substance (known as *yuba*) made of the skin of bean-curd, and looking and tasting like thin sheet rubber;...”

Kobe excursion—The Tansan Hotel (p. 630): The strawberries and other ground fruits and vegetables, which grow nearly all the time in this favored spot, are enriched with [soy] bean-cake only [no human excrement is used] (as a precaution against typhoid).”

Korea (p. 725): “Among the dishes dear to the native heart are pounded capsicum, bean curd [*tofu*], various sauces of abominable odors, a species of sour kraut (*kimshi* [*kimchi*]), seaweed, salt fish, and salted seaweed fried in batter.”

Manchuria and the Trans-Siberian Railway (p. 756): “Considerable [soy] bean-cake and furs, and vast quantities of lumber, etc., come down the river from upper Manchuria and Siberia.”

Also discusses edible seaweed (p. xlv, 330): Japanese food: “Seaweed in almost endless variety enters largely into foodstuffs. Not only are the giants of the marine flora taken up and utilized in various ways, but also the more delicate red and green sorts—the use of which has been adopted by other nations. Most of the edible green and red algae bear the generic term *nori*, while the words *umi-kusa*, or *kai-so* (which also means *bêche-de-mer*), are used for algae in general. Many of the weeds are eaten fresh, others in soup. Some are dried or pickled and eaten in vinegar. They usually appear in commerce in the form of little packages, to the sale of which special stores are dedicated. Certain varieties are converted into jelly.”

Yezo—fisheries: “Certain of the many varieties of edible seaweed which flourish along the Japanese coast are found in Yezo, particularly the circumpolar tangle (*Laminaria*) and seawracks (*Fucus* species), which prefer cold water and a heavy surf. For this reason sea-algae add considerably to the value of the Yezo exports.”

Note: The author resided for almost 12 years in Japan and made repeated journeys on foot (and otherwise) from one end of the country to the other. Address: F.R.G.S. [Fellow of the Royal Geographical Society, England].

320. Yokoi, Yokiyoshi. 1914. Agricultural economy of Japan: Principal features, present conditions of production. *Monthly Bulletin of Agricultural Intelligence and Plant Diseases (International Institute of Agriculture) (Rome)*. p. 331-36.

• **Summary:** The section on “Cultivation of grain crops” (p. 322-23) states: “Leguminous products such as peas, soy-beans, kidney-beans, and red beans (*Phaseolus radiatus* [*azuki* beans]) are among the important crops.” “Among textile plants hemp retains its importance... no forage or crop of importance is produced.”

A table (p. 335) gives data on the twenty principal crops for the year 1910. For each is given the acreage (in *cho*

and acres) and production (in *koku* and bushels or pounds). Soy-bean: On 1,171,436 acres, some 16,857,562 bushels are produced. Red bean [*azuki*]: On 345,631 acres, some 4,793,149 bushels are produced. Hemp: On 30,177 acres, some 20,049,232 lb are produced.

Note: This is the earliest document seen (Dec. 2001) concerning the International Institute of Agriculture and soy. Address: Prof. of Agricultural Science, Imperial Univ. of Tokyo, Japan.

321. *USDA Bureau of Plant Industry, Inventory*. 1915. Seeds and plants imported by the Office of Foreign Seed and Plant Introduction during the period from October 1 to December 31, 1912. Nos. 34340 to 34727. No. 33. 60 p. Jan. 23.

• **Summary:** 34516. *Amygdalus davidiana* (Carr.) B. S. and Z. Peach.

“(Prunus davidiana Franch.)

“From Tientsin, China. Presented by Dr. Yamei Kin. Received at the Plant Introduction Field Station, Chico, Cal., November 9, 1912.

“‘Shan t’ao, the mountain wild peach. These seeds came from the Governmental Experimental Farm in Pao Ting Fu and vicinity. They must be planted in the autumn and allowed to be split by the frost so that they will germinate readily in the spring.’ (Kin.)”

Soy bean introductions: *Soja max* (L.) Piper. (*Glycine hispida* Moench.)

Note: This is the earliest document seen (Aug. 2011) in which the scientific name of the soybean is given as “*Soja max* (L.) Piper.” This indicates that the name “*Soja max* (L.)” was first given by Dr. Charles V. Piper of the USDA. This name continued to be used in this publication and by the USDA Bureau of Plant Introduction until at least June 1940 (Inventory No. 126, p. 18).

“34643-34654. From Kioto [Kyoto], Japan. Presented by Miss E.R. Scidmore, Seoul, Chosen (Korea). Received November 29, 1912. Quoted notes by Miss Scidmore:

“34645. The soy bean has been listed in previous inventories as *Glycine hispida* Moench. Mr. C.V. Piper has recently shown (*Journ. Amer. Soc. Agron.*, vol. 6, p. 75-84, 1914) that the earliest name given by Linnæus to this plant was *Phaseolus max*, that the generic name should be *Soja*, and that the correct name is therefore *Soja max* (L.) Piper.

“‘Kuro [meaning “black” in Japanese]. Used for making sweet paste, but more usually boiled with a pinch of salt and a pinch of sugar added when the water is poured off or shoyu poured on and kept hot until saturated. Served as a relish or accompaniment to each meal and always found in lunch boxes sold at railway stations.’

“34654. ‘*Shiroi daiozu* [*daizu*] [meaning “white soybean” in Japanese]. Used for making tofu or bean curd.’

“34700/34702. From Shantung Province, China. Grown by Dr. William R. Faries, Coachella, Cal. [California]. Received December 17, 1912. Quoted notes by Dr. Faries:

“34702. ‘The yellow bean with the hairy pods (soya) I sent to the department in December, 1894, I think, from Pacific Grove, California, as ‘Manchuria beans,’ and they were sent to Maine station. This would result in failure, I think. They did not do well in Orange County, California, but grow well here. They are fine for green shelled beans.’”

Note 2. This is the earliest English-language document seen (June 2009) that uses the term “green shelled beans” to refer to shelled green vegetable soybeans. Address: Washington, DC.

322. Cook, I.S.; Kemp, W.B. 1915. Soy beans—An important West Virginia crop. *West Virginia Agricultural Experiment Station, Circular* No. 20. 19 p. April.

• **Summary:** Contents: Introduction. The soy bean plant. Adaptation to West Virginia conditions. Methods of utilizing soy beans: Hay, seed production, silage, pasture, soil improvement. Soy beans in crop rotation. Varieties (two tables are given). Recommended varieties. Cultural directions: Preparing the seed bed, planting, inoculation, cultivation. Harvesting: Hay, seed production, threshing. Soy beans in mixture [mixed cultures with other crops]. Summary.

“The soy bean is perhaps the most valuable legume that has been introduced into this country within the last 50 years... The trials that have been carried out comparing soy beans with cowpeas indicate that the soy bean has some points of decided superiority over the cowpea, particularly its hay and seed value... For several years soy beans have been grown quite extensively for hay in Monroe County by a number of farmers, and they report splendid results in wintering young cattle, sheep and horses on it.”

“During the past three years this Station has tested a number of soy bean varieties and while the tests have not been conducted for a sufficient length of time to give all of the information desired yet some outstanding variety differences have been noted. These are shown in the following table.”

This table, titled “Varieties of soy beans” (p. 8) shows for each variety: Name, registry number, days to maturity, height in inches, habit of growth (erect, twining, reclining), quality of vine (very coarse, coarse, medium, fine), color of seed, color of hilum (seed scar), number of beans in 10 grams of seed (1913 and 1914). The named varieties tested are: Ohio 7476, Hollybrook, Ohio 7420, Brown, Wilson, Morse, Peking, Ohio 7495, Meyer, Arlington, Ohio 7406, Guelph, Ohio 7403, Austin, A.K. 1912, Ohio 7490, Ito San, Roosevelt, Chernie, Virginia, Nemo, Swan, Auburn, Sable, Mikado, Manchu, Jet, Tar Heel [Tarheel], Adzuki bean, Adzuki bean, Early Buff cowpea.

A table titled “Variety test for seed production” (p. 9) shows for each of the varieties listed above: Name, yield in bushels per acre in 1912, 1913, 1914, average, years tested. This station began testing soybean varieties in 1912, when

nine varieties were tested: Ohio 7476, Hollybrook, Ohio 7420, Brown, Ohio 7495, Ohio 7496, Guelph, Ohio 7403, and Ohio 7490. The first four of these varieties have been tested for 3 years (1912 to 1914). The highest 3-year average seed yield was from Ohio 7476 (19.7 bu/acre). The highest 2-year average yield was Wilson (21.9 bu/acre).

Photos show: Wooden soybean drying rack, pyramid shaped. Component parts of a drying rack (p. 15). A small bean thresher, made by the American Grain Separator Co. in Minneapolis, Minnesota (p. 17). The self rake reaper from the International Harvester Co. This is the best machine for harvesting soy beans in West Virginia. (p. 18).

Note 1. “A.K. 1912” may refer to the fact that the soybean variety A.K. was introduced from northeast China in 1912 by the Lucas Paint Company, New Jersey.

Note 2. This may well be the earliest document seen (Nov. 2020) that mentions the soybean variety A.K.—but we cannot be sure that “A.K. 1912” was the same as “A.K.” Address: Morgantown.

323. *Honolulu Star-Bulletin (Hawaii)*. 1915. Business and commerce: Hawaii’s rice imports. Dec. 21. p. 14, col. 4.

• **Summary:** From Japan Advertiser: “The war has caused a remarkable increase in the export of cereals to the Allies.”

“The crop of soya and red beans [azuki] was poor this year, but heavy crops were garnered of such varieties yendo and ingen and this, coupled with the strong demand in England and France, assisted the export market up to the end of September to reach 48,772,210 kin, showing an increase of 33,970,913 kin over the figures for the corresponding months last year.”

Note 1. A kin is a Japanese unit of weight. 1 kin = 1.323 lb = 600 gm.

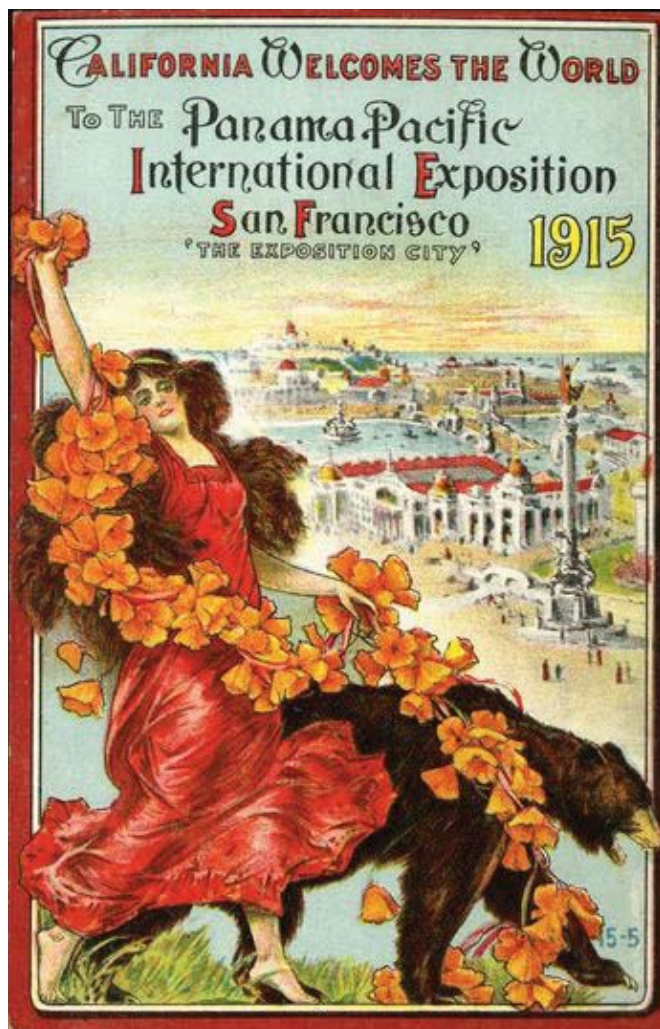
“The value of the above goods and oats, soja beans, red beans and miscellaneous kinds of cereals put together reached 17,019,154 yen, showing an increase of 11,348,869 yen.

Note 2. In World War I (1914-1918) Japan fought in an alliance with the Entente Powers against Germany. Japan played an important role in securing the sea lanes in the West Pacific and Indian Oceans against the Imperial German Navy.

324. Hakurankwai Kyokwai (Societe des Expositions). 1915. Japan and her exhibits: At the Panama-Pacific International Exhibition, 1915. Tokyo: Hakurankwai Kyokwai. Printed by the Japan Magazine Co. 373 p. See p. 102, 103, 115, 241-45, 248-55. Illust. No index. 19 cm. [Eng]

• **Summary:** This exhibition was held in San Francisco, in the Marina district, to celebrate the city’s recovery from the 1906 earthquake. The grounds were built on landfill consisting of rubble from the quake. As of 1989, the only remaining building is the Palace of Fine Arts.

The section in this book titled “Vegetable food products



and agricultural seeds” (p. 241) lists the name, address, and products of companies that process soybeans. Eight companies that make “Soy bean oil” or “Bean oil” as their main product are listed. The Japanese word *daizu* / *daidzu* means “soybean(s)”: Daidzu Hyohaku K.K. (The Soybean bleaching Co., Nagoya), Hirano Daizu Kogyo K.K. (Hyogoken), Torajiro Inoue (Kobe), Kwanto Totoku-fu (Kwantung Government; South Manchurian Railway Co., Dairen and Port Arthur; Soy beans and soy-bean oil), Saburo Oguri (Aichi-ken), Okuda Shoten Sei-hi-jo (Fertilizer Manufactory, Aichi-ken; Soy bean oil), Suginuma Shokwai (Chita-gun, Sichi-ken), Sadajiro Yoshiwara (Okawa-machi, Higashi-ku, Osaka; Rape seed oil and bean oil). Note 1. The only other oil widely made in Japan seems to be rape seed oil.

One association involved with soybeans is the Hokkaido Nokwai (Hokkaido Agricultural Assoc.). It was established in 1900. Production of “beans” is as follows: Daifuku 11,880,000 kin, Nagauzura 9,700,000 kin, Maruzura 5,790,000, Kintoki [azuki] 2,050,000 kin, Otenashi-Kotenashi 4,000,000 kin (p. 241).

Note 2. This is the earliest English-language document seen (Oct. 2021) that uses the word “Kintoki” to refer to a

type of azuki bean.

Page 245 lists the Jozo Shiken (Brewed Products Experiment Station), Tokyo.

The section titled “Sugar and Confectionery, Condiments and Relishes; Nuts and Fruit Foods” (p. 248-54) lists 103 manufacturers of “Soy” and/or “Tamari.” These two products comprise most of the listings.

The ad section at the back has a full-page ad (p. 9) titled: “The standard of Japan shoyu: Soy sauce. Representing eight largest breweries at Choshi and Noda, Chiba-ken, the centre of the industry in the empire. The annual output is estimated at 40,000,000 gallons.” Brands with logos [name of owners in parentheses]: Yamaju (Jujiro Iwazaki), Kikkoman (Saheiji Mogi), Minakami (Fusagoro Mogi), Kushigata (Shichizaemon Mogi), Jojyu (Hyozaemon Takanashi), Yamasa (Gihei Hamaguchi), Higeta (Choshi Shoyu Goshi Kaisha), and Kihaku (Shichiroemon Mogi). These eight brands are a guarantee of quality. They dominate the Shoyu Market. Do not miss seeing the exhibits (Palace of Food Products).

On the next page (p. 10) is an ad titled “Okayama-ken Shoyu (Soy Sauce)!!! The climate of Okayama-ken is best suited for the brewing of Soy of an excellent quality. The quantity produced amounts to 250,000 koku [11,900,000 gallons; there are 47.6 gallons/koku] a year. Soy is rich in nitrogenous nutriments and consequently is a table sauce par excellence. The exhibitors of the Soy produced in Okayama-Ken are as follows: Keijiro Kondo (output 16,614 koku), Entaro Oka (3,399), Kurajiro Koyama (4,938), Kanaichi Shoyu Gomei Co. (4,500), Jotaro Takimoto (8,049), Motomasu Ono (3,804), and Ihachiro Kuyama (2,859).”

A color poster shows a woman and a bear walking together, bedecked in flowers, titled: “California welcomes the world to the Panama Pacific International Exposition, San Francisco 1915. The Exposition City.” Address: Tokyo, Japan.

325. Porter, Robert Percival. 1915. Japan, the new world-power: Being a detailed account of the progress and rise of the Japanese empire. London, New York, Toronto, Melbourne and Bombay: Humphrey Milford, Oxford University Press. xxiv + 789 p. Illust. Seven colored maps. Index. 23 cm. [soy ref]

• **Summary:** Japan (regardless of race and colour) intervened in the Great War on the side of her ally Great Britain. They worked together successfully against Germany in the siege of Tsing-Tau in 1914 from Oct. 31 to Nov. 7.

Near the front of the book is a table of “Weights, measures and moneys, for Japan, Great Britain, and the USA.”

Page 149-50: “The annual average number of immigrants from Japan is about 20,000. Roughly, half go to China and the United States of America... Since 1907 two batches of Japanese emigrants, under 2,000 in all, have gone

to Brazil, the majority of which have been under contract with the Sao Paulo Government to work in the coffee plantations.” There are now about 155,000 Japanese in the United States. Since a 1907 agreement between Japan and the USA, immigration of Japanese labour to the USA has been restricted. Some Japanese have tried to enter the USA by going first to Mexico. There are not more than 2,000 Japanese in Canada at present.

Page 232: In Japan: “The necessity for increased military and naval expenditure, which rose in connection with Korea in 1881, called for considerable additional revenue. Fresh military taxes were therefore levied; income-tax was introduced along with indirect imposts [taxes] on soy [sauce], tobacco, confectionery, and stamps, and the tax on *sake* was raised, augmenting the receipts to such an extent that the Government was able in 1886 to reduce the land-tax again. But following the war with China [1894-95] it became necessary to establish occupation and registration taxes, to raise again the *sake* tax, and to create a Government monopoly of leaf tobacco.”

A table (p. 233) shows how the ordinary State revenue of Japan was derived in the financial years 1898-99 and 1909-10. The two main sources of revenue were: Land tax (38.4 and 85.7 million yen respectively) and liquor tax (33.0 and 91.5 million yen). By comparison, the soy tax was relatively small: 1.54 and 4.73 million yen.

Page 235-36: “The tax on liquors is levied upon (a) brewers of *shurui* (alcoholic liquor), which is divided into five classes, viz. *seishu*, or refined *sake*, *dakushu*, or unrefined *sake*, *shirozake*, or white *sake*, *mirin*, or sweet *sake*, and *shochu*, or distilled *sake*; (b) brewers of beer; and (c) wine and alcohol and alcoholic liquors other than *sake* or beer.”

“Soy tax: The soy tax is levied upon manufacturers of this sauce at the rate of about 1 3/4 yen per *koku*. A tax on soy for household use was introduced in 1900, and ranges from 50 sen to 4 yen per *koku*, according to the amount manufactured. No more than 5 *koku* of soy per annum may be made for household use.”

Page 240: A full-page table shows the “Budget for financial year 1911-12.” The main sources of “Ordinary revenue” are liquors tax (88.7 million yen), land tax (75.1 million), customs duties (50.5 million), and tobacco monopoly (50.5 million yen). Revenue from the soy [sauce] tax is 4.6 million yen. The sugar excise is 14.7 million yen.

Page 261-62: “The upland fields, being for all intents and purposes unirrigable, are only to a very limited extent utilized for the cultivation of rice. Rotation crops are, however, raised twice a year, usually barley, ‘naked barley,’ and wheat as winter crops, and soya (more properly soja), sweet potatoes, and millets as summer crops.” A key unit of area in agriculture is one *tan* = 0.245 acre. On [lowland] paddy fields, nationwide over the past 10 years, the average yield per *tan* is 7.913 bushels of rice and 6.668 bushels of

barley, which may be considered a representative winter crop. “Upland fields, upon the same basis, produce 6.638 bushels of barley as a summer crop and 3.756 bushels of soya bean.”

Another key (larger) unit of area in agriculture is one *cho* = 2.45 acre.

A table (p. 263) shows the total area, production, and yield of 17 major crops in Japan in 1897 and in 1910. Both years, the leading crop (by far) in area was rice, followed (in 1897) by barley, naked barley, wheat, and soya bean. For 1897 the three figures for soya beans were: 1,067,000 acres under cultivation, 15,381,000 bushels total production, and 14.41 bushels per acre yield. For 1910 the three figures for soya beans were: 1,137,000 acres, 18,834,000 bushels total production, and 16.56 bushels per acre yield.

Statistics for “small red bean” [*azuki*] are also given: For 1897 268,000 acres under cultivation, 3,069,000 bushels total production, and 11.45 bushels per acre yield. Thus, in 1897 and 1910 the production of soybeans was roughly 5 times the production of *azuki* beans.

Chapter 15, “Agriculture,” contains a section titled “Soya bean” (p. 264-65): The soya, or soja, bean is well enough known in England as a cattle-food, but in Japan its application is by no means limited to this use. It is the basis of the Japanese sauce, soy, of which enormous quantities are brewed; of *miso*, or bean cheese [sic], used extensively for soup and in cookery in general; and of *topu* [sic, tofu], or bean curd, a cheap, highly nutritious and very popular article of diet. The residue from these manufactures is used both as fertilizer and as cattle food, or, alternatively, an oil of some value may be obtained from it. It is the principal summer crop of the upland fields, and its cultivation, which requires less fertilizer and less labour than other products, is general throughout Japan and particularly in Hokkaido. But the supply is far from equal to the demand, and a large quantity of beans and bean cake is imported from Chosen and Manchuria, the value of the present importation amounting to £3,000,000 annually.

“Among other beans the small red bean is largely cultivated, especially in Hokkaido, and is used for cakes and confectionery, and boiled with rice on occasions of ceremony. The Japanese are very fond of peas, horse-beans, and kidney-beans, which are grown as a stolen crop after rice in the paddies and just before it in the upland fields.”

Page 269: “A comparison of the relative positions of human and animal labour in paddy fields and upland farms for the years 1903 and 1908 (the latest year for which figures are available) shows that the area tilled exclusively by human labour still forms a very large proportion of the total, though it tends steadily to decrease.” “Manual labour is plentiful and it is chiefly by reason of its abundance that the intensive system can be carried on. Rice-growing requires, for instance, the labour of 17 men and 9 women per *cho* (2.45 acres), barley and wheat 11 men and 6 women,

tobacco 25 men and 23 women, soya bean 7 men and 5 women, and so on. Farmers, in the vast majority of cases, are their own labourers, and those who may be distinguished as 'professional labourers' are a very small class."

Page 292: Sea-weeds: "Chief among the sea-weeds used as food is that known as 'Kombu' (*Laminaria*). It grows mostly on the shores of Hokkaido and the south-east of Honshiu [Honshu], and is eaten sliced into very thin shreds. 'Kanten' is made by dissolving the weed *Tengusa* in water and exposing the resulting gelatinous infusion to the action of cold by night and the sun by day. Only the Chinese use it as food, however; in the West it is a substitute for gelatine, isinglass, starch, and the like. Other sea-weeds are used as paste."

Page 319: "Japan is self-supporting in silk weaving, the preparation of national liquors, soy brewing, matches, porcelains, and some other articles."

Page 450: A history and discussion of the South Manchuria Railway Co.

Page 583: "A Rescript of Emperor Daigo, issued in 930, said:—'We have seen that many sick people are lying by the roadside and that no one gives them shelter. We order that they shall be supplied with shelter and with food. There shall be given daily to a man or a woman one *sho* of rice, one *shaku* of fine salt, and one *go* of soy [sauce]..."

Page 692: Hokkaido. "Of the food crops, the soya bean and the small red bean [azuki] are the most important." Agriculture "now constitutes Hokkaido's principal source of wealth," yet fisheries have long been important.

Chapters 44 and 45 (p. 699-733) are about Manchuria; soya beans are discussed at length. The Japanese government wisely selected Baron Goto to reorganize the South Manchurian Railway.

Chapter 47 (p. 745-57), "The Soya Bean," is basically the same as that found in the 1911 edition titled "The Full Recognition of Japan." Address: Queen Anne's Mansions, London, England.

326. Takenob, Y. 1915. Japan Year Book. Tokyo: Japan Year Book Office. 789 p. See p. 349, 391, 401-02, 436, 634, 714, 716-17, 730, 743. Tenth annual issue. [Eng]

• **Summary:** This book gives statistics for the Japanese empire: Japan Proper, Korea, and Formosa.

The population of Japan Proper (based on the census taken every 5 years) was:

1898—45.4 million.

1903—48.5 million.

1908—51.7 million.

A table of "Weights, measures and moneys" is on p. xxxii (near the front).

Page 349. In the chapter on "Agriculture," a table shows production of soy beans, sweet potatoes, and potatoes, 1911-1913 (in 1,000 koku). Production of soy beans decreased from:

3.69 million *koku* in 1911, to

3.51 million *koku* in 1912, to

2.99 million *koku* in 1913.

Note: The decrease of soy bean production in Japan during this period was due mainly to imports of soy beans from Manchuria and Korea (see below).

The text below the table states: "Among subsidiary farm crops there is perhaps nothing which plays so important a part in the Japanese kitchen as soy beans. The three daily articles of diet for all classes, viz. *soy*, *miso*, and *tofu* are manufactured with this bean either in part or wholly. The *tofu* (bean curd) is one of the most popular articles of diet, being cheap and highly nutritious; the *miso* makes Japanese soup and is used in various other ways. The soy is indispensable in Japanese cooking. Then for extracting oils, [the cake] as manure, and food for horses, beans are equally important. The supply being insufficient, quite a large quantity comes in from Manchuria and Korea. In Japan Hokkaido is the principal centre of production. Red beans [azuki], also very extensively produced in the northern island, are used for making confectionery, are boiled with rice on ceremonious occasions, and for other purposes. Peas and horse-beans, whether green or fully ripe, are favorite food-stuffs in Japan, and they are extensively cultivated as a second crop after rice and as a forerunner to rice, indigo, etc. on upland farms. Groundnuts are among a few subsidiary farm produce that go abroad, mostly to U.S.A. In Japan they are used by confectioners and also for pressing oil..."

Pages 390-91. A table titled "Industrial companies classified by amount of investment" states for "Soy and miso." Number of companies: 251. Paid up capital: 5.9 million yen. Reserves: 580,000 yen.

Page 401-02. In the chapter on "Industry" under "Brewing industry" we read: "The brewing industry in Japan comprises sake, beer and soy, for wine is still insignificant and as yet enjoying the benefit of non-taxation. The two indigenous industries of sake and soy are still primitive in process, and various new methods, several of them patented, have so far failed, especially as regards soy.

Page 402. "Soy.—For soy the prefecture of Chiba, which is contiguous to Tokyo municipality, heads all other places on the list as to output. Parched wheat mixed with salt beans is a principal ingredient. The process is still far from scientific, requiring about 12 months before the liquid is ready for sale. It is also costly, as it does not much admit labor-saving appliances. To obviate these advantages have been tried several patented processes, but most of them have failed. The collapse of the short-lived Nippon Soy Co., started in 1907 near Osaka with 2,500,000 yen paid up, has dampened the cause of scientific process of soy brewing."

A table shows annual production of sake, beer, and soy (in koku) from 1912-13 to 1914-15 (three years). Note: Since all three of these are taxed by the federal government, careful records are kept. Sake averaged 4.32 million *koku* (the

largest output). Soy averaged 2.37 million *koku* (roughly half of sake). Beer averaged about 0.219 million *koku* (by far the smallest).

A 2nd table gives exports of these three products during the same years. Sake averaged 3.61 million *sho* (100 *sho* = 1 *koku* = 47.6 gallons). Soy averaged 3.15 million *sho*. Beer exports (in 1914) were by far the smallest: 117,000 pints, 377,000 quarts, and 22,000 casks of 1 *sho* each. Note: “Beer brewing first started about 1876 in Hokkaido. The brewing was at first under the tutelage of German experts... At present there are four or five breweries, the Dai Nippon, Kirin, and Kabuto.”

Page 465. A table titled “Prices of commodities in Japan” (1911-1913) includes the following for 1913:

Rice 21.01 yen per *koku*.

Barley 7.93 yen per *koku*.

Soja beans 11.54 yen per *koku*.

Red bean [azuki] 16.02 yen per *koku*.

Soy [sauce] 23.85 yen per *koku*.

Miso 0.37 yen per *kwan* [kan; 1 *kwan* = 3.75 kg].

Page 518. A table titled “Carrying trade on main routes” shows that China was exporting a lot of Soja beans and [soja] bean cake to Japan. China (including Manchuria) had exports to Japan worth 142.3 million yen and imports from Japan worth 80.5 million yen.

Page 634. In the chapter on “Finance” under “6. Tax on Japanese soy” we read: “The tax is assessed both on the soy manufactured for sale and on that for home consumption. In the former the tax is yen 1.75 [per *koku*] for refined soy and yen 1.65 for the unrefined soy and in the latter it ranges between the two extremes of yen 4.00 and yen 0.50 according to quality.

Page 714. In chapter 35, “Chosen (Korea),” under the heading Foreign Trade,” is a table on “Staple exports” (in 1,000 yen) which has data on “Beans and peas” for 1910-1914.

Page 717. In the chapter on “Chosen (Korea): Agriculture,” under “Barley and Soja Bean” it is stated that “Soja and other beans are exported chiefly to Japan for manufacturing soy [sauce]. Acreage of soja beans in Korea is 553,077 *cho* and the yield 3,345,472 *koku*.” Note: 1 *cho* = 2.45 acres and 1 *koku* = 47.6 gallons or about 6 gallons. Thus, in English units, in Korea 1,355,039 acres produce 20,072,832 bushels, for a yield of 14.8 bu/acre.

Note: This is the earliest document seen (Jan. 2005) that gives soybean production or area statistics for Korea (which has been a “province” of Japan since 1910).

Note: Japan was importing a lot of soybeans from its colony, Korea, in 1912. Korea had exports to Japan worth 20.9 million yen and imports from Japan worth 27.1 million yen (p. 518).

Page 730. In Chapter 36, “Taiwan (Formosa),” under the heading “Agriculture,” a table (p. 730) titled “Agricultural products” has production data on “Beans and peas” for 1912-

1913. The beans were probably mostly soy beans.

102,000 *koku* in 1912

137,000 *koku* in 1913

In Chapter 38, “South Manchuria,” is a paragraph (p. 743) titled “The soya bean” which has information on South Manchuria’s soya bean yield, [soya] bean-cake output, amount exported for specific years, and production at various milling centres (almost same wording as 1914 Year Book). Address: Japan.

327. Davis, John K. 1916. Foreign bean production and trade: Manchuria–Antung export statistics. *Commerce Reports [USA] (Daily Consular and Trade Reports, Bureau of Foreign and Domestic Commerce, Department of Commerce)* 19(42):694-705. Feb. 19. See p. 703-04.

• **Summary:** “It is impossible to secure estimates of the acreage of beans in this district that sufficiently approximate accuracy to be worth recording. The only available figures from which estimates can be made are the customs statistics of the total exports of beans of all kinds from this port, which of course include soya as well as purely edible beans.”

A table shows direct exports of beans from Antung directly to foreign countries from 1912 to 1914. Only soya beans and “red beans” [azuki] are exported in large amounts. For “Yellow (soya)” beans: 4,899,866 pounds in 1912. 8,404,533 pounds in 1913. 21,025,466 pounds in 1914. Clearly a huge increase. For “Red” [azuki] beans. 4,175,600 pounds in 1912. 4,647,200 pounds in 1913. 3,344,533 pounds in 1914. A decrease.

“While there are no figures showing exactly the destination of the beans exported from Antung it is commonly known that the larger part of the edible as well as the soya beans exported is sent to Japan and Korea (Chosen).” Address: Consul, Antung, China.

328. Moser, Charles K. 1916. Foreign bean production and trade: Manchuria–Varieties of beans in north Manchuria–Exports and prices. *Commerce Reports [USA] (Daily Consular and Trade Reports, Bureau of Foreign and Domestic Commerce, Department of Commerce)* 19(42):694-705. Feb. 19. See p. 703.

• **Summary:** “Two different classes of edible beans are cultivated in northern Manchuria, viz., Siao-tou [*xiaodou*, azuki beans] and Leu-tou [*lūdou*, mung beans]. The Siao-tou, which means small beans, are divided into the following three kinds: Red beans, which are considered to be the best in quality; white beans; and mixed beans, which may have red, black, white, marble, and other colors mixed together. All these beans are used for food. The second class of beans, the Leu-tou, which means green beans, are used principally in the manufacture of vermicelli and starch.

“In northern Manchuria edible beans are not grown in such quantities as the soya bean, on account of the small demand for export purposes, but large quantities are grown

for native use, and the majority of Chinese farmers plant them as a regular crop. It is not possible to secure figures of the extent to which they are actually cultivated.”

“The Siao-tou [azuki beans] beans are exported principally to Japan and the Leu-tou [mung beans] to the interior cities of China.” Address: Consul, Harbin, China.

329. Scidmore, George H. 1916. Foreign bean production and trade: Japan. *Commerce Reports [USA] (Daily Consular and Trade Reports, Bureau of Foreign and Domestic Commerce, Department of Commerce)* 19(42):694-705. Feb. 19. See p. 700-01.

• **Summary:** Tables show: (1) Four major varieties of beans grown in Japan in 1911-1913 based on statistics published by Japan's Department of Agriculture and Commerce. For “Daidzu (soya bean).” In 1911–1,198,919 acres and 18,318,236 bushels. In 1912–1,165,401 acres and 17,416,861 bushels. In 1913–1,164,445 acres and 14,865,751 bushels. Thus, both soya bean acreage and production are decreasing. For “Azuki, small bean (*Phaseolus radiatus*).” In 1911–345,682 acres and 4,740,262 bushels. In 1912–334,920 acres and 4,697,839 bushels. In 1911–345,442 acres and 2,976,388 bushels. Thus, azuki bean acreage is static while production is declining. Statistics are also given for “Endo mame (pea)” and “Sora mame, broad bean (*Vicia faba*).”

(2) Exports and imports of beans in 1914 based on customs returns: Exports–Soya beans: 972,615 pounds valued at \$22,333. Imports–Soya beans: 332,625,247 pounds valued at \$5,079,787. “Of the soya-bean exports in 1914, more than one-half went to the United States, British America, and Hawaii; the imports nearly all came from China.” Address: Consul General, Yokohama [Japan].

330. Williamson, Adolph A. 1916. Foreign bean production and trade: Manchuria. *Commerce Reports [USA] (Daily Consular and Trade Reports, Bureau of Foreign and Domestic Commerce, Department of Commerce)* 19(42):694-705. Feb. 19. See p. 701-02.

• **Summary:** Many kinds of beans are grown in Manchuria. The soya bean is not one of the four “edible” beans that are well known in America. “No crop statistics are prepared by the Chinese and even the acreage of soya bean plantings is never well known. The nonedible oil-producing soya bean is planted on a large scale, whereas edible beans are planted by the Chinese farmers for their own use only, as a rule...” “Beans are sold here by the Japanese picul of 132.277 pounds.”

The climatic and other conditions of northern and southern Manchuria are well suited to bean culture, as is shown by their general production everywhere and by the soya-bean crops. It is possible that the soya bean, which has not yet been shown to be a profitable crop and business to all concerned, will in a few years be replaced by other kinds of beans...”

“Beans do not figure in the statistics of trade, and information about them is hard to obtain. The Japanese do not seem to know anything about them. The only edible beans about which Japanese seem to have information are what they call ‘mungo beans,’ several varieties of which (red, white, red and white) are sold locally.” Some Mungo beans are known at Dairen as ‘azuki.’” Address: Consul, Dairen [Manchuria].

331. Scidmore, George H. 1916. Oriental production of beans–Japanese production of beans. *Commerce Reports [USA] (Daily Consular and Trade Reports, Bureau of Foreign and Domestic Commerce, Department of Commerce)* 19(262):504-06. Nov. 7. See p. 506. Submitted Sept. 25.

• **Summary:** “In 1914, 464,889 *cho* (1,138,978 acres) were devoted to the cultivation of soy beans in Japan, and 130,003 *cho* (318,507 acres) to the cultivation of red beans [azuki]. No later figures of the extent of the acreage devoted to the cultivation of beans are available.

“Dairen, Manchuria, is the principal port of shipment of beans in the Orient.” Address: Consul General, Yokohama, Japan.

332. Hagerty, Michael J. trans. 1917. The beans: Imperial encyclopedia (*T'u shu shih ch'eng*. Published, 1728). Washington, DC: U.S. Department of Agriculture. 18 p. May. 28 cm.

• **Summary:** This section on beans (including soy beans) appears in the encyclopedia in Category IV–Science (*Po Wu Hui Pien*), Section 20–Vegetable Kingdom (*Ts'ao Mu Tien*), Subheading–Beans (*Tou Pu*), Book 35. Virtually all of the translation concerns a General Chronological Survey (*Hui K'ao*), No. 1. p. 1-24. For many of the longer detailed sections concerning soy beans, the translator refers the reader to his 1917 translation of: Wu Ch'i-chün, ed. 1848. *Chih wu ming shih t'u k'ao*.

“*The Shih Ching*, or Book of Odes, under the heading of ‘Pin Feng Seventh Month’, says: N.B.–Translated; see *Chih (Chih wu ming shih t'u k'ao)* translation–Pai ta tou, p. 31.

“In the *Hsiao ya* (Lesser Eulogium–Section of *Shih ching*), there is a poem entitled the *Pai chu*, or White colt, in which it says: “Let the brilliant White colt graze in my field. of Huo, or young bean plants.” In the *Ta ch'üan* (Complete Commentaries on the Classics, by Chu Hsi), there is a passage as follows: ‘Hua Ku-yen says the name *Huo* denotes the leaf of the bean plant and is used in making Kêng, or broth.’

“In the *Ta ya* (Greater Eulogiums–Section of *Shih ching*) there is a poem entitled *Sheng min*, or Decade of Shêng-min, in which it says: N. B.–Translated; see Ch. translation, p. 3, 27.

“The *Erh Ya*, or Ancient Dictionary of Classical Terms, says: N. B.–Translated.; see Ch. translation, *Pai ta tou*, p. 2,

THE BEANSImperial EncyclopediaT'U SHU SHIH CH'ENG.

(Published, 1728.)

Translated by M. J. Hagerty,
Translator of Chinese, Office of
Crop Physiology, Bureau of Plant
Industry, U. S. Department of Ag-
riculture May, 1917.

27.

"The *Sheng Shu*, or Canons of Yao and. Shun, says: N. B.—Translated; see Ch. translation, *Pai ta tou*, p. 25.

The *Ch'un ch'iu*, or Spring and Autumn Annals, says: "The term *Shu* is a general one for the bean, and it grows in the spring and ripens in the autumn. They are classified according to their uses and form. The *Chih*, or Scarlet, and the *Hei*, or Black beans are suitable for the *yin*, or negative principle, while the *Sheng* or fresh beans are good for the *yang*, or positive principle. When the *Shu* becomes scarlet and black it changes gradually from the negative to the positive. In general it has the same character but it changes a little in order to have the positive appearance.

"According to the *Tso chu chih* the god of beans has the name of *Ling Chih*, and his family name is *Lao*, is seven feet tall, has large eyes, and he understands the change of the seasons."

The *Hsiao ching*, or Book of Filial Piety, by Pa Shen-ch'i, says: "Red soil is suitable for the *Shu*."

The *Hsia hsiao chêng* says: N. B.—Translated; see Ch. *Pai ta tou* translation, p. 17.

"*Huai nan-tzu* says: 'The mud from the river bottoms is

good for the *Shu*.'

"The *Po ya*, or Ancient Dictionary, by Chang I, describing the *Tou* (1 Cc), or bean, says: 'The *Ta tou* (2 Cc) [soybean] is identical with the *Shu* (1 Cc), while the *Hsiao tou* (2 Cc) [azuki bean] is called the *Ta* (1 Cc). There are also the *P'i tou* (2 Cc), which is also known as the *Wan tou* (2 Cc), and *Liu tou*. The *Hu tou* (2 Cc) is also known as the *Chiang tou* (2 Cc) and *Shuang tou* (2 Cc). The bean pods are called *Chia* (1 Cc), the leaf is called *Huo* (1 Cc). The *Pa shu*, is identical with the *Pa tou* (2 Cc).'

"The *Chung shu shu* (See Bretschneider, *Botanicon Sinicum*, 1:79), a Treatise on the Art of Planting, by Kuo T'o-t'o, a work of the 7th or 8th century, describing the bean, says: 'Plant the bean, *Yu ma* (2 Cc), and *Ta ma* (2 Cc) (*Cannabis sativa*). If the beans are not planted at the proper time they will be injured by weeds, and even if they bear some pods, there will not be many beans. There is a maxim which says: *Ma yun ti tou yün hua*, "Cultivate the Ma, or hemp earth; cultivate the Tou, or bean blossom." This means that the *Ma*, or hemp, should be cultivated before it has even sprouted, while the *Tou*, or bean should not be cultivated until it has blossomed. The *Ta tou*, or Large bean [soybean], should not be planted on a *Shên* day.

"The *Erh ya i* (Appendix to the *Erh Ya*, by Lo Yüan, a writer of the 12th century), describing the *Shu*, says: 'The *Shu* is identical with the *Tou* and this class includes very many varieties. All mention of grains included these two names. In ancient times it was said that the hundred grains were made of varieties of *Liang* (1 Cc) (now *Setaria italica*, Kunth), which was a general name for grains like *Shu*, or glutinous variety of *Panicum miliaceum*, L., and *Chi* (1 Cc), also *Panicum miliaceum*, and *Tao* (1 Cc), or *Oryza sativa* [rice]. The term *Shu* is generally used to denote all *Tou* (1 Cc), or beans. These three classes each had twenty varieties, making a total of sixty, while the *Shu* (1 Cc), or Vegetables, and *Kuo* (1 Cc), or Fruits, each had twenty varieties, making a grand total of one hundred. But I (Lo Yuan) think that each kind of grain includes not under ten varieties, so that we do not need to include the vegetables and fruits in order to make up the total of one-hundred.' The *Kuang ya* (Ancient Dictionary), says: 'The *Ta tou* is identical with the *Shu*. The *Hsiao tou* [azuki] is the same as the *Ta*. The *Pi tou* is also known as the *Wan tou* and *Liu tou*. The *Hu tou* is also known as the *Chiang tou* and *Shuang tou*. The pods of the been plant are called *Chia*, while the leaves are known as *Huo*. The *Pa shu* is identical with the *Pa tou*.' The *Kuang chih* (See Bretschneider, *Botanicon Sinicum*, 1:164), or Ancient Records, by Kuo I-kung of the Liang dynasty (AD 502-556), says: 'In one year there are three crops of *Hsiao tou*, or Small beans [azuki] ripened. There is an inscription which reads, *Kan pai tou ts'u* 'sweet, coarse, white large bean.' The large bean may be eaten (?), and the *Tzu tou* (2 Cc) may also be eaten. The *Chü tou* (2 Cc) has a sprout or stem similar to that of the *Hsiao tou* (2 Cc), has a purple blossom and may

be utilized in making Mien, or noodles. These beans grow in Chu-ti and Chien-ning. The *Hu tou* class of beans includes both green and yellow varieties. This is a general summary of the different kinds of beans. The *Ta tou*, or Large bean [soybean], is planted during the second decade of the second month, this being the best season. If the planting is delayed up to the third or fourth month, much of the seed will be wasted. The *Hsiao tou*, or Small bean [azuki], should be planted in the fifth month, as this is the best season for this bean. The *shang fu* (2 Cc), or first part of the three decades of summer, is regarded as the second best period, while the *chung fu* (2 Cc), or middle summer period, is considered third best. These beans are harvested in the autumn in the eighth month, and for this reason, the rains of the eighth month are called the *Ta hua yü*, or Bean blossom rains.' The *Lu Shih Ch'un ch'iu* (Spring and Autumn Annals of the Lu Shih), says: 'When the Shu is planted at the proper time, it will have a long stalk and short root, and its pods usually grow in groups of from two to seven. This plant grows many branches with a number of joints. The leaves grow very profusely and the plant bears many beans. The Shu class of grains is considered inferior to the other Ku, or grains. This is why the *P'in fêng* poem of the *Shih ching* says that in the ninth month, for food, they gather the Shu (1 Cc), or Bean, and *Chü* (1 Cc), or seeds of the female nettle hemp plant (*Boehmeria nivea*), and *T'u* (1 Cc), or Sow thistle (*Sonchus oleraceus*), while for fuel they gather the wood of the *Ch'u* (1 Cc), (*Ailantus glandiculosia*, Desf.). The farmers are made to eat the Shu, or beans, and *Chu*, or Nettle hemp seeds, for food, although they are very coarse and poor, and the *T'u ts'ai*, or Sow thistle, which is very bitter, while for fuel, they are compelled to use the *Ch'u*, or fetid tree (*Ailantus*), which makes a very ill-smelling firewood. This is the reason why the farming people were considered coarse and were forced to be frugal and industrious, yet in spite of these hardships, as a class they were happy. Even Confucius said that to eat the Shu and drink water could be called proper conduct, and demonstrated filial piety better than the indulgence in ease and luxury and worship of material things.' The *Han shu* (History of the Han dynasty), says: 'At the present time, when there is a famine and the people are poverty stricken, half their diet consists of Shu, or Beans, and when food for the soldiers was scarce, the Shu was mixed with other grains and eaten by them. The Shu is put to very many uses, and is also placed in the sacrificial vessels used for worship. There are four preparations made from Tao mi, or rice and Shu, or Millet, which are called *Chou* (1 Cc), *Erh* (1 Cc), *Fen* (1Cc), and *Tzu* (1 Cc). When both are mixed together and boiled the substance is called *Erh*; when made into cakes, it is called *Tzu*. Because of their sticky glutinous nature, these grains are ground into flour. The *Ta tou*, or Large bean [soybean], is boiled and used as *Piao* (1 Cc), an outside coating or garnish for food. According to the commentary of the second Ch'êng, the term *Erh* is identical with *Ch'ou* and

Tzu is identical with *Fên*. In the commentary of the former *Chêng*, these are separated into different classes and the *Fên* is described as being a *Tou hsieh* (2 Cc), or Bean flour. This is not the same. The bean was also used to make *Shih* or Bean relish' [fermented black soybeans]. The *Ch'u tzu* (See Bretschneider, *Botanicon Sinicum*, 1:203) (Elegies of Ch'u, by Ch'ü Yüan, 4th century BC), mentions a preparation called *Ta ku hsien suan hsien kan hsing*. Some one has said that the *Ta ku* (1 Cc) here mentioned refers to *Shih* (1 Cc). This description would seem to refer to liquid bean relish, a mixture obtained by mixing salt, pepper, ginger, and honey with beans. These ingredients, when mixed together, make a substance which has an acrid-sweet taste and is used in preparing *Chou*, or Congee. It is said that Kung Kung (A legendary being. See Giles, CBD, p. 393) had a stupid son, who, on one occasion of the winter solstice, died of a plague. His ghost feared the *Chih hsiao tou*, or Small scarlet bean, and for this reason congee is made and eaten, at the winter solstice to ward off the evil spirits.' The *Yang shêng lun* (See Bretschneider, *Botanicon Sinicum*, 1:210), by Chi K'ang, says: 'The bean diet will cause the body to become heavy, and if it is eaten for three years, the body will become very heavy and movement difficult. If it is constantly eaten, it will cause the body to become very fat and the flesh very coarse and dry. In the tenth month of the first year of Duke Ting, the bean crop was killed by frost. Formerly the learned men regarded the Shu, or bean plant, as being very resistant to frost, and there was a saying that if the bean plant was killed, all plants would perish.' A table (p. 11) compares the nutritional composition of [soy] bean milk and cow's milk.

Note: This book was presented to the U.S. Department of Agriculture Library by Mr. W.T. Swingle. Address: Translator of Chinese, Office of Crop Physiology, Bureau of Plant Industry, USDA.

333. *New York Times Magazine*. 1917. Woman off to China as government agent to study soy bean: Dr. Kin will make report for United States on the most useful food of her native land. June 10. p. 9. (New York Times section 6).

• **Summary:** The *New York Times Magazine* is part of the Sunday *New York Times* and may be simply cited as such.

Dr. Yamei Kin is "the only Chinese woman with a physician's diploma from an American college," the Woman's Medical College of New York. "She left New York a few days ago for the orient to gather data on that humble but nutritious food [the soy bean] for the Department of Agriculture at Washington." During World War I, new demands are being placed on America to feed its citizens and allies. "The appointment of Dr. Kin marks the first time the United States Government has given so much authority to a Chinese. That it is a woman in whom such extraordinary confidence is now reposed detracts nothing from the interest of the story."

China was the first country to invent paper, printing,



gunpowder, porcelain, chess, playing cards, and silk. “And now Dr. Kin is going to see if her native land can teach the United States how to develop a taste for the soy bean in its numerous disguises...”

“‘The world is in need of tissue-building foods,’ said Dr. Kin, ‘and cannot very well afford to wait to grow animals in order to obtain the necessary percentage of protein. Waiting for an animal to become big enough to eat is a long proposition. First you feed grain to a cow, and, finally, you get a return in protein from milk and meat. A terribly high percentage of the energy is lost in transit from grain to cow to a human being.’”

“‘The statement is frequently made that the Orientals live almost exclusively upon rice, eating little meat. It is not generally known, perhaps, that deficiency in protein is made up by the consumption of large quantities of products of the soy bean, which take the place in our dietary of meat and other costly nitrogenous foods. They are eaten in some form by rich and poor at almost every meal. Instead of taking the long and expensive method of feeding grain to an animal until the animal is ready to be killed and eaten, in China we take a short cut by eating the soy bean, which is protein, meat, and milk in itself. We do not eat the plain bean in China at all. It is never eaten there as a vegetable, but in the complex food products—natto, tofu, miso, yuba, shoyu, and similar dishes.

“‘The chief reason why people can live so cheaply

in China and yet produce for that nation a man power so tremendous that this country must pass an Exclusion act against them is that they eat beans instead of meat.’”

“‘But human nature is about the same everywhere, and Chinese don’t care for a monotonous diet any more than other people. So they have taken this soy bean and managed to invent a great many kinds of products. The bean curd is a food made from pulverizing the beans into a flour and then boiling this milklike concoction, letting the curd rise to the top as your grandmothers in this country made cottage cheese. I spoke of tofu—this is it. Nothing is wasted, nothing lost in China. Most of these soy bean products, popular from ancient times, are fermented. The cell walls and the carbohydrate materials are broken down the cell contents rendered more easily digestible, and peculiar and pleasant flavors developed.

“‘Soup noodles are made out of bean curd. Entrées made of bean curd are served with cream mushroom sauce or a hot Spanish tomato sauce. A salad of bean sprouts, accompanied by cheese—the cheese [fermented tofu] a cross between Camembert and Roquefort, and made from the soy bean—is very nutritious and palatable. Americans do not know how to use the soy bean. It must be made attractive or they will not take to it. It must taste good. That can be done. We make from it a delightful chocolate pudding. A black soy bean sauce we use as a foundation for sweetmeats in China.’”

Note 1. This black soy bean sauce is more like a paste than a sauce, and black soybeans are used in place of the much more common red beans (azuki beans). This sauce / paste is rarely mentioned in Chinese cookbooks or books (or articles) about Chinese foods or confections. A good example of an award-winning Chinese author that does mention it clearly is Eileen Yin-Fei Lo. In *From the Earth: Chinese Vegetarian Cooking* (Macmillan 1995) she says (p. 4): At Chinese weddings, “small, round, flat cakes of dough, filled with either sweetened lotus seed paste, black bean paste, or red bean paste, were presented by the groom’s family to that of the bride. These cakes are called *lo paw*, which translates as ‘wife’s cakes’...” “Small steamed buns filled with sweet black bean paste and shaped like peaches are given to people observing their 65th birthdays.”

Note 2. This is the earliest English-language document seen (April 2014) that uses the term “black soy bean sauce” to refer to a kind of sauce made from soybeans.

“The soy bean contains practically no starch, which means that it is a most desirable food for diabetics, and also, of course, for vegetarians. Buddhists kill no animals—they thrive by making a specialty of the soy bean, which, by the way, is already being used in the French Army. They find there that soy bean mixed with flour makes a good cracker, more nourishing than any other cracker.”

“The Chinese do not know what worn-out soil is. Some places are so fertile and are cultivated with so much care and skill that three or four crops a year are regularly gathered...

it is very common to see two crops in the same field at the same time... The Chinese have a passion for fertilizing the soil..."

"Dr. Kin is a graduate of the Woman's Medical College of New York, and her great interests have always been domestic sanitation, civic hygiene, the conservation of life, and questions of nutrition. She is the head of the Imperial Peiyang Woman's Medical School and Hospital, near Peking, which sends out district nurses to Chinese slums to teach the people right living and ways of keeping well. The Imperial Infant Asylum in Tien-tsin, the Widows' Home, and the Girls' Refuge all come under her supervision as head of the woman's hospital work of Northern China. She will return to this country in October, bringing to our Government the detailed results of her study of the uses of the soy bean as a foodstuff needed by this country and by the world in the campaign of food raising and conservation."

An illustration (line drawing) shows a portrait of Dr. Yamei Kin. The caption below the illustration states: "Dr. Yamei Kin, the only [sic] Chinese woman with a physician's diploma from an American college."

Note 3. Actually, Yamei Kin was the *first* Chinese woman with a physician's diploma from an American college."

Note 4. Frank N. Meyer wrote letters about Dr. Yamei Kin in 1911 and 1916.

Note 5. This is the earliest document seen (Aug. 2013) that mentions a soy pudding (a "delightful chocolate pudding" made from bean curd).

334. *Garden Island (The) (Lihue, Hawaii)*. 1917. Valuable home-grown beans. July 17. p. 1.

• **Summary:** "Inquiry has developed that fact that Kauai imports from Honolulu some 150 to 200 bags a month of azuki beans worth 6 to 8 cents a pound, of which our Japanese friends are very fond. Experiment proves that this bean grows to much better advantage here than in Japan and that we can supply our own demand right here with consequent double saving of both profit and transportation."

"On the strength of this discovery Mr. C.A. Rice is planting a very considerable are of them by way of experiment, but with every assurance of success."

335. *Honolulu Star-Bulletin (Hawaii)*. 1917. Japanese beans showing way to food increase. July 17. p. 12.

• **Summary:** "A long step toward making the Japanese of Hawaii independent in the matter of food has been taken by A.H. Case, the food commission's agent on Kauai, who is making a rather extensive planting of Japanese red, or Azuki beans. These are a food of which the Japanese are very fond and which would form a large part of their subsistence if they could obtain it cheap enough."

"Large quantities of the beans are imported from Japan. The merchants on Kauai alone, Case writes, are importing

150 to 200 bags a month, for which they pay 5 to 6 cents a pound."

336. *Quad-City Times (Davenport, Iowa)*. 1917. Both Britain and France are making efforts... July 19. p. 11.

• **Summary:** "... to get quantities of azuki, the small and red Japanese bean. The price of the beans has risen in consequence."

337. *USDA Bureau of Plant Industry, Inventory*. 1917. Seeds and plants imported by the Office of Foreign Seed and Plant Introduction during the period from January 1 to March 31, 1914. Nos. 36937 to 37646. No. 38. 105 p. Aug. 17.

• **Summary:** Soy bean introductions: *Soja max* (L.) Piper. (*Glycine hispida* Maxim.)

"37036-37058. From Chusan, Chosen (Korea).

Presented by Rev. George H. Winn, Presbyterian Mission. Received Jan. 28, 1914.

"37036 and 37037. *Soja max* (L.) Piper. (*Glycine hispida* Maxim.)

"37036. 'No. 1. *Yulgochi* bean. Very hardy, will grow and produce where the ordinary beans will not amount to much.'

"37037. 'No. 2. *Kambool*. Very commonly found in the markets.'

"37038 and 37039. *Phaseolus angularis* (Willd.) W.F. Wight. Adzuki bean."

"37040 to 37055. Soy bean.

"37040. 'No. 5. Brown mottled bean; carefully cultivated and given sufficient fertilizer.'

"37041. 'No. 6. Brown. Planted around the edges of the rice fields or where there is a small corner that can be utilized, they are very hardy and will grow and produce where the ordinary beans will not amount to much.'

"37042. 'No. 7. Large white-eyed bean; carefully cultivated and given sufficient fertilizer.'

"37043. 'No. 8. Large green bean. The larger beans are all carefully cultivated and given sufficient fertilizer.'

"37044. 'No. 9. Black mottled brown bean. As a rule, the smaller beans are planted around the edges of the rice fields or where there is a small corner that can be utilized. They are very hardy and will grow and produce where the ordinary beans will not amount to much.'

"37045. 'No. 10. White mottled black bean; carefully cultivated and given sufficient fertilizer.'

"37046. 'No. 11. Ordinary green bean. As a rule, these beans are planted around the edges of the rice fields or where there is a small corner that can be utilized. They are, however, often planted in fields. They are very hardy and will grow and produce where the ordinary beans will not amount to much.'

"37047. 'No. 12. Brown mottled bean; often planted around the edges of rice fields and where there is a small corner that can be utilized; very hardy and will grow and

produce where ordinary beans will not amount to much.’

“37048. ‘No. 13. Large blue bean; carefully cultivated and given sufficient fertilizer.’

“37049. ‘No. 14. Large black bean; carefully cultivated and given sufficient fertilizer.’

“37050. ‘No. 15. Small black bean; grown around the paddy fields. It is cultivated in larger areas because it is supposed to be extra nourishing, and some seem even to suppose it has medicinal properties, but I fear there is not much to it.’

“37051., ‘No. 16. The larger beans are all carefully cultivated and given sufficient fertilizer.’

“37052. ‘No. 17. The red bean; carefully cultivated and given sufficient fertilizer.’

“37053. ‘No. 18. Black mottled yellow. Small beans which are planted around the edges of the rice fields or where there is a small corner that can be utilized; very hardy and will grow and produce where the ordinary beans will not amount to much.’

“37054. ‘No. 19. Maroon bean. One of the larger beans, all of which are carefully cultivated and given sufficient fertilizer; but this is not very commonly found.’

“37055. ‘No. 20. Ordinary white bean. One of the larger beans; carefully cultivated and given sufficient fertilizer.’”

“37062 and 37063. Soy bean. From Harbin, China. Presented by Mr. Southard Warner, American consul, at the request of the American consul at Newchwang. Received Feb. 5, 1914.

“See report on the ‘Soya Bean of Manchuria,’ 1911 [by Norman Shaw, Dairen].

“37062. Grown south of Harbin.

“37063. Grown north of Harbin.”

“37069 to 37083. From Tientsin [Tianjin], China.

Presented by Dr. Yamei Kin, Peiyang Woman’s Medical School and Hospital. Received Feb. 6, 1914.

“37074 and 37075. Soy bean.

“37074. ‘*Yüeh ya tou*, literally ‘moon-tooth’ bean, so called from the edge of the green peeping outside of the black thick skin like the crescent moon in the sky. Is largely used for making bean sprouts, which they say requires a bean that is not mealy or farinaceous, as that kind becomes mushy in the process of germination and has no taste left. Also is good for feeding animals, requiring to be lightly steamed before feeding, not boiled, for then the oil escapes and the flavor is lost. This kind is valued for its oil, which it contains in a great amount, and for making bean curd. This must be grown in a well-drained clay soil; black or moist earth will not do.’

“37075. ‘*Cha tou*. Specially used for making bean curd and bean sprouts.’”

“37077. Soy bean. ‘*Huang tou*. Used for making bean curd as well as starch and vermicelli.’ Note: #37078 is Mung bean (*Phaseolus aureus* Roxb. [Roxburgh], *Lü tou*).

“37080. Soy bean. ‘*Ching tou*. Used only for the oil

expressed and fodder purposes.’”

“37228 to 37325. Soy bean. From Seoul, Chosen (Korea). Presented by Mr. George H. Scidmore, American consul general. Received Feb. 17, 1914.

“‘I submit the following information, which has been obtained, for the most part, from the Director of the Department of Agriculture, Commerce, and Industry, of the General Government of the Chosen. The same officer has very kindly supplied samples of 98 varieties of soy beans.

“‘The usual period during which the seed is sown extends from the middle of May to about July 10. In case the sowing is postponed till the latter part of that period, the fields from which wheat has already been harvested are used. The soil is first prepared by plowing and is then shaped into small hemispherical hillocks about 4 ft in diameter. The seed is then planted in drill holes on the top of these hillocks, 6 or 7 inches being left between drill holes and 5 or 6 seeds being sown together in a hole. As a general rule, no manure or other fertilizer is used, but when it is desired to enrich the soil ashes are most commonly employed. After the plants have sprouted sufficiently, the shoots are thinned out so as to leave two or three only to each drill hole. This process takes place at the time of the first weeding. The ground surrounding the plants is gone over with a hoe or other implement two or three times to turn over the soil and to weed the field. The process outlined above gives briefly the method of cultivation generally in use throughout Chosen, and is applicable whether the beans are planted in separate fields by themselves or in the same fields with other crops.

“‘It is used mainly for its food value, the oil, and the residue as a fertilizer after the oil has been expressed. It is valuable as a food product for both men and cattle, the latter finding it a very excellent fodder when the whole plant is used. The principal food products for human consumption derived from the soy bean are bean paste [*jang*, Korean miso], soy [sauce, *kan jang*], bean curd, meal, etc.’” There follows a long list of 98 new soybean introductions from Korea, grouped by seed color; the first four are representative of the rest:

“37228. ‘A1. *Six Months*. Yellow. From South Chusei Province, Koshu district.’

“37229. ‘A2. *Widower*. Yellow. From North Heian Province, Seisen district.’

“37230. ‘A3. *Broad River*. From South Heian Province, Junan district.’

“37231. ‘A4. *White*. Yellow. From North Zenra Province, Chinan district.’

“37232. ‘A1. *Early Yellow*. Yellow. From North Heian Province, Kokai district.’

Note: This is the earliest English-language document seen (April 2021) that uses the term “bean paste” to refer to Korean soybean paste (*jang*).

Other interesting names among these 98 introductions from Korea are: *Rengyo Egg*, *Large-Grained White*, *White*

Rat's Eye, Rich and Virtuous, Large Date, Indigo, Bluish, Barbarian Blue, Clapsed Hands, Clear Blue, Black Rat's Eye, and Thousand Tied. A tally of the seeds by color shows: Yellow 35. Green 22. Gray 17. Black 16. Striped 8. Note that Yellow seeds comprise only 35.7% of the total by color. Address: Washington, DC.

338. *USDA Bureau of Plant Industry, Inventory.* 1917. Seeds and plants imported by the Office of Foreign Seed and Plant Introduction during the period from January 1 to March 31, 1914. Nos. 36937 to 37646. Continued. No. 38. 105 p. Aug. 17.

• **Summary:** Continued: "37326 to 37376. From Pyeng Yang, Chosen (Korea). Presented by Rev. W.M. Baird, Union Christian College, through the American consul. Received 17 Feb. 1914.

"'Bean seeds. I have been unable to find out their characteristics. Many kinds of seeds are grown here. I was able to secure some privately; also at one of the public exhibitions I was able to secure from Honorable Matsunagi, governor of this province, who was the patron of the fair, samples of all the seeds exhibited there, but without descriptions.' (Baird.)

"37326 to 37356. Soy bean. 37326. Green. 37327. Brown. 37328. Small black. 37329. Large black. 37330. Cream with tan markings. 37331. Small black. 37332. Large black. 37333. Small green. 37334. Chocolate color, large. 37335. Cream mixed with brown and green. 37336. Chocolate color. 37337. Green. 37338. Cream with black saddle. 37339. Black with white veining. 37340. Green. 37341. Yellow. 37342. Small brown. 37343. Black and white. 37344. Small yellow. 37345. Large yellow. 37346. Black. 37347. Small brown. 37348. Small black. 37349. Yellow. 37350. Dark brown. 37351. Small dark brown. 37352. Black. 37353. Greenish yellow. 37354. Yellow. 37355. Yellow. 37356. Dark brown. There follows (37357 to 37366) ten adzuki beans of many colors.

"37395 to 37404. From Kongju, Chosen (Korea). Presented by Rev. Wilbur C. Swearer, Methodist Episcopal Church. Received Feb. 26, 1914. Quoted notes by Mr. Swearer.

"37396 to 37404. Soy bean.

"37396. 'No. 2. *Date* bean. Round brown bean. Sown during the first part of April and reaped at the end of Aug. or the first part of Sept. Cultivated about the same as the *cherry pea* [S.P.I. No. 37395], only in hills about a foot apart. None of these beans do well if planted too close together. This bean fertilizes the ground well; grows to a height of 2 ft. Pods are short and rough and contain 3 or 4 beans each. None of the soy beans are pole beans. This bean is much smaller than usual, owing to the fact that last summer there was very little rain.'

"37397. 'No. 3. *White Chestnut* bean. Round yellowish white bean. A favorite with the Koreans. Cultivated the same

as the *Date* bean [S.P.I. No. 37396]. Used as food for animals and people. Appearance of vines similar to the *Date* bean.'

"37398. 'No. 4. *Big Green* bean. Round, flat, yellowish green. Sown in June and harvested in Oct., they grow 2 ft high. Cultivation similar to that of the *Date* bean [S.P.I. No. 37396]; pods are also similar.'"

"37399. 'No. 5. *Black-Eyed* bean. Small, yellowish, green bean, with black eye. Can be sown in drills; beans 2 or 3 in apart. The Koreans take these beans after they are dried and place them in water in the house and eat them after they have sprouted, sprout and all, as a vegetable.'

"37400. 'No. 6. *Rat's-Eye* bean. Small, round, black bean. Sown in the last part of April, in hills several inches apart, they grow 1 ft high. There are four or five beans in a pod. The people sometimes eat them raw, claiming they have medicinal properties. Usually they are sprouted and eaten as a vegetable.'

"37401. 'No. 7. *Black Chestnut* bean. Round, flat, black bean. Sown either in April or in June, they are fed to animals or are eaten. This bean is much smaller than usual, owing to the fact that last summer there was very little rain.'

"37402. 'No. 8. *Castor Oil* bean. So named because the Koreans think it resembles the bean of that plant. Black, with the skin cracked and white streaks showing through. This is also a favorite with the Koreans, both for animal food and for man. This bean is much smaller than usual, owing to the fact that last summer there was very little rain.'

"37403. 'No. 9. *Large Black-Green* bean. Round, dark-green and black. Sown in the middle of May. Cultivation similar to that of the *Date* bean [S.P.I. No. 37396]. This bean is much smaller than usual, on account of lack of rain the past summer.'

"37404. 'No. 10. *Pheasant-Leg* bean. So named because the marking on it resembles those on the leg of a Mongolian pheasant. Small, round, brown bean. Sown the last part of May, not too close together. People eat them usually after they have sprouted them in the house.'"

"37563. Soy bean. From Songdo, Chosen (Korea). Presented by Rev. W.G. Cram, the Anglo-Korean School. Received March 19, 1914. *White Manchurian soy bean.*"

"37570 to 37576. From Vladivostok, Siberia. Presented by Mr. John F. Jewell, American consul. Received March 16, 1914. Seeds grown in the Ussuri district along the Ussuri Railroad; quoted notes by Mr. Jewell.

"37570 to 37574. Soy bean.

"37570. 'No. 1. Chinese bean, grown in the village of Chernigovka by P.J. Monostirniy.'

"37571. 'No. 2. Chinese bean, grown in the village of Petrovka.'

"37572. 'No. 3. Chinese bean, grown by St. Troitzky monastery at Shmakovka.'

"37573. 'No. 4. Yellow bean, *Ko-yi.*'

"37574. '*Khei.*'" Address: Washington, DC.

339. Langdon, William R. 1917. Bean and pea crops in the Hokkaido. *Commerce Reports [USA] (Daily Consular and Trade Reports, Bureau of Foreign and Domestic Commerce, Department of Commerce)* 20(193):654-55. Aug. 18. Submitted June 15.

• **Summary:** “The island of Hokkaido is Japan’s principal producing district for beans and peas. An increased foreign demand for these products, which resulted from the war [World War I], stimulated production in Hokkaido enormously. The high prices that foreign purchasers are willing to pay for beans and peas, it is said, have created large fortunes for some of the Hokkaido growers.

“The areas under cultivation for the growing of these products in Hokkaido during 1916 were: Soya beans, 207,344 acres; small red beans, 107,539.”

“Last year’s production and prices: The production of beans and peas in Hokkaido in 1916 in long tons of 2,240 pounds each, by varieties was: Small red beans (*akashozo* or *adzuki*), 27,000; medium red beans (*dainagon*), 2,200; soya beans (*daizu*), 89,000...; large red beans (*kintoki*) 18,000...; total production of all kinds of beans and peas, 219,460 tons. These statistics were compiled by the local administration of Hokkaido.”

A substantial increase in area cultivated to beans and peas in Hokkaido is expected next year, but the “1917 crop of soya beans in Hokkaido and the mainland of Japan is expected to be about the same as that of 1916.”

“The total beans and peas for Japan proper, excluding Chosen [Korea] and Taiwan, in 1915, according to the official statistics of the Japanese Department of Agriculture and Commerce was: Soy beans, 18,848,283 bushels, valued at \$16,247,118; small red beans [azuki], 4,771,183 bushels, valued at \$5,002,667...”

A table shows total exports of beans and peas from Japan in 1915 and 1916. Exports of soya beans were 1,056,616 pounds worth \$25,009 in 1915, and 1,715,347 pounds worth \$38,823 in 1916. Address: Vice Consul, Yokohama, Japan.

340. Frazer, Robert, Jr. 1917. Kobe’s position in the bean trade. *Commerce Reports [USA] (Daily Consular and Trade Reports, Bureau of Foreign and Domestic Commerce, Department of Commerce)* 20(199):748-51. Aug. 25. Submitted June 26.

• **Summary:** Some soya beans and small red beans [azuki] are grown in the Kobe consular district, which comprises the central and western part of the main island of Japan. “The local trade, however, is by no means confined to beans grown in Japan, as very large quantities of soya beans, colored beans of various kinds, and a few white beans are brought here from Manchuria, North China, and Korea. The soya beans are bought chiefly for the extraction of their oil. When so used, drawback of duties is granted, and they do not appear in the customs statistics of imports.” Note: It is

not clear whether “white beans” refers to white azuki beans (probably) or white soybeans.

A table, based on statistics from the Department of Agriculture in Tokyo, shows production of various beans from 1913 to 1915. For soya beans: For 1913—Area planted: 1,043,058 acres. Production: 15,314,646 bushels. Value: Unknown. For 1914—Area planted: 1,138,282 acres. Production: 18,762,414 bushels. Value: Unknown. For 1915—Area planted: 1,153,577 acres. Production: 19,495,316 bushels. Value: \$16,296,006.

Exports of soya beans from Japan in 1916 were 857 tons (1 ton = 2,000 lb) valued at \$38,938. Imports of soya beans to Japan the same year were 80,691 tons valued at \$2,270,000. Two great shipping ports in Japan are Kobe and Yokohama. The beans are graded by women pickers who earn the equivalent of 12½ to 15 cents a day. Address: Consul, Kobe, Japan.

341. *USDA Bureau of Plant Industry, Inventory*. 1917. Seeds and plants imported by the Office of Foreign Seed and Plant Introduction during the period from April 1 to June 30, 1914. Nos. 37647 to 38665. No. 39. 139 p. Sept. 15.

• **Summary:** Soy bean introductions: *Soja max* (L.) Piper. Fabaceæ. (*Glycine hispida* Maxim.)

“37684. From Peking, China. Received at the State Department in a pouch from Peking, China. Received March 20, 1914. ‘This variety is probably the kind asked for in your letter under the name of the “white-eyed” soy bean. It is known as “the large white eyebrow bean” among the Chinese where it is grown.’ (Source unidentified.)

“38213/38228. From Tokyo, Japan. Presented by the director, Japanese Imperial Department of Agriculture. Received May 15, 1914.

“38213-38220.

“38213. *Tsurunoko*.

“38214. Var. *Aksaya*.

“38215. *Gowari*.

“38216. *Hadaka*.

“38217. *Aotsurunoko*

“38218. *Kôsuirasu*.

“38219. Var. *Juningonomi*.

“38220. *Aoniûdô*.

“38228. *Shirashaya*

“38435/38472. From China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for the Department of Agriculture. Received June 8, 1914. Quoted notes by Mr. Meyer.

“38450-38452. From Sianfu, Shensi, China. Collected January 24, 1914

“38450. ‘(No. 2029a.) A large variety of yellow-seeded soy bean. Chinese name *Ta huang tou*, meaning “large yellow bean.”’

“38451. ‘(No. 2030a.) A medium-large variety of yellow-seeded soy bean. Chinese name *Ta huang tou*,

meaning “large yellow bean.”\ “38452. ‘(No. 2031a. Puchowfu, Shansi, China. February 10, 1914.) A large, yellow-seeded variety of soy bean. Chinese name *Ta huang tou*, meaning “large yellow bean.”

“38453-38457. From Sianfu, Shensi, China. Collected January 24, 1914.

“38453. ‘(No. 2032a.) A small, yellow-seeded variety of soy bean. Chinese name *Hsiao huang tou*, meaning “small yellow bean.”

“38454. ‘(No. 2033a.) A small, yellowish seeded variety of soy bean. Chinese name *Huang tou*, meaning “yellow bean.”

“38455. ‘(No. 2034a.) A very small, yellow-seeded variety of soy bean. Chinese name *Hsiao huang tou*, meaning “small yellow bean.”

“38456. ‘(No. 2035a.) A variety of soy bean with light-green seeds. Chinese name *Ch’ing tou*, meaning “green bean.” Used pickled in brine as appetizer with meals.’

“38457. ‘(No. 2036a.) A variety of soy bean with dark-green seeds. Used like No. 2035a. [S.P.I. No. 38456]. Chinese name *Ch’ing tou*, meaning “green bean.”

“38458. ‘(No. 2037a. Kwanyintang, Honan, China. December 20, 1913.) A rare variety of soy bean, of dark olive-drab color. Said to be very productive. Chinese name *Huai toi*.’

“38459. ‘(No. 2038a. Lingpao, Honan, China. December 24, 1913.) A rare local variety of soy bean, having reddish seeds. Chinese name *Ta tzû tou*, meaning “large violent bean.”

“38460-38462. From Sianfu, Shensi, China. Collected January 24, 1914.

“38460. ‘(No. 2039a.) A black-and-brown striped variety of soy bean, used mainly roasted as a delicacy. Chinese name *Hu p’i tou*, meaning “tiger-skin bean.”

“38461. ‘(No. 2040a.) A large, black-seeded variety of soy bean. Chinese name *Ta hei tou*, meaning “large black bean.”

“38462. ‘(No. 2041a.) A small, black-seeded variety of soy bean, used mainly boiled as a feed for hard-working draft animals. Chinese name *Hsiao hei tou*, meaning “small black bean.””

37699–*Botor tetragonoloba* (L.) Kuntze. Fabaceæ. Goa bean. (*Psophocarpus tetragonolobus* DC.) “*Seguidilla*. Climbing bean with 4-winged pods, which, used as string beans when they are tender, are of excellent quality. They should be of great value in Porto Rico and Panama, but the soil is too poor in Florida. I tried them for two seasons in Miami, Florida, but they were not a success. The seed should be planted in April or May. The plant does best in rich, rather moist, but well-drained land.”

Note: This is the earliest English-language document seen (Aug. 2007) that uses the word “*Seguidilla*” to refer to the winged bean.

Adzuki bean (*Phaseolus angularis*): 38442-43, 38446.

Chinese name is *Hung hsiao tou*, meaning “red small bean.” Address: Washington, DC.

342. Meyer, Frank N. 1917. Re: Soybeans, soybean products, and other beans in China. In: Letters of Frank N. Meyer. 4 vols. 1902-1918. Compiled by Bureau of Plant Introduction, USDA. 2444 p. See p. 2393-95. Letter of about 18 Sept. 1917 from Kingmen, Hupeh, China, to Mr. Menderson.

• **Summary:** Mr. Menderson seems to be working with William Morse at the USDA. Meyer begins: “I was delighted to get your enthusiastic letter of July 24, 1917, on the bean situation, and I am really sorry I cannot get a taste of some of these products you and Mr. Morse are creating.

“You ask me whether there is a simple flavoring to take away the beany taste of beancurd [tofu]. No there is not! The Chinese are of course used to this peculiar paint- or putty-like flavor, but even then they often season their bean curd dishes highly with salt and chili peppers. I have noticed tho [sic] that the curd in some towns tastes much better than in others, and I found that greenish yellow soy beans have a coarser taste and flavor than light yellow ones. I have some idea that the quality of oil has something to do with this characteristic. If I were you I would try to cook with superheated steam for a considerable time and see if that does not remedy the matter considerably. Remember that Boston baked beans need a whole night and morning of slow heat before they are ‘tasty.’

“You also might try to de-fatten the beans, before making them into curd. Before doing so, first see whether bean cake can be used for making curd; if so, we are on the road to kill 2 birds with 1 stone.”

Meyer has come into contact with numerous vegetable seeds that can be sprouted, including: “*Phaseolus angularis*. Adzuki bean; the speckled grayish black variety supplies the finest quality of beansprouts, of very sweet and juicy flavor. The red varieties are boiled, pounded with sugar and used as a filling in cakes and as sweetmeats.

“*Phaseolus aureus*, Mung bean, the ordinary sea-green variety supplies good beansprouts, vermicelli and gelatine; also much eaten boiled with rice as a broth or gruel.

“*Soya max*, the small green and yellowish green varieties are sprouted, but the sprouts have a rank flavor; the large green varieties are allowed to germinate only, or often not even that, and are fried in oil and some salt sprinkled over them; they are very appetizing. Often they are served with bits of raw, chopped-up carrots in between, creating a dish pleasing to the eye. From the small yellow and yellowish green soybeans, beancurd is made in all its forms. The large yellow varieties are used for oil production.”

Broadbeans (*Vicia faba*) and peas (*pisum sativum*) can also be sprouted. “Mustard seed (*Sinapis juncea*), in wintertime is sown out in warm, moist and dark places and the tiny plants eaten with sugar sprinkled over them. *Amaranthus blitum* and *A. tricolor* are eaten in the same way.

“Chives, *Allium schoenoprasum*, are forced in dark, warm places and eaten in soups, with meats, and baked in extremely thin pancakes, made from yellow soybean flour. They are considered, together with the garlic, to prevent ptomaine poisoning.

“Of all these forced winter vegetables the Mung bean is the most commonly used, on account of cheapness and availability, but in my opinion the Adzuki beansprout is the best.”

“Did you have a look at my fotos [photos] of soybean products? I hope they gave you, Mr. Morse and others some ideas how big an affair the soy bean is in the daily life of 1/4 of the world’s population, and if the white races do not soon stop committing suicide, these people will, by the year 2000, constitute 1/3 of the earth’s inhabitants.”

Location: University of California at Davis, Special Collections SB108 A7M49. Address: USDA Plant Explorer, China.

343. Product Name: Koji, Miso.

Manufacturer’s Name: Fujimoto Koji, Miso Seizo-sho (Fujimoto Koji & Miso Manufacturing Co.).

Manufacturer’s Address: 1014 Stockton St., San Francisco, California. Phone: Kearny 2339.

Date of Introduction: 1917.

New Product–Documentation: The Japanese American Directory. 1919. p. 68. Also in 1920, p. 45 (½-page ad; all in Japanese characters. Miso manufacturing department. Koji manufacturing department. And pickles manufacturing department. Rice, shoyu, soybeans, and other merchandise sales department), and p. 57 (directory). Also in 1921, p. 58 (½-page ad) and p. 64 (directory). Also in 1922, p. 30 (full-page ad) and p. 40 (directory).

Shin Sekai-sha. 1922. *Zaibei Nippon-jin Kan (Directory of Japanese in the USA)*. p. 41. A half-page display ad states: “Fujimoto Co., San Francisco, California. Kanemasa miso.” Note: A metal square used by traditional Japanese carpenters is called a *kane-jaku*. Thus a trademark with the same right-angle is pronounced “Kane.”

The Japanese American Directory. 1924. p. 58. New address: 328 Jackson St. Phone: Douglas 1216. Also in 1925, p. N-17. Also in 1926, p. N-22.

San Francisco City Directory. 1925. First listing for Fujimoto Co. in this English-language directory (E.K. Fujimoto). Food products. 238 Jackson St. Phone: Douglas 1216. No mention that they make miso.

The Japanese American Directory. 1930. p. 18 (directory; new company name: Fujimoto Miso, Shoyu Seizô-sho, 238 Jackson St., San Francisco. Note: The company has apparently started to make shoyu / soy sauce) and p. A-11 (full page ad; Fujimoto Shokai, 238 Jackson St. Makes Kanemasa brand shoyu, miso, koji, and Japanese-style pickles {*tsukemono*}) and p. A-11 (ad; makes Kanemasa brand shoyu, miso, koji, and Japanese-style

pickles {*tsukemono*}). Also in 1932 directory, p. 17, but the name has returned to Fujimoto Miso Koji Seizô-sho. Same address and phone (Douglas 1216).

Also in 1934, p. 20. Phone: EXbrook 1756; Ad (½ page. The top 1/3 of this ad is in English. Fujimoto Company. 238 Jackson St., San Francisco. Cable address: “Fujimoto” San Francisco. Importers Manufacturers Exporters. In Japanese: Makers of Kanemasa brand miso, koji, Japanese-style pickles {*tsukemono*}, salmon pickled in saké lees {*kasuzuke*}. Specialized U.S. seller of nigari. Direct import and export). Also in 1936, p. 34, but the address is now 246 Front St.

San Francisco City Directory. 1930, same. Importers and exporters of food products, 238 Jackson. Tel. Douglas 1216. Retail store 1640 Post. Tel. West 0733. Fujimoto, E.K. (Miyako). Fujimoto Co. residence 1640 Post.

The Japanese American Directory. 1937. p. 8. Under the category “Importers of groceries:” Fujimoto Shokai, Fujimoto Co., 246 Front St., EXbrook 4776, 4777. But in the directory under “Food products manufacturers:” Fujimoto Miso Koji Seizô-sho. And on p. 9 is a ½-page ad. Also in 1938. p. 6 and 8 (directory) and p. 7 (full-page ad). Also in 1939. p. 6 (full-page ad) and p. 7 (directory, under both importer and manufacturer)

The Japanese American Directory. 1940. p. 7. Under the category “Food Products Manufacturers.” Fujimoto Miso, Koji Seizô-sho (Fujimoto Co.), 246 Front St., San Francisco. Phone: EXbrook 1756. A full-page display ad on page 6 states that Fujimoto Company (Fujimoto Shokai) is an importer, manufacturer, and exporter. They make Kanemasa Miso, Koji, and Tsukemono (Japanese-style pickles). They also sell raw materials for making tofu (presumably whole soybeans and one or more coagulants). Also in 1941 Directory (p. 6, 7, and 28) as Fujimoto Shoten (Fujimoto Co.).

Chicago Shimpō, Inc. 1958. Chicago Japanese American directory. Page 19: ¼ page ad for Fujimoto & Company, 302 South 4th West, Salt Lake City, Utah. Tel. EMpire 4-8279. Illustrations show: (1) The company’s Kanemasa brand; (2) A Japanese woman kneeling behind a porcelain mortar (*suribachi*), holding a wooden pestle (*surikogi*), and using it to grind miso until it is smooth. The woman has a unique head-covering called a *hōkaburi*, *hōkamuri*, or *hokkamuri*. The top 25% of the ad is in English; the rest, which is in Japanese, states: *Kanemasa (brand / logo) Edo Miso, Koji. Sake-kasuzuke. Sujiko Kasazuke. Matsukaze-do, san-mi Yōkan (Mitsuaji? Yōkan). Yūta-shu, Enko-shi, Fujimoto Shokai*. In English: Kanemasa (brand / logo) Edo Miso, Koji. Salmon pickled in saké lees. Salted salmon roe pickled in saké lees. Matsukaze-do brand 3-flavored Yōkan. Salt Lake City, Utah. Fujimoto Shōkai.

Hokubei Mainichi Nenko (Year Book). 1970. Page 11. Same ¼-page ad as in 1958 Chicago Shimpō.

Shurtleff & Aoyagi. 1983. *The Book of Miso*. 2nd ed. p. 234. The earliest known miso company in the continental

USA was founded by Mr. Genpei Fujimoto, and began operation in 1917. In 1942 it was the largest miso company in the continental USA. During World War II, in about 1943-44, because of the Japanese evacuation, it was shut down and moved to 302 South Fourth West, Salt Lake City, Utah. It was reestablished in Salt Lake City after the war by the son of the founder, Edward Kanta Fujimoto, and his wife, Shizue. Note: The source of this information was probably Edward Fujimoto or his wife, who told it to Shurtleff in a phone interview in 1983. Although we have documents showing that Fujimoto started before 1919, we will accept the date 1917 until further evidence is available.

See separate record for Fujimoto in Salt Lake City.

344. Takahashi, Y.; Fukuyama, J. 1917. Morphological and genetic studies on the Adzuki bean. *Hokkaido Agric. Exp. Station, Report No. 7*. 181 p. 5 plates, 3 figures. [2 ref]

345. Chan, Shiu Wong. 1917. *The Chinese cook book*. New York, NY: Frederick A. Stokes Company. 201 p. 20 x 13 cm.
• Summary: Subtitle: "Containing more than one hundred recipes for everyday food prepared in the wholesome Chinese way, and many recipes of unique dishes peculiar to the Chinese—including Chinese Pastry, "Stove Pastries," and Chinese Candies." Contains 151 recipes.

Page 15: "Chinese white cheese (Cc = Chinese characters given). Foo yue [fermented tofu]. (a) Cut bean cake [tofu], made of Chinese white beans, into half-inch squares ¼ inch thick. (b) Put into a jar provided with an airtight cover, the size of the jar depending upon the amount to be made. (c) Fill the jar ¼ full of Fun Wine. (d) Salt to taste. (e) Cover air tight and put away for not less than two weeks.

Note: This is the earliest English-language document seen (Oct. 2011) that uses the term "Foo yue" to refer to fermented tofu.

Page 16: "Chinese red cheese (Cc). Noum yue [red fermented tofu]. For this the bean cake is made of Chinese red beans [azuki?]: (a) Wrap up the cakes in a piece of cloth in any desired size. Put pressure on top for 5 days. (b) Take off the weight. Then the cloth. Scrape off the mold on top. (c) Place in a jar. Fill the jar ¼ full with Fun Wine, and add plenty of salt. (d) Cover air tight, and set away for not less than 2 weeks; the longer, the better, provided the jar is kept air-tight."

Note: This is the earliest English-language document seen (Oct. 2011) that uses the term "Noum yue" to refer to fermented tofu.

Page 147: "Bean cake. Do fu. This is a most delicious dish for its price. Many people in Paris can tell you how delicious it is, for there is a factory in Paris that makes millions of dollars each year by manufacturing this cake. The process of making bean cake is really so complicated that it would require a separate volume to describe it. Put



white beans in water for a few hours. Then grind in a water stone grinder. Cook for 5 hours with calcium powder. Let it filter through a cloth and run into a cup or bowl. When cool it becomes solid. Tie this in a piece of cloth and boil. This is called bean cake" [Note: the above process, which does not even call for soybeans, will not make tofu!].

346. Merrill, Elmer Drew. 1917. *An interpretation of Rumphius's Herbarium Amboinense*. Manila, Philippines: Bureau of Printing. 595 p. See p. 274-75. Maps. Index. 25 cm. Also listed as *Philippine Islands, Bureau of Science, Publications No. 9*. [8 ref]

• Summary: *Glycine* Linnaeus

Glycine max (Linn.) comb nov.

Phaseolus max Linn. Sp. Pl. (1753) p. 725.

Dolichos soja Linn. Sp. Pl. (1753) p. 725.

Soja hispida Moench. Meth. (1794) p. 153.

Glycine hispida Maxim. in Bull. Acad. Pétersb. 18 (1873) p. 398.

Glycine soja S. & Z. in Abh. Akad. Muench. 4 (1843) p.

119.

Glycine ussuriensis Regel & Maack Tent. Fl. Ussur. (1861) p. 50.

Soja max Piper in Journ. Am. Soc. Agron. 6 (1914) p. 84.

Cadelium Rumph. Herb. Amb. 5: p. 388, t. 140.

“This species is not represented in our Amboina collections, but the Rumphian figure is an excellent representation of the widely cultivated and well-known soy bean. It was originally reduced by Linnaeus to *Phaseolus max*, in Stickman Herb. Amb. (1754) p. 23, Amoen. Acad. 4 (1759) p. 132, Syst. ed. 10 (1759) p. 1162, Sp. Pl. ed. 2 (1763) p. 1018, in which he was followed by Burman f., Willdenow, Persoon, Poiret, Don, and other authors. Loureiro, Fl. Cochinch. (1790) p. 441, correctly referred it to *Dolichos soja* Linn., which is a synonym of *Phaseolus max* Linn. = *Glycine max* (Linn.) Merr. By Henschel and by Pritzel it has been also correctly referred to *Soja hispida* Moench., another synonym of *Glycine max* Merr. Miguel, Fl. Ind. Bat. 1 (1855) p. 197, erroneously referred it to *Phaseolus radiatus* Linn.

“*Phaseolus max* Linn. has been considered a true *Phaseolus* and a synonym of *P. radiatus* Linn. by nearly all recent authors. It is clearly the soy bean, identical with *Glycine hispida* Maxim., and the specific name *max* should be maintained for the soy bean, whether *Glycine* or *Soja* be recognized as its generic name. Piper has declared in favor of the genus *Soja*, chiefly for the reason that of the eight species originally described by Linnaeus in *Glycine*, but a single one, *G. javanica* Linn., now remains in the genus, the other seven having been removed by subsequent authors to *Apios*, *Kraunhia*, *Abrus*, *Rhynchosia*, *Amphicarpea*, and *Fagelia*, respectively. However, I am content to determine the type of the genus *Glycine* by elimination, which well [sic, will?] maintain *Glycine* in its generally accepted sense with *G. javanica* Linn. as its type.

“Prof. C.V. Piper has cleared up the synonymy of this commonly cultivated species; and with the aid of extensive data, supplied by Sir David Prain, he has clearly shown that *Phaseolus max* Linn. is identical with the commonly cultivated and well-known soy bean.”

The section titled “Rumphius and his work” (p. 15-21) gives a brief biography of this pioneering naturalist. “George Everhard Rumphius, as the family name Rumpf or Rumph is Latinized, well named ‘the Pliny of the Indies,’ was born in 1627, apparently in Hanau, Hesse Cassel, Germany, and died in Amboina, June 15, 1702, at the age of 75 years. Detailed accounts of his life and work are available in the writings of numerous authors so that it is unnecessary to enumerate here more than the most important facts in connection with the preparation and publication of his most renowned work, the Herbarium Amboinense.

“Rumphius entered the service of the Dutch East India Company as a young man, proceeded to Batavia, Java, in

1653, and in the latter part of the same year to Amboina, where he resided for the remainder of his life... It is evident that he commenced the preparation of the Herbarium Amboinense shortly after his arrival in Ambonia, his active work being continued practically until his death, in spite of the great handicap of blindness after the year 1670... His published works are manifestly based largely on observations made by him between 1653 and 1670. The handicap of blindness was somewhat lessened by aid given him by his wife and by assistants assigned to him by the Dutch East India Company... In the following year, however, his wife and eldest child were killed in the great earthquake of that year, and subsequent to that date he had less other assistance, some of it of little real value. The original illustrations for the Herbarium Amboinense were apparently made by Rumphius himself, but on January 11, 1687, Amboina was visited by a disastrous fire, in which Rumphius’s house was destroyed, including his library, many of his manuscripts, and the plates of the Herbarium Amboinense. Undaunted by this last catastrophe, he replaced the destroyed illustrations by new drawings, some made by his son, P.A. Rumphius, others made by various assistants supplied by the East India Company. Thus in attempting to interpret Rumphian species the fact must be constantly kept in mind that the illustrations were not made from the actual specimens on which the corresponding descriptions were based.”

“In 1690 the manuscript of the first six books was delivered to the Dutch East India company, the remaining parts being delivered in 1695. The manuscript of the first six books was forwarded to Holland from Batavia, Java, in 1692 on the *Waterland*. This ship was destroyed by the French in transit, and the manuscript was lost with the ship. Fortunately a copy had been retained, and thus the fruit of Rumphius’s many years of labor was not lost. A copy of these six books was finally sent to Holland in 1696, the manuscript of the remaining six books was sent the following year. The manuscript of the ‘Auctuarium,’ completed by Rumphius in 1701, a few months before his death was copied at Batavia and sent to Holland in 1704. This important manuscript remained in the archives of the Dutch East India Company until 1736, when the company granted permission to Professor J. Burman to prepare it for printing, the six volumes appearing between 1741 and 1750 and volume seven, the ‘Auctuarium,’ in 1755.”

The section titled “*Psophocarpus*–Necker” (p. 286) discusses “*Psophocarpus tetragonolobus* (Linn.) DC Prodr. [De Candolle, Prodromus] 2 (1825) p. 403. *Dolichos tetragonolobus* Linn. in Stickman Herb. Amb. (1754) 23, Amoen. Acad. 4 (1759) 132, Syst. ed. 10 (1759) 1162, Sp. Pl. ed. 2 (1763) 1020 (type!).

“*Botor tetragonoloba* O. Kuntze Rev. Gen. Pl. 1 (1891) 162.

“*Lobus quadrangularis* Rumph. Herb. Amb. 5: 374, t. 133. This well-known species [the winged bean] is not

represented in our Amboina collections, but is doubtless still cultivated there as it is in most parts of the Indo-Malayan region. The Rumphian figure and description are the whole basis of *Dolichos tetragonolobus* Linn., and it has been consistently cited by all authors under that name or its modern equivalent. *Psophocarpus tetragonolobus* DC.”

Note 1. This work first gave the soybean its present scientific name, *Glycine max* (L.) Merrill. Merrill was an American who was Dean of the University of California College of Agriculture, Berkeley, during the late 1920s.

Note 2. This is the earliest document seen (Aug. 2003) in which the winged bean has the species name *tetragonoloba*, or the scientific name *Botor tetragonoloba*.

347. Morse, Edward S. 1917. Japan day by day, 1877, 1878-79, 1882-83. 2 vols. Boston & New York: Houghton Mifflin Co. Vol 1, xiv + 441 p.; Vol. 2, 453 p. Illust. (Color frontispieces + sketches). Index. 22 cm. [20+* ref]

• **Summary:** These charming books, illustrated with 777 illustrations from sketches in the author's journal, is a diary (to avoid the duplication of home letters; subjects are treated chronologically rather than topically), filled with detailed observations about most aspects of Japanese life and the author's pioneering work there as a professor. It gives a vivid picture of daily life in Japan in the late 1870s. Morse quickly grew to admire and love the Japanese people; his greatest problem was learning to enjoy Japanese food.

Volume 1: “Almost everything in the sea furnishes food for the masses... Seaweed, a thin green leaf, is also eaten; it is dried and put up in tin boxes,” apparently a species of ulva. “I have mustered courage enough to taste a few of the dishes, and have succeeded in swallowing but one of them, and that was a kind of soup... Water was boiled in a tin vessel with a sauce [shoyu or miso] made from fermented bean [sic, beans], dark in color like Worcestershire sauce; into this were put slices of what looked like a cucumber, and then followed large blocks of a substance which resembled new white cheese [tofu], fresh from the press; this was cut into triangular slices. This last substance was made from [soy] beans, strained to remove the skins, and then made into a paste-like block. This soup was certainly nourishing and with a little practice one might come to like it. Another common article of food is made from seaweed and is known as *tokoroten*” (p. 87-88).

“It was delightful... to sit down again to a dinner of rare roast beef, real butter, and good bread. It is difficult to understand a country in which there is no milk, butter, cheese, bread, or coffee, and never has been. Butter is so distasteful to the Japanese that they cannot eat cake or other article of food in which composition butter is used” (p. 120).

A famous preparation is “cold raw fish, cut in thin slices from the fish while fresh and alive. The idea of eating raw fish is particularly repulsive to our taste, though we eat raw oysters; nevertheless, foreigners soon get accustomed to it.

The sauce [soy sauce] made of fermented [soy] bean, barley, and some other grain seems to have been specially created for this kind of food. I ate a great deal of it and must confess that my first experience was fairly good,... (p. 143-44).

“The tail of the fish was cut off and flung overboard... the [raw] fish was chopped into small pieces, head, eyes, bones, and all, and this hash was put into a wooden bowl... From a box was added a substance [miso] that had a very sour odor, something made of beans and allowed to ferment, a little water was added, and it was all stirred up together, and such an unsavory-looking mess I never saw before. The gusto, however, with which the man ate it to the last grain, showed that it was palatable to him at least” (p. 185).

“I have lived on rice, sweet potatoes, egg plant, and fish for two weeks. I would give all my old shoes, and new ones too, for a good slice of bread-and-butter, a bowl of bread-and-milk, or any other thing you are enjoying at home” (p. 227).

“The cakes had a stamp of the chrysanthemum on top; these were red and white and were made of [azuki] bean paste and sugar. The Japanese are very fond of them, but they are rather insipid in taste” (p. 395).

“I have finally resigned myself to the Japanese food of this region [Yezo {Hokkaido} near Hakodate]... And of all places to start such an experiment in this village! It required some courage and a good stomach to eat for dinner the following: fish soup, very poor; bean paste [miso?], which was not so bad;... and holothurian, or sea cucumber,... by no means agreeable. It was eaten with Japanese sauce, *shoyu*, which renders everything more or less palatable... On the whole, I am keeping body and its animating principle together, but long for a cup of coffee and a slice of bread-and-butter. I am the only outside barbarian in town” (p. 440-41).

Volume 2: The New Year's food included “a bean pickle in sugar syrup and Japanese sauce” [probably black soybeans (*kuromame*)] (p. 93). A detailed description of mochi and its pounding are given, with two illustrations (p. 95).

As they left Izumi and entered the Province of Kii [today's Wakayama], “I saw the process of manufacture of a curious kind of food one often sees in certain soups. It has a bright-yellowish color, as thin as paper, and has no definite flavor. The substance is made from soya beans by a curious and simple process. The beans are boiled in a large boiler till they are very soft; they are then ground in a mill to a fine paste, and mixed with water and colored by some stuff that is imported from abroad (fig. 675). This material is then put into a shallow trough divided by square partitions, beneath which is a charcoal fire which keeps the stuff gently boiling. The surface coagulates as it does on boiled milk, or on a cup of cocoa, and the film [yuba] that forms is taken off very skillfully with slender bamboo sticks and hung up to dry (fig. 676). Other films form and are promptly removed by a girl who is kept busily at work” (p. 286-88).

In Kawagoe [a city in today's Saitama prefecture, about 20 miles northwest of Tokyo]: "It is a common custom... to eat grasshoppers as a relish... The Japanese prepare them by boiling them in shoyu, sugar, and a little water, till the water has nearly all boiled away" (p. 324-25).

At New Year's "our old cook brought me a box of *yokan* (made of sugar and [azuki] beans)... (p. 393).

Edward Sylvester Morse, a marine biologist specializing in Brachiopods, lived 1838-1925. Address: Salem, Massachusetts; Former Prof. of Zoology, Imperial Univ., Tokyo.

348. Fair (The). 1918. The Fair (Ad). *Chicago Daily Tribune*. March 17. p. B6.

• **Summary:** At the top of the section titled "Great Grocery Economics" we read: "Beans—very fancy Azuki, grown in South America—smallest bean grown; excellent cookers; 5 lbs. for 53¢." Address: State-Adams and Dearborn Streets. Phone: Private exchange 3.

349. Fair (The). 1918. The store of today and tomorrow (Ad). *Chicago Tribune (Chicago, Illinois)*. March 17. p. 30.

• **Summary:** "Great grocery economies. U.S. Government license No. G25295.

"Beans—very fancy Azuki, grown in South America—smallest bean grown; excellent cookers; 5 lbs. for 53¢." Address: State, Adams and Dearborn Streets.

350. Bridwell, John Colburn. 1918. Notes on the Bruchidae and their parasites in the Hawaiian Islands. *Proceedings of the Hawaiian Entomological Society* 3(5):465-505. April. For the year 1917.

• **Summary:** Discusses *Acanthoscelides obtectus*, *Bruchus pisorum*, *B. rufimanus*, *Calosobruchus chinensis*, *C. quadrimaculatus*.

In confinement the author induced *Bruchus pruinus* to oviposit upon 44 seeds including the soybean. The soybean can serve as larval food and from them adults have been bred.

The *Dolichos* weevil, which in Hawaii breeds commonly only in *Dolichos lablab*, was bred to adulthood in captivity from the soy bean, adsuki bean, and other legumes.

With *Bruchus chinensis*, the author was able to secure oviposition in Hawaii upon 40 species of leguminous seeds (including soybeans), and adults have been bred from soybeans and several other legumes.

The author bred *Bruchus quadrimaculatus* experimentally on soybeans and other legumes. Adults have been bred on soybeans.

A species of *Spermophagus* (probably the one called the Mexican bean weevil by Chittenden, *Spermophagus (Zabrotes) pectoralis* Sharp) was bred to adulthood experimentally in Hawaii on soybeans and other legumes.

Results in trying to breed *Bruchus obtectus* on soybeans

were inconclusive.

A table (p. 501-003), titled "Experiments with Various Seeds Relating to the Oviposition and Breeding of Hawaiian Bruchidae," is included.

351. Tu, Chow-Tien. 1918. *Zhiwuxue daci dian* [Botanical nomenclature: A complete dictionary of botanical terms]. Shanghai, China: Commercial Press. 1590 + 48 p. Illust. Index. 23 cm. [Chi]

• **Summary:** The text is in Chinese, with scientific names in Roman letters and Japanese names in *katakana*. Many plant descriptions, including that of the soybean, are accompanied by an excellent, original illustration, as indicated by an asterisk (*) below. The soybean is discussed in several places: Yellow soybean* (*Glycine hispida*, Maxim.) Daizu, mame. (p. 1133, 1239). Green soybean (*Glycine hispida*, Maxim.) Ao mame. (p. 1286-87). Wild soybean (*Glycine soja*, S. et Z.). Tsuru mame, no mame (p. 1335-36).

Also discusses: White azuki* (*Phaseolus radiatus*, L. var.). Shiro azuki. Shyapon mame (p. 294). Sesame seeds* (*Sesamum indicum*, L.). Goma (p. 674, 676). Kuzu (*Pueraria thunbergiana*, Benth.) (p. 1135). Kuzu. Peanut* (*Arachis hypogaea*, L.) Nankin mame. (p. 1197).

Other authors of this book are: Kong Qinglai, Wu Deliang, Li Xianglin, Du Yaquan, Du Jiutian (Tu Chow-Tien), Zhou Yueran, Zhou Fan, Chen Xueying, Mo Shulue, Xu Jiaqing, Huang Yiren, Ling Changhuan, and Yan Baocheng. Address: China.

352. *Bean-Bag (The)* (St. Louis, Missouri). 1918. Foreign bean news: The Hokkaido as a source of beans. 1(1):21. June.

• **Summary:** "Statistics have been prepared showing the quantities of beans and peas raised during 1917 in the Island of Hokkaido, the producing center of Japan for those products."

A large table gives statistics for 11 types of beans in 5 columns: Name of bean, production (units not given), domestic consumption and waste, quantity available for export, price per 100 *kin* (132 lb.).

Names of beans and production: Green peas 88,933. Tenashi beans [large white] 34,700. Nagauzura (long speckled) beans 13,495. Chu (medium nagauzura) beans 25,520. Kintoki [large red azuki] beans 29,950. Maruuzura (round speckled) beans 2,535. Muroingen (medium butter) beans 2,870. Daifuku (large butter) beans 11,713. Chufuku (white flat) beans 1,863. Shozu (small red [azuki]) beans 38,100. Burma beans 22,663.

"It is estimated that 80 per cent of Japan's 1917 production of green peas will go to the United Kingdom, while about 70 percent of last year's crop of beans will be exported to the United States."

Note 1. Even though the soybean is the most important and widely grown bean in Hokkaido, it does not appear on

this list—probably because it is not considered a type of “dry bean.”

Note 2. About 60% of the shozu / azuki beans produced in Hokkaido are consumed in Japan—the highest percentage for any bean shown in this table.

Note 3. A similar table comparing 1918 and 1917 production of these beans is found in the Oct. 1918 issue (p. 43) of this magazine.

353. MacDougall, Sarah. 1918. Introducing to America an entirely new food—The soy bean: Dr. Yamei Kin (Continued—Document part II). *Bean-Bag (The)* (St. Louis, Missouri) 1(5):17-19. Oct.

• **Summary:** From St. Louis Post-Dispatch Sunday Magazine: Continued. “While I was trying to figure out how to pronounce that word Wai came in so quietly I hadn’t heard him enter.

“‘Please,’ said he, with a slight bow and a wave of one graceful hand toward the dining room, smiling and amiable as ever.

“I hadn’t even heard him lay the table, although the door to the dining room was open.

“I took my place at the head of the table.

“‘Soy beans,’ said Wai, with another gracious smile, introducing the contents of the green pepper on my blue plate. Then the boy disappeared silently.

“An hour earlier I had been starvily hungry. But there I sat looking at that decorative food. I recalled something Dr. Kin had said about art and eating. Before me was a symphony of blue and white dishes on dainty blue and white doilies, with a vase of crackled green glaze filled with asters and asparagus ferns on the center of the table.

“If Dr. Kin hadn’t told me I was going to have a soy bean luncheon I wouldn’t have believed that pepper was stuffed with anything that was even a distant relation to the soy beans I had tried to prepare. Honestly, I’ve never tasted anything more delicious. The little salted biscuits were made of soy bean flour. In due time Wai came in with the dessert.

“‘Soy beans,’ said he, introducing a trembling pyramid of chocolate blancmange, topped with white sauce. He stood there until I tasted it, and when I looked up incredulously, he smiled affirmation and repeated: ‘Soy beans.’

“There was nothing to do but believe the boy. It was so good it didn’t seem to matter what it was made of, for I was beginning to forget that I was out on a story. Then he brought some cheese and went through the same old ritual by way of introduction. Dr. Kin had asked what kind of cheese I liked. It didn’t look like roquefort, but it certainly tasted like it. [Note: It was probably fermented tofu.] And Dr. Kin had told me it could be made for next to nothing, that it would be so inexpensive that everybody could afford to eat it.

“Of course I wanted to know just how all these palatable things were prepared. But Dr. Kin told me before I went to luncheon that she is not giving out any recipes while she is

working for the Government—that they will be made public from Washington [DC] in due time.

She did tell me afterwards, however, that the green pepper was stuffed with chopped soy bean curd, which had been made up like chicken hash, with onions, celery and some chicken stock, but no meat. The cheese was entirely made of the soy bean curd, which had been through a cheese process to make the different brands of cheese. The dessert was made of a little red bean, flavored with chocolate.

“If anyone asks you to a soy bean luncheon, don’t miss it. It isn’t a question of what is good for you. It is a question of what is dainty, nice—what appeals to the taste, and you will find it a lovely little contribution to the art of living.”

Note: On page 21 of this issue is the following notice: “Corp. A.A. Kin killed in action.”

“Corp. [Corporal] A. A. Kin, only son of Dr. Yamei Kin, noted Chinese woman scientist who has been making extensive tests of the soy bean for the Government, was killed in action in France just before the armistice was signed. Corp. Kin was a graduate, of Columbia University.

“Dr. Kin was employed in the Government laboratory at New York, and found many ways of using the soy bean as a human food. She has now returned to China.”

354. Shih, Chi Yien. 1918. Beans and bean products. Shanghai, China: Soochow University Biology Dept. 13 p. 24 cm. [Eng]

• **Summary:** The author’s name in pinyin is probably Shi Jiyan. At the head of each section, the name of each product or type of bean is written in Chinese characters. Contents: Introduction by N. Gist Gee of the Dept. of Biology, Soochow Univ., China.

Note 1. Soochow, also called Su-chow (formerly Wuhsien) is a city in southern Kiangsu (pinyin: Jiangsu) province, in eastern China, on the Grand Canal. Introduction and names of soy beans: Classical Chinese names, colloquial Chinese names, Latin names, and English name (Soja bean). Soy beans. The food products of soy beans. Bean curd (Cc). Tou fu koen. Po yeh. Yu tou fu [fried tofu]. Ju fu [fermented tofu]. Tsao ju fu [fried fermented tofu]. Ch’ing hsien ju fu. Tou chiang or bean sauce. Chiang yu. Bean ferment or tou huang. Bean Sprouts. Bean relish or tou shih [fermented black soybeans]. Bean oil.

Note 2. This is the earliest English-language document seen (March 2021) that contains the term *You tou fu* (regardless of hyphenation).

Beans (Four varieties of *Phaseolus mungo* var. *radiatus*: chidou = dark-red [azuki] bean, baichidou = white dark-red bean, lüchidou = green red bean, and lüdou = green [mung] bean): The food products from the green [mung] beans (lüdou): Bean sprouts, green bean congee or lu tou chou, green bean soup or lu tou tang, green bean pudding or lu tou kao and lu tou sha. The food products from the red [azuki] bean (quite similar to those made from the green [mung]

bean): Congee, rice, pudding, tou sha.

Hyacinth beans (*Dolichos lablab*; five Chinese varieties / names: biandou, bai biandou, qing biandou, zibiandou, longzhao biandou). Asparagus beans [cowpeas] (*Vigna cati*ang; four Chinese varieties / names: jiangdou, panxiang jiangdou, manli jiangdou, baimi jiangdou). The food products from Pien Tou and Chiang Tou. Medicine. Flowers and seeds of the Pai Pien Tou, the broad bean, windsor bean, or horse bean (*Vicia faba*); In China it has two names: (1) Ts'an Tou or silkworm bean, because it is harvested at the time the silkworm is making its cocoon; (2) Han Tou or cold bean, because it grows through the winter. The food products from Ts'an tou (broad bean): Bean shoot (tou miao), Ch'ing tou (as a vegetable), Ja tou (broad bean sprouts), Shien fan and fan bee (made from broad beans and mung beans), Tou sha. The section on the names of beans (p. 1) we will give the English name, Latin name, the classical Chinese names / colloquial Chinese names, and an English translation in parentheses, as follows: (1) Soja bean, *Glycine hispida*: heidou / heidou (black [soy] bean), huangdou / huangdou (yellow bean), yangyandou / yangyandou (sheep eye bean), maliaodou / maliaodou (horse material / feed bean),—/ guguo qingdou (bone wrap green bean),—/ jiajia sandou (pod pod three bean), xiangsidou (mutually think bean) / xiaqngzhidou (fragrant branch bean),—/ bayue baidou (8th month white bean). Soja bean: *Dolichos cultratus* quedou (magpie bean) / equedou (chirp magpie bean). Soja bean: *Phaseolus vulgaris* baidou (white bean) / shui bai dou (water white bean),—/ shidou (fennel bean) (Note 3. shiluo means “fennel”),—/ guashudou (melon ripe bean),—/ maquedou (sparrow bean),—/ niuta biandou (cow tread flat bean),—/ yadou (sprout bean),—/ shijia xiangdou (ten family fragrant bean),—/ xifeng qingdou (west wind green bean),—/ shizi hedou (persimmon pit bean),—/ denglongdou (lantern bean).

Note 4. The large title “Soy Beans” at the top of this table, the right column which says that the English name of each variety is “Soja bean,” and the next 8 pages which are only about soy beans, strongly indicate that all the colloquial names in this table refer to different varieties of soy beans. Moreover, all these colloquial names appear again on page 3 in a table on planting and harvest times of different varieties of [soy] beans. The bottom half of the colloquial names are probably from different parts of China, since Dr. H.T. Huang (a soybean expert) has never heard many of these colloquial names before. The most puzzling question is: What are *Dolichos cultratus* and *Phaseolus vulgaris* doing at the bottom of the “Latin name” column? *Dolichos cultratus* is not listed on either of the two comprehensive taxonomy databases (GRIN and ILDIS, which include all past Latin / scientific names). *Phaseolus vulgaris* refers to the common bean, such as the kidney bean, pinto bean, navy bean, frijole, etc.

2. Soy beans. “They were introduced into France during the reign of Ch'ien Lung about 1740 A.D. by a French

Consul; into England in 1790, into Australia in 1875, into Germany 1881, and 1888 into America. They were known here from ancient times and were mentioned in the oldest books Pên Ts'ao Kong Mu, which were written by the Emperor Shen-nung in the year 2838 B.C., and the later Chinese Classics.”

Note 5. This is the earliest English-language document seen (March 2021) that treats Shen Nung as a real, historical figure, or that says the first written record of the soybean appears in a book written by him. The information about that book is wildly inaccurate. The *Bencao gangmu* (The great pharmacopoeia), perhaps China's most famous materia medica, was written by Li Shizhen (+1596). The above information, which is all wrong, has been cited again and again, down to the present day (2021), in connection with the supposed origin of the soybean.

“Even during the ancient times they were considered by the people to be the most important of the cultivated leguminous plants.” Note 6. This is the earliest document seen (March 2021) which states, incorrectly, that the date of Emperor Shen-nung's book is 2838 B.C.

“The methods of cultivation are as follows: In general all of the soja beans are planted in rows along the banks of canals and the boundaries of the fields, which separate the fields of one family from those of another, except those which are called oil beans or Eighth month white bean and Water white bean. These last are planted in large fields. The oil beans are planted early in June.” The method of cultivation, harvest, and threshing is then described in detail. A table gives the time of planting and harvest for 18 varieties of Chinese soybeans, grouped into 6 types by planting and harvest dates: (1) Plant in latter part of April, harvest in latter part of Sept.: *Heidou* (black [soy] bean), *huangdou* (yellow bean), *maliaodou* (horse material / feed bean), *guguo qingdou* (bone wrap green bean), *jiajia sandou* (pod pod three bean), *xiangzhidou* (fragrant branch bean). (2) Plant in early part of June, harvest in middle part of Sept.: *bayue baidou* (8th month white bean), *shuibaidou* (water white bean), *maquedou* (sparrow bean). (3) Plant in early part of July, harvest in early part of Oct.: *equedou* (chirp magpie bean), *niuta biandou* (cow tread flat bean), *shijia xiandou* (ten family fragrant bean), *xifeng qingdou* (west wind green bean), *shizi hedou* (persimmon pit bean), *denglongdou* (lantern bean). (4) Plant in early part of April, harvest in early part of July: *guashudou* (melon ripe bean). (5) Plant in early part of April, harvest in latter part of July: *shidou* (fennel bean). (6) Plant in early part of April, harvest in latter part of June: *yadou* (sprout bean).

The rest of the work concerns the food products of the beans, including a detailed description of how each is made.

Note 7. This document contains the earliest date seen for soybeans in Australia or Oceania (1875). It is not clear whether or not these soybeans were cultivated in Australia; they may well have been. The source of these soybeans

is unknown, as is the author's source of information concerning that early introduction, 43 years before Shih wrote this booklet. He is the first to give such an early date for the introduction of soybeans to Australia. Yet the date does not seem unreasonably early since there were 17,000 Chinese in Australia by 1855 (see Australian Department of Immigration and Ethnic Affairs. 1985. "A Land of Immigrants"). Address: Biology Dep., Soochow Univ., China.

355. Shih, Chi Yien. 1918. Beans and bean products: Mung beans and azuki beans (Document part). Shanghai, China: Soochow University Biology Dept. 13 p. See p. 9-11. [Eng] • **Summary:** (Cc) = Chinese characters inserted in text; pinyin romanization has been added. Note: Neither the word "mung" nor the word "azuki" appears in this text. Today these two beans still belong to the same genus (*Vigna*) but have different scientific names: *Vigna radiata* L. and *Vigna angularis* (Willd.) Ohwi & H. Ohashi, respectively.

Beans (Four varieties of *Phaseolus mungo* var. *radiatus*: chidou = dark-red [azuki] bean, baichidou = white red bean, lüchidou = green red bean, and lüdou = green [mung] bean): "These beans are all *Phaseolus mungo* var. *radiatus* or other varieties. They are planted in the early part of August and the method of planting is slightly from the Hispida [soy] beans. We have already mentioned that the Hispida beans are largely planted along the banks of the canals or the field boundaries; but these are planted in the same field along with cotton or corn. Usually these beans are planted in the field where the cotton or corn have failed to grow or make a stand, though often the beans are mixed with the cotton seed and sown broadcast in the field where both grow together.

"These beans do not require special care so the farmers in this part of the country largely fertilize them with night-soil or other kinds of fertilizer. The beans receive no special cultivation other than the chopping out of the weeds found among them as the cotton is worked.

"The harvesting time is the early part of November. The farmers pull up the entire plants and carry them into their house where the women pick the pods from the stems and put them on matting in the sunshine for two or three days, in order to dry them. Then they rub the seed out from the pods with the hand and keep the beans in the sunshine about four or five days longer. Then the beans are poured into a big earthenware jar where they are kept for future use.

"The food products from the green [mung] beans [mung] (lüdou): (1) Bean sprouts:—The method of growing bean sprouts we have already described in connection with Hispida [soy] beans. The green bean sprouts can be eaten earlier than the yellow [soy] bean sprouts, in about June, July, and August. The method of cooking the green bean sprouts is quite different from that of cooking the yellow ones. They are best cooked in the following way:—(a) Cut off that portion of the sprout bearing root hairs. (b) Wash

thoroughly in cold water. (c) Heat an iron vessel to a high temperature and then pour into it two small teaspoonfuls of bean oil, or rape-seed oil. (d) Then pour the sprouts into the vessel and keep turning them with the Ch'an Tao (Cc = chandao = scraper) for eight or ten minutes. (e) Add a little salt to give them a flavor. The sprouts cooked in this way are eaten as a vegetable at regular meals.

(2) green bean congee or lu tou chou (Cc = lüdouzhou):—Green bean congee is made of green bean and white rice, or glutinous rice. With three catties of rice use half a catty of green beans. The beans are first washed in cold water and then boiled in water for about two hours. The rice which has been thoroughly washed is added into the boiled beans and boiled again about one hour or more. The mixture is called green bean congee (Cc = lüdouzhou). It is used as a breakfast dish.

"(3) Green bean soup or lu tou tang (Cc = lüdoutang):—Green bean soup is made of the boiled green beans, adding a certain amount of sugar in order to make it sweet. There are many other kinds of flavoring materials which are added to the soup to make it nice, such as, rose petals, sweet olive flowers, etc. This soup is eaten cold during the summer time.

"(4) Green bean pudding or lu tou kao (Cc = lüdoukao):—There are two kinds of green bean pudding, one is made of the bean and the glutinous rice (Cc = nuomi). The processes of preparing the pudding are as follows:—(a) Wash the beans thoroughly in cold water. (b) Boil them about three hours and mash them thoroughly with the hand, in order to loosen the skin (Cc = pi) of the bean. (c) Mix this with water and then pour it into a bamboo basket with cracks and was the material through leaving the skins in the basket. (d) Now place this material in a fine cloth bag and press the water from it. In this condition it is very granular and is called Tou Sha (Cc = dousha). (e) A small box, about two inches long, half an inch wide, and a quarter of an inch high, is used to put the Tou Sha (Cc = dousha) in to make the shape of pudding. It is eaten with sugar in the summer time for its supposed cooling properties.

"The preparation of the other kind of pudding is quite different from the one described above. The glutinous rice of No Mi (Cc = nuomi) and white rice of Pai Mai (Cc = baimai) must be used to make this pudding. One hundred thirty pounds of glutinous rice requires ten pounds of white rice, in order to make the glutinous rice less gluey. The processes are as follows:—(a) Wash the rice in cold water. (b) Pour the rice on matting over night, and then grind it into flour with a stone mill. (c) Then enough boiling water in the solution is used to moisten the rice flour. Sixteen or eighteen pounds of rice flour require one catty of sugar to make the solution. (d) After this the boiled green beans are poured into the moistened flour and mixed thoroughly. (e) Pour the entire mixture into a wooden bucket and steam it for about half an hour. Before the mixture is put in, the bucket must be steamed first and then gradually the flour is poured into it.

(f) After the mixture is thoroughly steamed, it is poured on a large cotton cloth which is used to wrap it. Then it is pressed with the hands in order to pack the mixture firmly together so that it will not fall apart. (g) A cotton thread is used to cut it into small pieces and it is eaten as a cake. This is also called green bean pudding (Cc = lüdougao). This is usually used for festive occasions.

The food products from the red [azuki] bean (Cc = chidou). There is no great difference between the green [mung] bean and red [azuki] bean as to the food products made from them. The red bean can also be used to make congee (Cc = zhou) or rice (Cc = fan), and pudding, which is made of rice and red bean, in the same way as the green bean. Another food product is as follows:—(1) Tou Cha (Cc = dousha):—The Tou Sha from the red beans is prepared in the same way as that from the green beans. The red bean Tou Sha is boiled for fifteen minutes with enough sugar to sweeten it and it is then used to put inside of certain cakes (Cc = bing [mochi]). The skins of the red bean are also used to prepare a coloring matter which is used to dye red paper. Address: Biology Dep., Soochow Univ., China.

356. Takenob, Y. 1918. Japan Year Book. Tokyo: Japan Year Book Office. 784 p. See p. 303, 492-93, 514, 530-31, 574, 584-85, 606-07, 611-12, 614, 691, 713, 721, 736, 782. 13th annual issue. [Eng]

• **Summary:** This book gives statistics for the Japanese empire: Japan Proper, Korea, and Formosa. The Preface is dated 31 Aug. 1918.

At the front of the book are 34 pages of large ads on pages enumerated with Roman numerals. At the rear of the book are 49 pages of large ads on pages similarly enumerated.

Near the front is a page of “Weights, measures, and moneys.” 1 koku = 10 to = 100 sho = 4.65389 gallons (liquid) (U.S.A.) = 180.39 liters.

Page 303 shows how inflation in Japan during the great European war is making it difficult for regular families to make ends meet. The price of common foods such as “Sugar, soy, etc.” has increased by 50% from June 1914 to Feb. 1918.

Page 584-85. The section on “Brewing industry” gives information about soy sauce plus production statistics for sake, beer, and soy [sauce] from 1913 to 1916.

Page 493. A table titled “Prices of principal commodities,” 1914-1916 shows that the price of soja beans decreased from 11.55 yen per koku in 1914 to 10.28 yen per koku in 1916. The price of red [azuki] beans and miso also decreased. But the price of soy [sauce] increased from 24.91 yen per koku in 1914 to 25.05 yen per koku in 1916.

Page 492. A section titled “Guilds of stable commodities” lists: “The principal production guilds as classified according to the kind of commodities handled were as follows at the end of the year 1913:—Raw silk, 238;

Rice, 68; Artificial fertilizers, 30; Paper, 24; Porcelain, 22; Medicines, 23; Weaving, 138; Timber, 32; Soy and miso, 31; Charcoal, 26; Matting, 20; Total, incl. others, 975.”

Page 530-31. In the chapter on “Agriculture.” A table shows production of soy beans, potatoes, and sweet potatoes, 1912-1916 (in 1,000 koku). Production of soy beans increased from:

3.511 million koku in 1912

2.993 million koku in 1913

3.664 million koku in 1914

3.807 million koku in 1915

3.750 million koku in 1916

The text immediately after the table (p. 531) states:

“Among subsidiary farm crops there is perhaps nothing which plays so important a part in the Japanese kitchen as soy beans...”

Pages 573-74. A table of industrial companies classified by amount of investment states for “Soy and miso.” Number of companies: 281. Paid up capital: 6.653 million yen. Reserves: 552,000 yen.

Pages 606-07 show record tax revenues in 1917-18, including 5.28 million yen from soy [sauce].

Pages 611-12. Discuss the history of taxation in Japan, including the tax on soy. The system is said to be irrational, and excises taxes applied to daily necessities, such as soy, place an unfairly heavy burden on the poor.

Page 614 repeats basic information about “6. Tax on Japanese soy [sauce].”

Page 691. The chapter on “Chosen (Korea)” states (p. 691): “Barley and soya bean.—Barley covers 584,664 cho, yielding 4.600,000 koku. Soya and other beans are exported chiefly to Japan for manufacturing soy, the export amounting to about 5,000,000 yen annually; the acreage is 553,077 cho and the yield 3,200,000 koku [415,252 metric tons].” Address: Prof. at Waseda Univ. and Late of the *Japan Times*, Tokyo, Japan.

357. Holland, J.H. 1919. Food and fodder plants. *Bulletin of Miscellaneous Information (Royal Gardens, Kew)* Nos. 1&2. p. 1-84. April 16. See p. 11-12. [5 ref]

• **Summary:** Great Britain imported large quantities of soy oil before World War I to make up for the shortage of cottonseed oil needed to manufacture soaps: 875,526 hundredweight from Manchuria, 816,032 hundredweight from China, and 43,209 hundredweight from Manchuria. Note: A hundredweight is 112 pounds weight.

“Considerable interest has been taken in the cultivation in England, but results of experiments made at Cambridge, Midland Agricultural College, South Eastern Agric. College, Wye, &c., go to show that no variety so far has been found that can be relied on to produce seed here.

“In Japan and China they [soy beans] are largely known in the preparation of the sauce known commercially as ‘Soy,’ and they make there a preparation used as a substitute

for milk, and from this a food product call 'Tofu,' which in turn forms the basis of the bean cheeses of Japan. The meal [flour] in this country is used in the manufacture of biscuits and in making a bread for special use in diabetes; but the principal use here is for the extraction of the oil of which the beans contain about 18 per cent., suitable for soap-making and in general as a substitute for cotton seed oil, the residue being a valuable cattle feed.

Also discusses the adzuki bean (*Phaseolus angularis*, Wight). "This bean appears to have been coming into the market recently in quantity. Trade samples have been submitted to Kew for name as 'Dainagon Azuki Beans.'" They are important human food in Japan, Korea, China, and Manchuria, cultivated for the purpose.

358. Lilly (Chas. A.) Co. 1919. Lilly's Kintoki beans (Red) (Ad). *Bean-Bag (The)* (St. Louis, Missouri) 1(11):34. April.

• **Summary:** "Handpicked 1918 crop. February shipment from Orient." "Established 1885." "Cable address: 'Lilly Seattle'—All codes." Address: Seattle, Washington.

359. Phelps, J.K. 1919. Re: Analysis of Japanese miso and bean paste conducted for Miss Margaret B. Church, Microbiological Laboratory. Letter to Miss B. [sic] Church, July 1. 1 p. Typed, with signature on letterhead.

• **Summary:** The products are designated White Miso, Red Miso, and Japanese Bean Paste [probably azuki bean paste]. Each was analyzed for percentage of moisture, total ash, protein, fat, sucrose (Clerget), reducing sugars as invert before inversion, reducing sugars as invert after inversion, crude fiber. The Japanese Bean Paste "evidently contains agar-agar as the microchemical examination showed the presence of diatoms." J.F.B. adds in a handwritten note: "This total ash is doubtless too low, probably heated too far." Address: Chemist in Charge, Food Control Lab., Bureau of Chemistry, USA, Washington, DC.

360. *Christian Science Monitor*. 1919. Japanese children. Aug. 28. p. 14.

• **Summary:** "The Japanese also have... wafers [rice crackers] which are made of rice paste, dipped into 'shoyu' and dried in the sun. 'Shoyu' is a sauce with a salty taste, which is the Japanese equivalent of Worcester sauce."

Also discusses a sweet called "ame," which is made from malt, and "'yokan' consisting of mashed [azuki] beans and sugar, which is made in the mountain districts of Japan. It is much nicer than it sounds and looks so attractive packed in its long, narrow, white, wooden boxes and wrapped in a single big bamboo leaf."

361. *Madison Survey* (Madison, Tennessee). 1919. Adzuki beans. 1(35):4. Oct. 22.

• **Summary:** "The School [Nashville Agricultural Normal Institute, renamed Madison College in 1937] has been

experimenting with a half dozen varieties of the Chinese bean, the Adzuki, which is harvested the latter part of September. One variety proves of special merit because it carries the pods well above the ground so that it can be mown with a machine without cutting the pods, and it does not scatter seed easily. It cooks readily, has a flavor somewhat similar to lentil, and is very agreeable to those who have tasted it."

362. *Bean-Bag (The)* (St. Louis, Missouri). 1919. Estimate of new crop Orientals. 2(5):27. Oct.

• **Summary:** A report titled "Estimation of new crop," furnished by S.L. Jones & Co., San Francisco [California], gives a table of production estimates for the years 1918 and 1919. It includes (no units are given): Azuki beans: 21,185 in 1918; 39,182 in 1919. Kintoki (Round Reds): 7,120 in 1918; 5,666 in 1919.

363. Rogers Brown & Co. 1919. Beans: Peas, peanuts, walnuts, rice, tapioca, kaoliang, hempseed, sunflower seed, millet and flaxseed (Ad). *Bean-Bag (The)* (St. Louis, Missouri) 2(5):45. Oct.

• **Summary:** "Oriental beans: Kotonashi, otenashi, chutenashi, o-nagauzura, chunagauzura, muroingen, daifuku, kintoki, kumamoto, edible soyas, Manchurian kifi, Oriental castor, Indian white chufuku, bayo, Burma, aneko, yellow kidney, Oriental small reds, Oriental round whites.

"Domestic beans: All kinds of Michigan and California.

"Our goods are bought and inspected by our own offices in the Orient, handled through our own warehouses in this country and delivered to you under the direction of our American Branches.

"Certificate of quality furnished with each and every shipment.

"Offices: Seattle [Washington]; New York; Chicago [Illinois]; San Francisco; Los Angeles [California]; Kobe, Japan; Shanghai, China; Liverpool [UK]."

Note: A similar ad, with the added line "We are the leading importers of peanut oil, soya bean oil and other Oriental products," appears on the cover of the Feb. 1920 issue of this magazine. Address: Seattle, Washington.

364. Baker, E. Carleton. 1919. Marketing the Far Eastern bean crop. *Commerce Reports [USA]* (Daily Consular and Trade Reports, Bureau of Foreign and Domestic Commerce, Department of Commerce) 22(279):1170-73. Nov. 28.

• **Summary:** Contents: Introduction. Shipments of beans and bean oil. Marketing methods. Packing for export. Chinese weights employed in the bean trade. Method of buying bean oil from Chinese mills. American purchasing organization method.

By George H. Scidmore, Consul General, Yokohama: Statistics of bean crop in the Hokkaido. Exports of beans for two years [from Hokkaido]. Total exports of chief varieties

[species] of 1918 crop. Speculation a strong factor in bean trade.

“Manchuria is essentially an agricultural country, about 70 per cent of the people being directly or indirectly dependent upon the land. Soy beans form the staple crop of Manchuria, and upon them the prosperity of the people depends. The annual value of the staple itself runs into millions of dollars, and the by-products, such as bean oil and bean cakes, represent a great source of income to the manufacturers.

“The Mukden consular district comprises the greater part of South Manchuria and produces an enormous quantity of soy beans. This crop is given preference to others because it yields the surest and greatest profit. In spite of the congestion of railroad traffic throughout the last season, the following shipments were made in 1918 from the principal bean markets along the South Manchuria Railway: A table (p. 1170) gives, for each station, the tons of soy beans and bean oil shipped: Liaoyang, Fushen, Mukden, Tiehling, Kaiyuan (178,050 #2 for beans), Changtu, Shuang Miaotzu, Szuping Kai, Kuochiatien, Kungchuling, Fanchiatun, Changchun (706,000 #1 for beans).

“The Japanese buyers possess many advantages through their intimate knowledge of local conditions and their special banking and railway facilities. They obtain beans direct from the growers by advancing money against crops, and make forward contracts with interior dealers against a cash advance. They also deal with the produce exchanges, which at present exist only in Kaiyuan and Changchun. Exchanges, however, are soon to be established at Tiehling and Kungchuling. While the Japanese enjoy special advantages, American buyers can purchase through a Chinese comprador (a sort of middleman employed in the interest of the buyers), or through the aforementioned exchanges. The exchanges guarantee that all contracts entered into through them will be punctually fulfilled, but buying through the comprador is much quicker, safer, and more convenient, as all compradors are obliged to furnish tangible guaranties. Although a comprador’s commission is a trifle higher than is charged by the produce exchanges, the purchaser will save through the time gained on delivery. The usual buying commission charged by compradors ranges from 2 to 3 per cent of the buying price, while the exchanges levy a charge of about one-fourth of 1 per cent.

“The usual form of packing beans for export is in gunny sacks containing one standard pikul (133 1/3 pounds). Bean oil is shipped in various ways; American shipments are made in kerosene tins or metal drums or barrels, while water-tight baskets are used for consignments to Asiatic ports. On a few occasions bean oil has been shipped from Dairen to Seattle [Washington] in tank steamers in bulk.

“Perhaps the most difficult problem that Americans have to face in Manchuria is the method of making payments. This is due to the complicated state of Manchurian exchanges.

Payments are usually made in the various districts as follows: Changchun and Kirin, tiao notes, small coin, dollar notes and rubles; other points mentioned above, small coin, dollar notes, rubles, and Japanese gold and silver yen. These currencies fluctuate continually; it is necessary, therefore, for a prospective buyer carefully to acquaint himself with the money market before entering into contracts. The usual way of safeguarding a contract is to specify the buying rate and paying rate of exchanges at the time the contract is signed.

“Another important point to be taken into consideration is the weights employed. All beans are sold in tou or tan. In some places one tan equals 228 standard catties (304 pounds avoirdupois), and one tou equals 27 standard catties (37 1/3 pounds), but in other places one tan equals 300 or 320 standard catties (400 or 426½ pounds) and one tou equals 30 or 32 standard catties (40 to 42 2/3 pounds). It will be necessary for American merchants to familiarize themselves with the weights used in Manchuria if they intend to purchase in the interior or from the producers...”

Hokkaido, Japan: “Practically all of the beans destined for export from Japan are grown in the Hokkaido. The total crop for 1919 it is estimated will amount to 318,000 long tons, of which about 277,000 long tons [87%] will be obtainable for export.” The beans are sold in bags of 100 *kin* (132 pounds) each. Varieties of beans produced in Hokkaido: Shozu [azuki], Dainagon shozu, Other shozu. Daizu (soybeans; with number of bags produced in Hokkaido in 1916) 615,114, Akita daizu 754,996, Tsurunoko daizu 52,970, Sodefuri daizu 77,673, Kuro daizu [black] 143,152, Other daizu (No data until 1919). Daifuku, Chufuku, etc.

Another table (p. 1172) shows which foreign countries imported the exportable surplus of the Hokkaido bean crop in 1916 and 1917. The biggest customer for soy beans by far, in both years, was the USA, followed by Canada. Canada’s imports from Hokkaido, Japan, were as follows: In 1916: 131,421 *kin* (173,476 pounds weight or 77.44 long tons of 2,240 pounds per ton). In 1917: 256,042 *kin* (337,974 pounds weight or 150.88 long tons). Note: These two years were during World War I, when Japan and Canada were allies. Canada probably used these soybeans as a source of both oil (for soap) and meal (probably fed mostly to hogs to increase bacon production).

The USA also imported large amounts of small red [azuki] or white beans (*Phaseolus subtrilobata*). Address: Consul General, Mukden, China.

365. Chevalier, Aug. 1919. Culture et valeur alimentaire des principales légumineuses tropicales [Cultivation and food value of the principal tropical legumes]. *Bulletin Agricole de l’Institut Scientifique de Saigon* 1(11):330-42. Nov. See p. 331. [2 ref. Fre]

• **Summary:** The section titled “Soja” (p. 331) states that this plant is first among all legumes in terms of nutritional value. In Indochina, the soybean is cultivated mainly in Tonkin

[later named North Vietnam] and Cambodia. None of these soybeans are exported. The Chinese in Cholon (located just southwest of Saigon) use them to make sauces, cheeses, and a sort of vegetable casein which is sold at all of the Annamite [later South Vietnamese] grocery stores. During World War I, soy flour was mixed with wheat flour in a 1:3 ratio for making bread.

“The soybean contains 40% protein and 20% oil, whereas our European beans contain only 20% protein and 2% oils. Products based on soya can therefore contribute to a good diet.” A table titled “Composition of the principal leguminous seeds of Indochina with their humidity” (p. 338) gives analyses for three soybean samples, from Yunnan, Langston (Tonkin), and the Delta (Tonkin).

Also discusses Bambara Peas (*Pisum Bambara*) (p. 332), peanuts (p. 332-35), azuki beans (*Phaseolus angularis*; p. 334, 339).

366. Lindsey, J.B.; Haskins, H.D.; Smith, P.H.; Beals, C.L. 1919. Compilation of analyses. *Massachusetts Agricultural Experiment Station, Special Bulletin*. Nov. 101 p.

• **Summary:** In the section titled “Composition and digestible ingredients...” by J.B. Lindsey, P.H. Smith, and C.L. Beals (p. 4-29) are three long tables: Table I (p. 6-23) is “Composition and digestible ingredients in cattle feeds.” In the subsection on “Green fodders,” soy beans (early white [Early White], medium green [Medium Green], medium black [Medium Black], late) are mentioned under legumes (p. 9), mixed and miscellaneous (p. 11, corn and soy beans), silage (p. 13, corn and soy beans, millet and soy beans). In the subsection on “Hays and coarse dry fodders,” soy beans are mentioned under straw (p. 16), legumes (p. 17, “soy bean hay”), and concentrated feeds (p. 18, “soy beans, soy beans-meal, soy beans-medium green, and soy beans-oil cake meal.” A typical analysis of the latter (ground cake/meal) is: Water 8%, protein 41.6%, fat 8.6%, nitrogen-free extract 31.6%, fiber 4.8%, and ash 5.4%. Also analyzes foxtail millets (*C. italica*) and broom-corn millets (*Panicum miliaceum*), barnyard millet (*Panicum crus-galli*), and pearl millet (*Pennisetum spicatum*) (p. 6-7), alfalfa, cow peas, “horse or broad bean (*Faba vulgaris*), corn gluten feed (before and after 1910), peanuts, peanut bran and germ, peanut oil cake meal, sesame oil cake meal, wheat gluten flour and meal.

Table II (p. 24-28) is “Fertilizer ingredients in cattle feeds and dairy products.” Soy beans are mentioned on pages 24-27 under green fodders, silage, hay, and concentrated feeds. Also analyzes yellow and white lupine, red and white adzuki [azuki] beans, linseed meal (new and old process), peanut feed, peanut husks, peanut meal, and Proteina.

Soy beans are not mentioned in Table III, “Average composition of dairy products” (p. 32-58).

In the section titled “Coefficients of digestibility of American cattle feeds. Experiments made in the United

States,” by J.B. Lindsey and C.L. Beals (p. 30+) is Table IV (p. 32-58), with the same title. Soy beans are mentioned under legumes (p. 33), silage (p. 36-37, incl. Mammoth Yellow silage), hay (p. 46), concentrated feeds (p. 48, 56). For a bibliography of publications “consulted in compiling the foregoing tables of digestibility, see p. 59.

In the section titled “Compilation of analyses of fruits and garden crops,” by H.D. Haskins (p. 87+) Table VI, with the same title, is on pages 89-95. Under Leguminosae (p. 94) we read: Whole soy bean seeds contain 10% moisture, 4.80% nitrogen, 2.86% ash, 1.26% potassium oxide (44.1% of total ash), 0.03% sodium oxide (1.1% of t.a.), 0.17% calcium oxide (5.9% of t.a.), 0.25% magnesium oxide (8.7% of t.a.), 1.04% phosphoric acid (36.4% of t.a.), 0.08% sulfuric acid (2.8% of t.a.), and 0.01% chlorine (0.4% of t.a.). Note: Two minerals, potassium oxide and phosphoric acid, comprise more than 80% of the total minerals / ash in whole soy bean seeds.

Whole soy bean plants contain 4.3% moisture, —% nitrogen, 12.64% ash, 1.53% potassium oxide, 0.28% sodium oxide, 2.31% calcium oxide, 0.50% magnesium oxide, 0.61% phosphoric acid, 0.26% sulfuric acid, and —% chlorine. Address: Amherst, Massachusetts.

367. Hindmarsh & Co. 1919. The crop’s estimation. *Bean-Bag (The) (Lansing, Michigan)* 2(7):38. Dec.

• **Summary:** “Of staple products in Hokkaido, 1919.

“Investigated and published semi-officially on the 10th of September, 1919, by the Hokkaido Union of the Grain Trade Association are as follows in tons of 2,240 pounds:

“Rape Seeds 14,200 tons

“Linseeds 10,700

“Green Peas 55,130

“Tenashi Beans 34,000

“Kintoki Beans [large azuki] 14,000

“Varieties of Maruuzura 4,000

“Nagauzura Beans 11,500

“Chunago Beans 17,500

“Biruma Ingen Beans 6,260

“Kumamoto Ingen Beans 10,250

“Daifuxu [Daifuku] Beans 9,500

“Chufuku and Muro Ingen 2,750

“Soja Beans 70,000

“Azuki Beans 45,000

“Potato Starch 120,000 tons.” Address: N. 2, Kaigan Dori, 1 Chome, Kobe, Japan.

368. Dill-Crosett Inc. 1920. Beans: Importers, exporters, factors in (Ad). *Bean-Bag (The) (Lansing, Michigan)* 3(2):35. July.

• **Summary:** A ¼-page ad. They handle 10 varieties of California beans and 16 varieties of Oriental (Japanese and Korean) beans including Daifuku, Kintoki, and Soya. Also peas. Address: 235 Pine St., San Francisco, California.

369. Kyoshin Yoko, Ltd. 1920. According to investigation made by Hokkaido Produce Association,... *Bean-Bag (The) (Lansing, Michigan)* 3(5):54. Oct.

• **Summary:** A half-page table compares the acreage of respective commodities between 1919 and 1920, which is approximately as follows (1 chobu = about 2.5 acres):

Soya bean 1919–57,761 chobu. 1920–80,094 chobu. Up 39%.

Kuro [black] soya bean 1919–4,386 chobu. 1920–5,308 chobu. Up 21%.

Azuki bean 1919–35,190 chobu. 1920–47,440 chobu. Up 35%.

Dainagon [large azuki] bean 1919–10,166 chobu. 1920–14,642 chobu. Up 44%.

Kintoki red [azuki] bean 1919–13,882 chobu. 1920–11,775 chobu. Down 16%.

Also gives statistics for: Daifuku bean. Chufuku bean. Tenashi bean. Nagauzura bean. Maruuzura bean. Address: P.O. Box 251, Kobe, Japan.

370. *Bean-Bag (The) (Lansing, Michigan)*. 1920. Kyoshin Yoko, Ltd., Kobe, Japan. 3(6):38. Nov.

• **Summary:** “Owing to remarkable decrease in export demand and to a certain drop in its prices compared with what prevailed during the war-time which farmers experienced last two years, the output on such items for export as beans, peas, potatoes etc., etc., have been shown a great deal of decrease this year, leaving the acreage used for same to planting such commodities for use of domestic consumption as soya beans, azuki beans, rice, wheat, barley, rye, oats, linseeds, etc.

“Due to a very little demand offered abroad and low price prevailed on oversea market last season the quantities moved for export up to the present moment was hardly to reach to half of the output last year. Under the circumstances, many of the farmers have changed their field to plant soya beans and other kinds of cereals this year. Instead of kotenashi beans, and therefore the output this year for this commodity is expected to be about one-third of last year. Anticipated output will be about 3,000 tons against 8,000 tons last year.”

371. Dep. of Finance (Okurashô). 1920. Financial and Economic Annual of Japan (20th). Tokyo, Japan: Government Printing Office. 199 p.

• **Summary:** The section on “Food problem, adjustment of prices, etc.” (p. 6) begins: “Amidst this general activity of economic market, the balance of trade for the first time since 1915 was returned against Japan, and it seemed as if a dark, ominous cloud appeared in the horizon. In practice, however, the economic circles, spoiled by continued prosperity, did not take heed of this warning, but persisted in viewing the situation through rose-coloured spectacles. Speculative

mania, luxury in living and abnormal rise of new enterprises were [the] order of the day, together with further advance in prices of commodities” [inflation]. The price of rice rose so high there were rice riots last year. “In November an Imperial ordinance was issued to exempt till November 1920 soy beans, raw beef, eggs and cotton fabrics and yarns from import duties, and also to restrict the export of cotton yarns.”

Table 1 (p. 8) gives statistics on the tax on soy [sauce]. In 1920-21 it is estimated to be 5.83 million yen, compared with an estimated 5.25 million yen in 1919-20. This is an increase of 79,685 yen.

Table 3 (p. 14-15) gives the Japanese government revenue from the tax on soy sauce each year from 1907-08 (5.47 million yen) to 1920-21 (estimated 5.83 million yen).

In the section “Tax on liquors” we read (p. 20): “VI. Soy [sauce] tax: The tax is levied at the following rates upon persons manufacturing soy (Japanese sauce): -

“Soy yen 1.75 per koku of Moromi.

“Tamari yen 1.65 per koku manufactured.

“In 1900, the tax on soy for household use was created, the rates of which range from sen 50 to yen 4 according to the amount of manufacture. No person whatever is permitted to manufacture for household use more than five koku of soy per annum.”

Page 24: “In view of the advance of prices and the consequent unrest as to living, such daily necessities as soy beans, raw beef, eggs, cotton yarn and cotton fabrics were further placed on free import list, effective till November 30th, 1920.”

Table 19 (p. 46) gives annual area (in *chô*) and production (in *koku*) of soy beans (and of “small red beans” [azuki]) from 1909 to 1918. (Note: 1 *koku* = 44.8 gallons = 180 liters. 1 *chô* = 2.45 acres = 0.992 hectares. 1 *kwan* [kan] = 8.72 lb).

Sample figures were as follows:

1909–479,771 *chô* and 3,766,962 *koku*.

1913–475,284 *chô* and 2,993,095 *koku*.

1918–482,207 *chô* and 3,451,820 *koku*.

Table 33 (p. 62) gives the index number (relative amount) of wages by profession. A “soy-maker” earns 155.6, which is about average among food and drink workers.

A table (p. 67) gives the amount of various manufactured goods made in Japan from 1909 to 1918. The amount of Soy [sauce] increased from 2,197,708 *koku* in 1909 to 2,630,498 *koku* in 1918.

Table 53 (p. 94) gives the value (in yen) of “Chief commodities exported” from 1906 to 1919. For Soy [sauce] the export value increased from 952,840 yen in 1906 to 968,819 yen in 1919.

Table 54 (p. 96-97) gives the “Value of chief commodities imported” (in yen) from 1906 to 1919. For Soja-beans the import value increased from 9,018,173 yen in 1906 to 22,042,824 yen in 1919.

Table 56 (p. 102) gives the “Value of chief commodities imported from various countries” (in yen) from 1913 to

1919. For Soja beans in 1913 the value of imports were: From China: 3,828,508 yen. From Kwantung [Guangdong] province (in southern China): 2,988,212 yen. From Asiatic Russia: 326,874 yen. From other countries: 80 yen. By 1919 Kwantung province was by far Japan's biggest source (14.7 million yen), followed by China. Asiatic Russia, and Other countries.

Table 73 (p. 140) gives the prices of principal commodities from 1912 to 1919. During this period, the price of

Soja beans increased from 10.49 yen per *koku* to 20.81 yen per *koku*.

Red beans [azuki] increased from 14.49 yen per *koku* to 36.60 yen per *koku*.

Soy [sauce] decreased from 88.18 yen per *koku* to 40.61 yen per *koku*.

Miso increased from 0.44 yen per *kwan* to 1.02 yen per *kwan*.

Seed-oil [mainly rapeseed] increased from 46.34 yen per *koku* to 105.24 yen per *koku*.

Oil-cake [mainly rapeseed] increased from 2.72 yen per 10 *kwan* to 5.70 yen per 10 *kwan*.

Table 74 (p. 141) gives the index number of prices of commodities from 1912 to 1919; the index number for each commodity in 1912 is 100. During this period, the price of

Soja beans increased in price by 98%.

Red beans [azuki] increased by 158%.

Soy [sauce] decreased by 68%.

Table 75 (p. 141) gives the prices of principal commodities in Tokyo from 1909 to 1918, including Soja beans, red beans, and soy [sauce].

Table 76 (p. 143) gives the index numbers of prices of commodities in Tokyo from 1909 to 1918.

Miso increased by 182%.

The section on Chôsen [Korea], under "Agricultural products" states (p. 174): "Chosen is a wholly agricultural country, and farming is its most important industry. The fields of Chosen are almost always cultivated on a small scale and are owned by the Yan-pan and richer classes. Rice is the staple agricultural product, followed by barley, Italian millet, soy beans, wheat, and red beans. There are also such special products as cotton, tobacco, hemp, and ginseng. The cultivation of fruit-trees has of late produced very good results; and the area of their cultivation is gradually extending. Silk culture which had hitherto been in a very poor condition, is now, in consequence of official encouragement, being carried on everywhere. Both these are engaged as subsidiary industries by the agricultural class. Live stock is also raised as a by-product of agriculture, and cattle, horses, goats, and pigs are found everywhere in the country; but stock farming is not pursued as an independent enterprise. The cattle are well known for their great size and good quality; and a large number of them are annually exported to Japan Proper and Asiatic Russia."

Note: According to Piper & Morse (1923, p. 13) a table in this document (which we cannot find) gives five-year averages of acreage, production and yield of soybeans in Japan for the following years: 1897-1901, 1902-1906, 1907-1911, 1912-1916, and 1917-1919. The average annual production of soybeans is about 18 million bushels, grown on 1.1 million acres, with a yield of 15-16 bushels per acre. Address: Japan.

372. Johnson, Wynonah B. 1921. Dining 'round the world in Los Angeles. *Los Angeles Times*. Jan. 1. p. VI9.

• **Summary:** The section titled "In Chinatown's alleys" describes it as appealing to the tourist, inscrutable, and intriguing. "Of course the main standby of the oriental cafe is chop suey, in one of its fifty-seven disguises. Don't ask me. I don't know what it's made of... I leave it to luck and the almond-eyed chef, and proceed to mix it with the mound of snowy rice in its companion dish, and drench the whole with soy-sauce, and get a firm hold on the chop-sticks—and we're off." "The long slender black ones [chopsticks] give a final flavor of the celestial kingdom to these mysterious dishes..."

The section titled "In Little Tokyo" begins: "... there is something very different about Chinese and Japanese eating places. Heavy carvings and somber hangings give place to lighter and more artistic furnishings, and the inscrutable waiter is replaced by a smiling boy or glossy-haired maiden who will serve you just as deftly, but somehow with a subtle difference." Some of the delicate little confections "are made right here in the Japanese district, where they are in big demand. These centers look and taste like chocolate, but they are made, the polite clerk assures us, of [azuki] bean-paste, which also forms the foundation of many others." Seaweed is on the menu and "each plate is a delight to the eye, at least. The surroundings are immaculate;..."

373. Johns, Carl O.; Finks, A.J. 1921. Studies in nutrition. VII. The nutritive value of the proteins of the adzuki bean, *Phaseolus angularis*. *American J. of Physiology* 56(1):208-12. May 1. [2 ref]

Address: Protein Investigation Lab., Bureau of Chemistry, USDA, Washington, DC.

374. Embrey, Hartley; Wang, Tsan Ch'ing. 1921. Analyses of some Chinese foods. *China Medical Journal* 35(3):247-57. May. [5 ref. Eng]

• **Summary:** Contents: Introduction. Classification of food stuffs: Protein, carbohydrates, fats, etc. Method of calculating food values. Description of the foods analyzed: Methods of preparation. Table of analytical data. A brief description is given of how Bean Curd or "Tou Fu" is made in Peking from Yellow Soy Beans. The residue [okara], on top of the sieve, is washed once with hot water then "sold as food for animals or for very poor people. Its Pekingese name is 'Tou Fu Cha,' which means 'Bean Curd Dregs.'"

“The filtrate [soymilk], consisting of particles which have passed through the sieve, together with the washings from the coarser residue remaining on the sieve, is heated for about half an hour. A film or skim [yuba] forms on top, which is carefully removed with a stick, and put aside to dry. The first films which are called ‘T’ien Chu,’ those forming still later ‘Yu P’i,’ and the last ones which form are called ‘Fu Chu.’ From fifteen to twenty such films may be removed without affecting the value of the ‘Tou Fu,’ but as a rule the films are not removed when the manufacture of ‘Tou Fu’ is the main object.

Note 1. This is the earliest English-language document seen (Oct. 2012) that describes three different types and grades of Chinese-style yuba, based on the order in which the films are removed. Consider the following very interesting statement concerning yuba and tofu: “From fifteen to twenty such films may be removed without affecting the value of the ‘Tou Fu,...’”

Note 2. This is the earliest English-language document seen (June 2013) that uses the term “Tou Fu Cha” or the term “Bean Curd Dregs” (regardless of capitalization) to refer to okara.

Note 3. This is the earliest English-language document seen (Oct. 2012) that uses the term “Yu P’i” (regardless of capitalization) to refer to yuba—specifically to the middle grade of yuba, or that uses the term “Fu Chu” (regardless of capitalization) to refer to yuba—specifically to the lowest grade of yuba.

The ‘Tou Fu’ is precipitated by adding the precipitating reagent ‘Lu Shui’ [nigari], a salt solution usually containing gypsum, to the filtrate. It may be added without removing the films or after the films are removed. In the former case the amount of ‘Tou Fu’ precipitated is greater, and its composition is somewhat different. The ‘Tou Fu’ analyzed by us was precipitated without previously removing the films.”

“‘Tou Fu Kan,’—This is made from ‘Tou Fu’ or Bean Curd. The small pieces of curd are wrapped in coarse cloth and pressed between two boards for half a day. Then the cloth is removed and the curd boiled with salt and ‘Wu Hsiang,’ or the ‘Five Condiments,’ viz., cayenne pepper, aniseed, dried orange peel, cassia bark, and star anise. After this it is boiled with ‘T’ang Se,’ or black sugar residue to give it a dark color.” Note 4. This is the earliest document seen (April 2013) that mentions five-spice pressed tofu, or any type of seasoned or flavored tofu.

“‘Yu Kan or T’sai Kan.’ [sic, Ts’ai Kan]—Bean Curd is boiled in salt solution, cut into small pieces about one inch wide, three inches long and one inch thick, and smoked with the smoke produced from burning sawdust.”

A table (p. 255-57) gives nutritional analyses for the following foods; many of the methods of preparation are described earlier, and each food is accompanied by its Chinese characters: “8. Bean curd made from green mung bean (*ma tou fu*). 9. Yellow soya or Soya max (*huang tou*,

yellow bean). 10. Bean curd from the yellow soya (*tou fu*, bean curd). 11. Refuse from the yellow soya bean (*tou fu cha*, bean curd dregs [okara]). 12. Tou fu boiled in salt and spices (*tou fu kan*). 13. Sprout from the yellow soy bean (*Huang tou ya*, yellow bean sprout). 14. Skim [Skin] which forms on boiled soy bean milk (*yu p’i*, oil skin [yuba]). 15. A later skim from boiled soy bean milk (*fu chu*). 16. Smoked bean curd (*yu kan*). 17. Green soya or Soya max (*Ch’ing tou*, green bean). 18. Green soy sprouts root removed (*ch’ing tou ya*, green bean sprouts). Red gram or *Phaseolus angularis*, Willd. (*adzuki*, *hung hsiao tou*, red small bean). Mottled gram or *Phaseolus angularis*, Willd. (*adzuki*, *hei hsiao tou*, black small bean). Black soya or Soya max (*wu tou*, black bean). Small black soya or Soya max (*hsiao hei tou*, small black bean).”

Note 5. This is the earliest English-language document seen (April 2013) that uses the term “Smoked bean curd” or the term “Yu Kan” or the term “Ts’ai Kan” [pinyin: yougan or caigan] to refer to smoked tofu.

Note 6. This is the earliest English-language document seen (Jan. 2013) that contains the modern term “soy sprouts.” Address: Labs. of Food Chemistry, Peking Union Medical College, Peking, China.

375. *Agricultural Gazette of New South Wales*. 1921. Sydney (Metropolitan): Pulse culture. 32(8):604-05. Aug.

• **Summary:** Mr. E. Cheel stated: “French or Kidney Beans were great favourites with all Europeans as a green vegetable, and in some parts of France large crops of the white-seeded forms were grown for the dry seeds, which were called French haricot beans.”

“Lima beans, Mung bean (known under several names, including Jerusalem pea), and Adzuki bean (also known as Jerusalem pea) were also referred to.”

376. *El Paso Times (El Paso, Texas)*. 1921. Adzuki bean good for soups or shampoos. Sept. 9. p. 7.

• **Summary:** “New York, Sept. 8.—The Adzuki or oriental bean, which does not require cooking and is variously used in Japan for making soups, confections for shampoos and as a base for face cream, was declared superior in protein value to navy and lima beans, in a paper prepared by J. Finks, F.E.J. Gerdorf and B.B. Jones of the federal department of agriculture and read today before the American Chemical society. The Adzuki is now being grown in some sections of the United States.”

An expanded version of this article appeared in *The Tampa Tribune* (Tampa, Florida). 1921 Sept. 9, p. 1. However this article says the paper was “prepared by Messrs. D. Breeze Jones [sic, D. Breese Jones], A.J. Finks and C.E.J. Gersdorff of the United States Department of Agriculture.”

377. Satow, Sadakichi. 1921. Researches on oil and proteids extraction from soy-bean: Illustrations and tables

(Continued). *Tohoku Imperial University, Technology Reports (Sendai, Japan)* 2(2):1-124 (41-164). Oct. 28 cm. [Eng]

• **Summary:** Continued: Illustrations show: (1) The cells of the soy-bean (after Winton, p. 55). (2) The effect of various chemicals on soy-bean cells (8 figures, after p. 16). (3) A rotary drum extractor used with solvent and a vacuum system (p. 68). (4) An endless belt system for drying proteid precipitate.

Tables show: (1) Percentage of proteids and fat found in 23 samples of beans. The varieties are: Akakiji bean, Nagaaneko bean, Kintoki bean, Shônembo bean, Biruma ingen bean, Chûnembo bean, Maru uzura bean [speckled], Naga uzura bean, Kumamoto ingen bean, Azuki, Chûnaga uzura bean, Aneko bean, Shiromarufuku bean, Green pea, Dainenbô bean, Daifuku bean, Chûfuku bean, Red pea, Black soy-bean (38.61%), Yellow soy-bean from Manchuria {2 samples, 38.65% and 39.12%}, Yellow soy-bean from Korea (41.00%, and 22.826 fat—the highest fat of any bean tested), Yellow soy-bean from Hokkaido, Japan (41.92%—the highest proteid of any bean tested) (p. 6-7). (2) Previous analyses of the chemical composition of 16 soybean samples from Manchuria, Korea, and Japan. For each, gives the district, variety (mostly yellow but one “Blue variety”), water, proteids, fat, carbohydrate, fiber, ash, name of analyst (an organization) (p. 8). (3) Analyses by Sato of the chemical composition of 14 soybean varieties from Manchuria, Korea, and Hokkaido (Japan). For each, gives the varietal name, growing region, “moisture, total protein, soluble protease, available protein, non-proteid nitrogenous matter, fat, nitrogen-free extract, fiber, ash, color and shape (all yellow), producing organization (Korean Central Experimental Station or Sapporo), date of production. Named varieties include: Harupin, Shoshu bean, Utsuzan bean, Ampen bean, Chogei bean, Ryusan bean, Turunoko [Tsurunoko], Kanro, Yoshioka, Otanizi [Otaniji] (41.92% total protein and 37.53% available protein, both the highest of any bean tested) (p. 11). (4) Effect of hulls on solvent extraction of soy-bean oil with 3 varieties: Kanro, Otaniji, Yoshioka (p. 18). (5) Influence of moisture on solvent extraction (ether) of soy-beans (p. 19). (6) Effect of using benzine in place of ether in solvent extraction of soy-bean oil. The best moisture content is 7.5% to 12.5% (p. 20). (7) Substitution of vacuum drying for open air drying in removing moisture. Shows that the smaller the quantity of moisture contained in the bean, the greater the yield of oil, provided that the oil is protected from oxidation (p. 22). (8) Effect of different solvents on oil extraction: Carbon bisulphide (flammable and expensive), ether (flammable and expensive), benzine (boiling point 75°C), carbon tetra chloride [tetrachloride]. (9) Separation / distillation of benzine from oil solution (p. 34).

(10) Chemical composition of “soy bean meal” from which the hull and oil have been removed (p. 42). (11) Composition of carbohydrates or saccharo-colloids, based on

S. Yukawa (p. 43). (12) Composition of para-galacto-araban / gummy substances in 9 varieties (p. 44-45). (13) Percentage of water-extractable substances and reducing sugars in flattened and powdered soy-beans (p. 46-47). (14) Sugars in soy-beans (p. 48). (15) Proteids and soluble carbohydrates in soy-beans (p. 49). (16) Effect of acetic acid in retarding dissolution of the globulins (p. 50). (17-18) Dissolving power of alkaline reagents on proteids in bean meal (p. 54-56). (19) Effect of reagent on plasticity and coloration of proteids (p. 56).

(20-22) Amount of proteid extracted in 3 consecutive extractions, or with pressure (p. 63-65). (23) Effect of 4 consecutive washings in removal of ash (p. 66, 68). (24-26) Percentage of proteid extracted with sodium sulfite after 1 or 2 hours (p. 70-71). (27) Concentration of sodium sulfite, mark of plasticity [rating], and color of precipitate (p. 73). (28) Relation between time of extraction and yield of nitrogen and proteid (p. 74). (29-30). Yield of proteid with water or sodium sulfite and 5 or 6 consecutive extractions (p. 76).

(31) Test to maximize yield of proteid using sodium sulphite solvent; the weight of the solution must be 16 times that of the meal, and the yield will be 52.20 (p. 78). (32) Effect of adding acetic acid on yield (p. 79). (32-33). Effect of caustic soda (sodium hydroxide) on percentage of proteid extracted (p. 81) (34-37) Relation between time of extraction and yield of proteid using caustic soda (p. 82-83). (38) Volume of caustic soda consumed by different volumes of bean meal solution (p. 83). (39) Volume of caustic soda solution needed in three extraction processes: water, sodium sulphite, or alkali (p. 85).

(40) Extraction with magnesium sulphate for 1, 2, or 3 hours (p. 90). (41) Percentage of proteids precipitated by different precipitants; “isolated proteid,” “glutinizng chemicals” (p. 95) (42). Effects of sulphurous acid, formaldehyde, and formalin (p. 96). (43) Effect of different precipitants on quality of precipitate; “sulphurous acid gives proteid of the whitest and best quality, and most suitable for the manufacture of plastic products” (p. 100). (44) Yields of proteid with different volumes of sulphurous acid; all yields are very unsatisfactory (p. 103). (45-47) Effect of adding sulfur dioxide to sulphurous acid at various concentrations; remarkable increase in yield (p. 104-06). (48-51) Precipitation of water extracted protein using acetic acid (p. 107-10). (52-55) Effect sulphuric acid for precipitation of proteids (p. 111-14). (56-57) Effect heating on yield of proteids (p. 116-17).

Note: Horvath (1937) states: “The extraction of protein from soybean meal, its subsequent precipitation and properties, as well as its industrial applications have been extensively studied by S. Satow, and the results published (in English) in 1921-23 in two voluminous reports [*Technology Reports, Tohoku Imperial University (Japan):* 2(2) and 3(4)]. These reports continue to serve as an unsurpassed source

of information on this subject, and a number of discoveries during the last 15 years can be traced to the researches of Satow.” Horvath then summarizes many of Satow’s key findings. Address: Kôgakuhakushi.

378. Kellogg, John Harvey. 1921. The adsuki bean (Document part). In: J.H. Kellogg. 1921. *The New Dietetics: What to Eat and How...* Battle Creek, Michigan: The Modern Medicine Publishing Co. 950 p. See p. 298. 24 cm.

• **Summary:** In the chapter titled “Legumes,” this section states: “Another variety introduced into this country from Japan is the Adsuki, a red bean which closely resembles the Mung in composition. It is the favorite bean of Japan, where it commands the highest price. It has a delicious flavor, being wholly free from the beanny [beany] taste characteristic of the American varieties of this legume. Tests made by the Plant Introduction Bureau of the Agricultural Department show that this bean can be readily grown in this country and it will doubtless in time achieve high rank as a staple foodstuff.”

Note 1. This is the earliest document seen in which Dr. Kellogg mentions the adsuki bean.

Note 2. This exact same information appeared on the same page (314) in the 1923 edition of this book. Address: Battle Creek, Michigan.

379. Lasseter, Dillard B. 1922. Depression of bean trade of Antung. *Commerce Reports (U.S. Dep. of Commerce)* 25(1):8-9. Jan. 2.

• **Summary:** “The [soya] bean industry of the Antung district has gradually lapsed from the condition of unequaled prosperity which began in the early months of 1919 to a present state of depression that would be serious had not the demand for bean cake as a fertilizer for rice and sugar cane in South China and Japan continued brisk throughout the year. The trade in bean oil, which was formerly the foundation of the industry, has now given place to the exportation in cake form of the residue after the oil is extracted. The total shipments of bean oil in 1920 were only 601,000 pounds, as compared with 4,802,000 pounds in 1919, whereas exports of bean cake amounted to 247,774,000 pounds in 1919 and 240,300,000 pounds in 1920.

“The output of Antung bean oil for 1921 is estimated at 89,000,000 pounds. The oil produced locally is greener in color than and of inferior quality to that produced in Dairen and other ports, requiring more refining.”

“The export phase of the industry is, with the exception of one British firm, in the hands of the Japanese.”

“The port of Swatow, in South China, has been the principal destination of the bean cake exported from Antung this year, with Japanese ports second.”

“Beans constitute 35 per cent of the field crops produced in this district. The crop for 1921 has been quite good, being estimated at 95 per cent of a record year. Of the different

varieties produced, only the soya and the yellow beans are pressed into cakes, the others being used for food purposes alone.

“Red beans [azuki] are still produced in large quantities, owing to their popularity with Japanese consumers, but recent exports do not compare favorably with those of 1919. The total amount of beans exported in 1920, of which the red and yellow varieties constitute the largest single item, decreased from 71,509,000 pounds in 1919 to 44,971,000 pounds in 1920. An even larger decrease is indicated for the 1921 export figures.” Address: Vice Consul, Antung, China.

380. Buer, Heinrich. 1922. Verfahren zur Herstellung ein Kaffee-Ersatzes [Process for manufacturing a coffee substitute]. *German Patent* 386,083. Feb. 21. 2 p. Issued 3 Dec. 1923. [Ger]

• **Summary:** Made by roasting soybeans. But some other beans may also be used, such as *Phaseolus Radiatus* (Japanbohne = azuki bean), *Vicia faba* (grosse Bohne = broad bean), the Calabar bean [*Physostigma venenosum*; poisonous to humans!], and the *Brasilbohne* = Brazil bean.

Note: Soy is mentioned 4 times in this patent in the forms “Sojabohnen” (soybeans) and “Sojabohne” (soybean). Address: PhD, Cologne on the Rhine, Germany.

381. *Foreign Crops and Markets (USDA Bureau of Agricultural Economics)*. 1922. Production of other leading crops, Japan, 1909-13, 1918, 1919. 4(7):44. March 22.

• **Summary:** These are official statistics for major Japanese crops.

Soy beans (in 1,000 bushels): 1909-1913: 17,775.
1916: 17,667. 1919: 20,122.

Azuki (small red beans) (in 1,000 bushels): 1909-1913: 4,447.

1916: 4,152.

1919: 4,492.

Source: Japanese Department of Agriculture and Commerce, Agricultural and Commercial Statistics for 1920, pages 3 to 8.

Note: The volume of azuki beans produced in Japan at this time is about 25% the volume of soy beans.

Note: This is the earliest document seen (Oct. 2016) that mentions the USDA Bureau of Agricultural Economics in connection with soy beans.

382. *USDA Bureau of Plant Industry, Inventory*. 1922. Seeds and plants imported by the Office of Foreign Seed and Plant Introduction during the period from October 1 to December 31, 1918. Nos. 45588 to 46950. No. 57. 54 p. May 20.

• **Summary:** Soy bean introductions (From China, Japan, or Africa. Presented by Rev. G.D. Schlosser, Honan, China. Quoted notes by Mr. Schlosser): *Soja max* (L.) Piper. Fabaceæ. “46687-46691.

“46687. ‘Seeds flat, light yellow.’

“46688. ‘Seeds round, green.’

“46689. ‘Seeds small, flat, yellowish green.’

“46690. ‘Seeds small, flat, black.’

“46691. ‘Seeds large, round, black. The Japanese export much of this variety to Seattle’ [Washington]. Also on p. 19 are listed adsuki bean (*Phaseolus angularis*–46679) and sesame (a black-seeded Chinese variety–46686).

“46728 and 46729

“From Peking, China. Presented by Dr. Yamei Kin, who obtained them from Mr. H.L. Yang, Peking University. Received November 12, 1918. Quoted notes by Mrs. Kin. -

“46728. *Cucumis melo* L. Cucurbitaceae. Muskmelon.

“‘Seeds of a small white melon that is very prolific and has a fine-textured flesh, though not so highly flavored as the Honey Dew.’

“46729. *Dolichos lablab* L. Fabaceae.

“‘Seeds of the Manchurian green bean, which goes by the name of “old woman’s ear,” probably because it is very much broader and flatter than the usual string bean. It is noted for its late-maturing qualities, not being ready till the latter part of August and getting better with the cool autumn till the hard frost kills it. It also makes a delicious salt pickle and I imagine might be good for the salt-preserving method advocated by the United States Department of Agriculture. The bean itself is also eaten, but they say it is better green with the pod, like a string bean.’ (Kin).” “46770/46780. From Canton, China. Presented by Mr. G. Weldman Groff, Canton Christian College. Received November 26, 1918. Quoted notes by Mr. Groff.

“46770/46779. ‘A collection of beans procured on the Canton markets.’

“46770. ‘No. 15036a. *Haak pei tseng tau*. One of the common beans of Kwangtung; said to be very nutritious. Planted in Kwangtung in March and April and again in August and September.’

“46776. ‘No. 15036g. *Wong tau*. Used to make various bean products. Planted in Kwangtung in March and April.”

No. 46779 (p. 32) is Adsuki bean (*Phaseolus angularis*). It is planted in Kwangtung in March and April. Note: Kwangtung is a province in southeast China containing the city of Canton. In pinyin it is written Guangdong. Address: Washington, DC.

383. Marcovitch, S. 1922. The Mexican bean beetle. *Tennessee Agricultural Extension Service, Publication No. 107*. 4 p. July.

• **Summary:** Contents: Introduction. Plants attacked. Recommendations for control. Description and life history of the beetle.

“A new and very destructive insect pest, known as the Mexican bean beetle, has made its appearance in Tennessee... The beetle attacks cornfield beans, cowpeas, and soybeans.” It also attacks the adsuki bean, and will feed slightly on kudzu. The scientific name of the beetle in this article is

given as *Epilachna corrupta* Muls. An illustration shows a bean leaf injured by the Mexican Bean Beetle. Note: This was later changed to *Epilachna varivestis*. Address: Asst. Entomologist, Agric. Exp. Station.

384. *Foreign Crops and Markets (USDA Bureau of Agricultural Economics)*. 1922. Production of crops in Japan. 5(8):112. Aug. 23.

• **Summary:** These are final official statistics for major Japanese crops.

Soy beans (in 1,000 Winchester bushels): 1909-1913: 17,775.

1919: 20,122.

1920: 21,860.

Azuki (small red beans) (in 1,000 Winchester bushels): 1909-1913: 4,447.

1919: 4,492.

1920: 5,468.

Source: Japanese Department of Agriculture and Commerce, Agricultural and Commercial Statistics for 1920, pages 3 to 8.

Note 1. The Winchester bushel, a British unit of volume, is almost exactly the same as a U.S. bushel (2150.42 cubic inches).

Note 2. The volume of azuki beans produced in Japan at this time is about 25% the volume of soy beans.

385. Briggs, Glenn. 1922. Leguminous crops for Guam. *Guam Agricultural Experiment Station, Island of Guam, Bulletin No. 4*. Aug. 29 p.

• **Summary:** Contents: Introduction. Uses of legumes: As a feed, as soil builders, as a cover crop, as catch crop, as a green manure crop, as a windbreak. Adaptation to Guam. Growing legumes. Harvesting. Storing seed. Feeding value. Selection of crop. Varieties. Legumes found on the island. Summary.

Soybeans are first mentioned in the section titled “Harvesting” (p. 8-9), which states: “A shelling percentage record was kept on a number of cover crops when harvested, with the following results: Cowpeas, 69.2 per cent... soy beans 60 per cent.”

The section on “Selection of the crop” (p. 10) states: “... the Guam station has tested a number of legumes to determine their adaptability to Guam conditions. Those included in the observations were cowpeas, velvet beans, soy beans, pigeon peas, jack beans, mungo [*mung*] beans (*Phaseolus aureus* or *P. mungo*), alfalfa, Patani beans (chochomeco, *Phaseolus lunatus* sp...)”.

The section titled “Soy beans (*Glycine soja* or *Soja max*)” (p. 17-18) gives details on this new crop. “Soy beans have not been grown on the island for a length of time sufficient to warrant the drawing of definite conclusions regarding their adaptability. Judging from present indications, however, it is thought that they might become a

valuable crop. Eight varieties of soy beans were planted in a variety test on May 22 (Plate VIII), and with the exception of the Biloxi variety (Plate IX, Fig. 1), which gave a good germination at the start, had to be replanted on June 5, 1920. The results of the test are shown in the following table: For each of the 8 varieties (Mammoth Yellow, Laredo, Hahto, Tokio, Haberlandt, Virginia, Biloxi, and Barchett [sic, Barchet]) it shows: Date of blossoming. Height of plants at harvest time. Date of first harvest. Yield of seed per acre. Remarks. Biloxi gave by far the largest yield (3,600 lb/acre), followed by Laredo (2,150), and Barchett (1,625).

A footnote states: "Since these results were obtained during extremely wet and unfavorable weather, it is thought that very much better results would be had in a favorable season." Photos show: (1) Pods and seeds of the 8 varieties. (2) Rows of Biloxi soy bean growing at Biloxi, Mississippi. Photo from the USDA Bureau of Plant Industry.

The summary (p. 28-29) states: "Soy beans and peanuts ["cacaguate"] give promise of becoming valuable leguminous crops." The summary and last chapter also mention adzuki beans, seguidilla (*Psophocarpus tetragonoloba* [sic, *tetragonolobus*]), and kudzu (*Pueraria thunbergiana*).

Note 1. This is the earliest document seen (March 2021) concerning soybeans in Guam, or the cultivation of soybeans in Guam. This document contains the earliest date seen for soybeans in Guam, or the cultivation of soybeans in Guam (22 May 1920). The source of these soybeans was probably the Bureau of Plant Industry, USA.

Note 2. Concerning a "catch crop" we read (p. 4) that it "is one that is grown as an intermediate between two crops in an ordinary rotation, or between the rows of another crop. The purpose of a catch crop is to utilize the land to its fullest extent. Leguminous crops make the best catch crop because they remove very little fertility from the soil, especially if the vines are returned to it." Address: Guam.

386. Zlatarov, Asen; Trifonow, Iw. 1922. Die bulgarische Sojabohne [The Bulgarian soybean]. *Zeitschrift fuer Untersuchung der Nahrungs- und Genussmittel* 44(4):214-15. Oct. (Chem. Abst. 17:835). [1 ref. Ger]

• **Summary:** The mean analysis of 9 samples of black and yellow soy beans from different parts of Bulgaria is as follows: 10.91% water, 36.76% protein, 18.57% fat, 25.27% nitrogen-free extract, 3.94% crude fiber, and 4.75% ash. The fat content is high compared with other European soy beans.

The papuda bean (*Phaseolus radiatus*) [azuki bean?], which is somewhat similar to the soy bean in appearance, and much cultivated in Macedonia, contains only half the quantity of protein and from 1/10 to 1/15 the quantity of fat. Two samples of artificial milk prepared from Bulgarian soy beans gave the following analyses: 90.53%/88.19% water, 5.3%/6.04% protein, 2.21%/2.94% fat, 1.18%/1.90% carbohydrates, and 0.78%/0.93% ash. Address: Chemical

Institut, Univ. of Sofia.

387. Jones, D. Breese; Finks, A.J.; Gersdorff, C.E.F. 1922. A chemical study of the proteins of the adzuki bean, *Phaseolus angularis*. *J. of Biological Chemistry* 51:103-114. *

388. Hearn, Lafcadio. 1922. The writings of Lafcadio Hearn, in 16 volumes: Volume V. Glimpses of unfamiliar Japan, in two volumes. Vol. 1. Boston and New York: Houghton, Mifflin Co. 394 p. Illust. 23 cm.

• **Summary:** Chapter 15, titled Kitsune [Foxes] (p. 358-94). In front of the many Shinto shrines throughout Japan, the is usually a pair of seated foxes, in stone, on either side, facing one another. Such shrines and temples are dedicated to Inari, the God of Rice.

At Matsue there is the God of Coughs and Bad Colds. "And those who are cured of their coughs and colds after having prayed to him, bring to his temple offerings of tofu" (p. 362).

"At the rear of almost every Inari temple you will generally find in the wall of the shrine building, one or two feet above the ground, an aperture about eight inches in diameter and perfectly circular. It is often made so as to be closed at will by a sliding plank. This circular orifice is a foxhole, and if you find one open, and look within, you will probably see offerings of tofu or other food which foxes are supposed to be fond of" (p. 365).

"Strange is the madness of those into whom demon foxes enter. Sometimes they run naked shouting through the streets. Sometimes they lie down and froth at the mouth, and yelp as a fox yelps. And on some part of the body of the possessed a moving lump appears under the skin, which seems to have a life of its own. Prick it with a needle, and it glides instantly to another place. By no grasp can it be so tightly compressed by a strong hand that it will not slip from under the fingers. Possessed folk are also said to speak and write languages of which they were totally ignorant prior to possession. They eat only what foxes are believed to like—tofu, aburagé,* azukimeshi, etc.; and they eat a great deal, alleging that not they, but the possessing foxes, are hungry. *Footnote: "Aburagé is a name given to fried bean-curd or tofu. Azukimeshi is a preparation of red beans [azuki] boiled with rice" (p. 374).

Note 1. This is the earliest English-language document seen (April 2013) that uses the word "aburagé" to refer to deep-fried tofu pouches.

"It not unfrequently happens that the victims of fox-possession are cruelly treated by their relatives—being severely burned and beaten in the hope that the fox may be thus driven away. Then the Hōin or Yamabushi is sent for—the exorciser [exorcist]. The exorciser argues with the fox, who speaks through the mouth of the possessed. When the fox is reduced to silence by religious argument upon the wickedness of possessing people, he usually agrees

to go away on condition of being supplied with plenty of tofu or other food; and the food promised must be brought immediately to that particular Inari temple of which the fox declares himself a retainer... As soon as the possessed has been freed from the possessor, he falls down senseless, and remains for a long time prostrate. And it is said, also, that he who has once been possessed by a fox will never again be able to eat tofu, aburagé, azukimeshi, or any of those things which foxes like" (p. 375).

"Indeed, the richest and the most successful farmer of Izumo, worth more than a hundred thousand yen—Wakuri-San of Chinomiya in Kandegori—is almost universally believed by the peasantry to be a kitsune-mochi. They tell curious stories about him. Some say that when a very poor man he found in the woods one day a little white fox-cub, and took it home, and petted it, and gave it plenty of tofu, adzukimeshi, and aburage—three sorts of food which foxes love—and that from that day prosperity came to him. Others say that in his house there is a special zashiki, or guest-room for foxes; and that there, once in each month, a great banquet is given to hundreds of Hito-kitsune. But Chino-miya-no-Wakuri, as they call him, can afford to laugh at all these tales. He is a refined man, highly respected in cultivated circles where superstition never enters" (p. 381-82).

"Curious advantages have been taken of the superstitions relating to the Fox-God.

"In Matsue, several years ago, there was a tofuya which enjoyed an unusually large patronage. A tofuya is a shop where tofu is sold—a curd prepared from beans, and much resembling good custard in appearance. Of all eatable things, foxes are most fond of tofu and of soba, which is a preparation of buckwheat. There is even a legend that a fox, in the semblance of an elegantly attired man, once visited Nogi-no-Kuriharaya, a popular sobaya on the lake shore, and ate much soba. But after the guest was gone, the money he had paid changed into wooden shavings.

"The proprietor of the tofuya had a different experience. A man in wretched attire used to come to his shop every evening to buy a cho of tofu, which he devoured on the spot with the haste of one long famished. Every evening for weeks he came, and never spoke; but the landlord saw one evening the tip of a bushy white tail protruding from beneath the stranger's rags. The sight aroused strange surmises and weird hopes. From that night he began to treat the mysterious visitor with obsequious kindness.

"But another month passed before the latter spoke. Then what he said was about as follows: Though I seem to you a man, I am not a man; and I took upon myself human form only for the purpose of visiting you. I come from Takamachi, where my temple is, at which you often visit. And being desirous to reward your piety and goodness of heart, I have come tonight to save you from a great danger. For by the power which I possess I know that to-morrow this street will burn, and all the houses in it shall be utterly destroyed

except yours. To save it I am going to make a charm. But in order that I may do this, you must open your go-down (*kura*) that I may enter, and allow no one to watch me; for should living eye look upon me there, the charm will not avail.

"The shopkeeper, with fervent words of gratitude, opened his storehouse, and reverently admitted the seeming Inari, and gave orders that none of his household or servants should keep watch. And these orders were so well obeyed that all the stores within the storehouse, and all the valuables of the family, were removed without hindrance during the night. Next day the *kura* was found to be empty. And there was no fire" (p. 384-85). Address: Matsue, Japan.

389. Hosie, Alexander. 1922. Szechwan: Its products, industries and resources. Shanghai, China: Kelly & Walsh, Ltd. 185 p. Maps. Index. 25 cm.

• **Summary:** The information in this 1922 edition is largely identical to that in the 1904 edition, but the page numbers are different. The section titled "Cereals and grain plants" includes a detailed discussion (p. 30) of Job's tears or "pearl barley" (*Coix lachryma-Jobi*, L.).

The section on "Pulse" discusses (p. 32-34): 2. "Lü Tou"—Green bean (*Phaseolus Mungo*, L.) [mung bean]. 3. "Ray-fruited dwarf bean (*Phaseolus radiatus*, L.)" [azuki bean]. 8. "Broad Bean (*Vicia Faba* L.)." 10. "Ground nut (*Arachis hypogoea*, L.).

Section 3, titled "Starch-yielding plants" (p. 35) describes "*Pueraria Thunbergiana*, Benth." [kuzu].

In Section 11, titled "Varnish, tallow, soap, and oil plants," the subsection on "Oil plants" (p. 66-72) includes discussions of: (a) "Rape oil (*Brassica juncea*, Hook, f. et T.). (b) "*Sesamum indicum*, L. (c) *Arachis hypogoea*, L. The ground nut. (k) *Cannabis sativa*, L. Hemp oil. (l) *Perilla ocyroides*, L. Perilla oil. (p) *Linum usitatissimum*, L. Flax. (q) *Aleurites Fordii* yields T'ung oil (T'ung Yu) and *A. montana* yields wood-oil (Mu Yu), the most important oils in Szechwan. Address: M.A., LL.D., F.R.G.S., Formerly H.B.M. (His Britannic Majesty) Consul-General for Szechuan. Presently: Sandown, Isle of Wight.

390. McKee, Roland. 1923. Re: List of seed to send to Mr. E.R. Lako, Albany, Georgia. Letter [memorandum] to W.J. Morse, [USDA], Feb. 2. 1 p. Typed, without signature (carbon copy).

• **Summary:** "Dear Mr. Morse: Following is a list of the seed that we would like to have sent to Mr. E.R. Lako, Postoffice Building, Albany, Georgia, for spring green manure plantings in pecan groves.

Cowpeas (with the amount of each variety to be sent, ranging from 15 lbs. for Brabham to ¼ lb for 3 varieties): Brabham, Early buff, early black, Catjang, Iron, Griot, New era.

Soybeans (6 lbs each): Ootoan, Tokio, Biloxi, Barchet, Loredó [Laredo], Mammoth yellow.

Plus the following: Urd bean—¼ lb. Jack bean—¼ lb. Mung bean—3 lbs. Adjuki [azuki] bean—4 lbs. Rice bean—4 lb. Bonavist—2 varieties of 5 pounds each. Velvet beans: Bush- 15 lbs. Georgia—15 lbs.

“Very truly yours,...”

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-29. Box 92—Morgan-Morse.

Sent to Soyinfo Center by Matthew Roth of Rutgers Univ., March 2012. Address: Agronomist [Bureau of Plant Industry, USDA, Washington, DC].

391. Piper, Charles V.; Morse, William J. 1923. *The soybean*. New York, NY: McGraw-Hill Book Company, Inc. xv + 329 p. Feb. Illust. Index. 24 cm. Reprinted unrevised in 1943 by Peter Smith Publishers, New York. [563 ref]

• **Summary:** This classic is the first comprehensive book about the soybean written in English, and the most important book on soybeans and soyfoods written in its time. Contains an excellent review of the world literature on soybeans and soyfoods with a 22-page bibliography on soy that is larger than any published prior to that time (563 references), a good description of the present status of the soybean worldwide based on the authors' extensive contacts, and a great deal of original information. It quickly became a key source for people and organizations working with soybeans and soyfoods in all countries, and a major factor in the expansion of the soybean in the western world. Because of its scope and influence, Soyfoods Center considers the year of its publication to mark the end of the “Early Years” of the soybean worldwide. It remained in print until about 1986.

Facing the title page is a list of “McGraw-Hill Agricultural and Biological Publications. Dr. Charles V. Piper, Consulting Editor.” The authors and titles of twelve books already published in this series are listed.

Contents: Preface. 1. Introduction: Name of the plant, origin, literature, use by the Chinese and Japanese, present importance, future prospects in the U.S., recognition of the possibilities. 2. The commercial status of the soybean: Manchuria and China, Japan, Europe, U.S., other countries, summary of imports and exports of soybeans and soybean oil. 3. Botanical history of the soybean: History prior to Linnaeus' “*Species Plantarum*” 1753, Linnaeus' misunderstandings of the soybean, Prain's elucidation, other and the correct botanical name.

4. Agricultural history of the soybean: Vernacular names of the soybean, China, Korea, and Japan, India and neighboring regions, Cochin China, Malayan region, early introduction into the United States, later U.S. introductions, the early introduced varieties (grown in the USA by 1898—Ito San, Mammoth, Buckshot, Guelph or Medium Green, Butterball, Kingston, Samarow, Eda, Ogemaw or

Ogema), soybean in Europe, varieties grown in Europe and identification, Hawaiian Islands, Australia, Africa, Argentina (p. 50), Canada (“Soybeans are grown in very small quantities in Canada and then usually as a forage crop”), Philippines, Egypt, Cuba (p. 52), British Guiana, Mauritius (p. 53), present culture distribution. 5. Culture of the soybean: Climatic adaptations, soil preferences, water requirement, preparation of seed bed, time of planting, methods and rate of seeding, seeding for pasturage, depth of seeding, inoculation, fertilizer reactions, cultivation, soybeans in mixtures (with cowpeas, sorghums, Sudan grass, Johnson grass, millet, corn, or sunflowers and corn).

6. Harvesting and storage of soybeans: harvesting soybeans for hay, silage, for the seed, seed yields, proportion of straw to seed, storing seed, separation of cracked from whole soybean seed, viability of soybean seed, pedigreed, inspected, registered, and certified seed. 7. Composition of the soybean: Proportions of stems, leaves and pods, composition of plant and seed, nutritive and mineral constituents, forms of nitrogen in soybean nodules, factors affecting oil content of seed. 8. Utilization of the soybean: Diversity of uses (a chart, p. 129, shows 59 products that can be made from soybean seeds, and 6 more that can be made from soybean plants), soybeans for green manure, pasturage, soiling, ensilage, hay, straw.

9. Varieties: Japanese classification of varieties, classification of varieties in Manchuria (3 yellow, 2 green, 3 black), botanical classifications, vital characteristics, descriptions of important varieties (43 varieties and 7 synonyms), key for identification, breeding and improvement, genetic behavior, oil content.

10. Structure of soybean seeds. 11. Soybean oil: Methods of extraction [Manchurian, and solvent], American oil mills, methods of shipping and marketing, prices, utilization in soap manufacture, food, paint manufacture, miscellaneous. 12. Soybean cake or meal: Feeding value, composition, use for feeding for dairy cows, cattle, swine, sheep, poultry, digestibility, injurious effects, fertilizer.

13. Soybean products for human food: Food value of the soybean, digestibility of the soybean and its products, mature or dry soybeans, immature or green soybeans (a “nutritious green vegetable”), soybean flour, digestibility of soybean flour, soybean bran (p. 225-26), soybean sprouts, soybean coffee, soybean or vegetable milk [soymilk] (preparation, composition, residue from the manufacture of vegetable milk [okara], utilization of soybean milk, condensed vegetable milk, vegetable milk powder, fermented vegetable milk), vegetable casein, tofu or soybean curd (names and brief history, method of manufacture, coagulating agents, manufacturing yields, digestibility, utilization of bean curd and manufactured products, bean curd brains or *tofu nao*, dry bean curd or *tofu khan*, thousand folds {*chien chang tofu*}, fried bean curd {*tza tofu*}, Fragrant dry bean curd {*hsiang khan*}, frozen tofu {*kori tofu*}, Chinese preparation, various

dishes), natto, hamananatto [hamanatto], yuba, miso, shoyu [soy sauce], confections. 14. Table dishes of soybeans and soybean products: mature or dry beans, flour, tofu, sprouts (86 recipes). 15. Enemies of the soybean: bacterial, mosaic, fungous [fungus], and nematode diseases, insects, rodents. This last chapter is a comprehensive review of the literature on soybean diseases and insects published before 1922.

The Preface begins: "The soybean, also known as soya or soja bean, has assumed great importance in recent years and offers far-reaching possibilities of the future, particularly in the United States. It is, therefore, desirable to bring together in a single volume the accumulated information concerning this crop..."

"The aim has been to present the information so as to make it useful from both agricultural and commercial standpoints, not omitting, however, much that is mainly of historical or botanical interest..."

The introduction begins: "There is a wide and growing belief that the soybean is destined to become one of the leading farm crops in the United States."

Note 1. C.V. Piper lived 1867-1926. Note 2. This is the earliest English-language document seen (July 2003) that uses the term "soybean bran" to refer to soy bran.

Note 3. This is the earliest document seen (July 2003) in which Piper or Morse describe natto, Hamananatto [Hamanatto], yuba, or miso.

Note 4. This book was published by March 1923 (See *Ohio Farmer*, 10 March 1923, p. 313).

Note: The word "Russia" appears on 3 pages of this book in connection with soybeans: p. 18 (in 1912, 1913, and 1914 Russia imported soybeans, soybean cake, and soybean oil), p. 54 (cultivated in "southern Russia {Podolia, Samarow}"), p. 227 ("In Japan and southern Russia soybean coffee is prepared and put up in small packages for the market").

Note 1. The terms "Soviet Union" or "USSR" do not appear in this book—even though the Soviet Union was established in Dec. 1922.

Note 2. Podolia is in today's Ukraine. Address: 1. Agrostologist; 2. Agronomist. Both: United States Dep. of Agriculture, Washington, DC.

392. Read, Bernard E. comp. 1923. Botanical, chemical, and pharmacological reference list to Chinese materia medica. Peking, China: Printed by the Bureau of Engraving and Printing. v + 38 p. Feb. 28 cm.

• **Summary:** Contents: Chemical and pharmaceutical references (45 entries; p. i-ii). Botanical literature (17 entries; p. iii). Bibliography of materia medica and medical botany other than cited in this reference list (47 entries; p. iv-v). Note: For these first three parts, column 1 is the abbreviation; column 2 is the full title.

The rest of this book consists one long table (p. 1-38) composed of four columns. (1) Chinese names

(The name of each materia medica substance written in Chinese characters). (2) Romanized Wade (The Wade-Giles romanization of the Chinese name; the table is sorted alphabetically by this column). (3) Botanical references (such as the scientific name of a plant, or terms like "soy oil," "rice congee," or "rice gruel"). (4) Chemical & pharm. references (Abbreviations of references to documents containing information about this plant or other substance).

Chiang Yu—Soy oil appears on p. 3. References: (1) USDA Office of Experiment Stations, Bulletin No. 68, p. 36 (1899). (2) Stuart, G.A. 1911. Chinese materia medica, Shanghai. (3) J. of the College of Agriculture, Tokyo Imperial University 1:97 (16 June 1909). (4) J. of the College of Agriculture, Tokyo Imperial University 1:89 (16 June 1909).

Huang Ta Tou—*Glycine hispida* [The yellow soybean] appears on p. 11. References: (1) Matsumura, J. Shokubutsu-me-i, Tokyo, 1915. (2) China Medical Journal 35:247 (1921). (3) Martindale and Wescott, Extra Pharmacopoeia, London, 1921, p. 824, 1913. (4) Pharmaceutical Journal (London), II, p. 120, 1913. (5) Loureiro, J. Flora cochinchensis, 1790, vol. II, 1844, 1912. (6) Pharmaceutical Journal (London), II, p. 154 (1912). (7) USDA Office of Experiment Stations, Bulletin No. 68, p. 33 (1899). (8) Wehmer, C. Die Pflanzenstoffe, Jena, 1911, p. 362.

Pai Tou—*Soja hispida* [The white soybean] appears on p. 11. References: (1) Stuart, G.A. 1911. Chinese materia medica, Shanghai. (2) Wehmer, C. Die Pflanzenstoffe, Jena, 1911, p. 362. (3) American J. of Physiology 19:468 (1907). (4) J. of the American Chemical Society 20:419 (1898).

Ta Tou—*Glycine hispida* M. [The soybean] appears on p. 11. (3) Bretschneider, E. Botanicon sinicum, 1881, 1892, 1895. (4) Giles, H.A. A Chinese-English dictionary, 1892

Ta Tou Ch'in—Bean relish appears on p. 30. No references.

Ta Tou Huang Chüan—Bean sprouts appears on p. 30—References: (1) Stuart, G.A. 1911. Chinese materia medica, Shanghai. (2) USDA Bureau of Plant Industry, Bulletin No. 107 (?), p. 28. (3) China Medical Journal 35:247 (1921).

Note 1. The references in this book are very cryptic and hard to understand, even after careful analysis. The book also contains quite a few typographical errors, inconsistencies, and mistakes.

Note 2. Other interesting substances mentioned in this book are: Mung beans (p. 4; *Phaseolus mungo*). Laminaria and Sargassum (p. 7, 15; types of sea vegetables, like kombu). Amarantus (p. 9). Sesame seeds (p. 10; *Sesamum indicum*). Fermented nonglutinous rice (p. 12). Job's tears (p. 12; *Coix lachryma*). Kudzu (p. 13; *Pueraria hirsuta*). Daikon (*Raphanus sativus*). Umeboshi plum (p. 19; *Prunus mume*). Address: Dep. of Pharmacology and Physiological Chemistry, Peking Union Medical College.

393. Kakizaki, Y. 1923. Linked inheritance of certain

characters in the adzuki bean. *Genetics* 8(2):168-77. March. [2 ref]

• **Summary:** “The Adzuki bean has an advantage for breeding experiments in the fact that, because of the arrangement of the floral organs, self-pollination takes place automatically before blooming.”

“Summary: The studies presented in this paper are chiefly concerned with the correlative inheritance of the three characters, the color of stems, the blackspotting of seed-coats, and the color of ripe pods.” Address: Saitama Agricultural Experiment Station, Urawa, Saitama, Japan.

394. Piper, Charles V.; Morse, William J. 1923. Early introduction of the soybean into the United States (Document part). In: Piper and Morse. 1923. *The Soybean*. New York: McGraw-Hill. xv + 329 p. See p. 39-41.

• **Summary:** “There are fortunately fairly complete records for the early history of the soybean in the United States. The facts emphasize the difficulties with which a new crop wins its way to recognition.

“The earliest records.—The first mention of the soybean in American literature is by Mease (1804), who writes ‘The soybean bears the climate of Pennsylvania very well. The bean ought therefore to be cultivated.’

“Thomas Nuttall (1829) grew a variety with red flowers and chocolate brown seeds in the botanic garden at Cambridge, Massachusetts, and from his observations wrote a brief account concerning it. He writes:

“‘Its principal recommendation at present is only as a luxury, affording the well-known sauce, soy, which at this time is only prepared in China and Japan.’

“In the same journal two years later, November 23, 1831, is an account of the successful culture of the plant at Milton, Massachusetts, the seed having been obtained from Nuttall.

“No further mention of the plant in America literature appears until 1853, when a brief account appeared under the name ‘Japan pea’ by Ernst [of Ohio] (1853), as follows:

“‘The Japan pea, in which so much interest has been manifested in this country for a year or two past, from its hardihood to resist drought and frost, together with its enormous yield, appears to be highly worthy of the attention of agriculturists.’”

“The Perry Expedition to Japan.—The Perry expedition in the year 1854 brought back two varieties of ‘soja bean’ from Japan, one ‘white’ seeded, the other ‘red’ seeded. These, together with the Japan pea, were distributed by the Commissioner of Patents in 1854, (Browne 1854) and, thereafter frequent references to the plant occur in agricultural literature under such names as Japan pea, Japan bean, and Japanese fodder plant. Most of these articles speak of the plant as the Japan pea, none of them as the soy or soja bean. It is apparent from the early accounts that there were at least two Japan peas, one early enough to mature

in Connecticut (Patent Office Report, 1854, p. 194), the other very late (American Agriculturist, 1857, vol. 16, p. 10). Judging from all the accounts, we suspect that the early Japan pea may be the Ito San variety, which, however, has red flowers, while the late variety may be the Mammoth. The Ito San is still occasionally called the Japan pea, while the introduction and source of the Mammoth has never been definitely determined. From these early accounts the Mammoth may well be the ‘white-seeded’ soja bean obtained by the Perry expedition. The ‘red-seeded soja bean’ was, probably, the adzuki bean (*Phaseolus angularis*), as no red-seeded soybean is known.

Later Introductions.—Prof. G.H. Cook, of New Brunswick, New Jersey, obtained seed of the soybean at the Bavarian Agricultural Station [in Germany] in 1878. In the same year Mr. James Neilson obtained seeds of several varieties at Vienna, Austria. Both of these gentlemen planted the seeds and gathered crops of the different varieties in 1879. These varieties were without doubt some of those grown and distributed through Europe by Professor Haberlandt of Vienna.

“A yellow-seeded soybean was grown at the North Carolina Agricultural Experiment Station in 1882 and reported on in some detail. The source of the variety is not given, but by implication it is the same as the variety stated to be grown by a number of persons in the State, and is probably the Mammoth.

“Two varieties, one black seeded, the other with white seeds, were grown at the Massachusetts Agricultural Experiment Station in 1888.

“In 1890 Prof. C.C. Georgeson (1890) secured three lots of soybeans from Japan which were grown at the Kansas Agricultural Experiment Station in 1890 and subsequently.

“Prof. W.P. Brooks, (1890) of Amherst, Massachusetts, brought with him from Japan in 1889 a number of soybean varieties, including the Medium Green or Guelph, and the Ito San. It is quite certain that other importations of soybeans from Asia were made by others, but no definite records have been found.

“Since 1890 most of the agricultural experiment stations have experimented with soybeans and many bulletins have been published dealing wholly or partly with the crop.”

395. Gardner, Max W. 1923. Indiana plant diseases, 1921. *Proceedings of the Indiana Academy of Science* 33:163-201. Dec. See p. 189-90. Proceedings of the Thirty-Ninth Annual Meeting. [42 ref]

• **Summary:** In the section titled “Soybean” two diseases are discussed: (1) “Bacterial blight caused by *Bacterium glycineum* is carried with the seed and... is practically co-existent with the crop. The disease occurred in fields near Lafayette and was reported from Greene county. The causal organism has been studied in culture and found to be the non-chromogenic strain of *Bact. glycineum*.”

(2) Mosaic “was found to a limited extent. Attempts to infect field beans with soybean mosaic were unsuccessful, as were also attempts to infect soybeans with mosaic from field beans, from Adzuki bean, and from red clover. A spotting of the older leaves of the varieties Black Eyebrow, Dunfield and Ito San with which a *Macrosporium* was associated was noted at Lafayette. An objectionable lavender staining [purple stain] of the seeds of certain varieties was found to be due to fungus invasion and a *Fusarium* was isolated from the few seeds that were plated out. This trouble was probably attributable to the wet weather.” Address: Botanical Dep., Purdue Univ. Agric. Exp. Station, Lafayette, Indiana.

396. Watson, Ernest. 1923. The principal articles of Chinese commerce (import and export) with a description of the origin, appearance, characteristics, and general properties of each commodity; an account of the methods of preparation or manufacture together with various tests, etc., by means of which the different products may be readily identified. Shanghai, China: Statistical Dept., Inspectorate General of Customs; sold by Kelly & Walsh [etc.]. xi + 630 p. Illust. 28 cm. The Maritime Customs. II. Special Series No. 38.

• **Summary:** Section II, titled “Oils, fats, and waxes” (p. 76-149) contains detailed definitions of the following: Bean oil (*Tou-yu* or *Oleum dolichos*) obtained from the soya bean of China, and the residual meal (*tou-ping-fên*) (p. 85-86). “In China bean oil is used as a food; for cooking purposes; for mixing with lacquer; in making varnish and printing ink; in soap making; and, to a slight extent, as an illuminant, although for this purpose it has been almost superseded by kerosene. It is also used in water proofing cloth and paper for making umbrellas and lanterns. In foreign countries, where the demand for the oil is practically unlimited, bean oil is used chiefly in the manufacture of soap and in preparing salad oils. On account of its drying properties bean oil is not very suitable for use as a lubricating oil.

“Bean oil appears in Chinese commerce packed in wooden tubs, paper-lined baskets, or in earthenware jars, of no standard weight. It is exported in great quantities from many of the northern ports, particularly from Dairen and Newchwang, and, to a smaller extent, from Hankow and other Yangtze ports.”

Section VI, titled “Miscellaneous products” contains a long subsection on “Beans, Soya” (*Tou*) (p. 320-21). “Soya beans, or ‘soy beans’... are cultivated in enormous quantities in Central Manchuria... It is estimated that about 1,600,000 tons are produced annually in Manchuria alone... The beans are small,... the yield per acre being from 1,100 to 1,600 pounds [18.3 to 26.6 bushels]. Several varieties are grown in China and are commonly classified by the Chinese according to form, colour, size, use, and other characteristics. The best known of these varieties are (with Chinese characters for each term): -

(1) Yellow beans (*huang-tou*), subdivided into *pai-mei-*

tou or ‘white eye-brow bean,’ so called from the whiteness of the prominent hilum; *chin-yüan-tou* or ‘round golden bean’; and *hei-ch’i-tou*.

(2) Black beans (*wu-tou*), subdivided into (*ta-wu-tou*) or ‘large black bean’; (*hsiao-wu-tou*) or ‘small black bean’; and (*pien-wu-tou*) or ‘flat black bean.’

(3) Green beans (*ch’ing-tou*), subdivided into two varieties, one of which has a green epidermis and green interior, the other a green epidermis and yellow interior.

Three subspecies [of soya beans], yielding very small beans, are known as: (*hsiao-pai-tou*) or ‘small white bean’; (*hsiao-hung-tou*) or ‘small red bean’; and (*hsiao-lü-tou*) or ‘small green bean.’” Note 1. The writer may be mistaken in calling these last three subspecies of soya beans. They are probably white azuki beans, red azuki beans, and mung beans.

Soya beans “are valued chiefly as a source of bean oil, but are also extensively used as food, either whole or ground to flour in making beancurd, bean milk, bean sauce, or ‘soy,’ and salted relish (*ta-tou-shih*) [fermented black soybeans], which is used both as a food and as a medicine. The black beans, which are not much used as food because they are supposed to make the body too heavy, are used in medicine, to impart strength and vigour, as a carminative, and also as an antidote for vegetable poisons, such as aconite, croton oil, etc. The hulls of green [soy] beans are applied to smallpox ulcers and other sores; the bruised leaves of the plant are used in treating snakebite; the flowers are used in treating diseases of the eyes. Young bean sprouts (*tou-ya*) are used as a vegetable food.” Details are given on the following products made from soya beans: “Beancurd (*tou-fu*), bean milk (*tou-fu-chiang*), bean sauce (see under ‘soy’), and bean vermicelli (*Fen-ssu*, *Tou-fen-ssu*, *Hsi-t’iao-mien*, or *Kua-mien*.—A very famous vermicelli made in the Chefoo district, from beans most of which are originally imported from Manchuria).

Note 2. This is the earliest document seen (Nov. 2012) that contains the term *Tou-fen*, which probably refers to roasted whole soy flour.

Note 3. This is the earliest English-language document seen (Nov. 2011) that uses the term “salted relish” to refer to fermented black soybeans.

The section titled “Soy (*Chiang* or *Chiang-yu*)”—with Chinese characters for each term) states: “Soy is a sauce made in China from the soya bean (*Soja hispida*). In preparing it, a quantity of beans are slowly boiled, an equal quantity of coarsely ground wheat or barley being added. The mixture, after being allowed to ferment for some time, is put into a jar with an equal amount of salt, a few aromatics, and three times as much boiling water as there were beans at first; the whole is then allowed to stand for several weeks exposed to the sun, after which the liquor, which constitutes the soy, is separated by pressing and straining the mass. The finished product is afterwards packed into jars or bottles

ready for the market.

“Soy is thin, and, in colour, very dark brown or almost black; it becomes brighter and clearer on being kept, has an agreeable salty flavour, and produces a yellowish froth when even slightly shaken. It is much used by the Chinese as a sauce and condiment, as it creates an appetite and is supposed to counteract the injurious properties of contaminated food; it is also used in medicine as an application for burns, scalds, eczema, leprosy sores, etc. Soy is often exported from China to foreign countries, where it is extensively used in the manufacture of many European sauces.”

Also discusses: Groundnut oil (*Hua-shêng-yu*), also called peanut oil, earth-nut oil, and arachis oil (*Oleum arachis*) (p. 105-06). Hemp-seed oil (*Ma-yu or Ma-tzu-yu*) (p. 106).

Sesamum-seed oil (*Chih-ma-yu or Hsiang-yu; Oleum sesame*) also known as “gingelly oil,” “teel oil,” or “benne oil” (p. 133-35). Groundnuts (p. 421-22). Wheat gluten (*Mien-chin*, p. 574). A second edition was published in 1930. Address: Chief Appraiser, Chinese Maritime Customs.

397. Piper, Charles V. 1924. Forage plants and their culture. Revised edition (Continued—Document part III). New York, NY: The Macmillan Co. xxv + 671 p. Aug. See p. 571-96. [9 ref]

• **Summary:** (Continued): 24. Peas and Pea-like Plants: Pea (*Pisum sativum*): Botany and History; Description; Adaptations; Importance; Agricultural Varieties; Seeding; Development of the Plant; Hay; Peas and Oats; Pasture Value; Garden Pea Vines; Irrigation; Seed production; Seed.—Pea Weevil (*Larva pisorum* or *Bruchus pisorum*).—Chick-pea (*Cicer arietinum*).—Grass-pea, Vetchling or Chickling Vetch (*Lathyrus sativus*).

25. Vetches and Vetch-like Plants: Kinds of Vetches. Common Vetch (*Vicia sativa*): Description; Botany and Agricultural History; Adaptations; Importance; Agricultural Varieties; Culture; Time of Seeding; Rate of Seeding; Harvesting for Hay; Pasturing; Feeding Value; Rotations; Fertilizers; Lime; Silage; Seed Production; Seed.—Hairy Vetch (*Vicia villosa*): Description; Botany; Climatic Adaptations; Soil Preferences; Rate of Seeding; Time of Seeding; Depth of Seeding; Inoculation; Uses of the Crop; Pollination; Harvesting for Hay; Feeding Value; Use in Rotations; Advantages and Disadvantages; Growing Seed; Sources of Seed; Seeds.—Narrow-leaved Vetch (*Vicia angustifolia*). Hungarian vetch (*Vicia pannonica*). Purple Vetch (*Vicia atropurpurea*). Woolly-pod Vetch (*Vicia dasycarpa*).—Ervil or Black Bitter Vetch (*Vicia ervilia*).—Horse Bean (*Vicia faba*). Bird or Tufted Vetch (*Vicia cracca*). Tangier Pea (*Lathyrus tingitanus*). Flat-podded Vetchling (*Lathyrus cicera*).—Ochrus (*Lathyrus ochrus*).—Comparison of Vetch Species.—Fenugreek (*Trigonella foenum-graecum*).—Lupines (*Lupinus spp.*).—Serradella (*Ornithopus sativus*).—

Square-pod pea (*Lotus tetragonolobus*).

26. Cowpeas: Cowpea (*Vigna sinensis*): Botanical Origin; Agricultural History; Adaptations; Importance; Uses of the Crop; Varietal Distinctions; Life Period; Pods and Seeds; Correlations; Important Varieties; Rate and Method of Seeding; Time of Seeding; Inoculation; Number of Cuttings; Hay; Hay Yields; Feeding Value; Cowpeas in Broadcast Mixtures; Cowpea Mixtures not Sown Broadcast; Pasturage; Silage; Growing Cowpeas for Seed; Pollination; Seed Yield; Proportion of Seed and Hulls; Seeds; Viability; Root System; Disease Resistance; Insect Enemies.

27. Soybeans: Agricultural History.—Botany.—Description.—Soil Preferences.—Climatic Relations.—Importance.—Statistics.—Desirable Characters in Soybean Varieties.—Commercial Varieties.—Preparation of Soil and Cultivation.—Rate of Seeding.—Time of Seeding.—Method of Seeding.—Depth of Seeding.—Inoculation.—Life Period.—Time to Cut for Hay.—Hay Yields.—Fertilizers.—Soybean Mixtures.—Silage.—Rotations.—Feeding Value of Soybean Hay.—Pasturage. Seed Production.—Storage.—Pollination.—Seed Yield.—Feeding the Seed.—Seeds.—Pests.—Breeding.—Soybeans and Cowpeas Compared.

28. Other Warm Season Annual Legumes: Lespedeza or Japan Clover (*Lespedeza striata*): Description; Agricultural History; Varieties; Adaptations; Culture; Pasturage Value; Hay; Seed Production.—Korean Lespedeza (*Lespedeza stipulaceae*).—Florida Velvet Bean (*Stizolobium deeringianum*): Description and History; Adaptations; Utilization; Other Species of *Stizolobium*.—Importance.—Insects and Diseases.—Peanut (*Arachis hypogaea*).—Florida Beggarweed (*Desmodium purpureum*, formerly called *Desmodium tortuosum* or *Meibomia tortuosa*).—The Jack Bean (*Canavalia ensiformis*).—Mung Bean (*Phaseolus aureus*).—Urd Bean (*Phaseolus mungo*).—Moth Bean (*Phaseolus aconitifolius*).—Adzuki Bean (*Phaseolus angularis*).—Bonavist or Hyacinth Bean (*Dolichos lablab*).—Guar (*Cyamopsis tetragonoloba*).—Dakota Vetch (*Hosackia americana* or *Lotus americanus*).

29. Miscellaneous Herbs Used as Forage: Sunflower (*Helianthus annuus*).—Mexican Clover (*Richardsonia scabra*).—Prickly Pear (*Opuntia spp.*).—Spurry (*Spergula sativa*).—Yarrow (*Achillea millefolium*).—Sachaline (*Polygonum sachalinense*).—Burnet (*Sanguisorba minor*).—Buckhorn (*Plantago lanceolata*).—Prickly Comfrey (*Symphytum asperum*).—Australian Saltbush (*Atriplex semibaccata*).

30. Root Crops and Other Comparable Forages: Root Crops: Importance of Root Crops; Kinds of Root Crops; Comparison of Various Root Crops; Roots Compared with Corn and Sorghum.—Rape (*Brassica napus*): Importance; Seeding; Place in Rotations; Sowing with Another Crop; Utilization; Carrying Capacity of Rape Pastures; Yields; Insects.—Kale (*Brassica oleracea*): Diseases; Yields of Kale, Cabbage and Other Brassicaceous Plants.—Jerusalem

Artichoke (*Helianthus tuberosus*).—Chufa (*Cyperus esculentus*).—Cassava (*Manihot utilissima*).

List of plates (14 full-page photos).

References appear at the end of each chapter. Address: Agrostologist in Charge of Forage Crop Investigations, Bureau of Plant Industry, USDA.

398. Jones, D. Bresse; Gersdorff, C.E.F.; Moeller, O. 1924. The tryptophane and cystine content of various proteins (Open Access). *J. of Biological Chemistry* 62(1):183-195. Nov. (Chem. Abst. 19:2062). [49 ref]

• **Summary:** The calorimetric method has been found to give better results for these two amino acids than the older Van Slyke method. Table 2 (p. 188-90) shows the tryptophane and cystine content of various proteins including: “Soy bean (glycinin): 1.66%, 1.12%. Also includes: Chinese velvet bean (stizolobin), Georgia velvet bean, mung bean (and 5 fractions), navy bean, adsuki bean (and 6 fractions), lima bean, jack bean, red kidney bean, naga uzura kidney bean, cow pea (vignin), pea, lentil, hemp seed edestin, buckwheat globulin, sunflower seed globulin, castor bean, cottonseed globulin, flax seed globulin, kafir, wheat, etc.

Table 3 (p. 191), titled “Comparison of the cystine content of some proteins as determined by the calorimetric and Van Slyke methods,” includes: Soy bean (glycinin) 1.12 vs. 1.18. Also many of the seeds mentioned above. Address: Protein Investigation Lab., Bureau of Chemistry, USDA, Washington, DC.

399. Aston, W.G. trans. 1924. Nihongi: Chronicles of Japan from the earliest times to A.D. 697. 2 vols. in 1. London: Kegan Paul, Trench, Trubner & Co., Ltd.; New York: E.P. Dutton & Co. xxiii + 443 p. See p. 32-33. Illust. Index. 24 cm. [Eng]

• **Summary:** This is a reissue (two volumes in one) of the original 1896 edition published by the Japan Society. Address: C.M.G., England.

400. Osborne, Thomas B. 1924. The vegetable proteins. 2nd. ed. London and New York, NY: Longmans, Green, and Co. xiii + 154 p. Illust. Index. 25 cm. Series: Monographs on Biochemistry. 2nd ed. 1924. [820 ref]

• **Summary:** The first edition of this classic book was published in 1909. This edition is “Dedicated to Samuel W. Johnson under whose direction the author first undertook his investigation of the vegetable proteins.” Contents: Preface to the second edition. Preface to the first edition. 1. Historical review. 1. Historical review (The study of vegetable proteins began in 1745 with Beccari and wheat gluten; most publications during the 1700s were on this subject). 2. Occurrence of proteins in the different parts of plants, and their general characteristics. 3. Chemical individuality of protein preparations. 4. Classification of vegetable proteins: Simple proteins (albumins, globulins, glutelins,

prolamins, albuminoids, histones, protamines), conjugated proteins (nucleoproteins, glycoproteins, phosphoproteins, hæmoglobins, lecithoproteins), derived proteins (primary, secondary protein derivatives {proteoses, peptones, peptides}). 5. The relation of proteins to acids and bases, by L.J. Henderson, Ph.D., Sc.D. 6. Solubility of vegetable proteins. 7. Precipitation of vegetable proteins. 8. Denaturing of vegetable proteins. 9. Products of hydrolysis of vegetable proteins. 10. The proteins of green plants. 11. The nutritive value of vegetable proteins. 12. Some physiological relations of vegetable proteins to the animal organism and the biological relations of seed proteins to one another.

On p. 24 is a full-page “list of the principal globulins,” with the scientific name of each plant and 1-2 key references for each plant species: Legumin is found in the seeds of the pea, horse-bean, vetch, and lentil. Vignin in seeds of cow-pea. Glycinin in seeds of soy bean, *Glycine hispida* (Osborne and Campbell, 1898, p. 6). Phaseolin (crystalline) and conphaseolin, in seeds of kidney-bean. Conglutin is found in seeds of lupines. Vicilin in seeds of horse-bean. Stizolobin in seeds of Chinese velvet-bean. Canavalin and concanavalin in seeds of Jack bean. Arachin and conarachin in seeds of peanut. Acerin in seeds of maple. Corylin in seeds of hazelnut. Amandin in seeds of almond, peach, plum, apricot? Juglansin in seeds of American black walnut. Excelsin (crystalline) in seeds of Brazil-nut. Edestin (crystalline) in seeds of Hemp. Avena (crystalline) in seeds of oat. Castanin in seeds of European chestnut. Maysin in seeds of maize (corn). Tuberin in seeds of potato. Cucurbitin in seeds of squash.

A similar table (p. 25) notes a globulin (crystalline alpha form) in the seeds of “adsuki bean, *Phaseolus angularis*. The only well-defined glutelins are: Glutenin in seeds of wheat. Oryzenin in seeds of rice. Maize glutelin in seeds of maize (p. 26).

A table titled “partition of nitrogen in different proteins” gives values for all the proteins listed on p. 24. For example—the legumelin in soy-bean seeds: (1) In per cent. of protein: Nitrogen as ammonia 1.18. Basic nitrogen 3.08. Non-basic nitrogen 11.44. Nitrogen in magnesium oxide precipitant 0.39. Total nitrogen: 16.09. In per cent. of nitrogen: Nitrogen as ammonia 7.3. Basic nitrogen 19.1. Non-basic nitrogen 71.1. A similar table (p. 73) shows the per cent. of protein in various amino acids. For example—the legumelin in soy-bean seeds: Percent of protein in—Histidine 2.04. Arginine 5.35. Lysine 4.91. Basic nitrogen calculated 3.21. Basic nitrogen precipitated 3.08. Difference +0.13. Page 80 shows a graph of percent of total amino nitrogen digested vs. time (0-350 hours) for soy-bean globulin and other seed globulins. Pages 106-07 discuss the nutritive value of vegetable proteins, focusing on those of the soy-bean. “The leguminous seeds which are rich in protein have many times been recommended as cheap and desirable substitutes for the more expensive animal proteins. With the exception of the soy-

bean, however, these seeds have never been used extensively as a major constituent of the diet.” Address: Research Chemist in the Connecticut Agric. Exp. Station, New Haven, Connecticut; Research Associate of the Carnegie Institution of Washington, DC.

401. Takahashi, Eiji; Itagaki, T. 1925. On the proteins of the adzuki-bean (*Adzuki subtrilobata*). *J. of Biochemistry* 5(3):311-19. Oct. *

• **Summary:** “The proteins of the Adzuki-bean were first studied by Osborne and Campbell (1897) who isolated a globulin, by dialysis of a 10 percent. sodium chloride extract of the bean. Its properties and composition closely resembled those of phaseolin, the chief globulin of navy bean.”

This is the earliest article seen in this journal that mentions adzuki beans. Note the early scientific name. Address: Inst. of Agricultural Chemistry of Hokkaido Imperial Univ., Sapporo.

402. Miura, Mitsushige. 1925. Flora of Manchuria and East Mongolia. Dairen, Manchuria. [Eng]*

403. Karpechenko, G.D. 1925. [On the chromosomes of Phaseolinae]. *Trudy po Prikladnoi Botanike, Genetike i Selektzii (Bulletin of Applied Botany, Genetics and Plant Breeding, Leningrad)* 14(2):143-48. [7 ref. Rus; eng]

• **Summary:** The English-language summary states: *Soja hispida*, a plant akin to Phaseolinae displays a diploid number of chromosomes—40 (fig. 12, p. 144).”

Note: The author was the first to report that the diploid chromosome number of *Soja hispida* (Moench) was 40. Soon confirmed by Kawakami (1930), Fukuda (1933), Veatch (1934), and Karasawa (1936).

The English-language summary begins: “Karyological investigations of *Phaseolus vulgaris*, *multiflorus*, *lunatus*, *Mungo*, *acutifolius*, *aureus*, *angularis* [azuki], *trilobus*, *Dolichos Lablab*, *Vigna catiang*, and *Vigna unguiculata* have shown that all these species have a diploid number of chromosomes—22.” Thus, the author also found 22 diploid chromosomes in the azuki bean.

Note: This is the earliest Russian language document seen (Oct. 2021) that mentions the azuki bean. Address: Plant-breeding station, Agricultural Academy, Moscow, Petrovskoe-Rasumovskoe.

404. Yoshimura, K. 1926. Shokubutsu taichû gan-chisso yûki-butsu tokuni yûki enki ni tsuite [Organic materials containing nitrogen in the bodies of plants, especially organic bases]. *Nihon Gakujutsu Kyokai Hokoku (Report of the Japanese Society for the Advancement of Science)* 2:88-93. [Jap]

• **Summary:** Includes a study of the organic bases in soy sprouts. Address: Kagoshima, Japan.

405. Mayerhofer, Ernst; Pirquet von Cesanatico, C. eds. 1926. *Lexikon der Ernährungs-kunde* [Dictionary of dietetics]. Vienna, Austria: J. Springer. viii + 1205 p. Illust. 25 cm. [Ger]*

• **Summary:** Included in the long list are: Akamiso, miso, shiromiso, tofukasu [okara], daizu [soybeans], fu [dried wheat gluten cakes], kingyo-fu, kiri-fu, kiri-mochi [frozen and dried rice cake], ame [malt extract], mirin, aburage [tofu fried in vegetable oil], natto—Bohnenkäse, Tofu—Sojatopfen, Tonyu—Sojamilch [soymilk], azuki [small red beans], kwansen-fu, kinako—Sojabohnenmehl, geröstet, amasake [amazake]—unvergorener Sake, umeboshi, koritofu [frozen and dried tofu], midzuame [soft ame = rice syrup], shoyu—Sojasauce, yuba—eine Bohnenspeise. Note that a number of these terms are Japanese.

Note 1. This is the earliest German-language document seen (Nov. 2005) that mentions amazake, which it calls “amasake.”

Note 2. This is the earliest German-language document seen (April 2013) that uses the term *Sojatopfen* to refer to tofu.

Note 3. This is the earliest document seen (Aug. 2002) in any language that uses the term *tonyu* (or tōnyū) to refer to soymilk.

Note 4. This is the earliest German-language document seen (Sept. 2021) that mentions kinako, which it defines as *Sojabohnenmehl, geröstet*.

406. Takenobu, Y. 1926. Japan Year Book. Tokyo: Japan Year Book Office. 626 + 162 p. See p. 447, 449, 514. 22nd annual issue.

• **Summary:** The total area of Japan proper is 147,652 square miles (382,861 square kilometers). Japan’s population (as of Oct. 1925) was 59,736,704. A large area of Japan is very mountainous, and it is estimated that the cultivated area is about 6 million hectares. According to Prof. Shimizu of Keio University the population density per square kilometer of cultivated area in Japan is much larger than various European countries. Japan 969. Belgium 394. Italy 305. Netherlands 273. England 226. Germany 195. Switzerland 168. France 108. Spain 90.

In chapter 29, Agriculture, the section titled “Beans, potatoes and sweet potatoes” (p. 449) begins with a table showing the production (in koku; 1 koku = 180 liters) of these crops from 1921 to 1923, inclusive. Soybean production decreased from:

4.261 million *koku* in 1921

3.628 million *koku* in 1922

3.434 million *koku* in 1923.

The text continues: “Among subsidiary farm crops there is perhaps nothing that plays so important a part in the Japanese kitchen as soy beans...”

In the section on “Breweries” (p. 512+) the subsection titled “Soy” [meaning shoyu or soy sauce] (p. 514) states:

“For soy the prefecture of Chiba, which is contiguous to Tokyo municipality, heads all other places on the list as to output. Parched wheat mixed with salt and beans is a principal ingredient. The process is still far from scientific, requiring about 12 months before the liquid is ready for sale. It is also costly, as it does not much admit labor-saving appliances. To obviate these disadvantages have been tried several patented processes, but most of them have failed. In 1917 the leading soy manufactures of Chiba-ken combined and formed the Noda Soy Co., capital ¥7,000,000 p.u. with capacity of about 250,000 ‘koku’ i.e. about 60 per cent. of the total output of the Prefecture.”

A table (p. 514) shows production of sake, beer, and soy from 1919 to 1922 (year ending in March). Production of soy (in 1,000 koku) grew from 2,940 in 1919 to 3,268 in 1922. Address: Prof. at the Waseda Univ. and late of the “Japan Times”.

407. Wagner, Wilhelm. 1926. *Die chinesische Landwirtschaft* [Chinese agriculture]. Berlin: Paul Parey. xv + 668 p. See p. 311-20. Illust. No index. 25 cm. [214 ref. Ger]

• **Summary:** The section on legumes contains a long subsection on the soybean (p. 311-20). Contents: Distribution in China. Types and varieties of soybeans. Chemical composition. Techniques of soybean cultivation. Utilization of soybeans: Chiang (*djang*; *Bohnsensauce* [like soft miso]), soy sauce (*djang-yo* or *djang-yu*), and tofu (*dou-fu*; *Bohnenkäse*), firm tofu (*dou-fu-gan*; *getrocknete Bohnenkäsekeks*), yuba (*dou-fu-pi*; *Bohnenkäsehaut*), frozen tofu (*dung-dou-fu*; *gefrorener Bohnenkäse*), smooth soymilk curds (*dou-fu-nao*; *Bohnenkäsegehirn*), soy sauce residue (*djang-yu-dscha*; *Rueckstände der djang-yu*), tofu residue (*dou-fu-dscha*; *Rueckstände der dou-fu*; [okara]), soybean oil (*dou-yu*; *Bohnenöl*), soybean cake or meal (*dou-bing*; *Bohnenkuchen*; the latter two in northeast China). The section on oilseed cakes as fertilizers mentions soybean cake (p. 230). Soybeans are also mentioned as a summer crop in rotation with millets (p. 305).

The section on legumes also discusses (p. 320-21) peas (*Die Wintererbse*, *Pisum sativum* L., *Wan-dou*), broad beans (*Die Pferdebohne*, *Vicia faba* L., *Tsan-dou* or *Hu-dou*) and the two types of bush beans which are grown throughout China and distinguished by the color and size of the seeds (*Die Buschbohne*; {1} *Phaseolus mungo* L., *Lü-dou*, and {2} *Phaseolus radiatus*, *Tschi-hsiau-dou* [chixiaodou]). The *Lü-dou* is widely prized as a vegetable, often as 5-cm-long beansprouts (*dou-ya-dsi*), or in parts of the North they are used to make vermicelli (slender noodles).

The section on oilseeds contains subsections on rapeseed, sesame, and peanuts (p. 332-38). The section on textile plants discusses hemp (p. 358-60).

Bray (1981) describes that as “A full and systematic description of Chinese agricultural methods in their ecological and socio-economic context, based on the

agronomist author’s personal experience and careful questioning of his students at the Sino-German High School in Qingdao.” Address: Abteilungsvorsteher bei der Landwirtschafts-Kammer fuer den Regierungsbezirk Wiesbaden in Wiesbaden, Germany. Frueher Dozent fuer Landwirtschaft und Abteilungsvorsteher der Deutsch-Chinesischen Hochschule Tsingtau (China).

408. Kellogg, John Harvey. 1927. *The new dietetics: A guide to scientific feeding in health and disease*. 3rd ed. Battle Creek, Michigan: The Modern Medicine Publishing Co. 1031 p. See p. 188-93, 322-28. Illust. Index. 24 cm.

• **Summary:** This is an encyclopedia of food, diet, and nutrition. Earlier editions were published in 1921 and 1923. The author, a physician and a vegetarian, lists his credentials on the title page: “Fellow of the Royal Society of Medicine of Great Britain, of the American Medical Association, Member of the American Economic Association, and of the National Geographical Society, Member of the Société d’Hygiene of France, Late Member of the Michigan State Board of Health, Editor of “Good Health,” Superintendent of the Battle Creek Sanitarium, President of Battle Creek College.

Table XIV (p. 188) lists soy beans as a food rich in lime (calcium), containing 0.46%. Pages 189-93 discuss “Acids and bases of food—The acid alkaline balance.” It begins: “As pointed out by Bunge many years ago, and as further shown by an extensive research conducted by Sherman, of Columbia University, foodstuffs differ in relation to their acid and basic contents. In certain foods, bases or alkalies predominate, while in others the mineral acids predominate.

“The waste products of the body are predominantly acid; consequently it is desirable that the foodstuffs should be predominantly basic. If acids predominate in the ration, and this condition continues for a considerable period of time, the effect will be to disturb the nice balance between acids and bases which is normally maintained in the body fluids and which is essential for life. A deficiency of alkalies constitutes acidosis.

“It is necessary that the alkalinity of the blood should be constantly maintained as the only means by which the acid wastes of the body which are constantly accumulating as the result of all sorts of vital work may be promptly removed.” All flesh foods leave highly acid residues. Eggs are also acidic, though less strongly than meat. Cereals and bread are acidic, though much less so than meats. Milk is slightly alkaline. Most fruits, and all green and root vegetables are strongly basic and tend to alkalinize the tissue fluids... Generally it is better to select foods which afford a large basic margin so as to add to the alkali reserve of the body, which always tends toward diminution, especially in old age. A strongly basic diet is especially indicated in cases of arteriosclerosis and disease of the kidneys, in fevers, in pregnant women, in all forms of acidosis, and in old age...

“At the present time all physiologists are agreed that the highest degree of physical vigor and efficiency may be maintained on a diet which excludes flesh foods and physiologists the world over are unanimous in advising a curtailment rather than an increase in meat consumption.”

Table XVI (p. 192-93) is titled “Excess of acid or alkali in one ounce and in 100 calorie portions of common foodstuffs.” The Soy bean has an excess of base (alkali), 12.0 units per 100 calories or per 1 ounce.

In the chapter on Legumes, pages 322-28 give a detailed and accurate discussion of the soy bean and various soyfoods, including the history and nutritional composition of the soy bean, soy bean milk, to fu [tofu], soy sauce, and soy bean sprouts. On the first page, Dr. Kellogg states: “The soy is the best of all beans.”

In the chapter titled “Infant Feeding,” under “Vegetable Milk” (p. 956), Dr. Kellogg states: “The Chinese have for ages made from the soy bean a preparation which so closely resembles the dairy product that it may not inappropriately be called vegetable milk. A much better preparation is made from walnuts, almonds, and even peanuts... Milk prepared from walnuts and almonds is used in China, the Philippines and throughout the Orient, as a food for nurslings for whom a wet nurse can not be provided. This custom prevails extensively in those Asiatic countries in which cow’s milk is but little used.

“A nut milk commonly known as ‘Malted Nuts’ has been made in this country for more than thirty years and has come into extensive use... These plant protein milks render great service especially in the treatment of infants and invalids who are sensitized to cow’s milk. They are also valuable resources in the treatment of colitis in infants and in cases in which change of the flora is found difficult, so that the suppression of all animal proteins becomes necessary.”

Also discusses quinoa, kaoliang, and the adzuki bean.

Note: This is the earliest English-language document seen (Feb. 2004) that uses the word “alkalinize” to refer to making a food more alkaline. Address: Battle Creek, Michigan.

409. Makino, Tomitaro; Tanaka, Koichi. 1928. *Nippon shokubutsu shi: Kazoku kensaku* [A manual of the flora of Nippon]. Tokyo: NaiNihon Tosho. 13 + 53 + 15 + 864 p. See p. 291. Illust. 19 cm. [Jap]

• **Summary:** Contains 212 illustrations. On page 291, under the genus *Glycine*, are mentioned two species: *Glycine Soja* Benth. (Japanese: *daizu*, *ômage*, *miso mame*, *mame*) and *Glycine ussuriensis* Reg. et Maack. (Japanese: *tsurumame*, *nomame*).

See also: Peanuts (*Nankin mamé*, *Tojin mamé*, p. 282). Lupins (p. 282). Azuki (p. 293). Pueraria (*kuzu*, *mamekuji*, *makuzu*, p. 299). Sesame (*goma*, p. 529). Address: Japan.

410. Grey, Egerton Charles. 1928. *The food of Japan*.

Geneva: League of Nations, Health Organisation. 161 p. May. Index. 24 cm. [82 ref. Eng; fre]

• **Summary:** Detailed information and analysis. Contents: Preface. 1. Quantity of food in Japan: Exports, imports, production and consumption of food in Japan in the year 1925. 2. Quality of food in Japan: Definition of quality. 3. Distribution of food in Japan: Natural and artificial distribution. 4. Chemical composition of Japanese foods as consumed: Methods of analysis. 5. Chemical composition of Japanese food as purchased. Appendices: I. Literature relating to the chemical and physical properties of the food of Japan, with list of authors. II. Food materials and the plants and animals serving as sources of food in Japan.

The Preface begins: “This work... was carried out in the Imperial Institute of Nutrition, Tokyo (director, Dr. Tadasu Saiki). It comprises statistical data relating to the food supply of Japan and analytical data derived from the writer’s personal examination of the food materials.”

Table 7 (p. 25) shows the amounts of major foods consumed in Japan. The percentage of the total food consumed is: Rice 50.83%, barley 10.15%, potatoes 8.63%, wheat 6.63%, soy bean 4.76%, other beans 3.71%, other cereals 3.24%, fish 1.72%, seaweed 1.23%.

On page 54, the author discusses the “Alkalinity of the ash [of foods]. This figure is of considerable importance as indicating the capacity of the food material to produce alkali in the body.” On pages 61-111 the author lists the nutritional composition of all major Japanese foods, grouped by food type: 1. Cereals and cereal products. 2. Legumes, pulses, and legume products. 3. Roots, greens, and other vegetables. 4. Mushrooms and seaweeds. 5. Fruits, nuts, and seeds. 6. Vegetable oils. 7. Other vegetable products. 8. Dairy products. 9. Eggs. 10. Meat and animal fat. 11. Fish. 12. Condiments, beverages, etc. The name of each food is given in both English and French, usually with a brief explanation.

In a table (p. 65-69), in category “II. Legumes, pulses, and legume products,” the section titled “Fresh legumes” includes (p. 64-65): Edamame (Soy bean in pod) = *Fève de soya en cosse*. The section titled “Dry legumes (pulses)” includes (p. 64-67): Azuki (Small red bean) = *Petit haricot rouge*. Dainagon (Small red bean) = *Petit haricot rouge*. Ao daizu (Soy bean [with green seed coat]) = *Fève de soya*. Kuro daizu (Black soy bean) = *Fève de soya noire*. Shiro Daizu (White soy bean) = *Fève de soya blanche*. Rakkasei (Pea nut) = *Pistache de terre*.

The section titled “Bean products” includes (p. 66-69): Aburage (Fried-bean curd) = *Pâte de haricots frite*. Aka miso (Soy-bean paste) = *Pâte de fèves de soya*. Gammodoki (Fried-bean curd) = *Pâte de haricots frite avec mixture d’algues marines*. Kinako (Soy-bean powder) = *Poudre de fèves de soya*. Kori dofu = *Pâte de haricots séchée*. Namaage (Fried-bean curd) = *Pâte de haricots frite*. Natto (Fermented soy bean) = *Fève de soya fermentée*. Sarashian (Red-bean powder) = *Poudre de haricot rouge* [Sarashi-an from azuki

beans]. Shiro miso (White soy-bean paste) = *Pâte blanche de fève de soya*. Tofu (Soy-bean curd) = *Pâte de fèves de soya*. Tofu kasu (Soy-bean residue) [okara] = *Déchets de fèves de soya*. To nyu (Soy-bean milk) = *Lait de fève de soya*. Yuba.

Note 1. This is the earliest English-language document seen (Nov. 2014) that contains the word *gammodoki* (spelled that way) which refers to deep-fried tofu burgers, or that contains the word *namaage*, which refers to deep-fried tofu cutlets.

Also: Mushrooms and seaweeds includes (p. 73-75): Arame, Asakusanori [Asakusa nori], aonori, hijiki, kanten, kombu, mozuku, ogonori, tororo kombu, wakame. Fruits, nuts and seeds includes (p. 77): Asanomi (Hemp seed), Goma (sesame, white and black). Vegetable oils includes (p. 79): Daizu yu (Soy bean oil) = *Huile de fève de soya*.

Condiments includes (p. 92-93): Hamana natto [fermented black soybeans]. Kiriboshi (Dried daikon). Misozuake [miso pickles]. Narazuake. Shoyu [soy sauce]. Takuan (Pickled radish). Umeboshi (pickled plum) = *Prune confite*. Beverages includes (p. 92-93): Amazake. Mirin (fermented rice). Sake (Rice wine).

For each food, the following values are given in both English and French: Water, protein (N x 6.25), fat, carbohydrate, ash, calories, alkali value, total nitrogen, water-soluble nitrogen, phosphoric acid (anhydrous), sodium chloride (salt), water-soluble ash, water-insoluble ash, alkalinity due to soda and potash, alkalinity due to lime and magnesia, calcium oxide, ferric oxide, factor for converting to dry food.

Note 2. In Japan, the typical person is well aware of which foods are alkaline (*arukari-sei*) and which are acidic (*san-sei*). The alkaline foods are generally considered more healthful and health-protecting. For the alkaline values given by Grey for many basic Japanese foods, see SoyaScan Notes. 1991. Sept. 20.

Note 3. This is the earliest English-language document seen (April 2021) that uses the term “soy-bean paste” to refer to miso.

Note 4. This is the earliest English-language document seen (June 2009) that uses the term “Edamame” to refer to [green] soy beans in their pods.

Note 5. This is the earliest English-language document seen (April 2013) that uses the term “kori dofu” to refer to dried-frozen tofu.

Note 6. This is the earliest English-language document seen (Dec. 2006) that uses the term “pickled plum” to refer to umeboshi salt plums.

Note 7. This is the earliest English-language document seen (Nov. 2011) that uses the term “Hamana natto” to refer to fermented black soybeans. Address: M.A., D.Sc., F.I.C., M.R.C.S., etc.

411. Wu, Hsien. 1928. Nutritive value of Chinese foods. *Chinese J. of Physiology, Report Series* No. 1. p. 153-86.

July. Issue title: Metabolism. [7 ref. Eng; chi]

• **Summary:** The nutritive value of many Chinese foods (water, protein, fat, ash, crude fiber, carbohydrate, calories) is given (with the English name, scientific name, and name in Chinese characters), including the following: wheat gluten, sesame seed (p. 155), yellow soy bean, black soy bean (large or small), green soy bean, soy bean sprout (yellow or green), soy bean flour, soy bean curd, soy bean dregs [okara], bean curd (doufu-gan, boiled in salt and spices and partially dried), oil skin ([yuba], from boiled soy bean milk), bean curd skin ([yuba], dried, or rolled like bamboo), soft bean curd, soy bean milk (p. 156), smoked bean curd, sheet bean curd, fermented bean curd, pickled bean curd, soy bean (fresh) (Characters: hair + bean = mao tou), wild soy bean, red gram bean (red small bean, *Phaseolus mungo* [azuki bean], p. 157), cucumber pickled in soy bean paste (p. 175).

Condiments: Thick soy bean paste, thin soy bean paste, fermented soy bean, fermented bean (dried), thin soy bean sauce (white), thick soy bean sauce (white), thin soy bean sauce (black), thick soy bean sauce (black), soy bean sauce (“chemical”), sweet flour paste (p. 176).

Table 4 (p. 180) gives the calcium, phosphorus, and iron content of some Chinese foods in percentages of edible portion, including the following: Wheat gluten, job’s tear, yellow soy bean, black soy bean, red gram bean [azuki], green soy bean (fresh), soy bean flour, soy bean milk, bean curd (Southern style and Northern style).

Table 5 (p. 182) lists foods as sources of vitamins A, B, C, or D, including the soy bean (an excellent source of vitamin B).

Note 2. This is the earliest English-language document seen (April 2013) that uses the term “doufu-gan” (or “doufu gan”) to refer to Chinese-style firm tofu. Address: Dep. of Biochemistry, Peking Union Medical College, Peking, China.

412. Dorsett, P.H.; Morse, W.J. 1928. Agricultural explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon (Log-unpublished). Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished typescript log. Illust. Partially indexed. 28 cm.

• **Summary:** Also called the “Log of the Dorsett Morse Expedition to East Asia” and (by the National Archives) “Dorsett-Morse Expedition to the Far East, 1929-31,” this is one of the most important documents ever produced on soybeans and soyfoods. Covering the period from late 1928 until 1932, it consists of 17 volumes of typewritten unpublished manuscript plus handwritten notebooks.

The two explorers, who were gone on the expedition for a little more than two years, initially planned to be gone for about three years. They took 3,369 photos of which 95% appear in the report; the original prints are pasted on the

pages, each with a number and a caption. The first negative number is #43196 (p. 238) and the last is #46514. The last numbered page of the report is #8818, but most of the index pages are not numbered and some special reports at the end of the main report each start with page 1.

The first quarter of the pages (to about page 2,500) are indexed, using 4 separate indexes. The only original and 2 microfilm copies were at the American Soybean Assoc. (St. Louis, Missouri), however as of Feb. 2014 they are on permanent loan to Rare and Special Collections at the National Agricultural Library (Beltsville, Maryland)—which also has 7 photograph albums that accompany the 7 log books. A list of the missing pages has been compiled. One photocopy of a microfilm copy is at the Soyinfo Center (Lafayette, California). One microfilm copy is at the National Archives in Washington, DC, in Records of the Bureau of Plant Industry, Soils, and Agricultural Engineering, Record Group 54. See: “National Archives Microfilm Publication No. M840. Expedition Reports of the Office of Foreign Seed and Plant Introduction of the Department of Agriculture, 1900–1938.” Rolls 16–20, volumes 56–73. These microfilm rolls may also be available for viewing or duplication at one of the various regional branches of the National Archives (e.g. San Bruno, California).

A brief itinerary of the trip is as follows: 1929 Feb. 18—The party of 5 people leaves Washington, DC, for Los Angeles by train. It consists of Morse, his wife Edna, their daughter Margaret (age 7), Dorsett, and his daughter-in-law Ruth (Bobbie; the widow of Dorsett’s son, she served as Dorsett’s secretary and general helper).

March 1—They sail from San Francisco to Yokohama on the S.S. *President Grant* of the Dollar Steamship Lines.

March 29—Arrive in Yokohama, proceed directly to Tokyo, establish headquarters with rooms at the Imperial Hotel, and hire an interpreter, Mr. Suyetake, who works with them for the next 2 years.

May 21—The Morses go to Hokkaido, the Dorsetts to Kyoto, by sleeper train. Morse returns to Tokyo.

Aug. 17—The entire party arrives in Hokkaido and establishes headquarters in Sapporo to study soybeans.

Oct. 8—Leave Hokkaido for the Northeast Provinces, then arrive in Tokyo on Oct. 15.

1929 Oct. 23—Arrive in Keijo (Seoul), Korea, then take many side trips. Note: 1929 Oct. 29—Great Depression begins in USA with stock market crash.

Dec. 8—Return to Japan via Kyushu, then to Tokyo to study soyfoods. They buy and photograph many!

1930 April 1—Travel by steamer to Dairen, Manchuria, where they set up headquarters. Dorsett very sick from April 11 to June 11; taken to a Japanese hospital in Dairen, with Japanese doctors and nurses, he almost dies of double pneumonia. Morse does the work of both men and does not inform USDA of Dorsett’s critical condition.

June 24—Morse takes a quick trip to northern Korea, via

Mukden and Antung (Tan-Tung), to look for *Zoysia* grass.

July 1—Returns to Manchuria via Mukden.

July 21. Dorsetts leave for Peking by train; Morses and Mr. Suyetake stay in Dairen.

Aug. 21—Morse party travels to northern Korea, staying in Heijo (Pyongyang / P’yongyang); takes a 4-day side trip to Seoul.

Sept. 28—Morse returns to Dairen, Manchuria.

Oct. 19—Morse party leaves Dairen, arriving in Peking the next day.

Nov. 9—Morse party returns to Dairen.

Nov. 30—Morse arrives in Harbin, north Manchuria, then passing through Mukden, returns to Dairen.

Dec. 18—Morses leave Dairen for Japan, passing through Kobe on Dec. 21 and arrive in Tokyo on Dec. 23.

1931 Jan. 12—Travel to Kyoto, Himeiji, and Tatsuno Shoyu.

Jan. 16—Visit Okazaki and Hatcho miso. Jan. 17—Return to Tokyo.

Feb. 17—Morse party leaves Tokyo by boat for the USA, arriving in San Francisco on March 4.

March 15—Dorsett party leaves Peking for Tientsin, Shanghai, and Hankow.

March 27—Dorsetts sail from Shanghai to San Francisco.

Note 1. The title of this report is puzzling since the expedition never went to Taiwan, Singapore, Java, Sumatra, or Ceylon. It was proposed several times that they visit these places, but the plans did not work out.

Note 2. This is the earliest log (unpublished) seen (Oct. 2016) that mentions soy.

Note 3. The best biography of P.H. Dorsett seen to date was written by Theodore Hymowitz and published in 1984 in “Dorsett-Morse Soybean Collection Trip to East Asia: 50 Year Retrospective” (*Economic Botany*, 1984, 38(4):378–88). He wrote: “Palemon Howard Dorsett, veteran plant explorer and senior member of the team, had collected plants previously in Brazil, northeast China, Sri Lanka (Ceylon), and Indonesia. After the plant exploration trip with Morse, he collected plants in the Caribbean area and on the north coast of South America. His interests included photography, carpentry, gardening and tinkering with equipment.

“Howard Dorsett was born in Carlinville, Illinois, on April 21, 1862 and thus was 67 yr old at the time of the journey to east Asia. He married Mary V. Payne on September 12, 1892 and received a B.S. degree from the University of Missouri in 1894. The Dorsetts had 3 children, 2 daughters and a son. Dorsett’s wife and 2 daughters died in the early 1900s. His son, Jim, accompanied him on a plant exploration trip to Asia in 1924 to 1927. Personal tragedy struck Howard Dorsett again when his son died of tuberculosis on October 8, 1927. His daughter-in-law, Ruth B. Dorsett, accompanied him on the Dorsett-Morse exploration trip.

“Dorsett joined the USDA in 1891 and was employed

by the Section of Plant Pathology. He was involved with the early experiments on the use of Bordeaux mixture for the treatment of leaf diseases of nursery stock. From 1904-1907, he was in charge of the Chico, California, plant introduction garden. Altogether, Dorsett developed 6 plant introduction gardens for the USDA. From 1909 until he retired in 1932, Dorsett was either in the field as a plant explorer or working as an administrator dealing with plant introductions. In 1936, he was awarded the Meyer Medal in recognition of distinguished service in the field of plant introduction. According to David Fairchild, Howard Dorsett was involved with the first propagation in the United States of the tung oil tree, date palms, Japanese flowering cherry trees, oriental bamboos, east Indian mangos, Chinese cabbage, and many other plants. He collected about 1,000 soybean accessions from northeast China and also introduced guinea grass from Brazil. On April 1, 1943, Howard Dorsett died in a nursing home in Washington, DC (Cattell and Cattell, 1938a; Marquis, 1928; Fairchild, 1936, 1938; *Washington Post*, 1943; *Who Was Who in America*, 1968)."

Two detailed biographies of Morse have been written by Wm. Shurtleff: (1) In *Soyfoods* magazine (Summer 1981, p. 56-60). (2) "William J. Morse—History of his work with soybeans and soyfoods (1884-1959)." Sept. 2011. 482 p. 866 references. 126 photos. A digital book published by Soyinfo Center on Google Books. Address: Agricultural Explorers, USDA, Washington, DC.

413. Dorsett, P.H.; Morse, W.J. 1929. Adzuki (adsuki) beans in Japan (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. *Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon*. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Pages 559-62 (8 April 1929). The authors photograph "two boxes of Adzuki bean candy." The photo is shown on p. 562. Pages 567-69 (April 9). They photograph a candy made of adzuki (adsuki) bean paste. Page 589 (April 10). They ask Mr. Sakata to collect for them from Yokohama 4 ounce samples of different varieties of adsuki beans and soybeans that are not of American origin. He agrees to write a tag for each giving the Japanese characters, Japanese name, Romanization, and if possible the source. Pages 645 (April 15). Mr. Suyetake (interpreter) and Mr. Morse go on a "seed hunting expedition." They collect numerous samples of garden beans, soybeans, and adsuki beans from small grocery stores and seedsmen in the northwest section of Tokyo. Pages 729, 741-42 (April 23). Life sized photos show adzuki bean candy (plain, wrapped in preserved cherry leaves, and with beans imbedded). Pages 754 (April 24). They received a package containing several varieties of soybeans, adsuki beans, and jack beans from the Sakata Seed Co. of Yokohama. Page 761 (April 27). They ship 11 lb

of seeds (including new varieties of soybeans, mung beans and adsuki beans) to the United States. Pages 802-03 (April 24). Dorsett purchases from T. Sakata & Co. in Japan eleven varieties of soybeans (8 oz each), one variety of Dainagon Azuki, and 2 varieties of swordbeans.

Pages 1009-10 (May 14). Morse visits the Matsuzakaya store in Tokyo to look for bean products. They secured 17 different soybean products. "The number of adsuki bean products seemed unlimited and we plan to collect these later. We were also able to collect three kinds of yuba, a thin skin-like product (very rich in protein) obtained by boiling soybean milk." Pages 1051-52 (May 16). A photo shows adsuke [adzuki] bean cakes served with tea. Pages 1147-48 (May 22). Traveling by railway in Iwate prefecture (northeast provinces), shortly before reaching Morioka they came to a farming region extensively cultivated in soybeans, adsuki beans, rice, barley, etc. Pages 1201-02 (May 26). At the Hokkaido Agricultural Experiment Station in Kotoni, Sapporo, they saw extensive fields where adsuki beans were being tested.

Page 2487 (Sept. 24). At the Kitami Branch Agricultural Experiment Station (145 miles northeast of Sapporo in Hokkaido) they were told that about 3,000 acres of adzuke beans were grown in the region. Address: Agricultural Explorers, USDA, Washington, DC.

414. Morse, W.J. 1929. Re: Soybeans and Japan. Letter to R.A. Oakley, USDA, Washington, DC, April 27. 3 p. Handwritten, with signature on hotel letterhead.

• **Summary:** "Have been thinking about writing you for more than two weeks but just couldn't get around to it. Sure do keep busy night and day... As we are sending our first lots of seed, bulbs, etc. in which are many soybeans, adsuki, etc., thought I had better write about the planting.

"Before leaving Washington, I explained to Mrs. Donovan about taking small samples of each number as it came for our sample cases. All of the soybeans can be grown at Arlington Farm [Virginia] even if they are not planted before June 20." He gives planting instructions for the adsuki beans, mung beans, cowpeas, hyacinth beans (*Dolichos lablab*), jack beans and sword beans; they "can be planted at the Sandhill in Columbia, South Carolina, and also at McNeill, Mississippi."

"This trip has more than opened my eyes on the soybean plan. Soy sauce, the green vegetable bean [edamame soybeans], and possibly miso are the only products now used extensively in the Orient that have possibilities in the United States as foods. The oil industry, of course, will be our great development... I just saw an article in one of the daily papers here where soybean oil meal led all fertilizers used in the Japanese Empire and is the largest imported one... The main object in the Orient as I see it is to obtain as many varieties as possible to fit in our diversified conditions and then work out the other problems so they fit in with the sections.

"I have taken about 500 feet of motion picture films with the DeVry which Dr. Pieters bought for me and have had very good results."

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-29. Box 93—Morse-Napier. Folder—Morse, W.J.-#4 F.C.I.

Sent to Soyfoods Center by Jacob Jones of Purdue Univ., Aug. 1998. Address: The Imperial Hotel, Tokyo, Japan.

415. Dorsett, P.H.; Morse, W.J. 1929. Green vegetable soybeans and Edamame varieties in Japan (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Pages 802, 803 (24 April 1929). While in Tokyo, Dorsett purchases from T. Sakata & Co. in [Yokohama] Japan eleven varieties of soybeans (8 oz each), one variety of Dainagon Azuki, and 2 varieties of swordbeans. Vegetable soybean varieties are: Edamame Wase Aosakigake, Edamame Wase Kurome Oxaya, Otsubu Wase Aojiro Edamame, Daikoku Edamame, Edamame Wase Higanmame, Tsurunoko Daizu, Edamame Wase Kurosakigake, Edamame Wase Chamame.

Page 892 (7 May 1929). A photo shows two commercial retail bunches of soybean vines and pods, bound at the bottom with rice straw. The soybeans are "used as a green vegetable."

Pages 1201-02 (26 May 1929). While visiting the Hokkaido Agricultural Experiment Station at Kotoni, Sapporo, Mr. Morse notes: "The soybeans grown in Hokkaido are used entirely for food purposes, such as natto, bean curd, green vegetable bean, soy sauce, miso, bean paste and roasted beans."

Page 1270 (30 May 1929). In Hakodate, Hokkaido, in northern Japan, the authors visited a store where pickles were sold. There they saw "a tub of pickled soybean pods, the seeds of which were about full grown. These pods were pickled in the same manner as we pickle cucumbers and sauerkraut, that is by salting down. This is the first time we have ever heard of or seen this kind of soybean product. According to Mr. Suyetake [their guide], this form of soybean product is eaten along with refreshments, the kind we no longer have at home [alcoholic beverages]. It seems rather ironical that we should come to study soybean products for the United States and find so many that, to enjoy them most, they should be eaten along with the refreshments of the pre-prohibition era of our country, but such is fate."

Page 1837 (11 July 1929). "The country around

Nishiarai raises soybeans to a very considerable extent for edible green beans. Not only are early and late varieties planted but the beans are planted at intervals so that there will be a continuous supply for the Tokyo market. A number of farms were visited and soybeans were found on all in various stages of growth."

Pages 1869, 1871, 1878-1879 (15 July 1929). "Left the hotel about 7:45 for a day's agricultural exploration in one of the trucking areas in the vicinity of Tokyo, where the growing of soybeans as a vegetable is an important industry." From Nishiarai they set out across country on foot. "Saw many plantings of soybeans from just coming up to ready to pull for market. It is extremely interesting to note how they are planted for succession. We saw many plantings of beans ready for pulling for market with rows interplanted as seedlings or transplants just coming into bloom. One photo shows "Vegetable soybeans only recently transplanted. The light color between the rows is caused by fertilizing with liquid night soil." Two other photos show soybeans "quite probably planted for use as a vegetable."

Pages 1897, 1898 (17 July 1929). "Secured interesting data and motion pictures of varieties of vegetable soybeans in the Tokyo market and outlying farming and trucking districts.

"Changed herbarium dryers on a large collection of plants and worked on estimates and tentative itinerary for the fiscal year 1929 and 1930. Also on official correspondence.

"In the morning we left early for the market to secure soybean pictures as soybeans in bundles of 30 to 50 plants each were very abundant. After securing two scenes we left for Kitasenju station where an agricultural association is located. It was learned from officers in charge that around Takenotsuka [near Tokyo] soybeans were grown extensively for green vegetable beans and that a village agricultural fair was being held. Arriving at Takenobu we found that the fair was being held in a school building about a mile from the station."

"Soybeans: Forty bundles of plants, 30-50 plants to the bundle representing several varieties used only for green vegetable beans. The two most common varieties use for green vegetable beans were the Sodefuri and the Chamame. The bundles were judged by color, size and shape of pod, and size and yield of each plant. Pods should be bright green and plump, that is the seed full grown. The size of the bundle for market purposes depends on the desire of the individual farmer. Three crops of vegetable soybeans are grown during the season—early, medium and late season.

"Perilla spikes: Small bundles of flower spikes which are much used for garnishing.

Page 1899. "Ginger flower buds (Mioga variety) 2 pans."

"Perilla plants (purple variety). 10 bundles of plants representing two purple foliage varieties. These are used for dyeing pickled plums [umeboshi], ginger, etc."

“Perilla plants (white). Bundles of a white variety used for pickling and as greens.”

Page 1901. Still at the fair: “The prize awarding ceremony took place about 2:30 p.m. The fair only lasted two days. The prize winning bundles of soybeans were taken to the play ground outside the building and motion pictures were taken of the farmer winning the special soybean prize and the one winning the 1st prize.

“We were then taken to a farm house where soybean plants were being bundled for market. This was being done inside a shed and was too dark for taking motion pictures. The farmer very kindly brought out the bean plants and bundling box in the sunshine, and motion pictures were taken of the operation.”

Pages 1925-1926 (19 July 1929). Negatives #44087, #44088, #44089. Three views of: “A native Japanese woman pulling soybeans to be bunched and sold as a fresh green vegetable.”

Page 1927 (19 July 1929). Neg. #44090 and #44091. Two photos from the village of Hanabata: (1) “Children with their hands and aprons full of soybeans which have been boiled in the pod; they are eating them like we eat peanuts.” (2) Details of how a farmer, sitting on the ground in his yard, bundles vegetable soybean plants for market and ties them with a grass string using a frame for support.

Page 1928. Neg. #44092. “The Japanese farmer shown in picture #44091 fixing a string of rice straw to tie about the top of the bundle of soybeans he has just fixed.”

Neg. #44093. “A pile of soybeans awaiting bunching for the market.”

Page 2065. Black and white movie film, DeVry camera, spool 23. Description of 8 shots of vegetable soybeans taken in Japan; undated. Page 2071 (3 Aug. 1920). “Visited the wholesale vegetable and fruit market and as usual found it full... and most interesting.” “Soybeans: Bunches of soybeans are to be found in abundance on every turn, they are to be found in large and small piles at almost every stand. See picture #44162.

Page 2080. Neg. #44162. “Piled bundles of soybeans, one of the commonest vegetables in the market. They are to be found at every turn.”

Pages 3501-3502 (10 Jan. 1930). The authors leave Tokyo for Urawa, the capital of Saitama prefecture in Japan, where they visit the Saitama Prefecture Experiment Station. The horticulturist explains that they have “three varieties of vegetable soybeans. These are grown especially as green vegetables. Plant seed in hot in hot beds about the middle of April and transplant to the field when danger of frost is over.”

Page 3683 (24 Jan. 1930) states that at the Shizuoka Agricultural Experiment Station the authors “secured considerable information about vegetable and green manure soybeans for the Shizuoka prefecture.”

Page 6911 (3 Jan. 1931). Morse writes from Tokyo: “At

one of the department stores, in the vegetable market section, we found small bundles of soybean sprouts and also some bundles of green vegetable soybean plants. There were only 6 plants to a bundle, about 8 inches long and with 6 to 8 pods per plant. The seed in rather large pods seemed only about one half developed.

Pages 6931-6932 (7 Jan. 1931). Morse went to the Imperial Department of Agriculture in Tokyo and met the director, Mr. A. Manabe, who provided information, statistics, and recent publications on soybean acreage, production, utilization, and industries in Japan, Chosen [Korea], and Taiwan. The beans from Japan proper and Chosen are utilized primarily for food, such as bean curd (Tofu), confections, flour and green vegetable beans [edamamé]. A table shows that less than 1% (0.8%) of the soybeans used in Japan are consumed in the form of “Green vegetable beans.”

Pages 7102-7103 (2 Feb. 1931). Morse is in Urawa, capital of Saitama prefecture. “The green vegetable soybean work, so much of which has been done at Urawa, has been transferred to the branch station at Koshigawa. A very extensive acreage of green vegetable soybeans is grown in the Saitama Prefecture. The beans are started in hot beds about March 1 and when warm weather sets in the plants are transplanted in the fields.

“Soybeans are not used extensively for green manure in the Saitama Prefecture. The station, however, is doing work with varieties best adapted to green manure purposes. Genge clover (*Astragalus sinensis*) is used most extensively by the farmers as a green manure crop in the rice paddy sections. We were given publications of results of the station’s work for several years.”

Note 1. This is the earliest English-language document seen (June 2009) that uses the term “Vegetable soybeans” (entry of 15 July 1929), or “green vegetable soybean” (3 Jan. 1931) or “green vegetable soybeans” (Feb. 1931).

Note 2. No mention is made of “edamame” (except in variety names; Apparently Dorsett and Morse don’t yet understand the meaning of this word) nor of “vegetable-type soybeans” or “edible soybeans” as a larger category of soybeans. Address: Agricultural Explorers, USDA, Washington, DC.

416. Dorsett, P.H.; Morse, W.J. 1929. Yuba in Japan (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Pages 1009-10 (14 May 1929, Tokyo). “Copied from Mr. Morse’s diary... We were also quite surprised to find a bean vermicelli made from soybean flour, as we did not know soy flour could be used for this on account of the

small starch content. The number of adzuki [azuki] bean products seemed unlimited and we plan to collect these later. We were also able to collect three kinds of yuba, a thin skin-like product (very rich in protein) obtained in the boiling of soybean milk."

Page 1061. "One-half natural size picture [photo] of a package of yuba rolls. Beside the picture are some of the rolls showing character of the bean-curd skin (Yuba). This form of yuba is known as 'Maki-yuba' [as written on the label]. Meaning yuba rolls and is used in making soups and in other dishes" (neg. #43666).

Page 1066. "Between ½ and ¼ natural size picture [photo] of a package of yuba sheets, rich creamy yellow in color. Beside the package is a tied small bundle of the yuba sheets which after being moistened are used to wrap rice in for lunches. Yuba is very rich in protein" (neg. #43671).

Page 1069. "Natural size picture [photo] of a package of yuba in ribbon-like rolls. Beside the package are rolls showing the manner of rolling the thin narrow sheets of yuba. This form is used in soups" (neg. #43674).

Page 3480. "Small dried sheets of soybean 'Yuba' arranged in the shape of bow ties. Purchased at small grocery store in Tokyo, Jan. 6, 1930. Native name is 'Yuba.' Yuba is the film obtained when boiling soybean milk. Used most commonly in soups. This is a natural size picture" (neg. #44740).

Pages 3555 to 3560. (15 Jan. 1930). "Today we visited a yuba factory for the purpose of getting information as to how this soybean product is made, and also to try and get still and motion pictures of the equipment and processes... Details as to the method of making yuba will be found in the special report on soybeans and soybean products." A boiler was used in this yuba factory. Bamboo trays placed over a heater were used to dry the yuba. Photos taken in Tokyo show:

Page 3557. "An interior view of a yuba factory showing at the left the mill surrounded by a hopper and an extending small pipe to supply a small stream of water for grinding to the right in the cooker, also tube and long handle knife" (neg. #44771).

Page 3558. "An interior view of the portion of the factory where the bean milk is evaporated. A part of the furnace is shown in the foreground; across this lays two bamboo trays with bits of broken yuba on them. Back of these can be seen four evaporating trays or pans" (neg. #44772).

Page 3559. "A nearby view of two half-sheets of yuba hanging across a small bamboo strip. The sheets before being cut are just the size of the evaporating pan (neg. #47773).

Page 3560. "A nearby view of broken pieces of yuba on a bamboo tray. This is a little nearer than [neg.] #44772, otherwise the same (neg. #47774).

Page 3585. "Two packages of yuba and two rolls and sections of a roll which is sold commercially in this manner. Length of packages: 9 inches. D & M. #3292.

Page 3590. "The sheets of Yuba as they come from the pan measure about 16 x 20 inches and are put up in various forms for the market. This view shows folded and sectional views of Yuba (neg. #44782).

Pages 3595-97 (17 Jan. 1930, Tokyo). "Went out to the Yuba making plant this morning to try and get some still and motion pictures... We found the owner and his wife were busily occupied. He was taking up the sheets (17 x 21 inches) of Yuba from the evaporating pans and hanging them up to dry. The pans are of copper, about 3 inches deep by 17 inches wide and 21 inches long. The evaporating pans are filled from ½ to 2/3 full of soybean milk, and evaporated over a slow fire. As the Yuba or layer of scum forms over the surface of the heated milk, it is loosened at the edges by running a small bamboo knife around the sides. A small split stick of bamboo is then run under the film the long way, and the scum or sheet of Yuba, which laps down over the stick like a wet sheet of paper, is lifted and the stick stuck into a crack so that the sheets hang over the evaporating pans to dry.

"Do understand that as many as 25 or 30 sheets of Yuba may be taken from one pan of milk. However, from 10 to 15 is the usual amount taken. Those taken in excess of these amounts are not considered to be of very good quality."

Photos show:

Page 3597. Tokyo. These sheets of Yuba have just recently been lifted from the evaporating pan and hung up to dry. They are about 17 by 21 inches" (neg. #46786). The sheets shown from a different angle (neg. #44787).

Page 3639. Tokyo. "A nearby view of a tray of broken pieces of Yuba. Not quite so close a view as #44744 (neg. #44803).

Pages 6924-25. Notes by Mr. W.J. Morse, Tokyo, Japan. Today was set aside for studying miso. However, in the process: "At several stores we found Yuba in abundance, more so than last season. A number of different forms of miso [?] Yuba were found at one store, among which was one we had not observed before." Address: Agricultural Explorers, USDA, Washington, DC.

417. Dorsett, P.H.; Morse, W.J. 1929. Roasted soy flour in Japan (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 1058 (16 May 1929, Tokyo, Japan).

"Nearly natural size picture [photo] of a package of soybean flour [kinako] purchased at the Matsuzakaya Department Store. Beside the package is a small sample of the flour which is known in Japanese as 'Kinako' meaning yellow flour. Before being made into flour the beans are roasted which gives an excellent nutty flavor. The flour is used

extensively as a covering for rice cakes” [confections] (neg. #43663).”

Page 2669 to 2670 (16 Oct. 1929, Tokyo). “We were advised of a special soybean flour and confection made in Kumagaya [in Saitama prefecture, northeast of Tokyo]. We took time on our return to visit a factory making and selling the confection. The flour made from a special variety of soybean, ‘Gokushin,’ is roasted and is used to cover a small roll of puffed steamed rice. This product is called ‘Gokabo’ and is made in large quantities by two factories in Kumagaya. A sample of the roasted flour (D. & M. #1602) and two boxes of ‘Gokabo’ were obtained for the soybean exhibit.”

Page 3514 (11 Jan. 1930). “Soja max. Soybean flour and rice confection. Cover and box of puffed sugared glutinous rice covered with a greenish roasted soybean flour paste, short cylinders, and rolled in the roasted soybean flour. Size of box top over all $7\frac{1}{2} \times 9$ by $2\frac{1}{2}$ inches deep (neg. #44749).”

Note 1. This is the earliest document seen (Nov. 2012) which contains the term “roasted soybean flour paste,” or which states that roasted soybean flour is made into a paste.

Page 3517. “Soybean flour. These small paper packages covered with thin waxed paper, retail at about 10 sen each. These packages measured, tied 9 inches, untied $9\frac{1}{2}$ inches in length. The flour is of a dull golden yellow color (neg. #44752).”

Page 3518. “Soybean flour and rice confection. Rolls of puffed sugared glutinous rice covered with roasted soybean flour paste or dough and then rolled in roasted soybean flour. Only made in Kusagaya. The round cylindrical packages measure $7\frac{1}{2}$ inches in length. D. & M. #3094 (neg. #44753).”

Page 3691, 3702A (25 Jan. 1930, Shizuoka). “Soybean product #3741, Rice paste balls, white, sprinkled with brown roasted soybean flour. Package of sugar at left in which the balls are dipped... Native name ‘Abekawa mochi.’ Purchased at a confectionary store in Shizuoka, Japan, Jan. 24. (neg. #44848).”

Page 3702B. A package of “‘Abekawa,” commonly called ‘rice dumplings’ or soft rice paste. This is one of Shizuoka’s noted products. Purchased in Shizuoka, Japan, Jan. 24, 1930 (neg. #44849).”

Page 3732 (31 Jan. 1930, Tokyo). “Adzuki bean cakes covered with green colored soybean flour. The box measured 4 by 7 inches. D. & M. #3760 (neg. #44864).”

Page 3821 (8 Feb. 1930). “Soybean flour purchased in a store in Yokohama, Japan, Feb. 7th, 1930. The native name is ‘kinako.’ It is used in sprinkling over adzuki bean paste. The size of the bags is $3\frac{1}{2}$ inches by $5\frac{1}{4}$ inches. D. & M. #3789 (neg. #44897).”

Page 3870 (13 Feb. 1930). “Green soybean flour made from the ‘Sakochin’ variety of soybean. This variety is grown in the northern section and is used especially for making this flour. The flour is used in making soybean confections. Native name ‘Kinnaki’ [sic, kinako]. Purchased

at Kumagaya, Japan. D. & M. #3811 (neg. #44904).”

Page 3876 and 3877 (13 Feb. 1930). “Round pieces of curled, roasted soybean flour paste separated by rice paste, also oblong pieces twisted. Also soybean and soybean flour. Purchased in Omiya, Japan. Native name is ‘shigatami’ D. & M. #3817-18 (neg. #44910). Page 3877 is a different of the objects on page 3876 (neg. #44911).”

Page 3889. “Small blocks of red adzuki bean sweet paste between thin layers of sweetened roasted soybean flour paste. Purchased in Tokyo, Japan, February 13, 1930. Native name is ‘Ita mame.’ D. & M. #3824 and 3825 are the same but with different sugar designs on them (neg. #44919).”

Note 2. This is the earliest document seen (Nov. 2012) that contains the term “Sweetened roasted soybean flour.”

Page 3891. “Triangular pieces of red adzuki bean sweet paste between two layers of sweetened roasted soybean flour. Purchased at Tokyo, Japan, February 13, 1930. Native name is ‘Wakamatsu.’ They sell at 60 sen a pound. D. & M. #3831 (neg. #44920).”

Page 3891. “Small cylindrical pieces of rice dough covered with sesame seed. Within the rice dough is sweetened roasted soybean flour. The native name is ‘Tomoshirama.’ Purchased at Tokyo, Japan, February 13, 1930. They sell at 80 sen a pound. D. & M. #3832 (neg. #44921).”

Page 3892. “Small balls of sweetened roasted soybean flour paste pierced with small sticks [wooden skewers]. The balls are brown, tan and green. Purchased at Tokyo, Japan, February 13, 1930. Sell at 10 sen each. D. & M. #3847 (neg. #44922).”

Page 3893. “Soybean wafers (14 Feb. 1930). Sweet roasted soybean flour paste between thin layers of baked rice dough. Different designs burned on one side. Purchased at Tokyo, Japan, February 13, 1930. Sell at 70 sen a pound. D. & M. #3846 (neg. #44923).”

Note 3. This is the earliest document seen (Nov. 2012) that contains the term “Sweet roasted soybean flour.”

Page 3894. “Soybean wafers. Sweet roasted soybean flour paste between thin layers of baked rice dough. Different designs burned on one side. Purchased at Tokyo, Japan, February 13, 1930. Sell at 70 sen a pound. D. & M. #3843 is ‘Shikishi suwama’ (neg. #44924).”

Page 3898. “Three bamboo sheath packages, each containing a slab of sweet roasted soybean flour paste. The native name of this is ‘Suwama.’ These packages sell for 15 sen each. Purchased at Tokyo, Japan, February 13, 1930. D. & M. #3830 (neg. #44928).”

Page 3946. “Thin wafers (similar to Nabisco) with layers of sweetened roasted soybean flour between two layers of rice flour. Purchased in a confectionary store in Tokyo, Japan, February 18, 1930. Price 8 for 10 sen. Native name ‘Suwama.’ The dish of soybeans measured 3 inches across (neg. #44945).”

Page 4036. “A nearby picture of small paste confection

made of sweetened roasted green soybean flour, coated on sides with sugar frosting (white). Purchased at Tokyo, Japan, February 22, 1930. Native name "Hisago." Price two sen each (neg. #44981).

Note 4. This is the earliest document seen (Nov. 2012) that contains the term "roasted green soybean flour," or that describes "roasted soybean flour" which is green in color.

Page 4038. "Nearby picture of small confections made of sweetened roasted soybean flour (brown) between two thin layers of roasted rice flour (paste, white). Purchased at Tokyo, Japan, February 22, 1930. Native name 'Shiro zennai.' Price one sen each. Dishes measure 3 inches across (neg. #44983).

Pages 4039 and 4040. Very similar to the previous page but with a different arrangement (neg. #44984 and #44985).

Page 4041. "A nearby view of small cylindrical rolls of sweetened roasted green soybean flour, inside of which is a small core of red adzuki paste. Purchased in Tokyo, Japan, February 22, 1930. Native name 'Tamasudare.' Price 2 sen each (neg. #44986).

Page 4042. "A nearby picture of small cakes of rice flour, sugar and coarsely ground roasted soybeans. molded in forms of various masks. Purchased in Tokyo, Japan, February 22, 1930. Native name 'O-mea Rakugan.' Price 20 sen a pound. (neg. #44987).

Note 6. This is the earliest document seen (Aug. 2011) that contains the term "ground roasted soybeans" or the term "coarsely ground roasted soybeans." Thus there is a continuum in Japan from "roasted soybeans" (*irimame*) through "coarsely ground roasted soybeans" to "roasted soy flour" (*kinako*).

Page 4043 is very similar to the previous page but with a different arrangement of the items (neg. #44988). Address: Agricultural Explorers, USDA, Washington, DC.

418. Dorsett, P.H.; Morse, W.J. 1929. Soybean cultivation in Japan (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Pages 1147-1148 (22 May 1929, Tokyo). "Copied from Mr. Morse's diary:... At Ichinoseki we purchased from a lunch boy, some soybean products. This place is said to be a center of production of a large number of soybean food products. It is in the Iwate-ken prefecture which is second in soybean acreage and production in the Japanese Empire."

"This mountainous section soon gave way to a general farming region, more or less hilly, but extensively cultivated in soybeans, adzuki beans, rice, barley... The beans were planted in rows on ridges about 18 inches apart and after planting the ridges were packed by tramping as indicated by

the close foot prints the entire length of the rows."

Pages 1201-1202 (Sunday, 26 May 1929). "Copied from Mr. Morse's diary: Sapporo, Japan. In the morning we went to the Hokkaido Agricultural Experiment Station at Kotoni, where we met Dr. Takatsugu Abiko, chief of the Agronomy and Horticultural Sections. He explained to us in detail, by maps, the different sections of Hokkaido where soybeans are grown extensively. He advised that most of the soybean experimental work is carried on at the Tokachi Branch Station, one of the northern stations.

"We were shown the exhibit of various crop products grown in Hokkaido, and also the seed of new varieties of crops developed by the Kotoni station. This station is working with about 50 varieties of soybeans, and has developed two large very fine looking yellow varieties. We were also shown samples of about 275 varieties being grown at the station. Dr. Abiko informed us that we can obtain seed of all these varieties after harvest this fall.

The principal insect enemy of the soybean, and one which does much damage to the mature seed in the field is the 'Mame shinkui ga' (moth into bean), a moth *Laspeyresia (grapholitha) glycinivorella*. It is a small moth, the larva of which cut into the mature bean. In general it causes about 10% loss to the Hokkaido soybean crop. The early plantings are injured about 40% while the late plantings are only injured about 10%.

"The principal soybean diseases which cause much damage to the crops, are a leafspot, *Peronospora manshurica* and a mosaic [sic, nematode] *Heterodera schachtii*.

"The soybeans grown in Hokkaido are used entirely for food purposes such as Natto, bean curd [tofu], green vegetable bean [edamame], soy sauce, miso, bean paste and roasted beans."

Pages 1236-1237 (28 May 1929). "After breakfast we made two rounds of seed stores and small grocery stores, and succeeded in obtaining several varieties of soybeans, garden beans, and more flower seed."

"We visited Sapporo's large department store seeking food products. Tokyo's large stores to us seem to have about everything under the sun, but today's store has everything. We found some new soybean products and quite a variety of other bean products."

Page 1692. A photo shows (negative #43941): "Inspecting soybeans which are about to be plowed or dug."

Page 1759 (30 June 1929). A photo shows (neg. #44008 and #44009) "In the vicinity of Shojiko. Turning under soybeans which are 10 to 12 inches in height in preparation for planting rice, the men and horse approaching the camera."

Page 1760. A photo shows (neg. #44010) "In the vicinity of Kofu, Japan. Cutting out the ripe barley and leaving the soybeans to be plowed under. Neg. #44011. "In the vicinity of Kofu, Japan. A nearby view of a Japanese woman harvesting barley and leaving the soybeans to be turned

under in the preparation of the land for planting rice.

Page 1761 (neg. #44012). "In the vicinity of Kofu, Japan. Two Japanese women cutting barley and leaving soybeans to be plowed under in the preparation of the land for the planting of rice. Neg. #44013. "In the vicinity of Kofu, Japan. Two Japanese women planting soybeans on rice paddy ridges.

Page 1762 (neg. #44014). "In the vicinity of Kofu, Japan. A somewhat different view of the two Japanese girls planting soybeans. See picture #44013. Neg. #44015. "In the vicinity of Kofu, Japan. A farmer turning under wheat or barley straw and soybeans in preparation of the land for planting rice.

Page 1763 (neg. #44016). "In the vicinity of Kofu, Japan. A Japanese farmer hoeing in soybeans and wheat or barley straw preparatory to planting to rice in the near future.

Neg. #44017. "In the vicinity of Kofu, Japan. A Japanese farmer and helper, perhaps his wife, threshing grain with a foot power machine. See #44018.

Page 2183 (22 Aug. 1929) We "left for the Hokkaido Agricultural Experiment Station." We arrived at Kotoni, The Station is located within about 5 minutes walk of the train station. On arriving at the experiment station we met Mr. Tambo, the specialist in soybean investigations, who with the soybean expert and another man went with us over the station" which covers 108 acres. They are conducting a "very large varietal test of soybeans. The time spent thus from about 9:30 to after 2:00 p.m. was most interesting and instructive.

Page 2215 (26 Aug. 1929). "Went to the office this a.m. between 7 and 8 and attended to work there. At 10:00 a.m. we went over to the Hokkaido Imperial University to call on Dr. Ito relative to conditions at the various Hokkaido Experiment Stations and the best time for us to visit them to inspect the soybean planting to best advantage. We also submitted a list of plants in the Botanical Garden of which we would like to get seed or other plant propagating material.

Page 2417 (14 Sept. 1929). At 8:30 they "met Mr. Yutaka Tamayama, of the Hokkaido Agricultural Experiment Station, chief Director of the Kamikawa Branch Agricultural Experiment Station, and spent several hours talking with him about soybeans and other crops."

"We were much interested in the soybean work at the Station, but especially in the two non-hairy late forms growing there. Of one of these we secured a motion picture. We also got motion pictures and still picture shots showing soybeans growing on paddy ridges and of harvesting and racking rice for curing.

"We left Asahigawa at 5:39 p.m. and arrived at Sapporo at 10:27 p.m."

Page 2425 (neg. #44263). "Soybeans as they appear on the ridges of rice paddies in this region. This is a common practice of growing soybeans throughout many regions of Japan. Nagoya-mura, Japan."

Page 2433 (17 Sept. 1929). "Dorsett went to the laboratory early this morning and worked on jacketing and labeling up the pictures made on our last trip. Morse and Suyetake went to Kotoni Agricultural Experiment Station and made notes on the conditions of the soybeans. Morse saw a small threshing machine invented at the station which looks awfully good. We will try to get details of its construction later.

"We changed herbarium specimens and packed our supplies and equipment so as to get away at 8:00 tomorrow morning for a week exploration at Obihiro and vicinity. This is the largest soybean growing region in Hokkaido. If conditions justify we may get into other sections also."

Page 2441 (18 Sept. 1929). "Left Sapporo at 8:00 a.m. this morning for Obihiro, where we arrived at 3:56 p.m. We stopped at the Obihiro Shinyokan Hotel Inn, near the station."

"On descending the mountain after running through quite a long tunnel near the top of the ridge we saw some soybeans, but more adsuki beans and field beans than soya. We also saw quite a lot of buckwheat... The soybeans as well as the adsuki beans and even the rice look to us from the train window to be pretty short.

"Tomorrow we expect to visit the Tokachi Branch Agricultural Experiment Station, located at Obihiro-machi, Kosai county, Tokachi Province. Mr. Seiji Kawase is the director."

Pages 2445, 2446, 2447 (19 Sept. 1929). "Between 8 and 9 this morning we walked out to the Tokachi Branch Agricultural Experiment Station. We met Mr. Seiji Kawase, the director, and Mr. Yoshio Fujine, the soybean expert, and spent a very pleasant forenoon with them in the reception room at the laboratory.

"We were informed that in Hokkaido there are about 1,000,000 cho of land suitable for cultivation and that of this amount 130,250 acres are actually under cultivation. Of the important agricultural crops grown, legumes are rated as 60%; grain (except rice) 17%; rice (paddy) 7%, root crops 6%; miscellaneous farm crops 11%. Of the legumes, field beans stand first, soybeans second and field peas third.

"The climatic and soil conditions of the Tokachi district or region are better adapted to soybean culture than other parts of Japan.

"Here a family of four handle by hand 38 acres of soybeans and other crops.

"The soybeans of the Tokachi region and elsewhere in Hokkaido are utilized almost entirely for export" [since Japan has huge soybean imports from Manchuria].

"Soybeans are of five grades and those which fall without the fifth grade are what is known as waste grade, and are used locally for stock feed. These five grades are for commercial handling. Beans for special purposes such as for soy sauce, miso, etc., are of special grades and not necessarily of the ones noted.

"After the beans are cut they are permitted to lay on the ground for about ten days before being taken in to be threshed. Soybeans are, as a rule, flailed or beaten out. The beans are cut when fully ripe but just before the seed shatters. Harvesting usually begins about September 15th and may continue until about October 15th.

"Beans are planted in shallow furrows, 17 to 18 inches apart in the rows and covered with the feet.

"There are two cultivations during the season, the first about June 2nd, and the second about the middle of July. Hand hoeing and horse cultivation are employed, depending upon conditions.

"Acid phosphate is used (when used) at the rate of about 30 to 40 pounds per quarter of an acre once every three or four years.

"Farmers receive six yen per hundred pounds for their soybean seed.

"The beans are sold to merchants or are handled through agricultural societies and of the 1,837,325 bushels of soybeans produced in Hokkaido 58% is exported and 42% consumed at home [in Japan].

"The domestic use of the non-export beans is as follows: for Miso 9%; soy sauce 9%; seeding 6%; tofu and other products 18%." "Soybean production of Japan in 1923 amounted to 3,433,908 koku, which is equivalent to about 17,000,000 bushels.

"The following table gives the percent of this production within the noted regions: Hokkaido 17%; Miyagi 9%; Ibaragi 5%; Saitama 5%; Nagano 4%; Kumamoto 4%; Aomori 4%; Niigata 4%; Chiba 4%; Fukushima 3%; Nagasaki 3%; all others 28%.

"Soybeans are stored in bags in storage ware houses. Nine varieties are grown commercially in the Obihiro region [of Hokkaido]. These are in two colors, black and yellow. Of the black varieties, they have the Early black, Midseason black (cheese [tofu]) and Black. Of the yellow they have, Ayachi, Ishikarishiro, white; small white bean; Akazaya, red pod; Yoshioka, large; Kanro, sweet dew.

"Soybeans in Hokkaido are troubled more or less with several leaf diseases and at least one insect, the pod borer moth. Sometimes the pod moth injury amounts to 40%.

"The Experiment Station has a collection of 240 varieties on which they are working" (Continued). Address: Agricultural Explorers, USDA, Washington, DC.

419. Morse, W.J. 1929. Letter from Dr. [sic] Morse. Tokyo, Japan, July 20, 1929. *Proceedings of the American Soybean Association* 2:50-52. Tenth annual field meeting. Held 22-23 Aug. at Guelph, Ontario, Canada.

• **Summary:** This letter from W.J. Morse was read before the 1929 convention of the American Soybean Association at Guelph, Ontario, Canada. This is the first annual ASA meeting he has missed. He begins with a brief description of the "Oriental Agricultural Exploration Expedition" headed

by Mr. P.H. Dorsett and himself. They plan to study soybeans in Japan first. "The largest soybean section is the Island of Hokkaido which has an acreage of 215,212 [planted to soybeans] and produces 3,184,245 bushels of beans" [yield = 14.8 bushels/acre].

"On our arrival and after establishing headquarters in Tokyo, we first began to look up varieties which we might send back to the United States for the 1929 planting. We succeeded in packing up about 100 lots which are now growing in the variety plots at Arlington Farm [Virginia]. In hunting out this seed, we were very much surprised to find the soybeans listed with the garden beans and as garden beans. For the most part these are grown as green vegetable beans. These sorts are black, brown, greenish yellow, and yellow seeded varieties of early, medium, and late types. Some of the yellow seeded varieties are listed as most suitable for bean curd, soy sauce, miso, natto, and confectionery purposes, such as sweet bean paste, candied beans, roasted beans (like our peanuts), and sugared beans."

Note 1. Azuki beans, rather than soybeans, are usually used to make "sweet bean paste" in Japan.

"It is amazing, the extent to which the soybean is used for food in Japan. Whether or not it can be used in the United States in all of the ways used here is extremely doubtful, that is for human food." There is no doubt that American soybeans will be used mostly to produce oil and oil meal. "It may interest you to know that the beans produced in Japan are used entirely for human food, green manure, and planting purposes. The grain varieties have seed of higher quality than those produced in Manchuria and are not used for oil and oil meal production as [are] the beans of Manchuria. The great soybean oil and meal production of the Orient is confined almost entirely to Manchuria.

"Another thing which surprised us greatly was the extent to which soybeans are used for green manure purposes in the rice paddies." The plants are turned under in the mud after water has been run into the paddies.

"Another extensive use of the soybean is for bean curd, or tofu, which is manufactured only... in small shops scattered about the cities and country villages. This curd is used in many ways, being the meat of the poorer classes. It is used, however, quite generally in making bean-curd soup [miso soup with tofu] which is sometimes served at breakfast and nearly always at supper. The bean curd is peddled about from house to house by men with two tubs suspended from a bamboo pole over their shoulders. The sound of the little horn of the bean curd man as he announces his coming has become quite a familiar sound to our ears as we go along the streets or hear him pass under our office windows.

"Soy sauce is manufactured on a very large scale and is universally used by the Japanese, rich and poor. We have had the pleasure of visiting the large experimental laboratory of an experiment station given wholly to soy sauce and saké experiments. In Hokkaido we visited a soy sauce factory,

the buildings of which covered several acres. In one of the curing vat buildings where the mash is allowed to cure for about 18 months, we counted ninety large vats.

“Soybeans are used to a very considerable extent for confectionery purposes. The large black, brown, and green seeded varieties are used in making sweet bean paste which is put up in small thin slabs and then done up in very attractive packages. Roasted beans, similar to our roasted peanuts, may be found at nearly all confectionery stores. Roasted beans are also sugar coated and others are sprinkled with small pieces of sea-weed during the roasting, which gives an appearance of mottled beans (rather a familiar sight to our mid-west farmers). Then, there are the candied beans, that is, beans which have been boiled in syrup.

“Miso and natto are two forms of bean foods in which the beans are first cooked and then treated with certain bacteria [sic, microorganisms]. Miso is used largely in soups which are consumed at breakfast. Both of these foods are quite largely used.

“Other products used for food are roasted soybean flour, soybean vermicelli, pickled green beans in the pod, yuba—the film produced by boiling soybean milk, and dried frozen bean curd.”

Note 2. This is the earliest English-language document seen (April 2013) that uses the term “dried frozen bean curd” to refer to dried-frozen tofu.

Note 3. This is the earliest English-language document seen (Sept. 2021) that contains the term “roasted soybean flour.”

“Another surprising thing is the very extensive use of the soybean as a green vegetable bean. As early as May, small bundles of plants with full grown pods were seen on the market. At the present time the market is virtually flooded with bundles of plants with full grown pods, the seeds of which are also full grown. The pods are boiled in salt water and the beans eaten from the pods.

“During the past two weeks we have visited large sections near Tokyo where soybeans are grown for green vegetable purposes. The beans are grown in rows 2 feet apart and in 95 per cent of the cases there are other crops planted between the bean rows, such as early cabbage, onions, lilies (for the edible bulbs), late varieties of soybeans, late plantings of soybeans, and other early truck crops.” Address: USDA, Washington, DC.

420. Wu, Hsien. 1929. Vegetarianism. III. Nutritive value of vegetable proteins. *J. of Oriental Medicine* (S. Manchuria) 11(2):25-38. Aug. [30 ref. Eng]

• **Summary:** A good summary, including the proteins of the soy bean, adzuki bean, yellow lupin, peanut, hemp, etc. Address: Dep. of Biochemistry, Peking Union Medical College, Peiping, China.

421. Dorsett, P.H.; Morse, W.J. 1929. Soybean cultivation

in Japan (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. *Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon*. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 2621-2622 (10 Oct. 1929). On Oct. 9 they arrived in Akita City, Akita Prefecture, Japan, in northeastern Japan. “We got out to the Agricultural Experiment Station between 9 and 10 o’clock, and met the director, Mr. K. Adachi. He is an expert on soybeans as well as director of the Station [at Akita]. He spent something like 8 years in Manchuria studying the soybean there and has published a volume of 1000 pages or so on the results of his work. The title of the book is ‘Soybean: Its Cultivation and Industry,’ by K. Adachi.

“Mr. Adachi advised that we were in time for the harvesting of soybeans, but that the crop is not yet an extensive one here and that it will be necessary to go out some distance to see farmers harvesting and even then it will not be possible to see the harvesting on as extensive a scale as could be done in a region where soybean growing is more important than it is here.

“Much of the detailed information acquired today in regard to soybean varieties and soybean growing and harvesting is omitted from this report because it will be incorporated in a special soybean report which is in the course of preparation.

“Mr. Adachi is of the opinion that Japan, as in the past, will of necessity have to obtain her proteins from vegetable sources and especially the soybean, for the reason that she does not have the space to produce animals enough to produce animal protein for her population. We are wondering if this to a very large extent is not false reasoning.

“From our observations, during our limited stay and travels in northern Japan, Main Island, and in the Island of Hokkaido, there appears to be immense areas, in the hill and mountain districts, apparently not well or not at all adapted to the cultivation of farm products, but from appearances most admirably suited to animal husbandry.

“We are also wondering if a mixed vegetable and animal protein diet might not be most advantageous to the Japanese nation.”

“Mr. Shimade gave us considerable detailed information concerning their trials with soybeans as a green manure in orchard plantings. This information in considerable detail will be incorporated in the special soybean report” [which, so far as we can determine, was never completed].

Page 2629 (11 Oct. 1929). In “Mr. Adachi’s room, after the accustomed bowing and greeting, we preceded to get the information on soybeans for which the interview was granted.” Previously soybeans were planted after the planting of rice, which normally was the second week in June. This date, however, “proved to be too late as the beans require a

longer season for maturing... Largely through the efforts of this experiment station, the farmers growing soybeans have been prevailed upon to plant their beans before they do their rice.

"By planting the first or second week in May the growing season has been sufficiently lengthened to enable the beans to fully mature before frost, which frequently was not the case when the planting of the beans was delayed until after the rice was planted.

"When the old method of planting was in vogue, the yield of beans was from 2½ to 3 bushels to the quarter of an acre. Under the new practice of planting before the rice is planted, the increase in the crop frequently amounts to as much as 30%.

"Planting: Formerly beans were planted thickly in rows about 25 inches apart. The rows now are about the same distance but the beans are dropped so as to stand 4 or 5 inches apart in the row. As a usual practice the rows are opened with a hoe, the beans dropped by hand and covered with a hoe to depth of about one inch.

"Cultivating and weeding: The first cultivation and weeding is when the beans are from two to three inches in height. The second weeding and hoeing is when the plants are 6 to 8 inches in height. The third and final weeding and hoeing is in late June to the first of July. All the weeding and cultivation are by hand.

"Fertilizing: Cow and horse manure are the only fertilizers used in this region in connection with the planting of soybeans. This is used at the rate of 40 to 50 kan (1 kan = 8.27 lbs.) per quarter of an acre. The manure is spread in the rows by hand before the beans are dropped and covered.

"Condition of the beans at time of harvest: In this region, the beans are fully ripe when harvested. The time for harvesting may be determined by the [?]anking of the plants. If the beans rattle in the pod when the plants are shaken, they are in condition to harvest. In the Akita district, soybeans are pulled and laid in small piles on the ground where they are allowed to remain for two or three days depending on the condition of the weather.

"When sufficiently dried, the pile of beans are taken in and stored in a building or under temporary cover, where they remain until after the rice is harvested, threshed, and cleaned. The beans are then threshed. The practice followed in threshing soybeans in the Akita district is primarily that of flailing or beating them out. The farmers do not use rollers in connection with threshing their beans. All litter from the threshing of soybeans, except the pods, which are fed to stock, is burned.

"Diseases and insect pests: Thus far, there is little or no injury resulting to soybeans in the Akita district either by insect pests or fungus diseases.

Storage (p. 2631-2632): Soybeans, in the Akita district, are stored in rice straw bags the same as are used for rice. The weight of a bag of beans is 17 kan [140.6 lb], about 2

to 2½ bushels. Farmers sell their beans direct to merchants and receive for them about Yen 17.00 to 18.00 for 5 bushel. This price, however, depends on the quality, season, and the prevailing price of rice.

Page 2669 (16 Oct. 1929). "This morning Mr. Morse and Mr. Suyetake went to the soybean district outside of Tokyo to get a line on conditions. Dorsett worked at the laboratory with plant material, herbarium specimen and in writing legends and numbering the still pictures made while in Hokkaido, Japan.

"Copied from Mr. Morse's diary: At the Saitama Prefecture Experiment Station located at Urawa, it was found that the soybeans had been harvested. About forth [?] varieties or middle season types are grown at this station and Mr. Hasegawa, in charge of soybean and sweet potato investigations, promised us seed of these varieties.

"It was thought that possibly we might obtain soybean harvesting and threshing scenes in the vicinity of the Tamai Branch Experiment Station which is a breeding station. We went by train to Kumagaya and then by bus to Tamai; along the way no soybeans were noted. In August during a trip numerous fields of soybeans were noted." They were told by Mr. Morihara Nomura that all the soybeans had been harvested. "The farmers in this region get the soybeans out of the way before rice harvest. This is quite different from Akita region" where the soybeans are harvest after the rice. "Mr. Nomura is quite an expert on soybeans and adzuki beans." Address: Agricultural Explorers, USDA, Washington, DC.

422. Dorsett, P.H.; Morse, W.J. 1929. Soybeans in Chosen (Korea) (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 2732 (22 Oct. 1929) "... at 8:50 [a.m., Oct. 23] we pulled into the station of Keijo (Seoul) Chosen [Korea; from Shimonoseki, Japan, via Pusan]. We went direct to the Chosen Hotel which will be our headquarters for the time we are working in Chosen." "We spent the afternoon at the Chosen Expedition where we saw many interesting products, among them quite a number of soybeans..."

Page 2773 (25 Oct. 1929). "We left Keijo [Seoul] at 7:30 this morning with Professor Dr. N.I. Vavilov, Member of the Academy of Sciences, Director of the Institute of Applied Botany, Leningrad, Herzen Street, 44, Russia, whom we met by chance at the hotel last night, to visit the Agricultural Experiment Station, Government-General of Chosen."

"The experimental work of the station embraces breeding, selection and cultivation of rice, soybeans and other legumes,..." "They have a collection of about 625 samples of soybeans and are actually growing something like 200. Of these we hope to get samples for trial at home."

Page 2774. “We saw two varieties of fasciated soybeans which were developed at the Station which is [sic, are] very interesting, see Neg. #44443, 44444, and 44445. The stem is broad and flattened and the pods are borne in a cluster at the top of the broad flat stem. However, we understand that it is the intention of the Experiment Station to distribute this variety as a green vegetable bean.”

Page 2775. Negative #44436 shows a “View (but a poor one) of... the Suigen Agricultural Experiment Station.

Page 2779. Neg. #44443. View of a variety of soybeans with fasciated stems. The beans are borne in clusters. Suigen Experimental Station, Suigen [today’s Suwôn, South Korea], Chosen.

Neg. #44444. A nearby view of fasciated stems of soybeans; the pods are in clusters near the top. Suigen...”

Page 2787 (30 Oct. 1929). Left Keijo [Seoul] at 8:30 this morning for the soybean section at and in the vicinity of Chotan, where we arrived at 9:45 a.m.” “In a number of instances the land from which soybeans was harvested is in winter barley or wheat, and in numerous instances the wheat is up and making a good showing.

“As soon as we arrived at Chotan we called at the office of the Village Cooperative Society. The Director or manager sent a man with us to show us the soybean area and to assist us in any possible way.”

Page 2780 (Neg. #44445). An excellent, clear photo. “Prof. Dr. N.I. Vavilov holding two stems of the variety of fasciated soybeans. This shows well the fasciation and the clustering of the pods. Suigen Agricultural Experiment Station, Suigen, Chosen.

Page 2788. “We saw soybeans in sacks, two bushels to the sack, weight about 126 pounds. The rice straw bags cost this farmer 25 to 33 sen each, depending upon the quality and grade.

“We secured quite a number of samples of soybeans, got a lot of information concerning soybeans and also quite a number of still and motion pictures.

Ginseng: There are two commercial kinds, red and white. The ‘red’ ginseng, which we understand brings the highest price, is different from the white only in processing, which gives it its red color. The ginseng raised in the vicinity of Heijo [Pyongyang], the former capital, for 470 years, is considered the best ginseng in the world. It is recorded that the medicinal ginseng is obtained from the roots of plants six years old.

“The principal demand for ginseng is from China, especially South China.”

Page 2789. Having missed a train and with a long wait for the next: “We secured quite a number samples of soybeans, and a number of still and motion pictures.”

Page 2792. Neg. #44452. “Sacks of soybeans piled in a rick at the Chotan Railway Station. A motion picture was made of this.

Page 2792. Neg. #44455. “A view showing Korean

farmers flailing out soybeans. Chotan, Korea.

Page 2792. Neg. #44456. “A close-up view of threshed ‘Chotan’ soybeans. The straw and litter was pushed aside to show the beans below, Chotan, Chosen.”

Page 2793. Neg. #44458. “View at one of the soybean inspection stations at Koryoho, Chosen.”

Neg. #44459. “Showing the taking of samples and inspection of soybeans at Koryoho, Chosen.”

Page 2794. Neg. #44460. “A nearby view of sacks of soybeans on the river bank. Taken to show the rice straw sack and how the sacks are tied with rice straw rope. Koryoho, Chosen.”

Page 2795. Neg. #44462. “Sacks of soybeans piled along the side of the road to be transported to the railway station, Koryoho, Chosen.

Neg. #44463. “Raking soybean straw and litter from the recently flailed soybeans. Near Chotan, Chosen.”

Page 2799. Neg. #44470. “Mr. W.J. Morse and Mr. N. Suyetake and a group of Korean farmers taking soybeans. Near Koryoho, Chosen.”

Page 2803 (31 Oct. 1929). “At 10:00 a.m. we visited the three Keijo markets: Nandaimon, Central, and Todaimon, where we rounded up the following seed: 28 numbers of soybeans, three of adzuki beans, 2 of cow peas, 2 of mung beans, 2 of rice, 2 of beans and 3 of barley.

“We also visited a mung bean vermicelli factory and saw them making bean vermicelli. The beans are soaked for about 12 hours then ground in dripping water. From the ground product the hulls and foreign matter is floated out and the resultant product is then put into a cloth and pressed into a more or less square form. When needed it is melted in hot water and after mixing, depending upon condition, in the following proportions: 3 parts bean paste to 2 parts of kaoliang flour, it is worked into a dough, then put through a perforated strainer or former into boiling water, from this it is transferred to cold water and then hung up in a sheltered place and later out in the air to dry.

Page 2807. Forecast of crops for 1929. “From American Consul General Ransford S. Miller. Seoul, Chosen. Date of completion: Sept. 17, 1929. Source of information: Official Gazette of the Government General of Chosen, Sept. 16, 1929.”

“2. Forecast:... ‘Soya beans were forecasted at 4,077,028 koku (20,874,383 bushels) from 800,602.6 cho (1,962,037 acres) of land under cultivation, the former showing an increase of seven percent or 266,367 koku (1,363,901 bushels) but the latter decreased by 20.7 cho (51 acres), as compared with the previous year.”

Page 2808. I. Comparison by years. (1 cho = 2.4507 acres. 1 koku = 5.12 U.S. bushels).

Soya beans: Area of land (cho); amounts of production (koku).

1924–690,858.7 cho; 3,657,623 koku

1925–803,495.1 cho; 4,612,033 koku

1926–791,636.9 cho; 4,351,527 koku

1927–793,628.8 cho; 4,747,062 koku

1928–800,623.3 cho; 3,010,641 koku

1929–800,602.6 cho; 4,077,028 koku

Page 2809. A large table shows land area under cultivation for soya beans by province, for 1928 and 1929, for the following provinces: Keiki, North Chusei, South Chusei, North Zenra, South Zenra, North Keisho, South Keisho, Kokai, South Heian, South Heian, Kogen [Kegen?], South Kankyo, North Kankyo.

Page 2810. A large table shows soya bean production by province, for 1928 and 1929, for the same provinces shown above.

Page 2849 (1 Nov. 1929). “In the forenoon we visited the Capitol... [then we visited] the Prefecture Seed and Plant Nursery of Keijo... Here we met Mr. S. Yamaguchi, Director of the Institution. He explains that this organization tests for, and supplies tested seed... to farmers throughout the prefecture. This organization, we understood, is really under the direction of the agricultural experiment station at Suigen... The Director showed us the two standard soybeans recommended by the Station, and the ones most generally grown by the farmers.

Page 2850. They are known as ‘White eye,’ best adapted for good ground in valley conditions, and the ‘Black eye’ most suitable for poor valley and upland soils. The former is the best yielder and most desired by the market, but on account of prevailing land conditions throughout the region, the ‘Black eye’ variety is most generally grown.

“Nematodes are present in a good many sections and this is frequently the cause of more or less small yields of grain. The average yield of soybeans is given at 8 bushels per acre, which is really quite low. Soybeans in the district are planted from about the middle of April to the last of May, and usually harvested in October.

“Soybeans are usually, in this region, planted by making a hole in the ground with the heel, dropping two or three beans in it and covering the seed with the foot. Sometimes soybeans, one or two rows about a foot apart, are planted between barley which normally is planted in rows three feet apart.” “Green manure is seldom used by local farmers.”

Page 2853. Neg. #44477. “A fairly close-up view of a hand stone mill, used for grinding beans and other small grain. Keijo, Chosen.” Address: Agricultural Explorers, USDA, Washington, DC.

423. Dorsett, P.H.; Morse, W.J. 1929. Soybeans in Chosen (Korea) (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 2864 (1 Nov. 1929). “Left Keijo [Seoul] at

7:30 a.m. for Suigen [today’s Suwôn, south of Seoul] where we arrived at 8:45 a.m. We went direct to the Agricultural Experiment Station from the railway station... We also secured two still pictures of fasciated soybeans.

Negative #44484. “A nearby view of fasciated soybean stems which are being grown at the Agricultural Experiment Station at Suigen.”

Page 2866. Neg. #44485. Another nearby view of fasciated soybean stems...”

Page 2869 (4 Nov. 1929). “We left Keijo at 7:30 a.m. and arrived in Suigen at 7:45. [We visited] a farmers street market. We thought we would likely find a good collection of locally grown soybeans...” But they found nothing of interest. They then arrived at Jinsen [today’s Incheon, west of Seoul] at 12:25. “Jinsen is a domestic and foreign shipping port for soybeans and other farm products as well as commercial products.”

Page 2873. Neg. #44489. “Ricking sacks of soybeans near the wharf at Jinsen, Chosen. These are being unloaded from a car.”

Page 2874. Neg. #44490. “Loading a cart with sacks of soybeans. Jinsen, Chosen.”

Neg. #44491. “Loading sacks of soybeans onto a boat. Jinsen, Chosen.”

Page 2875. Neg. #44492. “Loading sacks of soybeans on a boat by man-power, See #44491. Taken at Jinsen, Chosen.

Neg. #44493. “A good-sized rick of soybeans [in sacks] on the wharf at Jinsen. The sacks and tying are of rice straw. Jinsen, Chosen.”

Page 2891 (7 Nov. 1929). “Left at 8:50 this morning for Rensen [today’s Yeoncheon railway station, north of Seoul, in far northern South Korea] which is some 2 hour ride by train... The region is an extensive soybean growing section and we visited it to get pictures and samples of the several varieties said to be grown here... We also secured quite a nice collection of samples. We walked the distance from Rensen to Zenkoku, the next station en route to Keijo, a distance of some five miles or so, and in addition to getting some additional of soybeans we secured seed of several interesting native plants from the wild...”

Page 2892. “The more we see of Chosen the more convinced we become that it is an interesting country for plant exploration work.”

Page 2893. Neg. #44503. “A native tying a sack of soybeans with rice straw rope. It looks easy! Try it! Rensen, Chosen.”

Neg. #44504. “Another view of the same man shown in the above picture further advanced with the tying of the sack of soybeans.”

Page 2821. Neg. #44505. “Another view of the same man at another stage of the soybean sack tying. Rensen, Chosen.”

Neg. #44506. “The same man at still another stage of the tying of sacks of soybeans. Rensen, Chosen.”

Page 2895. Neg. #44507. "The same man in the last stage of the tying of sacks of soybeans. Rensen, Chosen."

Neg. #44508. "At the left, from left to right, Mr. Suyetake and Mr. Morse discussing the sampling and inspection of soybeans. Rensen, Chosen."

Page 2896. Neg. #44509. "A fairly nearby view of the inspector attaching his inspection certificate to bags of soybeans which have been inspected. Rensen, Chosen."

Neg. #44510. "Loading an ox cart with bags of soybeans. Rensen, Chosen."

Page 2897. Neg. #44511. "Lashing the bags of soybeans onto the cart. Rensen, Chosen."

Neg. #44512. "Sampling and inspecting bags of soybeans. Rensen, Chosen."

Page 2899. "An oxen [ox] eating a feed of chopped kaoliang and soaked or boiled soybeans [from a wooden bucket], Rensen, Chosen."

Page 2900. Neg. #44517. "W.J. Morse examining soybeans in bundles in a farmer's yard. Rensen, Chosen."

Page 2905 (8 Nov. 1929). "Today we met with a serious disappointment. As previously noted, we arranged, or thought that we had arranged, to secure samples of soybeans, mung beans, adzuki beans, millet, sorghum and buckwheat from the extensive display which we found at the Exposition when we first arrived in Keijo.

"This morning we sent Mr. N. Suyetake (our interpreter) to learn how things were progressing and if we could be of any assistance in getting and bagging the material. He returned about 2:00 p.m. with 8 samples of seed, two each of soybeans, mung beans, adzuki beans and two kinds of garden beans." He was told there had been a misunderstanding.

Page 2918 (9 Nov. 1929). "We saw a good many small green planted soybeans alone and with corn and millet which was being harvested by cutting, or is yet to be harvested."

"Morse advised this morning that last night he met Mr. Oda, Secretary to the Governor-General, who inquired how we were getting along. (He had special reference to our getting grain samples from the collection at the Exposition which we had requested). Morse replied that we were not getting along at all, for we only got two samples of soybeans. Mr. Oda expressed surprise and arranged with Mr. Morse and Mr. Suyetake to call at his office about 10:30 this morning and he would go with them to see one of the principal officials about the matter of taking up with the 13 prefectorates the problem of getting samples for us."

Page 2919. "They attended to that this morning and reported that Mr. Oda had started things moving to get a collection of local as well as commercial varieties of soybeans, also samples of mung beans, adzuki beans, wheat, barley and buckwheat. We will supply the small bags to be sent to the proper authority in each prefectorate."

Page 2934. Neg. #44530. "Large bales of soybeans in a farmer's yard near the village of Koka, Koka Island [today's Ganghwa Island], Chosen.

Page 2935. Neg. #44533. "Picking a few soybeans from large bundles at a farm house. Koka Island, Chosen."

Page 2936. Neg. #44534. "Korean farmers standing in front of large bundles of soybeans. This is the only region where we have seen such large bundles. Koka Island, Chosen."

Page 2945. (12 Nov. 1929). Mr. Morse and Mr. Suyetake "also delivered the bags to Mr. H. Yamamoto who is getting for us a collection of soybeans and other seed from each of the 13 prefectorates of Chosen."

Page 2951. We "pulled into Shariin [today's Sariwôn / Sariwon, south of P'yongyang, North Korea], our destination." "When the wheat [planted in furrows] is harvested, the area is ridged and planted to soybeans, which are harvested in the fall." "They are testing about 300 varieties of soybeans at the Station and we have been promised samples of these."

Page 2955. "Tomorrow the Doctor is going to show us the use of a two-oxen Korean plow and will also stage for us to photograph, a soybean planting scene characteristic of the growing practices in this region."

Page 2956. Neg. #44546. "A Korean farmer and his wife flailing out soybeans. Shariin, Chosen.

Page 2957. Neg. #44547. "Soja max. Soybean hay. Shariin, Chosen. Korean farmers' wives bundling soybean straw after the beans have been flailed out."

Neg. #44548. "Soja max. Soybeans in the straw. Shariin, Chosen. A good-sized pile of soybeans, unthreshed."

Page 9258. Neg. #44549. Soja max. Soybean. Shariin, Chosen. "A Korean farmer's wife raking bean straw from the flailed out beans."

Neg. #44550. Soja max. Soybean. Shariin, Chosen. "Korean farmers at work cleaning soybeans which have been flailed out."

Page 2959. Neg. #44551. Soja max. Soybean. Shariin, Chosen. "Winnowing soybeans by means of a piece of matting."

Neg. #44552. Soja max. Soybean. Shariin, Chosen. "Balls of soybeans [*meju*] each prepared to grow the culture and make miso."

Page 2965 (14 Nov. 1929). "We called at the Experiment Station this morning and found Dr. Takahashi ready to demonstrate for us the common Korean practice of planting soybeans in this section, so that we could try to get still and motion pictures of the several practices.

"The first method he showed us was the planting in 4-foot hills on ridges among other crops. Opening the hill with a short handled hoe and dropping the beans (three or four) in a hill and covering with the hand hoe.

"Planting thickly, 6 inches to 8 inches apart in the row for grain or other purposes. Opening the hole with the heel, dropping the beans and covering with the feet.

"The Doctor also demonstrated for us the Korean double and single oxen plow in preparing land for seeding. From

what we could see in a trial of this kind, the Korean plow does excellent work and perhaps for the Korean method of farming is superior to the Western plow.”

“In the afternoon we visited a nearby village and tried photographing scenes and operations in the making of soybean mash balls [*meju*] for the home manufacture of miso and soy sauce.

Page 2966. Neg. #44558. “Planting soybeans on the side of ridges by means of a small short handled hoe. Shariin Agricultural Experiment Station. Shariin, Chosen.”

Neg. #44559. “Another and a little closer view of women planting soybeans on the side of ridges with a short handled hoe. Shariin Agricultural Experiment Station. Shariin, Chosen.”

Page 2967. Neg. #44560. “Planting soybeans by means of making a depression with the heel, dropping in the beans and covering them with the foot. Shariin Agricultural Experiment Station. Shariin, Chosen.” Address: Agricultural Explorers, USDA, Washington, DC.

424. Morse, W.J. 1929. Re: Impressions of Korea. Agricultural exhibition. Suigen experiment station and Dr. Nagai. Letter to R.A. Oakley, Office of Forage Crops, USDA, Washington, DC, Nov. 3. 3 p. Typed, with signature on USDA letterhead.

• **Summary:** “Just a few words to let you know that I am still in the land of this living but this is sure a strenuous life.” Morse arrived in Keijo (Seoul), Chosen, the morning of Oct. 23. “The conditions in Korea, or Chosen, as they now call it, are quite different from those we have observed in other parts of Japan. This is surely one poor country, not only from the point of view of soils but also the people... at first it was very interesting to us to see the men in their funny ‘happy Hooligan’ hats and both the men and women dressed all in white.

“The Korean Agricultural Exhibition was still on when we reached here so we spent two days studying the agricultural products of the different prefectures of Chosen as well as some of the products from other parts of Japan... We also found a very large exhibit of soybean varieties from all over Chosen. It was the largest and nicest collection that I have ever seen. There were between four and five hundred samples and as many more of adsuki beans, mung beans, sorghums and millets.” Through the American Consul—“We went to see the Japanese in charge of the agriculture exhibits and we were promised the seed desired. Mighty busy times ahead for several folks.

“We have been down to see the Suigen experiment station which is about an hour’s run on the train from Keijo. This is the main station of Korea and surely is a fine one. We found that they are doing a very large amount of work with soybeans and have in the past few years tested out about one thousand varieties.”

“We do not know just how long we will be in the

‘Hermit Kingdom’ but it is getting rather cold...”

“We are stopping at the Chosen Hotel which is a government railway place. When coming in the lobby the other night a man rushed up to me and called me by name. It was Dr. [Nikolai] Vavilov, Director of Applied Botany, Leningrad, Russia and whom I had met two or three times in Washington. He was touring Japan and had spent time in China and Turkestan... We went out to the Suigen [agricultural experiment] station with him and had quite a visit.”

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-29. Box 93—Morse-Napier. Folder—Morse, W.J.-#4 F.C.I.

Sent to Soyfoods Center by Jacob Jones of Purdue Univ., Aug. 1998. Address: Keijo (Seoul), Chosen / Korea.

425. Dorsett, P.H.; Morse, W.J. 1929. Whole dry soybeans used as beans in Korea (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 2899 (7 Nov. 1929, Chosen [Korea]). “An oxen [ox] eating a feed of chopped kaoliang and soaked or boiled soybeans [from a wooden bucket], Rensen, Chosen.” Note: Korea is, at this time, a Japanese colony, which the Japanese call “Chosen.”

Page 2982 (15 Nov. 1929, Kokaikoshu, Korea). “A nearby view of a Korean farm animal [ox] eating a feed of boiled soybeans and chopped kaoliang stems. This is a common feed in this region” (Negative #44578).

Page 2983. “A nearby view looking into the nose bag shown in #44578 (Neg. #44579).

Page 5658 (30 Aug. 1930, Heijo, Chosen). “After lunch we visited a grain market section of the city... We obtained nine samples among which were the largest yellow and green seeded varieties [of soybeans] we have come across. These varieties are said to be used by the Koreans in making their own miso and soy sauce.”

Page 5766 (6 Sept. 1930, Heijo, Chosen). “Heijo is noted for its fine beef cattle and in the prefecture there are about 10 cattle to every 30 farmers, The principal feed of the cattle is soybeans with chopped millet straw in the winter months and soybeans with grass or hay in the other months. In the late summer and early fall, soybean plants in the green stage are often fed. The Agricultural Society is encouraging the use of silos and in some parts of the prefecture, the use of silage is increasing.”

Page 5836 (12 Sept. 1930, Jidori, Chosen). “We learned that the Koreans feed their hogs soybean seed, each hog receiving about 1/10 of a *to* (1 *to* = 3.9703 gallons) per day.

In the summer the beans are soaked in cold water while in winter the beans are boiled. In addition to the beans, other ground grains are added such as wheat, adzuki [azuki] beans and in fact all sorts of grain. The mash from soy sauce factories and hochu (kaoliang liquor) are also used.” Address: Agricultural Explorers, USDA, Washington, DC.

426. Morse, W.J. 1929. Re: Collection of soybean products. Dr. Burlison. Korea. Soybean variety collections. Letter to Dr. E.A. Hollowell, Office of Forage Crops, USDA, Washington, DC, Nov. 21. 2 p. Typed, with signature on USDA letterhead.

• **Summary:** “Dear Holly: I have your letter of October 23 with reference to your visit to the Middle West and the discussion with Dr. Burlison concerning soybean products. I note that you say we are willing to loan him the products which we have at the office. Holly, I have had quite a bit of experience in the loaning of products and also enlarged pictures for special exhibits and I must say that most of such experiences have not been very pleasing, in spite of the many promises made. Many of the products and even the pictures were never returned, and more were broken or spoiled through lack of proper care. I have taken quite a little trouble to collect the various products we have on hand and it would be extremely difficult to duplicate many of them. Therefore, I think it the best plan not to loan out our products, for I have in mind to have in our office one of, if not the best, collection of soybean products in the world...”

“With regard to the products that I have sent in so far from the Oriental trip, I have written Oakley that he have Mrs. Donovan [Verna; Morse’s secretary] and Miss Cruickshanks place them in the case in their room as the products are received. I am sending them in tins as much as I am able to or in other sealed boxes. I have asked that they be set aside thus so that they will not be opened until my return. After my return I want to have uniform containers to place the various products in and properly labeled... I wish, therefore, that you would also keep a kindly eye on these various products coming in from time to time to see that they are taken care of as I wish until my return. when I can fix them up for a permanent exhibit. I am sending duplicates of all, for if I sent only one there would be sure [sic] something happen to it. I wish the duplicates taken care of the same as the other.”

“If Dr. Burlison, we can send him numerous products from Japan for Tokio seems to be quite a center for the manufacture of soybean products.”

“We are finding Korea one big soybean country and we are getting so loaded up with the native varieties that I do not know ‘where I am at.’ The station at Suigen will already have for us on the 25th inst. samples of one thousand numbers. The station at Shariin is going to send us more than two hundred numbers. Various stations in Japan are sending in their best varieties this winter so I do not know where this

variety business will end.”

“In Korea one sees very few horses, for bulls are used almost entirely as beasts of burden. My point is that boiled soybeans are used as feed for these animals. The boiled beans are mixed with chopped rice or millet straw or sometimes kaoliang stalks. In fact the whole mixture is boiled. In Japan soybeans are rarely used for cattle feed. In the northern prefecture [sic] the boiled beans are quite extensively used for horse feed, especially the stallions. I do not know how many note books I have full of soy notes and only hope that I can find time to get them in ship-shape. We also have a great collection of movie film and still pictures from the planting to harvesting, threshing, marketing, and shipping, and also on to the manufacture of many products.”

Location: National Archives, College Park, Maryland. Record group 54—Bureau of Plant Industry, Soils and Agricultural Engineering. Subgroup—Div. of Forage Crops and Diseases. Series—General Correspondence, 1905-29. Box 93—Morse-Napier. Folder—Morse, W.J.-#4 F.C.I.

Sent to Soyfoods Center by Jacob Jones of Purdue Univ., Aug. 1998. Address: Agricultural Explorer, Keijo (Seoul), Chosen / Korea; c/o American Consulate, Tokio, Japan.

427. Mitchell, Harold Hanson; Hamilton, Tom Sherman. 1929. The biochemistry of the amino acids. New York, NY: The Chemical Catalog Company, Inc. 619 p. Illust. 24 cm. Series: American Chemical Society monograph no. 48. [6 soy ref]

• **Summary:** In this work, the concept of the biological value of proteins is first developed to take into account the qualitative differences existing among proteins, since it measures the amount of absorbed nitrogen actually utilized by the body.

Table 9 (p. 182) gives the content of various amino acids (as percentage of total nitrogen) in the protein of beans, nuts, and oil-bearing seeds. References are given for each value. For the first soy sample, the character of the protein is a Glycinin and the nitrogen content of the beans is 16.94%. The known amino acids (with the percentage of total nitrogen in the form of each) are Arginine 15.3. Histidine 2.4, Lysine 10.3. Tryptophane 1.3, and Cystine 0.8. Three other samples are also given where the character of the protein is: (2) Soluble in dilute alkali. (3) Soybean casein. (4) Frozen soybean casein.

Other beans in the table are: Adzuki, lima, navy, Georgia velvet bean, Chinese velvet bean, and mung bean.

Table 12, titled “The determination of the basic amino acids (arginine, histidine, lysine, cystine) of certain and food materials according to the method of an Slyke” (p. 190). Soybean, cow pea, jack bean, peanut, and hemp seed are included.

In Chapter 10, “Nutritive value of proteins and the protein value of foods in nutrition” (p. 503+) soy-related

subjects are mentioned on pages 520 (soybean curd), 525 (nitrogen balance studies), 527-29 (experiments on the nutritive value of protein for growth), 535 (nitrogen balance studies to determine biological value), 552 (supplementary relations with corn, or supplementation), 554 (for lactation). Most of these experiments have been described previously in this database. Address: Div. of Animal Nutrition, Univ. of Illinois, Urbana.

428. *Economist* (London). 1930. Japan.—Gold standard—Prices—Foreign trade—Money. 110(4,506):23-24. Jan. 4.

• **Summary:** “From our correspondent. Tokyo, December 10.” Japan is preparing to return to the gold standard. Wholesale prices continued to move downward last month. But Japanese prices are still about 20% higher than British or American prices. “The higher Japanese price level is accounted for largely by such ‘sheltered’ goods as red beans [azuki], miso, dried bonito, Japanese paper, matings and tobacco (Government monopoly), prices of which, in most cases, are kept high for special reasons” (p. 24, col. 1).

429. Dorsett, P.H.; Morse, W.J. 1930. Tofu in Tokyo, Japan (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 3469 (8 Jan. 1930). Tokyo, Japan. “Worked at the office until about 10 or 10:30 then took our camera and went out to get pictures and information about Tofu, soybean curd.

“We visited a place not more than half a dozen blocks from the Sankaido Building and got a nice lot of information about making tofu. Also secured a few pretty good pictures.

An elderly Japanese lady fried (or seared as we would say) the cakes about 3 by 9 by $\frac{1}{2}$ to $\frac{1}{4}$ of an inch in thickness, over a charcoal fire [to make grilled tofu or *yakidofu*] on the street or side walk in front of their house.

“Detailed information about the making of this tofu will be found in the special report on soybeans and soybean products, which will be a special report added at the end of our exploration work.

“We saw for the first time fried Tofu which had had chopped carrots added to it [ganmodoki]. We had not prior to this known of vegetables of any kind being added to or mixed with the bean curd or Tofu before frying.

Pages 3470 to 3471. Photos show: (1) “Soja max. Tofu, bean curd. Tokyo, Japan. A nearby view of an elderly Japanese lady frying Tofu on the street. Children and Mr. W.J. Morse are looking on.” (2) An elderly Japanese lady frying or searing Tofu. To the right, children are watching the operation, and so are Mr. Morse and Suyetake, in the background. (3) “A fairly nearby view of an old Japanese

lady fanning a charcoal fire over which she is frying or searing tofu.” (4) “Cakes of soybean curd piled upon bamboo strip supporters [arranged on bamboo mats] and weighted to express the surplus moisture before frying. A metal two prong piece [skewer] is run through each to handle them with” (negatives #44714 to #44717).

Pages 3472 to 3473. Tofu in Tokyo. Photos show: (1) “A fairly nearby of an old Japanese lady turning the cakes of Tofu she is frying [sic, grilling] over a charcoal fire.” Note 1. The rectangular charcoal brazier appears to be about 14 inches long, 8 inches wide, and 8 inches deep. This is the same old Japanese lady described on pages 3470-3471. (2-3) “An old Japanese lady fanning a charcoal fire and frying [grilling] Tofu on the street, not far from the Sankaido Building.

(4) A nearby view of five large cakes of skewered tofu being grilled on a brazier over a charcoal fire. (Negs. #44718 to #44721).

Page 3476. “Oblong piece of fresh soybean curd which had been toasted over a charcoal fire... This is used in soups and also cooked with vegetable mixtures. Purchased from a bean curd factory, Tokyo, Jan. 8. The piece is $7\frac{1}{2}$ inches long and $2\frac{1}{2}$ inches wide” (Neg. #44736).

Page 3477. “*Phaseolus angularis*. Adsuki bean. Packages of adsuki bean flour purchased in a store, Tokyo, December 24, 1929. This is a sweet flour used in making sweet bean soup. Package 3 $1\frac{1}{8}$ inches long; $1\frac{1}{2}$ inches wide. D. & M. #3100 (Neg. #44737).

Page 3478. Soybean. This soybean product is sold in tubs from Tokyo small stores, and is known as ‘Gomoku Mame.’ It consists of a mixture of five cooked products, namely: soybeans, lotus root, fish sausage, seaweed and burdock roots.” Purchased at a small grocery stand in Tokyo, Jan. 6. “It is eaten just as it is. Product is on bamboo leaf which measures 8 inches long and 5 inches wide” (Neg. #44738).

Page 3481 (8 Jan. 1930). “Fried soybean curd cakes. The round cake (D. & M. #3096) is known as ‘Ganmodoki,’ and is fresh bean curd mixed with chopped carrots. The cakes are fried in mustard [rapeseed] oil until brown and sell for three sen each. Each cake is $4\frac{1}{2}$ inches in diameter and $\frac{3}{8}$ inch thick. The oblong cake (D. & M. #3097) is known as ‘Aburage.’ It is a fresh bean curd mixed with chopped carrots and fried in mustard oil until brown. The cake is $8\frac{1}{2}$ inches long, 3 inches wide, and $\frac{3}{8}$ of an inch thick. Sell for three sen. These forms of fried bean curd are eaten when dipped in soy sauce and also in soups” (Neg. #44741).

Note 2. This is the earliest English-language document seen (April 2013) that contains the term “Fried soybean curd” or the term “Fried soybean curd cakes.”

Page 3532 (11 Jan. 1930). “A soybean preparation used as a health drink, ‘Almen: The Health Food Drink.’” Sold in a can whose front and back are shown. “Manufactured from soybeans by the Nippon Almen Shokuryo Co., Ltd.,

near Kobe, Japan. This form of flour is also used in making confections. Packages of 3 1/8 inches high and 2 1/8 inches wide" (Neg. #44758). Note 3. Soy flour is apparently used to make the canned health drink.

Page 3533. "Dried and frozen bean curd. The fresh bean curd is cut into small blocks, frozen and then dried. Used commonly in soups. Packages 2 5/8 inches high and 2 1/8 inches across" (Neg. #44759).

Note 4. This is the earliest English-language document seen (April 1913) that uses the term "Dried and frozen bean curd" to refer to dried-frozen tofu.

Page 3534. Photo of a package of cooked and sugared adzuki beans, 7 1/2 inches long and 3 3/4 inches wide (Neg. #44760).

Page 3535. "Candied soybeans and other products. Sticks of candy in which are imbedded black soybeans (green germ), yellow soybeans, peanuts, peas and sorghum seed. Box 8 1/2 inches long and 6 7/8 inches wide" (Neg. #44761).

Page 3537 (13 Jan. 1930). "Got down to the office pretty early and got the pictures made yesterday jacketed and the legends written.

"About 10 a.m. went to the American Consulate with 8 packages to go forward today in the diplomatic pouch to the office. Six of these 100 to 106, contain seed, 107 contains pamphlets and other publications.

"About noon we went down the street and made a few pictures at a soybean curd factory. A little later we developed those, they were only fair, but are about as good as we can get in view of the conditions.

"In the afternoon we packed and sewed up two parcels of soybean products to go forward to Washington [DC] at the first opportunity. We are having really wonderful weather, not very cold and sunshiny and bright."

Page 3538. "Soybean candy. Small cylindrical pieces of candy in which are imbedded medium small roasted soybeans. This picture is natural size" (Neg. #44762).

Page 3539. Adzuki bean flour. Box containing 24 small papers of sweetened adzuki bean flour which is used in making sweet soup" (Neg. #44763).

Page 3540. "Bean curd factory (soy). "View showing furnace and boiler where ground soybeans are being boiled for making soybean milk. To the left of the furnace is a tub, into which the milk is strained and made into curd. Tokyo" (Neg. #44764).

Page 3541. "Bean curd factory. View showing a stack of oblong blocks of fresh bean curd which are to be slightly roasted over a charcoal fire [to make grilled tofu / *yakidofu*] (Neg. #44765).

Page 3542. Bean curd factory. View showing stone mill for grinding soaked soybeans into a mash for making soybean milk and bean curd. Above the hopper is a small round tank of water from which flows into the hopper of beans, a small stream of water while the beans are being

ground" (Neg. #44766).

Page 3543. Soybean curd factory. View showing the furnace and boiler where the ground bean mash [*gô*] is boiled in making soybean milk. To the left of the furnace is the wooden tub into which the milk is strained, and where the magnesium sulphate solution is added to form the bean curd. To the extreme left is the partitioned rectangular box into which the bean curd is dipped and pressed into blocks" (Neg. #44767).

Page 3544. "View inside soybean curd factory showing in background stone mill for grinding the beans; on the right the oblong charcoal fire box for roasting blocks of the fresh bean curd; and in the foreground and on the left stacks of blocks of bean curd ready to be roasted. The tub in the center is where the blocks of bean curd are placed" (Neg. #44768).

Page 3545. "Inside the bean curd factory showing a stack of oblong blocks of fresh bean curd with long handled forks [skewers with several prongs] in one end. These blocks are ready to slightly roast over a charcoal fire" (Neg. #44769). Address: Agricultural Explorers, USDA, Washington, DC.

430. Dorsett, P.H.; Morse, W.J. 1930. Roasted soybeans in Japan (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 3971 (20 Feb. 1930–Tokyo). "Packed such of the soybean products as it is believed will carry to Washington [DC] in small packages." All of the following describe photos unless otherwise stated:

Page 4023. "Thin sugared wafers or cookies with coarsely ground roasted soybeans mixed in." Purchased in confectionery store in Tokyo. Sell for 1 *sen* each.

Page 4025-4026. "Candied puffed rice in which are distributed roasted black soybeans, Native name 'Dagashi.'"

Page 4027. "Small balls of baked rice dough within which are roasted soybeans. Pieces of seaweed are distributed over the surface of the rice balls. Native name 'Noritsuke jiyo mame.'"

Page 4029. "Roasted soybeans, dyed green, and partially imbedded in small rice cakes. The soybeans represent 'Momotaro,' the son of a peach, and the rice ball, the peach. Native name 'Ko Momotaro.'"

Page 4033. "Small cookies in which are roasted flattened black soybeans. Native name 'Keitaku senbei.'"

Page 4034. "Mixture of various kinds of roasted soybean confection. Native name 'Okoshiki mame.'"

Page 4035. "Roasted soybeans covered with thin rice dough and then sugar coated in different colors (white, brown, and green). The green consists of ground tea leaves. Native name 'Mokari [Hokari?] mame.'"

Page 4044. Small yellow soybean roasted and coated with sugar. “Maru satômaze.”

Page 4046 (25 Feb. 1930). “Sugared roasted soybeans. The sugar was of different colors, pink, white, green, and brown.”

Page 4220. “White sugar candy coated roasted soybeans of different colors, white, brown (cinnamon), pink and green (tea). Native name ‘Asahi mame.’”

Note 1. This is the earliest English-language document seen (Dec. 2012) that uses the term “candy coated” or the term “sugar candy coated” to describe dry-roasted soybeans or soynuts.

Page 4221. Brown cakes made of roasted yellow soybeans.

Page 4222. “Small round pieces of candy. Some contain raisins, others roasted soybeans (yellow), adsuki [azuki] beans and roasted peas or peanuts.”

Page 4223. “Round pieces of soybean candy in which are embedded roasted greenish yellow soybeans. Native name ‘Ita mame.’”

Page 4224-26. “Two small wooden tubs with bamboo hoops (or small Japanese lanterns, or a throne and steps), filled with sugared puffed rice and sugared roasted soybeans.” Used at the Girls’ Festival, March 3.

Page 4227. “Irregular pieces of clear brown syrup candy with roasted yellow soybeans mixed in.”

Page 4417. “Rice flour bread with roasted soybeans scattered through it. Slices are brushed with soy sauce when the bread is nearly baked. Native name ‘Fukuwa uchi.’”

Page 7071 (31 Jan. 1931). Tokyo. W.J. Morse’s notes: “After our visit to the Botanic Gardens, we visited some market sections... At present there is a great abundance of puffed roasted soybeans in the various markets. These are used on bean-scattering day (Mame-Maki [sic, Setsubun]) which comes on February 4th this year. We found many posters announcing bean-scattering ceremonies at many shrines and temples in and around Tokyo.”

Note 2. This is the earliest English-language document seen (Dec. 2012) that uses the term “puffed roasted soybeans” to refer to dry-roasted soybeans (*irimate*). Address: Agricultural Explorers, USDA, Washington, DC.

431. Dorsett, P.H.; Morse, W.J. 1930. In Dairen, Manchuria (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 4499 (2 April 1930). Dairen, Manchuria. “This morning we called at the South Manchurian Railway Company and met Mr. Kan Matsushima, one of the high officials in charge of the agricultural activities of the company.

“Mr. Matsushima was in the United States a few years ago and visited the Department. During this visit he met Mr. Morse and a number of other officials.

“We went over the plan for this season’s work with Mr. Matsushima, and got from him a number of interesting and valuable suggestions. He also presented us with a number of pamphlets of the South Manchurian Railway relative to soybeans and other Manchurian crops. He outlined for us the important soybean, fruit and vegetable sections which he thought we should visit.

“With the exception of 30 meters on each side of the S.M. Ry. in the Japanese leased territory, practically all farmers are Chinese.

“We had lunch with Mr. Matsushima and then went with him to the Museum building, where we saw a relief map of Manchuria and got a very good impression of the important agricultural producing regions.

“We also saw a rather extensive and interesting exhibit of soybeans, soybean cake and other soybean products. They had a very good collection of millets, sorghums, rice, barley, mung beans, adsuki beans;...”

Pages 4525, 4526, 4527 (10 April 1930, Dairen, Manchuria). “This morning we called at the office of Mr. K. Matsushima and a little later, in company with Mr. Yoshitane Sato of the Bureau of Agriculture of the South Manchuria Ry. [Railway Co.; S.M.R.] we visited the soybean exchange.

“Here, as in all other grain exchanges, of which we have had an opportunity to see everything, pandemonium raged on the floor of the chamber.

“The room looked to be 40 feet or more in width and 75 feet or so in length, with a gallery extending around the entire room.” Of the 100 members, 60 are Chinese, 30 Japanese and 10 are of other nationalities—Russian, Danes, British, etc.

“From the exchange, we went to one of the research laboratories of the Agricultural Branch of the S.M.R., where we met Mr. Takamori, also the assistant director of the Bureau of Economic Research, Mr. Igarashi. These gentlemen offered to assist in any way possible; both speak good English and understand a good deal. We next visited Dr. Y. Nakanishi, Secretary of the Soybean Oil Association.”

“After lunch we visited a good sized shoyu sauce factory and looked over the plant, including culture chambers and ageing mash vat rooms. They demonstrated for us their method of vat mash stirring by compressed air. It is a simple method. The air passes through a one-inch pipe to the bottom of the tank, as the pipe is moved about over the bottom the air expelled from the pipe forces its way up through the mash, which gives the impression of boiling. The practice appears to be much more effective and easier than the hand or paddle method of stirring the mash which is pretty generally followed.

“The refuse left after pressing out the soy sauce is sold for cattle feed (we understand primarily for hog feeding).

It is also resoaked and used for making a much inferior and cheaper grade of soy sauce, for which this concern has quite a demand."

"We received several official letters from the office today, the contents of which especially regarding our work for the year, are more or less disconcerting. They are at variance with our understanding of much of the work outlined and arranged for at Washington [DC] before our departure and by no means in accord with the policy concerning the work in Japan outlined quite differently to us in correspondence received shortly after we took up our work in Japan in the spring of 1929.

"The letters to which we refer are under date of March 10 and 13, these, together with our reply, where a reply is deemed advisable, will be found under a later date in this field trip report."

Page 4539 (14 April 1930). Dairen, Manchuria. "Went to the American Consulate in the morning and discussed with Mr. Langdon, the Consul, the soybean industry in South Manchuria. He has collected statistics on the exports of [soy] beans, bean cake and bean oil and gave us a summary of much data for 1929, which is as follows:"

The 1st table titled "Exports-Manchuria-1929" shows exports (in short tons) of the three commodities by country of destination.

Soybeans: To Japan 604,753 tons. To Europe 1,403,589 tons.

Bean cake: To Japan 652,687 tons. To Europe 62,775 tons.

Bean oil: To Japan 1,443 tons. To Europe 59,849 tons.

The 2nd table titled "Percentage of Manchurian area sown" gives figures for 1929 and 1928.

Soybeans 29.2% and 29.0%

Other beans 2.7% and 3.2.0%

Kaoliang 22.5% and 22.5%

Millet 17.2% and 16.9%

Corn 6.9% and 7.8%

Wheat 7.7% and 10.2%

Paddy rice 0.6% and 0.7%

Upland rice 0.9% and 0.8%

Miscellaneous grains 10.5% and 9.2%.

Page 4541 (15 April 1930). Dairen, Manchuria. In the morning visited Mr. Satoh of the S.M.R. with reference to soybean oil mills and soap factories using soybean oil in Dairen. Arrangements were made to visit the oil mill of the Mitsubishi Trading Co."

"This Oil Company crushes about 300,000 tons of soybeans yearly, producing about 270,000 tons of bean cake and about 30,000 tons of bean oil."

Page 4542. "For Japanese trade, where bean cake is used chiefly for fertilizer, and to a slight extent for poultry feed, the cakes are ground into a very coarse meal. Permission was given to take any pictures we might wish within the mills or mill yard."

Page 4543 (16 April 1930, Dairen). "In the morning visited the Mangylku Soap Mfg. Co. where crude soybean oil and hydrogenated soybean oil are used in the manufacture of soap."

"Mr. Satoh suggested that we get in touch with Dr. Satoh, botanist and author of the bulletin [on wild legumes which shows 28 genera and 102 species] as he might be of assistance to us in our collections of wild legumes in Manchuria, North China, and Chosen" [Korea].

Page 4546. "The wild soybean is very abundant throughout this vicinity..." No soybean work is being carried on by the station. Most of the work is placed on cotton and apples. "Mr. Nakatomi assured us of his hearty cooperation in our studies of Manchurian agriculture."

Page 4547 (12 [?] April 1930). Dairen. "In the morning we went to the South Manchurian Ry. Central Laboratory to see Dr. Kato concerning the various soybean products of which he had promised us samples. The products were not ready and I was promised to send them to our office in the Gohin [?] Building shortly.

"Mr. Kato is much interested in the utilization of soybean flour in bread making and is conducting extensive experiments along this line. He was very much interested in the work which Dr. J.A. Le Clerc of the U.S. Bureau of Chemistry is doing with various kinds of soybean flour and intends taking up correspondence with Dr. Le Clerc.

"At 5:00 p.m. Messrs. Morse and Suyetake went to the Auditorium of the South Manchurian Ry. Club and gave a talk on the soybean industry in the United States before Members of the Dairen Oil Mills Association, Dairen Soybean Trading Corporation, and the Agricultural Division of the South Manchurian Railway."

Pages 4553-4554 (21 April 1930, Dairen). "In the morning we went to the office of Mr. Satoh of the S.M.Ry. and found a package of fifteen varieties of soybeans that had been sent to us from the S.M.R. Experiment Station at Kungchuling. This station is the principal soybean breeding station and the varieties sent us represent selected varieties from their 1929 variety test of over five hundred varieties. The following list gives the varieties sent. An table with no title gives the D.&M. number (from 5649 to 5663), varietal name, and use of each of the 15; the three uses are grain, forage, and pasture. The varietal names are:

Hakube (Mukden White)

Changchung #220

Kingen

Kungchuling #319

Kohonshu [?]

Kungchuling #543

Kungchuling #483

Kaiyuan #191

Mochoto

Kungchuling #480

Kungchuling #235

Chanchu #391
Kungchuling #262
Kungchuling #420
Kungchuling #224

"In the afternoon samples of different forms of soy bean oil cake and oil cake meal were received from Mr. Yoshida, manager of the Mitsubishi Soybean oil Mills." They are: (1) "Coarse flakes. Made for export to Japan for cattle feed and fertilizer. Moisture 11%. Protein 44%. Fat 7.5%." (2) Finely cracked like cracked corn. Made for export to Japan for cattle feed; 10%, 44.5%, 7%. (3) Coarse meal for export to the United States for cattle feed. 9.11%, 45.6%, 7%. (4) Finely ground meal for export to the United States. 9.10%, 45.6%, 7%. (5) Medium coarse flakes for export to Japan for poultry feed. 10%, 44.5%, 7%. (6) Coarse flakes for export to Japan for fertilizer. 11%, 44%, 7.5%.

Pages 4565-4566 (25 April 1930, Port Arthur, Manchuria). "We then visited the museum and looked over the agricultural exhibits of the Kwantung Province. The Nisshin Oil Mills of Dairen has rather an extensive exhibit of various forms of soybean oil and oil cake. The Manchuria Paint Co. has a very good exhibit of many kinds of paints, enamels, varnishes and plastic paints in the manufacture of which soybean oil was used" (Continued). Address: Agricultural Explorers, USDA, Washington, DC.

432. Dorsett, P.H.; Morse, W.J. 1930. In Dairen, Manchuria (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 4621 (2 May 1930). Hsiungyaocheng [today's Xiongyue, Liaoning province], Manchuria. "We were taken over to the experimental fields and had an opportunity of seeing the native methods of planting corn, between the hills of which soybeans will be planted about a month later. After our visit to the fields, we were taken to see the station laboratories. Considerable work is being done in Entomology and Pathology, especially apple pests and diseases..."

We were taken to the Entomological Laboratory where we met Mr. Yasuo Arakawa, who took post graduate work at Cornell in 1925 and speaks English very well. He stated that the worst insect pest of the soybean in Manchuria is the pod borer which we observed so abundantly in Hokkaido [Japan] last season. This insect is especially serious in North Manchuria where often 50% of the seed crop is injured.

At the pathological laboratory... we were especially interested in the wild legume specimens, but were advised that there are not many species of wild legumes in this section.

Page 4623. Negative. #45094. "Soja max. Soybean and

corn planting. View showing the leveling of a furrow in which corn has been planted at intervals of about 42 inches. When the corn is about 6 inches high soybeans are planted between the corn hills."

Neg. #45095. "Soja max. Corn and soybean planting. Scattering compost soil in the furrow after corn has been planted. After the soil is scattered, the furrows are leveled."

Page 4624. Neg. #45096. "Soja max. Corn and soybean planting. View showing a Manchurian farmer plowing a furrow in which corn is to be planted at intervals of 43 inches. When corn is 6 inches high soybeans are planted between the corn hills.

Neg. #45097. "Soja max. Soybean and corn planting. View showing the planting of corn by [two] Manchurian farmers. The furrow is made in the middle of a last year's row. When the furrow is made, the planter follows dropping 4-5 grains of corn about 42 inches apart in the row. When the corn is 5-6 inches high soybeans are planted between the corn hills."

Page 4625-4625 (3 May 1930). Hsiungyaocheng, Manchuria. "After breakfast at the Inn we went to the Experiment Station where we met Dr. Riuzo Watanabe, Director of the Station, and whom we had met in Washington, D.C. in 1925. Dr. Watanabe spoke fairly good English... He stated that the soybean is not the principal field crop [in this section] and that the method of culture is quite different from the sections further north where the soybean is the main crop." "We were advised that it was dangerous to go very far from the towns on account of bandits. At this season the bandits resort more to the hills but as the crops grow up they approach the outskirts of the town hiding in the kaoliang and other crops. The basha [horse-drawn rickshaw or cart; Indonesian becak / bechak] drivers have certain limits at different seasons to which they will go outside of town as the bandits rob them of their horses."

Kaoliang and millet were being scattered broadcast in the furrow and covered with compost soil and the furrow then leveled with a wooden V-shaped implement. In the planting of corn, sometimes the corn is [planted in] alternate rows, the vacant row being left for soybeans to be planted about the first of June. Soybeans were also planted in all corn, midway between the corn hills when the corn plants are about six inches high. Photographs were taken yesterday of the corn planting near the station.

"After watching the planting operations the farmer took us to his house within a compound and allowed to go through the various buildings to see how a middle-class Manchurian farmer lives. This man with the members of four families of relatives, all living in the compound, work about ten acres.

"From the farmer's home we returned to the Experiment Station where we had lunch." Neg. #45098. A Manchurian farmer with his typical wooden plow.

Page 4629 (4 May 1930). Dairen [Dalian], Manchuria.

"In the afternoon a survey was made of Japanese and Chinese stores for soybean products. Soybeans apparently are not used as extensively in confections as in Japan. The peanut which is grown very extensively in the Kwantung [today's Guangdong] Province seems to take the place of soybeans in candies and as a roasted confection. The adsuki, however, is used very extensively in the making of paste cakes, about the same as ones seen in the confectionery stores in Japan. The adsuki products are handled entirely by Japanese shops as none were observed in any of the Chinese stores."

Page 4633 (5 May 1930). Dairen, Manchuria. "In the morning went to the American consulate to have May expense account sworn to and obtain mail. Our office room rent was paid for the month of May.

"After lunch we went to the office of Mr. Satoh of the S.M.Ry. with regard to visiting more of the experiment station. He advised that it would be best to visit the Kungchuling [today's Gongzhuling, in Jilin Province] station first as this is the principal soybean breeding station, and soybean planting was now in progress. We thought it best to wait until we had a visit with Dr. Kanda, Director of the Kungchuling station, before making any plans for visiting other stations. Dr. Kanda would advise us as to the experiment stations and experiment farms having soybean work that would be interest to us.

"We were given four soybean products from the S.M.Ry. Central Office by Mr. Satoh:

1. Soybean oil lecithin. Obtained from soybean oil by German process of extraction.
2. Soybean oil extracted with the new alcohol extraction process developed by S.M.Ry. Central Laboratory.
3. Soybean flour-fat free. This flour, nearly white, is made from the cake obtained through the alcohol extraction method.
4. Soybean flour. Flour made from soybean oil cake through the German process.

"In discussing our trip to north Manchuria, Mr. Satoh thought it best that we take the 9:00 a.m. express which would reach Kungchuling at 8:30 p.m. the same day.

Page 4641-4642 (6 May 1930). Kungchuling, Manchuria. "We went to the Kungchuling experiment station about 9:00 a.m. where we met Dr. Kanda, the Director, who speaks very little English. He called at the Office of Forage Crops, Washington, D.C. two years ago with reference to information on the soybean industry in the United States.

Kungchuling is the center of a very extensive soybean growing section and the experiment station is doing much work in the improvement of native soybean varieties. Over five hundred varieties are under test yearly and more than two thousand varieties have been experimented with. Dr. Nakamoto is the soybean expert and has charge of soybean investigations. At present he is confined to his home after an illness.

"The morning was spent with Dr. Kanda and information obtained concerning soybean culture and utilization in this section. We were taken to the grain laboratory and shown the hundreds of samples of soybeans that Dr. Nakamoto is working with. The great range in size, color and shape of the seed was very interesting.

"After lunch, Mr. Ota, Agricultural Engineer of the station called at the Inn and with a Chinese assistant we visited the Taiwaho Soybean Oil Mills run by Chinese. We met Mr. Ku-?u-Yang, manager of the mills and his assistant, Mr. Son-pu-ro. We were taken through the mills and each step of producing from delivery of the beans to the extraction of the oil was explained. The mill was operating the screw presses and has thirty of them. Each press handling five cakes, thus pressing at one time 150 cakes. During the busy season 900 cakes are turned out daily, working twenty-four hours in 4 hour shifts. The season of this mill is from October until about the first of June. Panoramic and snapshots were taken of scenes within the oil mill compound. See pictures at the end of today's notes.

"When we had finished inspecting the oil mills we were taken to some Chinese stores where Chinese soybeans and Chinese soy sauce were sold. The Chinese miso is more liquid (like a thin paste) than the Japanese and not ground, but both taste very much alike. There were three grades of soy sauce, all of a sweeter flavor than the Japanese soy sauce but not quite so thick, with the exception of the 1st grade, which was thicker than is Japanese soy sauce. We found two kinds of mung bean vermicelli in the store, one rather fine and the other coarse, more like noodles. Bundles of each of these kinds were purchased for our mung bean exhibit.

After our visit to the Chinese store, we went to a Chinese bean curd factory. In grinding the soaked beans for making the milk mass [masa?] a stone mill was used. The process of making the bean curd is practically the same as followed in Japanese tofu or bean curd factories. The Chinese bean curd, however, appeared to be pressed more and therefore the texture more compact than Japanese bean curd.

Page 4644. Neg. #45101. "Soja max. Soybeans. Kungchuling, Manchuria. View showing the storage of soybeans in Osier bins in the yard or compound of a Chinese Soybean Oil Mill."

Neg. #45102. "Soja max. Soybeans. Kungchuling, Manchuria. View showing soybean oil storage tanks and building where oil presses are" (Continued). Address: Agricultural Explorers, USDA, Washington, DC.

433. Dorsett, P.H.; Morse, W.J. 1930. Green vegetable soybeans in Manchuria, China, and Korea (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage

Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Pages 4911-4912 (19 June 1930) find the authors in Dairen, Manchuria. Morse writes: "A short visit was made to the Dairen market but about the only new thing noted was bundles of soybean plants with green pods for use as a green vegetable bean. These were notes at several stands and we learned that they had come from the Shimonoseki district (Japan)."

Pages 5431 and 5434 (13 Aug. 1930) find the authors in Peiping [Beijing], China. They visited an open street market in the northwestern part of the city on Chienmen Street. A list of fruits and vegetables observed include: "Soybeans in the pod, quite abundant." A photo shows these soybeans at Hsi Tan Pai Lou in Peiping.

Page 5587 (22 Aug. 1930) finds the authors in Heijo, Chosen (today's Pyongyang / P'yongyang, the capital of North Korea). They visited several Korean vegetable markets and among the farm products noted were "Soybeans (bundles of plants with pods)."

Pages 5811, 5812, 5813 (11 Sept. 1930). Morse, still in Heijo (today's Pyongyang, North Korea) noted: "On our way through the city in the morning we saw shelled green soybeans in the baskets of several Korean vegetable stands." Negative #45793 and #45794. Two photos show these "green vegetable soybeans" and "shelled green soybeans."

Page 5845 (16 Sept. 1930). Fa Hua Ssu Temple, Chihli, China. P.H. Dorsett's notes. "We left Tang Shan about 8:30 this morning with two mules, four donkeys and ten pieces of official baggage, en route to Fa Hua Ssu.

"It has been a lovely day and we had a very pleasant ride. Through the valley we saw the farmers harvesting and getting their crops of millet, kaoliang, corn, peanuts and in a few instances, soybeans.

"Going through the valley we made three single plant selections of soybeans, two yellow, #7190 and 7191, and one black variety #7192, and on the way up the canyon we made another one-plant selection of black soybeans #7193 which was growing on decomposed granitic soil. We also collected seed of a *Deutzia* sp. #7189, what we call the thin-leaved type."

"The mountain sides are covered with several species or varieties of *Lespedeza*. There may be as many as a half dozen or more. They are full of flowers and for the most part very attractive."

Pages 5888-5889 (19 Sept. 1930). Morse is now in Keijo [today's Seoul, South Korea], Chosen. A long list of vegetables he observed at the large central Korean market included "Soybean sprouts" and "Green vegetable soybeans." In the grain section he found: "Millet, adsuki beans, susu (sorghum), mung beans, and soybeans."

"After the visit to the Central Market, we visited the East and West Markets and found about the same products. Two photos (Neg. 45859; Neg. #45860) show these.

Page 5890. Neg. #45861. "*Soja max.* Soybean. Keijo, Chosen. Korean Grain Market showing different varieties of soybeans in front of a grain merchant's store.

Neg. #45862. "*Soja max.* Soybean. Suigen, Chosen. Korean farmer with bundles of green vegetable soybeans on pack [tied to his backpack] at Keijo Korean market."

Pages 5911-5912 (23 Sept. 1930). Morse is now in Ritsuri, Korea. (Note: As of 1994 Ritsuri was named Yul-li and located in North Korea, about 25 miles east of Pyongyang, the capital.) In a farming section he noticed some farmers roasting soybean plants over a fire and "making their lunch of the green roasted soybeans." Each cart the farmers drove to market in the morning "had a bundle of green soybean plants. The green soybean plants are used extensively for food at this season of the year."

Page 5913. Neg. #45874. "*Soja max.* Soybean. Ritsuri, Chosen. Korean farmer bundling harvested soybean plants for hauling to the farm yard. The plants were cut yesterday when fully mature. The food is allowed to cure in the farm yard rather than in the field."

Neg. #45875. "*Soja max.* Soybean. Ritsuri, Chosen. Ox cart loaded with bundles of mature soybean plants. Plants cut yesterday and are hauled to farm yard to cure until threshed (November)."

Page 5914. Neg. #45876. "*Soja max.* Soybean. Ritsuri, Chosen. Ox cart loaded with bundles of mature soybean plants which are to be carted to the farm yard for storage until threshed."

Pages 5948, 5949, 5950 (27 Sept. 1930). In Heijo (Pyongyang, North Korea), Morse "visited Korean Farmers' Market Day at the Daidomon Gate. One of the most notable things was the abundance of shelled green soybeans and adsuki beans being sold as green vegetable beans."

One photo (p. 5949) in Heijo shows: "View of green soybeans (shelled) on sale at small farmer's stand. Market Day" (neg. #45902).

Another photo (p. 5949) shows "Korean farm woman on Market Day with bundle of green vegetable soybean plants and shelled green soybeans in large basket and shelled green adsuki beans in gourd" (neg. #45903).

A third photo (p. 5950) shows "Korean woman buying soybean sprouts from Korean farm woman on Farmers' Market Day" (neg. #54904).

Page 6113 (9 Oct. 1930). Green vegetable soybeans in the pod and shelled green soybeans were observed in Dairen, Manchuria. Address: Agricultural Explorers, USDA, Washington, DC.

434. Dorsett, P.H.; Morse, W.J. 1930. Soybeans in Chosen (Korea) (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant

Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 4989 (25 June 1930). W.J. Morse's notes. [Dorsett is in Dairen, Manchuria]. He is en route to Kokai [today's Kanggye, in North Korea], Korea. "We went to the railway station about 7:00 a.m. as our baggage had to be passed by the Japanese Customs. Our mission to Korea was explained to the officer and our suitcases and camera cases were opened, merely looked at, and then marked o.k."

"We left Antung [Dandong as of 2014] at 7:50 a.m. and after crossing the Yalu River arrived at Shingishu [today's Sinŭiju, North Korea] on the opposite side of the river from Antung [today's Donggang, Liaoning province, China]."

Page 4990. "Upon leaving Shingishu we entered rather an extensive rice country. Soybeans were noted to a very considerable extent but all were planted with corn as is done in Southern Manchuria. Some fields of millet have hills of soybeans planted along side of the rows."

"We arrived at Shin-Anshu, Korea at 12:25 p.m. and left on the 12:40 bus for Kokai and 'Zoyasia,...' Soybeans were everywhere in evidence and seemed to be planted with every sort of crop. Even fields of soybeans and cucumbers planted together were noted."

Page 5003. W.J. Morse's notes. He is en route to Kokai, Korea.

Page 5013 (27 June 1930). W.J. Morse's notes. Kokai, Korea. "In the morning we went to the village agricultural society where we met the Village Master... We spent the morning at the farm looking over the experimental work with soybeans... Soybean breeding work is being carried on and several excellent varieties have been developed by the farm."

Page 5015. Negative #45314. "Soja max. Soybean. Kokai, Korea. View showing Korean grain merchant on Korean Farmers' Market Day. The pile of grain in front of the merchant is that of soybeans."

Neg. #45315. Soja max. Soybean. Kokai, Korea. View showing the purchasing of soybean seed samples from Korean grain merchant on Korean Farmers' Market Day."

Page 5035 (29 June 1930). W.J. Morse's notes. En route, Kokai-Kisen, Korea. "We left Kokai at 9:00 a.m. by bus... On the hillsides we saw some Korean farmers cultivating soybeans and corn with plows and also hoeing."

Page 5036. "In the evening Mr. Ritano called on us and gave some very good data on the soybeans in the Kisen region [today's Hŭich'ŏn region in North Korea] He also brought samples of different grades and varieties. Before leaving he gave us some soybean samples representing the best varieties grown in this section." Neg. #45329. "Soja max. Soybean. Kisen, Korea. View showing Korean farmer and wife hoeing soybeans and corn with short handles hoes."

Page 5037. Neg. #45331. "Soja max. Soybean. Kisen, Korea. View of Korean farmer with plow used in cultivating soybeans and corn."

Page 5158 (14 July 1930). This is a letter written from Dairen, Manchuria, to Dr. A.J. Pieters, Senior Agronomist,

Acting in Charge, Forage Crops and Diseases, Bureau of Plant Industry, USDA, Washington, DC. "Kokai was found to be rather a large Korean village snuggled in a very mountainous country along the right bank of the Seinoko [?] River (Photo #45318) which flows into the Yalu River... The village is situated at 41° N. Lat. and the temperature during December and January goes as low as 40° below zero. The ground is said to freeze to a depth of 2½ to 3 feet... The field crops are planted the first week in May and for the most part are corn, soybeans, sorghum and millet."

Page 5558 (19 Aug. 1930). Dairen, Manchuria. W.J. Morse's notes. "In view of the fact that the legume seed now mature has been collected in this region and that the millet is beginning to mature, we thought this would be the best time to visit Korea around the Heijo [Pyongyang, as of 2014 the capital of North Korea] to collect some of the missing links of our Korean story of the soybean industry. Last season, no observations or pictures (movie and still) of the growing crops were made, due to [our] late arrival in Korea. We were advised that soybeans in Northern Korea begin too mature the forepart of September. This will allow us to obtain pictures of the growing crop as well as data, methods of culture and harvesting, and return to Manchuria in time for note taking and the beginning of harvest. Not needing much in the way of supplies, we decided to try to get away tomorrow." Sent shipping boxes to Mr. Dorsett who is now in Peiping.

Page 5559 (20 Aug. 1930). En route to Heijo [Pyongyang], Korea. W.J. Morse's notes. "We left on the 9:00 a.m. express [train] for Heijo, Korea." Passed the stations from Chinchou to Wafangtien. "From Chinchou to Liaoyang very few soybeans were noted planted alone, and from Liaoyang to a few stations below Mukden kaoliang and millet were most extensively grown with very few soybeans in mixed or single plantings."

"Leaving Suchaton at 4:00 P.M. and going to Antung we began to see numerous fields of soybeans [planted] alone."

Page 5550. "Corn and soybeans and kaoliang and soybeans were being grown quite extensively. It was noted that the soybean fields were more general in the hill sections while the mixed plantings were on the lower lands. At the ends of the rows of the fields a few feet of hemp, castor beans, sesame or sunflowers were grown. This is said to be done to keep cattle out of the fields."

"We arrived at Antung at 7:55 P.M. where we remained over night."

Page 5561. A letter from Dorsett in Peiping, China, dated Aug. 20, 1930, to W.J. Morse c/o Yamato Hotel, Dairen.

Page 5563-5564. A letter dated 13 Aug. 1930 from W.J. Morse, c/o American Consulate, Dairen, Manchuria, to Mr. P.H. Dorsett, c/o U.S. Legation, Peiping, China. "Dear Dorsett: I had just started another letter to you when your came as I am beginning all over again."

"From recent reports from friends in the middle west [Midwest] the [soybean] oil industry [in Manchuria] is coming along by leaps and bounds. Mr. Cartter, my assistant at Holgate, in a recent letter thinks that it is going too fast. He is making a trip this summer with Dr. Jamieson of the Oils and Fats Lab. [Bureau of Chemistry and Soils, Div. of Forest Crops and Diseases, USDA] to visit the various soybean oil mills. From this you can see that I will have to get every bit of information on storage, analysing, grading (oil, cake and beans), shipping, varieties, methods of culture, etc. etc. I am positive that our best oil yielding beans will come from Manchuria. The soybean oil industry will be the biggest thing and I am going to try and serve it from A to Z, that is if my allotment holds out."

Page 5573 (21 Aug. 1930). En route Heijo, Korea. W.J. Morse's notes. "We left the [Antung, in Manchuria] station a little early to have our baggage passed by Japanese Customs before going into Korea. Our baggage quickly passed and we left Antung on the 7:50 a.m. train. At Shingishu, Korea, on the opposite side of the Yalu River from Antung, we set our watches ahead one hour.

"After leaving Shingishu we entered a very extensive rice paddy section. Soybeans were grown along the edges of the paddies as is so commonly done in Japan. In passing out of this large rice section we began to see mixed crops; soybeans and millet, soybeans and corn, kaoliang and soybeans, kaoliang and mung beans. The millet and soybean fields were very interesting as they were planted in various ways.

"We arrived at Heijo (Pyongyang), Korea at 2:18 p.m. and went to the Chosen Railway Hotel. All of the foreign rooms were occupied by representatives of the Corn Products Company and would be so for a year. This company is erecting near Heijo an immense plant for the manufacture of corn products. We arrived in a rain and it continued raining all night.

Page 5587 (22 Aug. 1920). Heijo, Chosen. W.J. Morse's notes. "In the morning we visited several Korean vegetable markets to note the farm products handles this season." A list of 20 products is given, including: "5. Soybeans (bundles of plants with pods) [probably green vegetable soybeans].

"In the afternoon, between showers, we visited grain markets in three different sections of the city. Millet, adzuki beans, mung beans and soybeans were the principal grains. Millet in several varieties predominated. Not as many varieties of adzuki beans and soybeans were noted as during our visit here last fall."

Page 5601 (23 Aug. 1930). Heijo, Chosen. W.J. Morse's notes. "The wild soybean was also found growing abundantly in waste places. The plants here appear to be somewhat different from those in Manchuria. The Korean plants have much larger leaves of a little different shape.

"Plants of the wild adzuki bean and the wild mung bean were also found. The former is very vining while the latter

is a (Page 5602) bush type. Both species are now in full bloom."

Page 5603. Neg. #45649. "*Soja ussuriensis*. Wild soybean. View of wild soybean plants growing along roadside on outskirts of Heijo." Address: Agricultural Explorers, USDA, Washington, DC.

435. Dorsett, P.H.; Morse, W.J. 1930. In Dairen, Manchuria (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 5254-5255 (30 July 1930).

Hsiungyaocheng, Manchuria. W.J. Morse's notes. "We went to the experiment station early in the morning and met Director Watanabe and Mr. Hisatake. Their station recently issued a bulletin on the diseases of the four principal crops of Manchuria, namely; soybeans, kaoliang, millet and corn. A copy was given us and it was found to contain excellent information on soybean diseases."

"After lunch a trip was made by basha [horse-drawn cart, in Japanese] to the farming section to the west of Hsiungyaocheng. Soybeans were noted planted in kaoliang [*Andropogon sorghum*] to a considerable extent. The kaoliang rows were 21 inches apart and hills of soybeans were planted about every 12 feet just to the side of the kaoliang row. The same method of planting was also observed with millet and soybeans."

Neg. #45405. "*Soja max*. Soybean. Hsiungyaocheng, Manchuria. Soybeans and corn in alternate rows 21 inches apart. Corn planted about May 1 in 42 inch rows, [soy] beans planted about June 1st midway [between] the corn rows."

On pages 5256 and 5257 are panorama photos with illegible captions similar to Neg. #45405.

Page 5258-5259 (31 July 1930). Hsiungyaocheng, Manchuria. "W.J. Morse's notes: In the morning we went to the experiment station for a conference with Mr. Arakawa, the entomologist, regarding insects affecting soybeans in Manchuria. According to Mr. Arakawa, the leaf hopper does not occur in Manchuria."

"Mr. Arakawa is making very extensive studies on the damage to soybeans by the pod borer which is the most serious insect pest of the soybean in Manchuria. (We found this insect pest also the most in Hokkaido and the Main soybean sections of the Main Island [Honshu] of Japan.) There are no serious insect pests affecting soybean foliage. The grub or larva of *Lachnosterna* sp. [a genus of beetles] enters the stem of the soybean at the base and oftentimes does very serious damage in the early growth of the plant. This larva also does very serious damage to millet, adzuki beans and kaoliang."

Page 5261. Neg. #45409. "*Soja max*. Soybean.

Hsiungyaocheng, Manchuria. Soybeans grown in the same row with corn. Corn planted in hills 42 inches apart (21-inch rows) about May 1. Soybeans planted midway [between] the corn hills about June 1st."

Neg. #45410. "Soja max. Soybean. Hsiungyaocheng, Manchuria. Soybeans grown in 21-inch rows in pear orchard for green manure. On South Manchurian Railway Experiment Station."

Page 5262. Neg. #45410. "Soja max. Soybean. Hsiungyaocheng, Manchuria. General view of soybeans grown in rows in pear orchard for green manure. At South Manchurian Railway Experiment Station."

Page 5293-5294 (1 Aug. 1930). Feng Tai, China. "P.H. Dorsett's notes: We left on the 8:00 a.m. train this morning for Feng Tai" to look for alfalfa.

"We returned from Feng Tai to Peiping by motor car... Along the edges of bogs or low moist to wet places where reed grasses grow abundantly, we saw beans climbing to the top of reed grass 8 feet or more in height. We assumed that they were wild soybeans and verified this assumption by asking Chinese farmers. The plants impress us as being more robust and to have larger leaves than the wild soybeans we saw in abundance in Manchuria in 1925-1926.

"We also saw in actual operation the stripping of the lower leaves of kaoliang, interplanted to soybeans.

"The farmer told us that stripping is never done until the kaoliang is in full head. It is claimed that the stripping not only admits more air and light for the under-growing soybeans, but also benefits the kaoliang.

"We made a number of 3/4 by 4 1/4 pictures in an endeavor to secure good views of this interesting farm practice.

Pages 5300. Neg. #45425. "Soja max. Soybean. Near Feng Tai, China. A Chinese farmer at the edge of a field of kaoliang interplanted with soybeans. Note that he carries a palm leaf fan and a 'kasa' or umbrella to protect him from the sun."

Page 5301. Neg. #45426. "Soja max. Soybean. Near Feng Tai, China. A good crop of both soybeans and kaoliang. These are two very important crops in this section of China."

Neg. #45427. "Soja max. Soybean. Near Feng Tai, China. To the left is a portion of a planting of soybeans alone. To the right are soybeans planted with kaoliang which has recently been stripped of its lower leaves to a height of about four feet."

Pages 5302-5303. Negatives #45428, #45429, and #45430 show variations of the photo in #45427.

Pages 5306-5307. Negatives #45436, #45437, #45438 and #45439 show variations of the photo in #45427.

Page 5212 (2 Aug. 1930). Dairen, Manchuria. "W.J. Morse's notes: Another trip was made to the Dairen wharf warehouses and the S.M.Ry. storage yards to secure good samples and pictures of soybean shipping scenes. We found the wharf houses well filled with sacks of beans and there

seemed unusual activity in bean exports. In our rounds of the warehouse we collected twenty-four samples of soybeans and one sample of mung beans. The beans of which samples were collected were said to have come from various parts of North Manchuria and were mostly for export to European countries for oil and meal.

"The German ship *Preussen* was being loaded with 3500 tons of [soy] beans. Nearby a Dutch ship was being loaded with beans. One Japanese freighter was taking on beans which were a little better quality than the oil beans and were being shipped to the main island for the manufacture of soy sauce and miso.

"Two Japanese freighters were being loaded with large amounts of soybean oil cake for shipment to Japan and other points for fertilizer and cattle feed."

Page 5313. Neg. #45445. "Soja max. Soybean. Dairen, Manchuria. Loading the German freighter *Preussen* with 3500 tons of soybeans for Europe to be used for oil and oil meal, at the Dairen wharves."

Neg. #45446. "Soja max. Soybean. Dairen, Manchuria. Views of unloading soybeans from freight cars and loading Dutch freighter with beans for export to Java. Dairen wharves."

Page 5314. Neg. #45447. "Soja max. Soybean. Dairen, Manchuria. Loading the German freighter *Preussen* with 3500 tons of soybeans for export to Europe to be used for oil and oil meal. At the Dairen wharves."

Neg. #45448. "Soja max. Soybean. Dairen, Manchuria. Views of loading soybeans on Dutch freighter for export to Java. Dairen wharves."

Page 5315. Neg. #45449. "Soja max. Soybean. Dairen, Manchuria. Soybean oil cakes in Wharf Warehouse for export. Taken at the Dairen wharves."

Page 5380 (8 Aug. 1930). Dairen, Manchuria. "W.J. Morse's notes: We received a package of forty-one varieties of soybeans from the Kankyo Hokudo Prefecture Seed & Nursery Farm, Kyojo, Chosen" [Kyojo, Korea]. Address: Agricultural Explorers, USDA, Washington, DC.

436. Dorsett, P.H.; Morse, W.J. 1930. In Chinchou, Manchuria (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log. • **Summary:** Page 5479 (15 Aug. 1930). Chinchou, Manchuria. "W.J. Morse's notes: Left on the 9:00 a.m. bus for the Chinchou Experiment Station to have a talk with Mr. Nakatomi regarding soybean work. We were told that soybeans and kaoliang are seldom grown together. In some of the back hill or mountain districts some of the farmers plant soybeans and kaoliang together similarly to the planting of corn and soybeans. The blades of the kaoliang

plant are never stripped from the kaoliang plants as Dorsett saw in the Peiping district. Kaoliang and mung beans or adzuki beans are most generally planted together in the Leased Territory.

"The soybean plots grown for green manure in the station orchards have been for the most part turned under which is done about the time the plants are just past bloom. The station is conducting some green manure experiments in an apple orchard using soybeans, alfalfa, millet, vetch and wheat. These crops are planted in the forepart of July and will be turned under about October."

Page 5617. This is a letter dated Aug. 28 from P.H. Dorsett, Agricultural Explorer, in Peiping, China, to Mr. Julean Arnold, U.S. Commercial Attache, Shanghai, China. He is sorry not to have been able to meet Mr. Arnold, but asks if Mr. Arnold has any statistics on the production or use of "American jute" [genus *Corchorus*] in China.

Page 5926-5927. "Package # 9, contains our quarterly report for the quarter ending June 30, 1930, The *original* is for the office and the *carbon copy* for Mr. W.J. Morse. The negatives for the report are also included in this package.

Packages #'s 10, 11, 12, and 13 contain seed, in regard to which the following detailed notes, we hope, will prove of interest and possible value." Seeds of many different plant species are described.

Page 5968 (29 Sept. 1930). Mukden, Manchuria. "W.J. Morse's notes: Awoke about 5 A.M. and upon looking out saw a few farmers cutting soybeans and kaoliang. For the most part, the crops have been harvested and many were curing in shocks in the fields."

"We arrived at Mukden at 6:20 a.m. As soon as the stores were opened we searched for the Hoton Shubyoen, Importer, Exporter and collector of seeds. The proprietor of this store advised that he collected seed of wild plants in Manchuria." Alfalfa "seed sells to the farmer for 80 sen per kin (1.1 lb).

"We left Mukden on the 3:58 p.m. train for Kaiyuan where the soybean farm of the S.M.Ry. is located.

"From Mukden to Kaiyuan, the crops for the most part have been harvested. Some soybean fields were being cut but only occasionally did we see a standing field. In many fields the bean plants were in shocks of upright bundles, while in other fields, the bundles were being placed in carts or being hauled to the threshing ground."

Page 5982-5983 (30 Sept. 1930). Kaiyuan, Manchuria. "W.J. Morse's notes: "Mr. Kofuka, director of the soybean farm called shortly after nine and advised that most of the soybeans in the Kaiyuan district had been harvested but we would be able to find some standing fields. The crops have mostly been harvested during the past two weeks.

"After soybeans are cut, they are tied in bundles with a kaoliang stalk. The bundles are placed in loose upright shocks and allowed to cure in the fields for about a week. The bundles are carted to the threshing ground and stacked in

large round or oblong stacks along the sides of the threshing grounds. Soybeans are threshed first, then kaoliang heads, and lastly millet (the whole plant)."

"Near one threshing ground we saw many bundles of bean plants that had been cut before the leaves had fallen."

"As it was too muddy to get around very much in the country, we returned to the city and visited the Stock Exchange where soybeans (including oil and cake) and kaoliang are the only crops dealt in. As yet very few beans have appeared on the market. Threshing is mostly done during the latter part of October and in November."

Page 5983. Neg. #45934. "Soja max. Soybean. Kaiyuan, Manchuria. Bundles of soybean plants that had been cut before fully mature. When the Manchu farmer starts harvesting, he harvests all of his crops. Should he leave a field uncut, some kindly persons would harvest for him and also take the crop."

Page 5984. Neg. #45935. "Soja max. Soybean. Kaiyuan, Manchuria. Close-up view of stack of soybean plants along side of threshing ground on farm near Kaiyuan."

Neg. #45936. "Soja max. Soybean. Kaiyuan, Manchuria. Stacks of soybean plants around threshing ground of Manchurian farm near Kaiyuan."

Page 5985. Neg. #45937. "Soja max. Soybean. Kaiyuan, Manchuria. General view of a field of mature soybeans near Kaiyuan."

Neg. #45938 "Soja max. Soybean. Kaiyuan, Manchuria. Close-up view of stone roller used in threshing out soybeans. The roller is drawn by mule or horse."

Page 5987. A table appears to show that P.H. Dorsett's total expenses for one quarter (3 months) are \$1,261.02 or about \$420 per month, including hotel, meals, travel, research expenses, mailing, etc.

Page 6004. USDA Bureau of Plant Industry Weekly Itinerary Report.

Page 6005. A table appears to show that W.J. Morse's total expenses for 3 months are \$1,693.62 or about \$423 per month.

Page 6030-6031 (2 Oct. 1930). Kungchuling, Manchuria. W.J. Morse's notes: Mr. Nakamoto, director of the station, advised: "Threshing season begins about the middle of October and extends until the latter part of November. The shipping season reaches its height during December and January, beginning about the middle of November."

"We also met Mr. Kochi in charge of swine investigations who stated that Chinese farmers did not feed soybeans to hogs. They do, however, feed soybean oil cake extensively after the hogs are six months old, the previous feeding being kaoliang bran. The skins from the mung bean seed obtained from mung bean vermicelli and noodle factories, and from sprouting places, are used exclusively as hog feed. Mr. Kochi advised that the Manchurian farmer has no soft pork problem as he desires soft pork and does not

have ham or bacon to make.”

Page 6032. Neg. #45948. “Soja max. Soybean. Kungchuling, Manchuria. Close-up view of Manchurian farmer showing type of sickle or knife used in harvesting soybeans.

Page 6036-6037 (3 Oct. 1930). Kungchuling, Manchuria. W.J. Morse’s notes: “The threshing ground was being rolled after the heavy rains in preparation for the threshing of soybeans. This village is growing soybean seed of one of the improved varieties. The seed is a medium large glossy yellow, much larger than any of the native varieties we have seen. A large percentage of the plants had many 4-seeded pods.”

“There were many excellent varieties and selections which looked as though they might be heavy grain yielders. We are in hopes that most of these will be included in the series promised us, for the early and medium sorts no doubt will be of great value for our corn belt and northern states.”

Page 6038. Neg. #45951. “Soja max. Soybean. Kungchuling, Manchuria. Cutting soybeans with sickles or knives on a farm near Kungchuling.”

Page 6044. Neg. #45959. “Soja max. Soybean. Kungchuling, Manchuria. Close view of rolling down the threshing ground after a heavy rain in preparation for threshing soybeans. The rollers noted in the picture are used for threshing beans, kaoliang and millet.”

Neg. #45960. Same as #45959 but a different view.

Page 6047-6048 (4 Oct. 1930). Kungchuling-Dairen, Manchuria. “W.J. Morse’s notes: At Kaiyuan Dr. Lene Müller [Mueller, Muller], a scientist from Germany, sent to the Orient to study soybeans, got on the train to ride as far as Mukden to talk soybeans. Dr. Mueller has spent three months in the southern Amur district of Siberia where they are trying to grow soybeans extensively but with very poor success. She has spent about ten days in Manchuria and plans to spend a few days in Chosen and Japan studying varieties, breeding methods and utilization. She told of a wild species of soybean in the Amur district that matures in about 75 days.

“At Mukden, Dr. Mueller left us and Dr. Oza, teacher in the Mukden Agricultural High School, and at whose home Dr. Mueller is staying, got on the train. We found that he had visited Washington [DC] in 1927 and we had a visit on soybeans.” Address: Agricultural Explorers, USDA, Washington, DC.

437. Dorsett, P.H.; Morse, W.J. 1930. Soybeans in Chosen (Korea) (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 5616 (25 Aug. 1930). Heijo, Chosen. W.J.

Morse’s notes. “In the morning we went on a plant collecting trip in the Botandai [Botan-dai] and collected the following species.” A list of 8 species is given, including 1 *Pueraria* (regular) and 1 *Pueraria* with leaf-spot.

“Some of the grain markets in West Heijo were visited in the afternoon. Millet seed predominated followed by adsuki beans and mung beans. Only one or two soybean varieties were found at each store. The soybean stock at this season is low and some of the dealers advised they would not have a full stock of varieties until the arrival of the new crop. We succeeded in collecting eleven samples of soybeans which appeared interesting for trial.”

Page 5630 (26 Aug. 1930). Kosai, Chosen. W.J. Morse’s notes. “We took an early morning bus for Kosai, about 30 miles northeast of Heijo and went to the Kosai Village Agricultural Society. We met Mr. Tajima, the agricultural director who gave us information concerning the crops in Kosai county. About 60 per cent of the total cultivated area is devoted to paddy and upland rice. Millet, kaoliang, adsuki beans, mung beans and soybeans are quite extensively grown but mainly in the hill and mountain regions. About 25,000 koku (125,000 bu.) [1 koku = 5 bushels] of soybeans are produced. Very few soybeans are produced for the sale of the seed. They are used chiefly for cattle feed, and for home use as miso, soy sauce and boiled beans. Adsuki [azuki] beans and millet are the principal foods and more attention is given to the culture of adsuki beans than other crops.

“On the way from Kosai to Heijo the various mixed plantings in which soybeans were included, were noted as follows:

- “1. Soybeans and kaoliang.
- “2. Soybeans, millet, adsuki beans.
- “3. Soybeans, mung beans, buckwheat.
- “4. Soybeans, castor beans.
- “5. Soybeans, melons.
- “6. Soybeans, corn (several methods).
- “7. Soybeans, millet (several methods).
- “8. Soybeans, mung beans.”

Page 5631. Negative #45670. “Soja max. Soybean. Kosai, Chosen. Field of soybeans and millet. The millet in 21 inch rows and soybeans planted between two rows of millet. Every alternate middle is planted to soybeans.

Neg. #45671. “Soja max. Soybean. Kosai, Chosen. Buckwheat, mung beans and soybeans in same row. This mixed planting is quite common in this region.

Page 5632. Neg. #45672. “Soja max. Soybean. Kosai, Chosen. Mixed planting of soybeans and millet. Soybeans were planted at the edge of the millet rows when the millet was 2 inches high. Millet has just been harvested. Neg. #45673. “Soja max. Soybean. Kosai, Chosen. Soybean and millet field. The millet has just been harvested and the Korean boy is cutting the heads from the millet plants. Soybeans planted at intervals of about 8 feet along side of millet row.”

Page 5635 (27 Aug. 1930). Chuwa, Chosen. W.J. Morse's notes. "We left on the 9:30 mixed train for Chuwa, south of Heijo and went at once to the Village Agricultural Society where we met the Village Master and an agricultural engineer. We were told that the west side of the county grows primarily paddy and upland rice while on the east side soybeans, millet, kaoliang, mung beans and adsuki beans were the leading crops.

"Soybeans are quite generally grown alone but are also grown extensively with other crops as corn, millet and kaoliang. Large seeded varieties are grown in the mixed plantings while in the single crop plantings the small seeded varieties are used. Native Korean varieties are chiefly grown though the Society has tried to persuade the farmers to grow the Heijo and Hokkaido which are improved varieties. Soybeans are quite generally grown in this county as a cash crop and are also used by the farmers as a food for oxen and in the home manufacture of miso and soy sauce. A large number of native varieties are grown in the county and the Village Master promised to collect and send us samples this fall.

Page 5636, "After our visit to the Agricultural Society we took the main road to Heijo, a distance of about 15 miles from Chuwa." "Along the way we saw many excellent fields of soybeans alone and in mixed plantings with corn, kaoliang, and millet. Various methods were used in these mixed plantings."

Page 5637. Neg. #45675. "Soja max. Soybean. Chuwa, Chosen. Field of soybeans and field of kaoliang in farming section about 12 miles north of Chuwa."

Page 5707 (1 Sept. 1930). Senkyori, Chosen. W.J. Morse's notes. "During the day we made a trip through the Senkyori section east of Heijo and covered about fourteen miles. Throughout the farming section we found soybeans extensively grown, both alone and in mixed plantings. In the mixed plantings, corn was the most generally grown, one stalk of corn from 4-8 feet apart in the row and from 2-4 hills of soybeans between the corn hills. Some fields of kaoliang were mixed with soybeans, with two hills of soybeans between the hills of kaoliang (4 feet apart)."

Page 5708. Neg. #45714. "Soja max. Soybean. Senkyori, Chosen. Close-up view of soybeans and millet. Soybean hills planted at intervals of 8 feet along side of the millet rows."

Neg. #45715. "Soja max. Soybean. Senkyori, Chosen. Field of soybeans and millet. The hills of soybeans planted along side of millet rows at intervals of 15 feet."

Page 5709. Neg. #45716. "Soja max. Soybean. Senkyori, Chosen. Soybeans and kaoliang planted together. Alternate hills of soybeans and kaoliang in rows 21 inches apart.

Neg. #45717. "Soja max. Soybean. Ritsuri [today's Yul-li, in North Korea], Chosen. Corn and soybeans in same row with one stalk of corn every eight feet and three hills of

soybeans between corn hills. Corn thus planted is used as roasting ears."

Page 5719 (2 Sept. 1930). Ritsuri, Chosen. W.J. Morse's notes. "Mr. Lutz, agricultural advisor of the Union Christian College, took us in the morning near Ritsuri village where the farm of the Nippon Sugar Co. is located. This farm of 250 acres is primarily for the raising of sugar beets, but a four year rotation is followed: sugar beets, millet, soybeans and wheat." "We were taken over the farm by the manager and saw some excellent fields of soybeans.

Page 5730. "The wild soybean was found in great abundance along the roads and paths as was also the wild adsuki bean."

Page 5731. Neg. #45728. "Soja max. Soybean. Heijo, Chosen. Row of soybeans and kaoliang growing along the rice paddy in a rice section about four miles northwest of Heijo.

Neg. #45729. "Soja max. Soybean. Heijo, Chosen. View of soybeans and kaoliang growing on the edge of a rice paddy in a rice section about four miles northwest of Heijo.

Page 5733. (4 Sept. 1930). Chinnampo, Chosen. W.J. Morse's notes. "Left Heijo at 7:45 a.m. for Chinnampo where there is considerable shipping of soybeans. On the way the lowlands were given to paddy rice while the uplands were quite generally devoted to kaoliang and mung beans, millet, soybeans and adsuki beans. Soybeans were grown in all of the millet fields but at the present time about 90% of the millet has been harvested leaving the soybeans in full possession of the fields."

Page 5734. At Chinnampo we went too the Heian Nando Grain Inspection Office where we met the director, Mr. Ozeki. We were given considerable data on exports, inspection, grading, trading, varieties and uses of soybeans in this prefecture. The trade in beans at the present time is rather dull. The price per koku (5 bushels) is ¥12.80, The highest prices are in the fall and winter when better grades of beans are obtained.

"We were taken to a Korean merchant who does a large export business in soybeans to Japan and who handles several varieties of soybeans. We visited the warehouse of this merchant and were given samples of the different varieties he had in stock (16). We were advised that mostly yellow beans are shipped to Japan for miso, soy sauce and bean curd [tofu]. Some black [soy] beans are shipped for cooking purposes but bicolored beans are not allowed to be exported." Address: Agricultural Explorers, USDA, Washington, DC.

438. Dorsett, P.H.; Morse, W.J. 1930. Soybeans in Chosen (Korea) (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant

Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 5739 (5 Sept. 1930). Taihei, Chosen. W.J. Morse's notes. "Yesterday while returning from Chinnampo it was noted that soybeans alone and soybeans in mixed plantings were very generally grown from Taihei to near Heijo, a distance of fifteen miles. This morning we started for Taihei..."

"Wild legumes were found in great abundance along the roadsides, especially the wild soybean. Wild adzuki beans and several species of lespedeza were also found in abundance along the roadsides. A small patch of wild soybean was found badly affected by leafspot. In previous trips in Manchuria and Korea we had not noticed leafspot on the wild soybean.

"In the mixed plantings of soybeans and other crops several small fields of castor beans and soybeans were found. The castor plants were anywhere from 2-4 feet apart in the soybean rows. In this region we saw more buckwheat and soybeans together than in any section yet visited. Hills of buckwheat were sown along side of the soybean row at intervals of 2-3 feet. Many fields of cucumbers and soybeans and melons and soybeans were observed. These were on ridged beds about 4 feet wide. The cucumbers and melons were planted up the middle of the beds while soybeans were planted in hills along the edges of the beds from 2-4 feet apart."

"Some excellent fields of soybeans alone were seen..."

Page 5740. "A few kaoliang fields have been cut. In the millet and soybean fields at least 90% of the millet has been harvested. Many soybean fields are beginning too yellow and with good weather should mature rapidly.

Negative #45353. "*Setaria italica*. Millet. Taihei, Chosen. Millet curing in large shock in millet and soybean field. Millet is one of the principal foods of the Koreans. The millet stalks are used chiefly for animal feed."

Neg. #45734. "Soja max. Soybean. Taihei, Chosen. Soybean and melon field. Soybeans planted in middle of 4 foot beds and hills of soybeans planted along edges of beds. Melons have been harvested & soybeans now have whole field. The shelter is used during the melon season for the watchman."

Page 5741. Neg. #45736. "Soja ussuriensis. Wild soybean. Taihei, Chosen. Wild soybeans growing very abundantly along embankment in Taihei section. Wild soybeans were found quite generally throughout this region."

Page 5742. Neg. #45738. "Soja max. Soybean. Taihei, Chosen. Soybeans growing along the edge of a rice paddy in a rice section of the Taihei District."

Page 5743. Neg. #45739. "Soja max. Soybean. Taihei, Chosen. Soybeans and castor beans grown in same row (rows 21 inches apart). Castor plants 30 inches apart, hill of soybeans between castor plants."

Neg. #45740. "Soja max. Soybean. Taihei, Chosen. Soybeans and castor beans grown together in the same row.

Castor bean plants 30 inches apart with hill of soybeans between. Rows 21 inches apart."

Page 5744. Neg. #45741. "Soja max. Soybean. Taihei, Chosen. Field of soybeans and buckwheat. Rows 21 inches apart. Buckwheat planted in hills at intervals of 3-4 feet along row of soybeans."

Neg. #45742. "Soja max. Soybean. Taihei, Chosen. Close-up view of soybeans and buckwheat planted together. Rows 21 inches apart. Buckwheat planted in hills 3-4 feet apart along row of soybeans."

Page 5745. Neg. #45743. "Soja max. Soybean. Taihei, Chosen. Soybeans and cucumbers planted on ridged bed about 4 feet wide. Cucumber plants about 15 inches apart in row in center of bed. Hills of soybeans about 5 feet apart along each side of bed.

Neg. #45744. "Soja max. Soybean. Taihei, Chosen. Field of soybeans and millet with millet just harvested. Soybeans were planted in hills at intervals of 8 feet along side of millet row.

Page 5771 (9 Sept. 1930). Shariin, Chosen. W.J. Morse's notes [Dorsett is in Peiping, China]. "We left at 9:30 a.m. to visit the Agricultural Experiment Station at Shariin to look over the soybean experimental work. From a short distance west of Kokai-Koshu [Kokaikoshu] we began to observe quite extensive plantings of buckwheat more than any section yet seen. Many large fields were sown alone but for the most part buckwheat was in mixed plantings. In most of the [soy] bean fields, two to four rows of buckwheat were grown on the sides. Mixed plantings of soybeans and buckwheat and mung beans and buckwheat were quite common.

After reserving rooms at the Shariin Inn we went to the Experiment Station where we met Mr. Hoshino, one of the crop assistants."

Page 5772. "Mr. Takehashi is at present on the Main Island and it is not known just when he will return. We were taken to visit some of the experimental plots between showers.

"In the soybean variety work, they have over 1,500 numbers under test. Over 200 are varieties that the Shariin station has been working with while 800 were received from the Suigen station the past spring. About 500 samples were received from the Chosen Fair last fall, representing the best native varieties from all prefectures in Chosen. In the variety tests and breeding work 10 plants are grown to a number, the plants being about [?] inches apart in the row and the rows about 30 inches apart. many very interesting varieties were noted in the various tests.

"The soybean expert, Mr. Sawamura, was sick today but may be with us tomorrow to give more information concerning the soybean work and also to take us out to some of the farming sections.

Page 5773. Neg. #45769. "Soja max. Soybean. Shariin, Chosen. View lengthwise of rows of soybean-millet field.

Bean hills about 12 feet apart along side of millet row. No fertilizer was applied to this field.

Neg. #45770. "Soja max. Soybean. Shariin, Chosen. View at right angle to rows of millet-soybean field after the millet has been harvested. Hills of soybeans about half way up row ridge and about 12 feet apart. Rows 21 inches apart."

Page 5800 (10 Sept. 1930). Shariin, Chosen. W.J. Morse's notes. "In the morning we went to the Shariin Experiment Station where we met Mr. Sawamura, the soybean expert. With reference to not sending seed of the soybean varieties the past winter. Mr. Sawamura advised that when they came to check up the seed of the varieties the past winter they found the seed of many varieties did not check up with the native varietal names. They decided to grow the varieties again, correct the errors and send us seed of the 1930 crop.

"We were taken to the variety and breeding plots and the work [was] explained to us by Mr. Sawamura. All work is being done with native Korean varieties toward the development of improved pure strains. The varieties received from the 1929 Chosen Fair (500 numbers) showed some very interesting and valuable sorts. This is the collection we saw at the Fair last October and tried to secure. Through a misunderstanding, we only received six soybean seed samples. When the situation was explained to Mr. Sawamura, he thought he could give us the sample of each this fall. In addition he will give us samples of the 208 native Korean varieties the station has been working with.

"We then went out in the farming sections and saw some excellent fields of soybeans."

Page 5802. Neg. #45784. "Soja max. Soybean. Shariin, Chosen. Field of soybeans, adzuki beans, mung beans, and buckwheat in same rows (21 inches apart). A very common practice in this district.

Neg. #45785. "Soja max. Soybean. Shariin, Chosen. Close-up view of the large flat-stemmed soybean selection in variety test at the Shariin Experiment Station. The pods are bunched at the top.

Page 5803. Neg. #45786. "Soja max. Soybean. Shariin, Chosen. An excellent field of a native variety of soybeans near Shariin.

Neg. #45787. "Soja max. Soybean. Shariin, Chosen. Close-up view of large flat stem selection in variety test at Shariin Experiment Station. The pods of this variety are bunched at the top.

Page 5811 (11 Sept. 1930). Heijo, Chosen. W.J. Morse's notes. "Went to the office of the Agricultural Society to see Mr. Yamazaki with reference to silos and silage in Daido County. He advised that he was going to look over some of the silos in a nearby section on Saturday and would be glad to have us go with him. Soybeans were grown also in this section but were used principally for cattle feed. As yet no tests have been made with soybean and corn silage. The silage for the most part is corn, weeds (grasses and legumes),

and alfalfa. In 1929 there were five silos in the county and in this year (1930) there were forty silos scattered about in the county."

They then went to a hill section west of Heijo. "We found the wild soybean growing abundantly and it is quite evident there are two distinct varieties—one with narrow pointed leaves and the other with larger leaves more rounding at the tip. Again we found leafspot [disease] very bad on the wild soybean."

"On our way through the city in the morning we saw shelled green vegetables in baskets at several Korean vegetable stands. Mung bean sprouts are now on the market, more generally than when we first came to Heijo. At several stands soybean sprouts were noted for the first time."

Page 5814. Neg. #45795. "Soja max. Soybean. Shariin, Chosen. View of soybean-millet field on steep hillside about two miles west of Heijo. Millet has been harvested. [Soy] Bean hills are about 6 feet apart in row." Address: Agricultural Explorers, USDA, Washington, DC.

439. Dorsett, P.H.; Morse, W.J. 1930. Soybeans in Chosen (Korea) (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 5828-5829 (12 Sept. 1930). Heijo (today's Pyongyang) and Jidori, Chosen. W.J. Morse's notes. Neg. #45805. "Soja max. Soybean. Jidori, Chosen. Kaoliang-soybean field. Rows 21 inches apart. Two kaoliang plants every five feet apart in row and three hills of soybeans between the hills of kaoliang."

Page 5837. Neg. #45512. Silo. Ryojo. Chosen. Cement silo on Korean farm near Ryojo. Silo is 6 feet deep and 5 feet in diameter. It extends about 12 inches above ground and holds about 6,000 pounds of silage. Chopped corn (without the ears), alfalfa, and weeds are most commonly used. Wooden cover on silage is weighted with stones.

Neg. #45513. Korean silo. Ryojo. Chosen. Cement pit silo is 6 feet deep, 5 feet in diameter and the wall 4 inches thick. It holds 6,000 pounds of silage which lasts one ox from 3-4 months. Corn, alfalfa and wild legumes & weeds are used for silage."

Page 5842-5843 (15 Sept. 1930). Rikiho to Chuwa, Chosen. "Left by train this morning for Rikiho and walked from Rikiho to Chuwa." "Nearly all of the millet has been harvested and about 50 per cent of the kaoliang. The fields are for the most part mung beans, soybeans, adzuki beans and buckwheat. Many fine fields of soybeans were noted and are beginning to mature. All millet fields have only soybeans in them while the harvested kaoliang fields have mostly mung beans."

"Arriving at Chuwa we found market day on so we

looked over the different farm products. In the grain section [?] kaoliang seed predominated followed closely by wheat. There are also more or less mung beans and adsuki beans but very few soybeans. Neg. #45815. "*Soja max.* Soybean. Chuwa, Chosen. Soybean section of grain market on Korean market Day. Farmers' Market Days are held in Korean villages and cities every 5 days."

Page 5844. A large and interesting vertical panoramic photo with illegible handwritten description.

Page 5871 (17 Sept. 1930). Heijo, Chosen. W.J. Morse's notes. "Field notes from August 17 to September 15, inclusive, as well as eighty-nine $3\frac{1}{4}$ by $4\frac{1}{4}$ negatives and 12 panoramas of pictures covering the above period were sent to P.H. Dorsett at Peiping, China to be included in our quarterly field trip report.

"In view of the fact that the Shariin Experiment Station soybean expert said it would pay us to visit the Suigen Experiment Station to see the soybean variety and breeding work, we left Heijo at 2:31 P.M. and arrived at Keijo [today's Seoul] at 8:50 P.M.

"In the Shariin region we noted as we passed through many excellent fields of soybeans and the crop seemed to be more advanced in maturity than we have observed elsewhere. Millet and soybeans are most generally seen. The hills of soybeans seemed [?] to be planted at no uniform distances apart along the millet rows. The hills ranged from 4 to 20 feet apart in different fields.

Pages 5879-5880 (18 Sept. 1930). Suigen, Chosen. W.J. Morse's notes. "We left early in the morning for the Suigen Experiment Station where we met Dr. Nagai, plant breeder of the station.

"The principal work at the station with soybeans consists of developing pure strains from native Korean varieties through selection and hybridization. The variety test is made up of about 80 varieties selected from more than one thousand samples of the native Korean, Japanese and Manchurian sorts.

"We were taken out to the experimental plots by Dr. Nagai and had an opportunity of seeing the grown varieties which we missed last season due to the lateness of our arrival in Chosen. In the variety test some excellent varieties were observed ranging from 3-4½ feet high and very prolific. Especially interesting and promising were the Chotan and Orusan, selections from native Korean varieties.

"In the selection tests, many hundred individual plant selections were being grown in 30 inch rows, the plants about 9 inches apart in the row. Dr. Nagai tries to have fifty plants per individual plant selection. In planting a seed is dropped every 8 inches so there is no thinning to do. There were many very promising selections but all of the grain type.

During the spring, Dr. Nagai received a full set of named American varieties from the U.S. Department of Agriculture. Each variety was given about two rods [1 rod = 16.5 feet]

and with the exception of the very early sorts were showing up exceptionally well. The Harbinsoy (S.P.I. 54906) placed in the U.S. farmers' hands in 1927 looked to be the best and was highly spoken of by Dr. Nagai. The varieties ranging in maturity from 115-130 days appear to be best under Korean conditions in this section.

"After looking over the experimental plots we went to the farming section west of the station. Soybeans were grown in rows with susu (sorghum) and perilla, and with millet and susu. All of the crops are planted in beds 3-4 feet wide. In the planting of susu, millet and soybeans, the soybeans are sown first, right after barley harvest (about the 20th of June). The beans are sown in hills (4-6 plants per hill), four across the bed, 8-12 inches apart. At the same time susu plants 24-30 inches high, are transplanted in a row in the center of the bed at intervals of about 5 feet—4-5 susu plants per hill... Very few mung beans, adsuki beans and buckwheat are grown in this region in comparison with the planting of these crops in northern Korea. Soybeans are grown in mixture with many other crops such as cotton, cucumbers, upland rice and melons."

"Dr. Nagai found that the number of stems per leaf bore a direct correlation to the resistance of the plant to disease. The most susceptible plants had the largest number of stems per plant."

Page 5881. Neg. #45852. "*Soja max.* Soybean. Suigen, Chosen. Plot of 'Koshu' [?] a native Korean variety of soybeans in the variety test at the Suigen Experiment Station.

Neg. #45853. "*Soja max.* Soybean. Suigen, Chosen. Field of soybeans, millet and susu (sorghum) on a farm near Suigen.

Page 5882. Neg. #45854. "*Soja max.* Soybean. Suigen, Chosen. Plot of 'Chotan' a native Korean variety, fully mature... This variety is an excellent grain sort and is extensively grown in the Chotan region.

Neg. #45855. "*Soja max.* Soybean. Suigen, Chosen. Soybeans and susu (kaoliang) planted in beds about 4 feet wide. Bean hills (4-6 plants per hill) about 10 inches apart and four across the bed. Each row of four hills about 21 inches apart. The sorghum (susu) is transplanted when about 30 inches high about every 8 feet in the center of the bed."

Page 5883. Neg. #45856. "*Soja max.* Soybean. Suigen, Chosen. Dr. Nagai, plant breeder of the Suigen... Station, showing the growth of the 'Harbinsoy (S.P.I. 54906—American variety) under Korean conditions.

Neg. #45857. "*Soja max.* Soybean. Suigen, Chosen. Dr. Nagai (on right) in a plot of 'Orusan' variety of soybeans at the Suigen... Station. This appears to be one of the most promising varieties for the Keijo [Seoul] section."

Page 5897 (20 Sept. 1930). Seoul (Keijo), Chosen. W.J. Morse's notes. They took a bus to Tokusan which is a valley region they found largely devoted to truck crops. "No soybeans were found in the lowlands but when we came to the hill region we found soybeans planted with susu, perilla

and millet. We also observed many rather small fields of peppers planted in beds with soybeans in hills on the edges of the beds. Several fields of upland rice were also seen with hills of soybeans between the beds and on the ends. We walked as far as Senyari where we took a bus back to Keijo.”

Page 5598. Neg. #45868. “*Soja max*. Soybean. Tokusan, Chosen. Soybeans planted between beds of upland rice.”

Neg. #45869. “*Soja max*. Soybean. Tokusan, Chosen. Perilla planted with soybeans on beds about 4 feet wide. Perilla plants are about 4 feet apart and extend up center of bed.”

Page 5899. Neg. #45870. “*Soja max*. Soybean. Tokusan, Chosen. Mixed planting of soybeans, perilla and susu (sorghum). Perilla is grown to a considerable extent in this region with soybean. The plantings are in beds about 4 feet wide.”

Neg. #45871. “*Soja max*. Soybean. Tokusan, Chosen. Soybeans grown on the edges and between pepper beds. Peppers were grown quite generally in this section and always with soybeans.”

Page 5900. Neg. #45872. “*Soja max & Coix lachryma*. Soybeans & Job’s tears. Tokusan, Chosen. Soybeans and Job’s Tears grown on the edges of a rice paddy.”

Pages 5902-5903 (21 Sept. 1930). Seoul (Keijo) to Heijo, Chosen. “We left Seoul at 9:05 a.m. and passed through an extensive which we came through at night on our way down to Seoul. Some rather different methods of planting crop mixtures were observed in the region north of Kinkou than we have ever seen elsewhere.

“Soybeans on ridges 24 inches apart and millet planted in the furrows.

“Soybeans on ridges 24 inches apart and castor beans planted at intervals of about 8 feet along the side of the soybean ridge.

“Many excellent fields of soybeans alone were noted and in nearly all cases the leaves were nearly all yellow... In many millet and soybean fields, the millet has been harvested and the soybean, though not yet mature, were being cut to make ready for planting barley... Arrived at Heijo at 3:06 p.m.” Address: Agricultural Explorers, USDA, Washington, DC.

440. Dorsett, P.H. 1930. Re: Delighted to know that you can come to Peiping by about October 1 (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Sept. 22. Unpublished log.

• **Summary:** Pages 5907-5908. This letter dated Sept. 22 is from P.H. Dorsett in Peiping, China to Mr. W.J. Morse, c/o Yamato Hotel, Dairen [Manchuria].

“Dear Morse: I was delighted this morning to receive

your letter of September 16th, also your report from August 17th to September 15th inclusive with...

“The season is progressing quite rapidly here and the farmers are making excellent headway in getting in their crops. Millet, corn and kaoliang have pretty well been harvested; mung and adzuki beans, as well as some of the earlier soybeans are being harvested.

“We are delighted to know that you can come to Peiping about October first. We suggest that you do not postpone your visit any longer than is absolutely necessary after October first. I am requesting Mr. Liu to get the names and addresses of parties and firms in Peiping which make and handle soybean products.

“You may have noticed in the local papers that Peiping is more or less upset in connection with military activities. The Shansi troops are retreating from Tientsin and Peiping by the thousands and the Manchurian troops have, we understand, already begun to arrive in Tientsin and also Peiping. This apparently has not interrupted conditions in Peiping except along the railroad arteries...”

“I am delighted to know that your work has been so satisfactory in Chosen. It looks as though by the time you wind up your work there, here at Peiping and vicinity and putting finishing touches on at Dairen, that we will have accomplished worth while in the investigations of the soybean industry of the Orient.

“We are feeling fine and getting along fairly well with our work, and will be delighted to see you again when you reach Peiping...”

“All at this end of the line join in kindest regards and best wishes to you and the family as well as to Mr. Suyetake. Please do not forget to bring him with you to Peiping. I feel sure that he will be interested in seeing this fascinating city and will be able to be of great assistance to you en route, and no doubt while here.

“Sincerely yours, P.H. Dorsett, Agricultural Explorer.”
Address: Agricultural Explorer, USDA, Washington, DC.

441. Dorsett, P.H.; Morse, W.J. 1930. Kungchuling, Manchuria (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log.

• **Summary:** Page 6544-6545 (26 Nov. 1930). En route Kungchuling, Manchuria. “W.J. Morse’s notes: We left on the 9:00 a.m. express for Kungchuling where the S.M.Ry. holds its annual soybean fair for the Manchurian farmers along the S.M.Ry. lines in the Changchun, Kungchuling and Ssuning kai districts. The Kungchuling Experiment Station distributes about 3,000 koku [1 koku is 4.96 bushels] of seed of the improved variety ‘Kungchuling’ to farmers in the above districts every year. The S.M.Ry. offers prizes for the

best three grades from each district, that is first grade beans in each district receive first prizes, second grade, second prize and so on to four grades.

"Prof. Matsushima advised that Chinese farmers from Kaiyuan to Changchun are raising about 6,000,000 koku of the improved variety 'Kungchuling.'

"From Kaiping (south of Mukden) to Kungchuling the ground was covered with snow, increasing as we went northward. Arrived at Kungchuling at 7:28 p.m. and found it extremely cold."

Page 6546-6547 (27 Nov. 1930). Kungchuling, Manchuria. "W.J. Morse's notes: We left with Prof. Matsushima in the morning for the experiment station where we met Dr. Nakamoto, the director, and Mr. Murakoshi. A large archway to the entrance of the experiment station was made of soybean plants and the welcome sign across the arch was made of black soybean letters with a background of yellow soybeans.

"Director Nakamoto took us to the exhibit hall where the seed samples were on display, In all there were 1270 samples of seed from farmers in the Changchun, Kungchuling and Ssuningkai districts. The seed samples were all of the improved 'Kungchuling' variety which was placed in distribution about six years ago by the Kungchuling station. Prizes were awarded to all samples that could be placed in the four inspection grades... The samples were arranged and graded for the three districts."

"Four hundred and twelve farmers received prizes in addition to certificates of merit. The farmers were also given free passage on the railway from and to their homes, and were also given a big feed at noon with plenty of 'hochu' (kaoliang whiskey) The day was known as 'Farmer's Day.' The prizes consisted of blankets, dishes, towels, etc."

Page 6548. Neg. #46268. "Soja max. Soybean. Kungchuling, Manchuria. Welcome gate made of soybean plants. Entrance to the exhibit hall of the soybean seed fair" [see Neg. #46275].

Neg. #46269. "Soja max. Soybean. Kungchuling, Manchuria. At entrance gate leading to soybean seed exhibit. Mr. Murakoshi at right, W.J. Morse in center, and Prof. Matsushima at left" [see Neg. #46276].

Page 6549. Neg. #46270. "Soja max. Soybean. Kungchuling, Manchuria. Close-up view of some of the seed samples at the soybean fair held at the S.M.Ry. Experiment Station" [see Neg. #46274, 46277 46278].

Neg. #46271. "Soja max. Soybean. Kungchuling, Manchuria. Group of Manchurian farmers receiving their prizes at the S.M.Ry. Experiment Station Soybean Seed Fair."

Page 6550. Neg. #46272. "Soja max. Soybean. Kungchuling, Manchuria. View showing Manchurian farmers with prizes won at the Soybean Seed Fair held at the South Manchurian Railway Experiment Station."

Neg. #46273. "Soja max. Soybean. Kungchuling,

Manchuria. Manchurian farmers, winners of first prizes at the soybean seed fair held at the Experiment Station."

Page 6554-6555 (28 Nov. 1930). Kungchuling, Manchuria. "W.J. Morse's notes: Today's fair was for the benefit of the S.M.Ry. workers in the Changchun, Kungchuling and Ssuningkai districts. We had rather a lengthy talk with Mr. Murakoshi who is in charge of the agricultural machinery department regarding culture and harvest of soybeans throughout Manchuria. He stated that at the present price of coolie labor machinery on Manchurian is (?) profitable. Ridged cultivation, he stated, is essential on account of the climatic conditions prevailing in North and South Manchuria.

"Several of the stations exhibits were looked over."

Page 6556. Neg. #46275. "Soja max. Soybean. Kungchuling, Manchuria. Large Welcome Arch at main entrance of S.M.Ry. Exper. Sta. during Soybean Seed Fair. Columns and cross pieces made of soybean plants and welcome sign made of black and yellow soybean seed" [see Neg. #46228].

Neg. #46276. "Soja max. Soybean. Kungchuling, Manchuria. At the entrance gate leading to soybean seed exhibit. Dr. Nakamoto in the center, Mr. Suyetake at the left and one of Dr. Nakamoto's assistants at right" [see Neg. #46269].

Page 6557. Neg. #46277. "Soja max. Soybean. Kungchuling, Manchuria. View of one section of the display of soybean seed samples at the Soybean Seed Fair held at the Exper. Station" [see Neg. #46270, 46274, 46278].

Neg. #46278. "Soja max. Soybean. Kungchuling, Manchuria. At the Dr. Nakamoto, Director of the S.M.Ry. Experiment Station holding first prize seed sample of the Kungchuling District" [see Neg. #46270, 46274, 46277].

Page 6558-6559 (29 Nov. 1930). Kungchuling, Manchuria. "W.J. Morse's notes: About 9:00 a.m. Mr. Kosai and a Chinese assistant called at the inn to take us to visit the storage yards of Chinese grain merchants where considerable quantities of beans were being brought by farmers.

"At the first yard we found great activity along the soybean line. The large yard was filled with carts of beans. Most of the beans were in bags but with some carts the beans were in bulk, matting being used on the sides and bottom of the box and also cover of matting.

"The beans were measured from the carts, placed in bags and then carried and dumped in the Osier bins. Although we have been told that there is little injury to seed from the pod borer in the Kungchuling district we found rather a large per cent of borer injury in the different lots examined.

"Three storage places were visited during the morning and all were quite busy handling cart loads of soybeans. Some kaoliang, mung beans and adzuki beans were also observed but in rather small quantities. At each of the storage places the grain merchants have inn accommodations for the farmers. At all places the merchants gave us samples of seed

that had come from different villages. All in all the seed was of rather poor quality, showing lack of proper cleaning and storage.

“At each of the storage places visited there were several guards with rifles... Not long ago a merchant of one of the yards was taken from his quarters in the storage place by bandits and held for \$10,000 ransom. After his friends raised the required amount, he was released.”

“We left Kungchuling at 7:28 p.m. and arrived at Changchun at 8:30 p.m. where the S.M.Ry. man met us and helped us arrange for our trip to Harbin. After changing our yen into Mex. dollars, we purchased railway and berth tickets, left Changchun at 11:39 p.m.”

Neg. #46279. “Soja max. Soybean. Kungchuling, Manchuria. General view showing Osier bins with soybeans and the filling of one of the bins in the storage yard of a Chinese grain merchant.”

Page 6560. Neg. #46280. “Soja max. Soybean. Kungchuling, Manchuria. General view in storage yard of a Chinese grain merchant showing carts loaded with soybeans and the Osier bins in which the beans are stored.”

Neg. #46281. “Soja max. Soybean. Kungchuling, Manchuria. View in storage yard of Chinese grain merchant. Bins filled and partially filled with soybeans.”

Page 6561. Neg. #46282. “Soja max. Soybean. Kungchuling, Manchuria. Showing cart loaded with sacks of soybeans, filled Osier bin on which they are placing a top, and filling a bin in the storage yard of a Chinese grain merchant.”

Neg. #46283. “Soja max. Soybean. Kungchuling, Manchuria. Manchurian cart loaded with sacks of soybeans in the storage yards of a Chinese grain merchant.”

Page 6562. Neg. #46284. “Soja max. Soybean. Kungchuling, Manchuria. View showing carts loaded with bags of soybeans and the filling of Osier bins in the storage yard of a Chinese grain merchant.”

Neg. #46285. “Soja max. Soybean. Kungchuling, Manchuria. Cart loaded with soybeans in the storage yard of a Chinese grain merchant.”

Page 6563. Neg. #46286. “Soja max. Soybean. Kungchuling, Manchuria. Close-up view of Manchurian cart filled with soybeans. The beans are brought in bulk by the farmer and matting used for bottom, sides and top.”

Neg. #46287. “Soja max. Soybean. Kungchuling, Manchuria. Measuring soybeans from a Manchurian farmer’s cart in the storage yard of a Chinese grain merchant.”

Page 6564. Neg. #46288. “Soja max. Soybean. Kungchuling, Manchuria. Measuring the soybean seed from a Manchurian farmer’s cart in the storage yard of a Chinese grain merchant.”

Neg. #46287. “Soja max. Soybean. Kungchuling, Manchuria. Showing the measuring of soybean seed from a Manchurian farmer’s cart in the storage yard of a Chinese grain merchant.” Address: Agricultural Explorers, USDA,

Washington, DC.

442. Dorsett, P.H.; Morse, W.J. 1930. Kungchuling, Manchuria (Document part). In: P.H. Dorsett and W.J. Morse. 1928-1932. Agricultural Explorations in Japan, Chosen (Korea), Northeastern China, Taiwan (Formosa), Singapore, Java, Sumatra and Ceylon. Washington, DC: Foreign Plant Introduction and Forage Crop Investigations, Bureau of Plant Industry, USDA. 8,818 p. Unpublished log. • **Summary:** Page 6565. Neg. #46290. “Soja max. Soybean. Kungchuling, Manchuria. A typical Manchurian farmer who has just come into the Farmer’s Inn yard with a cart load of soybeans.”

Neg. #46291. “Soja max. Soybean. Kungchuling, Manchuria. General view showing filling of Osier bins with soybeans in storage yard of Chinese grain merchant.” Page 6566. Neg. #46292. “Soja max. Soybean. Kungchuling, Manchuria. View in the storage yard of a Chinese grain merchant showing Osier bins filled and partly filled with soybeans.”

Neg. #46293. “Soja max. Soybean. Kungchuling, Manchuria. View showing an Osier bin filled partially with soybean seed in storage yard of Chinese grain merchant.” Page 6567. Neg. #46294. “Soja max. Soybean. Kungchuling, Manchuria. Filling osier bins with soybeans in the storage yard of a Chinese grain merchant.”

Neg. #46295. “Soja max. Soybean. Kungchuling, Manchuria. Filling Osier bin with soybeans in the storage yard of Chinese grain merchant.” Page 6568. Neg. #46296. “Soja max. Soybean. Kungchuling, Manchuria. Filling an Osier bin with soybeans in storage yard of a Chinese grain merchant.”

Neg. #46297. “Soja max. Soybean. Kungchuling, Manchuria. View showing the filling of an Osier bin in the storage yard of Chinese grain merchant.” Page 6569. Neg. #46298. “Soja max. Soybean. Kungchuling, Manchuria. Filling an Osier bin with soybeans in the storage yard of a Chinese grain merchant.”

Neg. #46299. “Soja max. Soybean. Kungchuling, Manchuria. Filling an Osier bin with soybeans and placing the grass top on another bin in the storage yard of a Chinese grain merchant.”

Pages 6570, 6571, 6572, 6573, 6574, 6575, 6576, 6577, 6578, 6579. Panoramic views of the scenes described in the smaller photos just above. The handwritten captions are illegible.

Page 6580-81. This is a letter dated 27 Nov. 1930 from Peter Liu in Shanghai, China, to P.H. Dorsett in Peiping. “I did not see any persimmons in the Shanghai streets, but was told by somebody that Hang Chow is a persimmon region...

“I have already found and bought seven different kinds of beans, cured and cooked in different ways. The natives are so wondered at what I am doing, and sometimes I get a whole bunch of people watching me.

"This evening I will decide who will accompany me to Hang Chow and will leave tomorrow morning at 9 o'clock.

"The soybeans, and adzuki beans are very much larger than we found around Peking. I am sure you will be enjoy to see them, when I take them back. I hope I can do well and have a successful trip.

"With my best regards to your daughter Mrs. R.B. Dorsett., Sincerely yours..."

Page 6582 (30 Nov. 1930). Harbin, Manchuria. "W.J. Morse's notes: Arrived at Harbin at 8:00 a.m. in the midst of a snowstorm which soon cleared up for it was too cold to snow much. We were met at the station by Mr. Kadono of the S.M.Ry. Harbin Office.

"After breakfast, Mr. Kadono gave us some rather interesting information on the soybean situation in North Manchuria. At the present time the bean trade is very dull, much more so than in previous years..."

"The centers of bean collection have shifted from last year. Anda has for many years been the largest collecting center for farmers in North Manchuria. Due to a refusal of a change in freight rates on beans by S.M.Ry., the farmers are carting the beans to Sui-Hua, north of Harbin, and to Nankou north of Tsitsihar [Qiqihar]. From Nankou the beans go to Tsitsihar and down the Mongolian Railway, to Chinese ports and from Sui-Hua to Harbin and then either to Dairen or Vladivostok. Beans that go to Dairen for export must be inspected and graded whereas the beans going to Vladivostok are neither inspected nor graded. Along the Chinese Eastern Railway beans are transported in open cars but upon reaching Changchur [?]..." Page 6613-6614 (1 Dec. 1930). Harbin, Manchuria. "W.J. Morse's notes: "In the morning we went to the local offices of the S.M.Ry... We were given much valuable data on the trading, storage and transportation of soybeans throughout North Manchuria. About 60 per cent of the soybeans and soybean products in North Manchuria are shipped from Harbin to Dairen over the C.E.Ry. [Chinese Eastern Railway] and the S.M.Ry. for export, and 40 per cent over the C.N.Ry. [?] to Vladivostok, Russia, for export.

"Much complaint has been received from European countries on the poor quality of beans from North Manchuria. This has led the C.E.Ry. to install an inspection service of beans shipped over its lines to Vladivostok. All beans passing over the S.M.Ry. lines to Dairen for export must pass inspection at the point of loading even at points along the C.E.Ry. There is great fear among merchants, farmers, and others concerned in the soybean industry that America will soon produce soybeans for export to European countries and seriously affect the Manchurian soybean industry."

"The soybean oil industry in Harbin is very slow at the present time. In previous years, 43 oil mills would be in operation at this time of year, but at present only three mills are running—two Chinese mills and the Anglo-Chinese

Eastern Trading Co. The production of oil throughout Manchuria has been crippled by the large importation of soybeans by European oil mills.

"During the day we tried to get in touch with Prof. B.W. Skvortzow but failed, so late in the afternoon went to his home but found him absent." Address: Agricultural Explorers, USDA, Washington, DC.

443. Buck, John Lossing. 1930. Chinese farm economy: A study of 2866 farms in seventeen localities and seven provinces in China. Chicago, Illinois: University of Chicago Press. xii + 476 p. Illust. Index. 24 cm. Published for the Univ. of Nanking and the China Council of the Institute of Pacific Relations.

• **Summary:** Packed with carefully collected and analyzed statistics about soybeans and other major crops in China, often on a province by province basis. Also contains 39 excellent photos plus several maps. Contents: 1. Introduction: Method and scope of study, regional conditions, definition of terms ("Soybeans are the yellow soybeans unless otherwise designated." "Vermicelli made from green (mung) bean, *Phaseolus aureus*). 2. Farm layout and land utilization. 3. The year's farm business. 4. The best size of farm business. 5. Farm ownership and tenancy. 6. Crops (incl. soybeans, alfalfa, broad beans, buckwheat, corn, cowpeas, hemp, kaoliang, millet (broom, foxtail, proso), peanuts, rapeseed, red beans [azuki], sesame, wheat). 7. Livestock and fertility maintenance. 8. Farm labor. 9. The family farm and population. 10. Food consumption. 11. Standard of living. 12. Conclusion. Appendixes: I. Relation of farm size to 30 variables. II. Gross correlation of coefficients. III. Amount of crop hectares devoted to various crops. IV. Schedules.

Concerning food consumption: "Fats for cooking are exclusively vegetable oils and little even of these are used in the country districts... The most common oils are made from sesame seeds, soybeans, and rapeseed" (p. 357). Tables (p. 358-61) give the chemical composition and caloric value of food products consumed in China; incl. red beans, yellow soybeans, black soybeans, and soybean curd [tofu]. Chinese farm households receive 89.8% of their energy (calories) from seeds and their products, 1% from animal products, and 0.2% from sugar. "Soybeans provide proteins and are a good substitute for milk" (p. 364-65). "Soybeans are a good source of protein, but the proportion of protein from these is small for most localities" (p. 373). "The low standard of living of farmers in China is reflected in almost every aspect of the farmer's life." There are two main reasons for this: population density and lack of education (p. 420). "The farmhouse in China lacks comfort, beauty, and even the elements of sanitation necessary for health and well-being. Diet, while remarkable in containing many of the elements needed for health and strength, lacks variety mainly in fruits and vegetables, particularly in North China. The direct

utilization of grains and to a certain extent of soybeans, however, is probably a more economical procedure than the western way of using so much food largely through animals” (p. 424-25).

Note: The famous American novelist Pearl Sydenstricker Buck married this man in 1917; they were divorced in 1934. Address: Prof. of Farm Management, College of Agriculture and Forestry, The Univ. of Nanjing, Nanjing, China.

444. Hedrick, Ulysses Prentiss. 1931. Beans of New York. In: The Vegetables of New York, Vol. 1, Part II. Albany, New York: J.B. Lyon Co., Printers. 113 p. See p. 8, 12, 13. [6 ref]

• **Summary:** Series title: Report of the New York State Agricultural Experiment Station for the year ending June 30, 1928.

Vol. 1 includes legumes. Part II is beans.

The soybean is discussed on pages 8 and 12. Page 8 lists all the soybeans varieties recommended for New York by Wiggans (1929).

The adsuki [azuki] bean is discussed on page 13.

“5. *Phaseolus angularis* W. F. Wight, U.S.D.A., B.P.I. Bulletin 137. 17. 1909. Adsuki Bean. -

“*Dolichos angularis* Willd. Sp. Pl. 3:1051. 1800.

“Bushy summer annual 30 to 50 cm high, leaves 3-foliolate, stipulate; leaflets entire, more or less rhomboidal, the lateral ones oblique; flowers bright yellow in clusters of 6 to 12; keel coiled and spurred on the left side; style hairy, with a flattened terminal appendage; pods 6 to 13 cm long, thin, constricted between the seeds, straw colored, brown or black; seeds 8 to 10, small, straw colored, buff, brown, maroon, or black. Native to eastern Asia.

“The Adsuki bean is the most promising of the five oriental beans listed above. It is more nearly comparable to the common or kidney bean in its climatic requirements and hence is more likely to be of value in New York than are the others. It forms the second largest leguminous crop in Japan where the seeds are used as human food as they are in Chosen [Korea] and to some extent in China and Manchuria.

“In trials of the Adsuki bean for food they have met the almost unanimous approval of those who tested them. Their seed production, as shown by trials at the U.S.D.A. Experimental Farm at Arlington, Virginia, was exceeded only by the soybean. Numerous varieties are under cultivation in the Orient, of which a maroon-seeded form is perhaps commonest. This form seems to have been the one brought from Japan by the Perry Expedition in 1854 and probably constitutes the first introduction of the Adsuki into the United States.”

Note: On the title page of Vol. 1, Part II: Hedrick was assisted by W.T. Tapley, G.P. Van Eseltine, and W.D. Enzie.

445. Takenobu, Yoshitaro. ed. 1931. Kenkyusha's new Japanese-English dictionary. 2nd ed. Tokyo: Kenkyusha. iv + 2280 p. 19 cm. Title also in Japanese: *Shin Wa-Ei Daijiten*.

• **Summary:** Food words that are not related to soy:

akameshi: see sekihan.

amanatto: sugared red beans [a very popular snack of cooked azuki beans coated with sugar].

ama-zake: sweet liquor (made from fermented rice).

an: bean jam. [an no haitte iru]: stuffed with bean jam.

[an o ireru]: to stuff (a cake) with bean-jam. [an ni kurumu]: to cover (a cake) with bean-jam.

anko: bean-jam = an.

anko: not listed.

azuki: a red bean; an India bean. [azuki-iro no]: reddish brown, russet. [azuki meshi] = sekihan.

beni-shôga: not listed.

goma: a sesame; a gingelly (plant); *Sesamum orientale*; a sesame seed. [goma abura]: gingelly oil. [goma-suri]: a flatterer, a toady, a sycophant. [goma o suru]: to pound sesame seeds; to flatter.

gomashio: not listed.

kaiseki: not listed (at least not using modern characters).

kaisô: seaweeds, marine plants; algae.

kombu: a tangle; a tang; a devil's apron. *Laminaria*.

konbu: not listed.

mochi: rice-cake. [mochi-tsuki]: rice-cake making.

[mochi o tsuku]: pound boiled [glutinous] for rice-cake.

[mochi ni tsuku]: cannot manage (handle); do not know what to do with. [mochitsuki saichû-datta]: we were in the middle of pounding [rice to make] mochi. [mochi wa mochi-ya]: Every man has his forte = Every man to his trade.

nankin-mame: a groundnut; a peanut; a monkey nut.

nori: laver, sloke. [hoshi (ajitsuke) nori]: dried (seasoned) laver.

okowa: not listed.

sekihan: rice boiled together with red beans [azuki beans].

sembei: a cracknel [of wheaten flour]; a rice-cracker; a wafer.

senbei: not listed.

shiruko: red-bean soup with rice cake. [shiruko-ya]: a *shiruko* shop.

shôjin (3): abstinence from animal food; religious abstinence; lenten fare; vegetable diet; maigre food. [shôjin ryôri]: a vegetable diet. [Nihon no sôryô wa taitei shôjin o suru]: Japanese priests usually eat vegetarian food. [Uchi de wa kinyôbi wa shôjin de gozaimasu]: At my home we eat vegetarian meals on Friday.

soramame: A broad bean; a horse bean; a straight bean.

wakame: *Undaria pinnatifida*.

zôni: rice-cake boiled with vegetables. [zôni on iwau]: take the New Year's breakfast of rice cakes boiled with vegetables [to celebrate New Year's Day with zoni (mochi soup)]. Address: General editor, Japan.

446. Takenobu, Yoshitaro. ed. 1931. Kenkyusha's new Japanese-English dictionary. 2nd ed. Tokyo: Kenkyusha. iv

+ 2280 p. 19 cm. Title also in Japanese: *Shin Wa-Ei Daijiten*. [Eng; jap]

• **Summary:** The first edition of this dictionary (titled *Takenobu's Japanese-English Dictionary*) was published in 1918. In 1931, Kenkyusha undertook a major revision in the dictionary by expanding upon former entries and adding newer ones. The British diplomat George Sansom, who later became a renowned historian of Japan, was a major contributor to and editor of this 2nd edition.

Soy related words:

abura[a]ge = aburaage or aburage: fried bean-curd. [Tonbi ni aburaage o sarawareta yōni]: with a stupid look of surprise. [literally, as when a kite {a bird of prey} snatches away your aburaage]. Note: This is the earliest English-language document seen (April 2013) that uses the word *aburaage* to refer to deep-fried tofu pouches.

atsuage: not listed.

age [tōfu]: fried bean-curd.

ama-miso: not listed.

Daitokuji-natto: not listed.

daizu: a soya (soy) bean. [daizu kasu]: a [soy] bean cake [a co-product of soy bean oil].

Note. This is the earliest Japanese-language document seen (Sept. 2016) that uses the term *daizu kasu* to refer to defatted soybean presscake.

daizu abura: not listed.

dengaku: baked bean-curd daubed with miso. [dengaku-zashi ni sareru]: to be transfixed; be pierced through (with a spear).

eda-mame: green soy-beans.

ganmo: not listed.

ganmodoki: not listed.

Hamana-natto: not listed.

Hama-natto: not listed.

hiryozu: not listed.

[inari-zushi]: a kind of 'sushi' (fried bean-curd stuffed with boiled rice).

kinugoshi no: strained through silk cloth [no mention of tofu].

kogori-dōfu: not listed.

koi-kuchi [shoyu]: not listed.

kōji: malt (mugi); yeast; leaven (kōbo); [kōji-ya]: a maltster [a maker of kōji]. [kōji ni suru]: [to] malt.

kōri-dōfu: frozen bean-curds.

kuro-mame: a black soy-bean.

miso (chomiryō = seasoning): bean paste; miso.

[miso shiru]: miso soup.

[miso o kakeru]: to put miso on (some food); (shuppai asuru): to make a mess (sad work) of it; put one's foot in it.

[]): mash the miso.

[]): to speak meanly of (a person); speak of (a person) in the most disparaging terms; say everything bad about (a person); denounce scathingly (roundly).

[]): a pretty mess you have made of it. [miso mo kuso mo

isshoni suru]: his ideas are confused; He confuses one thing with another. [miso no miso kusaki wa, jō miso ni arazu]: The secret of art lies in concealing art [Akiko never heard this saying].

misokoshi: a miso strainer. [misokoshi de mizu o sukuu]: weave a rope of sand; attempt impossibilities [literally, to try to scoop up water with a miso strainer].

miso-mame: a soja (soy) bean.

miso-zuke: anything pickled in miso.

momen: cotton [no mention of tofu].

nama-age: not listed.

nattō: fermented soy-beans.

nigari: bitter, brine.

nori: [nori no tsukudani]: laver boiled down in soy [sauce].

oboro: not listed.

okabe: not listed.

okara: not listed.

saishikomi [shoyu]: not listed.

shimi-dōfu: not listed.

shiro-shoyu: not listed.

shitaji: soy [shitaji sosogi]: a soy pot [soy sauce dispenser].

shōyu: soy [sauce].

suki-yaki: sukiyaki: slices of beef cooked *à la japonaise*.

Note: Grilled tofu is an essential ingredient in sukiyaki but is not mentioned in the definition.

tamari: (a kind of) soy.

tōfu: bean-curds; tōfu.

[tofu itcho]: a piece (cake) of bean-curds.

[tofu-ya]: a bean-curds dealer (seller).

[kare ni iken shita totte, tōfu ni kasugai da]: advice to him is like water sliding off a duck's back. It is a mere waste of words (It is just as well to pour water into a sieve) to advise him.

[tofu-ya e ni ri, saka-ya e san ri to iu tokoro da]: there is no human habitation within five miles of the place. [It's out in the boondocks].

unohana: (1) Flowers of the *Deutzia scabra*. (2) [tofu no kara]: bean-curd refuse.

usukuchi shoyu: not listed.

yaki-dōfu: broiled bean-curd.

yuba: dried bean-curds [sic, the film that forms atop soy milk when it is heated].

Note: This is the earliest English-language document seen (April 2013) that uses the term "broiled bean curd" to refer to grilled tofu. Address: General editor, Japan.

447. Takenobu, Yoshitaro. 1931. Japan Year Book. Tokyo: Japan Year Book Office. 508 + 12 + 192 p. See p. 406, 348, 504-05, 27th annual issue.

• **Summary:** The Preface (by Mume Takenobu, his wife) begins: "It is my sad duty to announce the death on the 26th of April last of my husband, Professor Yoshitaro Takenobu,

who has edited this work for twenty-five years since it was started by him in 1905.”

“Arrangements are in progress now with every prospect of a successful issue for perpetuating the publication of this work. This makes me feel very happy, because I know how much time and energy my lamented husband so ungrudgingly bestowed upon this favourite offspring of his active mind.” Dated: December, 1930,

Page 348: In the chapter on Agriculture, a table titled “Beans, potatoes and sweet potatoes” shows the production (in koku; 1 koku = 180 liters) of these crops from 1926 to 1928, inclusive. For soya beans:

2.999 million *koku* in 1926

3.263 million *koku* in 1927

2.977 million *koku* in 1928

Other crops whose production is shown in the table are red [azuki] bean, pea, horse bean (broad bean, *soramame*), sweet potato, and Irish potato. In 1928 production of red bean is 24.7% of the production of soya bean, and Irish potato is 27.1% of the production of sweet potato.

Page 496: In the chapter on “Industry” is a table titled “Statistics on Sake, beer & soy” [sauce] in koku for the year ended in March 1926-1928. For soy sauce:

2.826 million *koku* in 1926

2.304 million *koku* in 1927

2.384 million *koku* in 1928

In 1928 production of soy sauce in Japan was 46.3% that of saké, and production of beer was only 17.5% of saké.

Above this table is a long paragraph titled “Soy” which states: “In 1917 the leading soy manufacturers at Noda combined and formed the Noda Soy Co., [Noda Shoyu Co.] capital ¥7,000,000 p.u. [paid up] with capacity of about 250,000 “koku” i.e. about 60 per cent. of the total output of the Prefecture. The Company has now a capital of 30 million yen and produces 500,000 “koku” a year. The commodity is recently exported to European countries and China to the extent of about 18,000 koku (¥1 million) annually. The number of factories is about 12,600 throughout the country.”

Page 504: In the chapter on South Manchuria, a long paragraph on “Soya beans” states: “The yield of beans in Manchuria amounts to about 28,000,000 “koku” (4,000,000 tons) including all species and the output of bean-cakes about 60,000,000 pieces valued at ¥110,000,000. In the Leased Territory and the railway zone alone bean cakes and oil were produced to the amount of 50,000,000 pieces and 250,000,000 “kin” respectively in 1927, the bulk going to Europe, Japan and China through Dairen and Newchwang.

“The principal industries in the Leased Territory and the railway zone are bean-oil making and flour milling, followed by iron foundry, cotton spinning and weaving, hemp dressing, soap, glass, and bricks”

The text below the table is the same as in the 1926 Japan Year Book.

Page 593: A table shows the value of imports in yen,

including Beans and peas, and “oil materials.”

Page 662: In the section on Manchuria, a table titled “Principal crops” shows the production of soya beans from 1922 to 1924. Figures for 1922 and 1923 are in Chinese koku; 1 Chinese koku = 1.7 Japanese koku.

On the same page, under “The South Sea Islands,” we read: “Japan acquired through the Treaty of Peace the mandatory right over the former German South Sea Islands north of the Equator... It consists of three groups of Mariana, Marshall, and Caroline, covering altogether an area of 960 square miles with 49,576 natives.

Page 505: A 1-page section gives basic information and statistics about “The South Manchuria Railway Co.” As part of the Russo-Japanese War (1904-05) the existing railway was ceded by Russia to Japan as on 5 Sept. 1905 as part of the Treaty of Portsmouth, which formally ended the war. “It was renamed the South Manchuria Railway by the Japanese Government which issued regulations for converting it into a semi-private concern, and with the formal organization of the company in Sept. 1906 the Field Railway Office transferred the railways and all belongings to the Company on April 1, 1907.”

The total length of the lines operated by the company is 698 miles, as follows:

Dairen-Changchun main line—438.5

Antung-Mukden main line—161.7

Port Arthur branch line from Choushuitzu [a suburb of Dairen]—31.6

Yingkow branch line from Tashihchiao—13.9

Yentai Colliery branch line—9.7

Fushun branch line from Hunho—32.9

Total—698.0 miles. Address: Prof. at the Waseda Univ. and late of the “Japan Times”.

448. Woodhead, Henry George Wandesforde. 1931. China year book. Shanghai, China: North China Daily News & Herald. xiv + 728 p.

• **Summary:** In Chapter 7 is a long section on “Soy-beans and products” (p. 133-37), which includes: History of the soybean in China and Europe, the different types of soy-beans, bean cake and bean oil are the other main articles of trade, overview of exports, graph (p. 135) of exports (in piculs) from all of China in 1927, 1928, and 1929, Manchuria’s soy-bean crop in 1929 divided into South Manchuria and North Manchuria (production in the latter region is 50% larger than in South Manchuria), tables showing export of beans, bean meal and cake (in piculs and Hk. taels) in 1928 and 1929; the main types exported in 1929 are (in million piculs, in descending order of predominance): Yellow [soy] beans 41.015 Bean cake [soy] 18.715. Red beans [azuki?] 1.274. Broad beans 1.165. Bean meal [soy] 0.654. Green [small = mung] beans 0.564. Green [soy] beans 0.347. Black [soy] beans 0.261. White beans 0.218.

Li Yu-ying is mentioned in three places: Page 454

(left column), under Academia Sinica: “In May, 1927, Dr. Ts’ai Yuan-p’ei, Mr. Li Yu-ying and Mr. Chang Jen-chieh—all veteran Kuomintang leaders—were commissioned by the Nationalist Government to draw up plans for the establishment of a National Central Academy for Scientific Research.” The various organs of the Academia Sinica are “in the three cultural centres of Nanking, Shanghai, and Peking.”

Page 584 (both): Li is listed as a member of the Central Supervisory Committee, and of the Central Political Council.

Page 626 (right), a biography of Li states: “Courtesy name: Shih-tseng. Born 1882; native of Kaoyang, Chihli. Studied in France and established first beancurd [tofu] factory at Paris; associated with Wu Chih-hui, Wang Chaoming, Ts’ai Yuan-p’ei and other revolutionary leaders. One of the most influential Kuomintang’s ‘Elder Statesmen.’ 1919, dean, law department, Peking National University. 1928, chairman, Peking branch, Kuomintang Central Political Council. Member, Kuomintang Central Supervisory Committee, since 1924. Member, Kuomintang Central Political Council, since 1926. Aug. 1928 to Nov. 1930, president Peking National University. President, Franco-Chinese University, Peking, since 1925.” Address: C.B.E., China.

449. Baernstein, Harry D. 1932. The determination of methionine in proteins. *J. of Biological Chemistry* 97(3):663-68. Sept. [12 ref]

• **Summary:** Methionine was discovered in 1921 by Mueller during his search for a growth-promoting factor found in some proteins. Table 1 (p. 666) shows the methionine content for various purified sources, including edistin, casein, and purified proteins supplied by Dr. R.A. Gortner and Dr. D.B. Jones. The latter include “Glycinin soy bean” (1.84%), arachin (0.54% [from peanuts]), Gelatin (0.97—from Swift), α -Globulin adsuki bean (2.37%), casein (3.25%), beef muscle (3.66), and halibut muscle (3.98—the highest from Jones).

Note: This is the earliest document seen (Dec. 2020) that contains the word “methionine” in connection with soy. Address: Lab. of Physiological Chemistry, Univ. of Wisconsin, Madison, WI.

450. Shirahama, K.; Shimizu, G. 1932. [Iodine contents of the important agricultural products in Japan]. *Nippon Nogeikagaku Kaishi (J. of the Agricultural Chemical Society of Japan)* 8(5):527-31. (Chem. Abst. 26:4388). [18 ref. Jap]

• **Summary:** Page 529: Soy beans and azuki beans are mentioned in a long table. English version not available.

451. Cates, J. Sidney. 1933. Soy beans go domestic. *Country Gentleman* 103(2):6, 58. Feb.

• **Summary:** Discusses the discovery by Morse and Dorsett of new green-vegetable varieties for human consumption,

and the importance of soybeans as a source of protein. The Japanese use the word *daizu* to refer to the soybeans that they grow for dry beans, soil improvement, forage and grain, whereas they use the word *mame* for the soy-bean varieties they grow for green-vegetable use. “The new green-vegetable bean varieties were first grown a year at Arlington [Virginia], where they were sorted out, on the basis of growth habits, into Northern, Southern, and the mid-latitude kinds, and then sent out to field stations for further trial.”

452. *Christian Science Monitor*. 1933. Popular dishes of Japan. July 7. p. 6.

• **Summary:** “These Japanese recipes comes to us by way of a resident in the legation quarter of Peiping, China. We have been told that American and European residents in China enjoy Japanese food and often patronize Japanese restaurants there. Japanese food is nourishing yet light. The mainstays of their diet are fish and vegetables” [sic, rice].

The recipe for “Suimono, or Japanese consommé” calls for: “Soy sauce, which is easily obtainable from Japanese and Chinese grocers or other importers. If not, any good fish-and-meat sauce such as Worcestershire will produce a similar effect if desired.”

The recipe for Teriyaki states: “(A fish recipe whose name means merely ‘Broiled’ [sic, it means ‘shining broiled’ or ‘glazed broiled’]).

“Wash thoroughly and cut into pieces: 1 piece tunny fish or salmon of medium size. Soak [marinate] for about 10 hours in a mixture of: 1½ cups sweet white wine-flavoring (non-alcoholic) [perhaps mirin] and

¼ cup soy sauce or other fish sauce, such as Worcestershire. Then broil the same liquid mixture over a slow fire for about 15 minutes, or until the fish appears done when poked lightly with a fork. The recipe need not be salted unless desired, as the soy or other sauce contains salt flavoring.”

The recipe for “Mitsu mame (‘Honeydew beans’)” states: “The sweet red beans known as *adzuki*, which are similar to our dried [kidney] beans and dried peas, are a predominant ingredient in many Japanese sweets.”

Note 1 The main ingredient in this teriyaki dish is fish, not beef or poultry.

Note 2. The teriyaki [sauce] is extremely simple compared with later recipes.

Also contains recipes for: Rice–Japanese style. Chawan mushi.

453. Chopra, Ram Nath. 1933. Indigenous drugs of India: Their medical and economic aspects. Calcutta, India: The Art Press. xxii + 655 p. 23 cm. [40+ ref]

• **Summary:** This is an Indian materia medica. Page 493 discusses the soybean: *Glycine hispida* maxim.; Leguminosae; (Hindi–Bhat, Bengali–Gari-kulay, Panjabi–Bhut); the root is astringent.

Page 514 discusses the azuki bean: *Phaseolus radiatus*. (S. [Sindhi?]-Másha, Hindi-Urid, Bengali-Mashkalai, Bo.-Udid, M.-Patchay-pyre); lactag., used as a poultice is gastritis, dysentery, rheum., root-narcotic. See: *Journal of the American Chemical Society*, 1897, p. 509; *Journal of Biological Chemistry*, 1922, p. 103.

Page 528 again discusses the soybean: *Soja hispida* Moench.; Leguminosae (English-Soya-bean); Used in the diet for diabetes.

The Preface states that this book is based on lectures originally delivered at Patna University in 1929-30. There are many references throughout, plus a bibliography on p. 449-54. The author was born in 1882. Address: M.A., M.D. (Cantab.), Lieut-Colonel, Indian Medical Service.

454. Japan. Nôrinshô, Beikokubu. 1933. *Shina ni okeru Giso oyobi Shasô, shimin seikatsu, kôchi seido, kokumotsu no meishô no kenkyû* [A study of the Giso and Shaso storage houses, and the life of the Shimin people, the cultivated field system, and the names of grains]. Tokyo: Dai Nihon NoÂkai. 212 p. See p. 148, 166. Series: Beikoku shiryô No. 19. [Jap]*
 • **Summary:** Page 148 states that “shu” includes both soybeans and azuki beans, and page 166 states that before the 6th century, both soybeans and azuki beans were cultivated. The “Five Grains” always includes “shu.” Address: Japan.

455. *Japan Times Year Book*. 1933. Serial/periodical. Published by The Japan Times, Tokyo. 27 cm. [Eng]
 • **Summary:** Merged with: Japan Year Book (Tokyo, Japan: 1905), to form: Japan-Manchoukuo Year Book. This book has a larger format than the Japan Year Book. On the title page is printed “(Third Edition). Near the front are nine maps (black and white): Japan (incl. Chosen [Korea] and Manchokuo) [sic] with each of Japan’s provinces numbered and named, Karafuto (southern half), Hokkaido, Northern Hondo [Honshu], Central Hondo, Western Hondo, Kyushu, Taiwan, and Chosen [Korea].

Facing p. 72 is Appendix XII: Japanese weights and measures. 1 koku = 1.80391 hectolitres.

Page 140. A table shows the “Principal agricultural crops” of Japan and the quantity and value produced in 1928-30. For “soya beans”:

5.370 million hl [hectoliters] in 1928

4.789 million hectoliters in 1929

5.473 million hectoliters in 1930.

Production of “azuki beans” was 24.6% that of soya beans in 1928.

Another table (p. 141) shows cultivated area, production, and value for soya beans, azuki beans, and foxtail millet in 1929 and 1930. For soya beans:

4.789 million hectoliters in 1929

5.478 million hectoliters in 1930

Page 213. In the section on the foreign trade of Japan in 1931, important items include “Beans” (worth 37.677

million yen compared with 49.734 million yen in 1930, a decrease of 12.1%) and “Bean cakes” (worth 44.179 million yen compared with 66.417 million yen in 1930, a decrease of 22.2%).

Page 221. About agriculture in Chosen [Korea]. “Soya beans are exported chiefly to Japan for manufacturing soy [sauce], the export amounting to 4.490 million koku valued at 17.554 million yen in 1930.

Page 301. Chapter 43 is titled “Kwantung Leased Territory and Railway Zone.” Japan believes that it now (since 1931) controls these two parts of Manchuria. The latter is officially known as the “South Manchuria Railway Zone.”

Page 307. Contains a table that lists the principal agricultural products in the Kwantung and the Railway Zone. They are (in descending order of total production in both areas): peanuts (1.032 million koku), maize (921,071 koku), kaoliang (270,529 koku), millet (216,644 koku), soya beans (156,895 koku). Note that soya beans are much less important than they were 20 years ago.

Page 308. “The most important Manchurian industry is the [soya] bean oil industry, and in this field, the Kwantung territory occupies a very important position. The capacity of bean oil produced at Dairen is nearly 70 percent of the entire bean oil producing capacity of Manchuria.” A table gives the number of oil mills at Dairen (1924-1931), their capacity in terms of [soy] bean cakes, and the percentage of the total Manchurian capacity controlled by Dairen. The number of mills increased from 82 in 1924 to a peak of 84 in 1926, then decreased to 53 in 1931. The capacity in bean cakes increased from 285,000 cakes in 1924 to a peak of 297,400 cakes in 1931. The percentage of total capacity increased from 55% in 1924 to 69% in 1931.

A second table [which makes no sense] gives the actual production of cakes in Dairen mills from 1924 to 1931: It increased from 27.087 million cakes in 1924 to a peak of 40.939 million cakes in 1926, then decreased to 22.980 million in 1930.

456. Terry, Thomas Philip. 1933. Terry’s guide to the Japanese Empire, including Chôsen (Korea) and Taiwan (Formosa), with chapters on Manchuria, the Trans-Siberian railway, and the chief ocean routes to Japan: a handbook for travelers, with 8 specially drawn maps and 23 plans. Revised and augmented ed. Boston and New York: Houghton Mifflin Company; London, Geografia, Ltd. [etc., etc.]. cclxxxlv + 799 p. Maps (some folded). Index. 17 cm. With 85 unnumbered pages of ads at the end and 9 at front of book.
 • **Summary:** A digital version of this book is available on HathiTrust.

In the section on “Japanese Inns” we read (p. xxxvi): “Later the traveler may learn that the place enjoys fame for some savory specialty—eels boiled in soy,…”

In the same section we read (p. xl): “... the other of

beans, bean-curd or something of that nature. Salt is not provided unless asked for. Many of the dishes are cooked in soy, a tiny dish of which is supplied for dipping bits into before eating them.”

In the section on “Japanese Food” we read (p. xlii): “Sukiyaki restaurants are features of many cities.” “Some of it is delicious, and the more the foreigner eats of it the more he likes it. Those dishes which are mawkish to the American palate can sometimes be rendered appetizing by the addition of the excellent shoyu sauce (which is quite salty), grated cheese, etc.”

In the same section (p. xliii): “The soy-bean (*daizu*; *ômage*) ranks first in extent, variety of use, and value among the pulse of Japan, and in point of nutriment is quite near to meat. It contains nearly two fifths of its weight in legumin, nearly one sixth in fat, and is rich in nitrogen. It is to the Nipponese what frijoles are to Mexicans and garbanzos (chick-peas) to Spaniards. Of the numerous varieties some are made into curd [tofu], and into the widely celebrated bean-sauce (the Worcestershire of Asia) called *shoyu* (*sho*, soy; *yu*, oil), and which is almost as indispensable as rice. It forms the daily relish of the rich man and the beggar, and is in as general use as tea and tobacco.”

In the same section (p. xlv): *Teriyaki*: fish in a sauce of soy, mirin, and sugar. “*Sashimi*: raw fish cut in thin slices and eaten after being dipped in *shoyu*.—*Kabayaki*: fish which is first steamed then dipped into soy and roasted (or eels cut open on the dorsal line, covered with soy mixed with sugar, and roasted).” “*Hachi-zakana*: a large fish salted and broiled, or boiled in soy.—*Uman*: picked-up fish or fowl boiled (with lotus-roots and potatoes) in soy and flavored with mirin... *Iri-tamago*: eggs stirred, then boiled in *shoyu*.”

In the same section under “Rice” (p. xlvi): “*Azuki-meshi*: rice and red pea-beans mixed (boiled). *Mochi*: small dough-cakes made of rice and sold throughout Japan.—*Sushi*: a general name for food of boiled rice and fish, eggs, vegetables, etc., seasoned with vinegar and soy. As an affix [suffix] the form is changed into *zushi*... *Inari-zushi*: fried *tôfu* stuffed with *chirashi-zushi*... A differentiation of this popular food is the *Kombumaki*: baked or roasted fish wrapped in *kombu*, then tied, and boiled in sugar and soy... *Tsukudani*: small fish boiled in soy and used as a relish or condiment (named for Tsukudajima, a place in Tokyo famous for its preparation)... *Oden*: a stew (greatly enjoyed by the proletariat) of fried bean-curd, lotus-roots, potatoes, etc.”

In the same section (p. xlvii): “Soup (*shiru*). *Tôfu-jiru*: bean-curd soup.—*Miso-shiru*: bean soup with vegetables.”

In the section on Yokohama (p. 24) is a long quotation from Commodore Matthew Perry’s *Narrative* (Vol. 1, p. 357): There was an exchange of gifts: “The return gifts from the Emperor and the princes included beautiful specimens of gold lacquer; bronze; silver; porcelain; many rolls of fine silk brocade and pongee; many lacquered articles of rare merit; a number of rolls of fine crape; figured matting; jars of soy;

coral and silver ornaments;...”

In the section on Tokyo (p. 113): “*Sukiyaki* (pronounced skee-yah’-key) customarily is prepared by the host, who, with his guests, squat round a small electric brazier brought to a private room floored with soft matting and bright with flowers. Slices of red meat (beef), onions, leeks, bamboo-shoots, mushrooms, bean-curd and various seasoning vegetables, along with shoyu sauce are placed in the hot dish where a good soup stock is already sizzling. When all is cooked (a question of a few minutes) it is served with a raw egg, in a dainty lacquered bowl, and eaten with chopsticks (*o-hashî*—spoons are available)... To eat *sukiyaki* once is always to want it. It is filling and satisfying. Many *Sukiyaki* restaurants are found throughout Japan. Every city has one or more.”

In the section on “Kyoto—Inari Shrine” (p. 438): At the *Inari-matsuri*, which falls on June 5, “the people eat *Inari-zushi*, or fried *tôfu* stuffed with boiled rice, since *tôfu* is the favorite food of the fox popularly believed to be the messenger of Inari (and by extension, the God of Rice).”

In the section on Kyoto to Koya-san (p. 515): At the inns on Koya-san, a mountain above and to the west of Kyoto, vegetarian [sic, vegan] Buddhist priests prepare the meals: “Meals are served in one’s apartment; the food is purely vegetable, and after the second day distressfully unpalatable. Fish, flesh, fowl, butter, cheese, eggs, milk bread, coffee, and other necessities of life are absent, and are replaced by seaweed, greens, bamboo-shoots, cabbage, daikon in various unappetizing forms, and other garden-truck which one eats as a novelty the first meal and rejects with an involuntary tightening of the throat when it is offered at the second and third. In addition there are flabby mushrooms boiled in very thin water without seasoning; the omnipresent boiled rice without sugar, milk, or salt; a bean-curd (*tofu*) for which one acquires a liking only after much patient effort; a yellow substance (known as *yuba*) made of the skin of bean-curd, and looking and tasting like thin-sheet rubber; and insipid sugarless tea. Hot sake can be had when called for.”

In the section on “Korean agriculture” (p. 699): “Agriculture is the national industry and it gives occupation to six or seven millions of the people. The native methods are so primitive that ere long the production will be trebled by the modern system introduced by the Japanese... The chief crops are rice, beans, pease, millet, wheat, barley, tobacco, cotton, castor-oil, potatoes, melons, and peppers. The people are inordinately fond of lettuce, and nearly every yard has a plot of it. Besides teaching the Koreans methods for the development of the land on scientific lines, the Japanese have established model farms, miniature cotton and tobacco plantations; horticultural, forestry, and seedling stations, and besides stocking the country with fresh seeds and new agricultural tools, they have taught the people how to breed and care for live-stock, and have quadrupled the yearly output of Korean silk. The country has been referred

to as a 'natural orchard,' and experts are supplanting certain of the poorly developed fruits with American pears, grapes, apples, etc."

In the section on "The Korean Pony" (p. 737): "The Korean Pony (prototype of the Japanese pony) is one of the most salient features of Korea. The breed is peculiar to it. The animals used for burdens are all stallions, from 10 to 12 hands high, well formed, and singularly strong, carrying from 160 to 200 lbs. 30 M. [miles] a day, week after week, on sorry food..." "They are fed three times a day on brown slush as hot as they can drink it, composed of [soy] beans, chopped millet-stalks, rice-husks, and bran, with the water in which they have been boiled. Every attempt at friendliness is resented with teeth and heels."

In the section on "Korean characteristics" (p. 725): "The very poor only take two meals a day, but those who can afford it take three and four. Among the dishes dear to the native heart are pounded capsicum, bean curd [tofu], various sauces of abominable odors, a species of sour kraut (*kimshi* [kimchi]), seaweed, salt fish, and salted seaweed fried in batter. 'Hot dog' in the literal sense is the piece de resistance of the Korean menu. There are no harder or more constant drinkers than the Koreans, and the vice is common to all classes."

In the section on Manchuria (p. 756): "From Heijo the rly. [railway] continues N.W. near the sea. Beyond 209 M. Shin-an-shu, we cross the Seiseiko, then the Daineiko. The junks which here spread their broad sails to catch the breeze which blows above the tree-tops, come and go laden with timber from the Upper Yalu, wild silk cocoons, furs, soya-beancake, rice and kindred products."

457. Pierce, Walter H. 1934. Viroses of the bean [viruses]. *Phytopathology* 24(2):87-115. Feb. See p. 107-08. [37 ref]
• **Summary:** Note: During the 1930s, the word "viroses" was often used in scholarly works in English as an alternative to "viruses."

The section titled "Host range" states (p. 106-07): "Each of the five viruses considered was tested on the following species of Leguminosae... kudzu bean, *Pueraria hirsuta* Schneid.; soybean, Manchu and Mikado varieties, *Soja max* Piper; velvet bean..."

"The host range of yellow bean mosaic (*bean virus 2*) parallels rather closely that of common bean mosaic... Hosts found to be susceptible to yellow bean mosaic and not to common bean mosaic were white sweet clover, soybean, white lupine,..."

"The host range of *alfalfa virus 2* is distinctly wider than that of the two bean viruses... Systemic infection was secured upon the following: hyacinth bean, adzuki bean, mung bean, rice bean,... Manchu and Mikado soy beans,..."

Hosts infected by different viruses displayed different symptoms. "For instance, soybeans infected with *alfalfa virus 2* exhibit certain characteristic symptoms differing in

many respects from symptoms on soybeans infected with *bean virus 2*."

"Tobacco ring spot virus was found to infect a wide range of hosts... On many hosts local necrotic infection is followed by systemic infection, which in nearly all cases causes the death of the plants involved. Hosts thus affected were white lupine, Groit cowpeas, asparagus bean, soybean, broad bean,..." Address: Dep. of Plant Pathology, Univ. of Wisconsin, Madison, Wisconsin.

458. Fujita, Katsumasa; Miura, Osamu. 1934. On the parasitism of *Heterodera schachtii* Schmidt on beans. *Transactions of the Sapporo Natural History Society* 13(3):359-64. June 20. [11 ref. Eng]

• **Summary:** Reports that *Glycine max*, *Phaseolus angularis*, *P. vulgaris*, and *P. multiflorus* (*P. coccineus*) are suitable hosts for the soybean-cyst nematode.

"In Hokkaido, the injury to [soy] beans by *Heterodera schachtii* has recently become serious, occurring in the provinces of Oshima, Iburi, Ishikari, Hidaka, Tokachi and Kushiro, prevailing particularly in the southern part of the island. A field survey conducted chiefly by the senior writer for three years from 1931 shows an infested area amounting to more than ten thousand acres.

"The affection [sic, infection] appears about two months after sowing. Growth of the affected plants is retarded severely, causing the foliage to turn yellow in color and to fall off early. As the result the plants bear only a few flowers, and a few seeds which are smaller in size and inferior in quality to the normal ones." Address: Sapporo, Hokkaido, Japan.

459. *Japan-Manchoukuo Year Book*. 1934-1941. Serial/periodical. Published by The Japan-Manchoukuo Year Book Co., Tokyo. 26 cm. [Eng]

• **Summary:** Formed by the union of: Japan Year Book, and: Japan Times Year Book. Continued by Orient Year Book. Each year book is divided into two main parts: Japan, and Manchoukuo.

460. Yamaguchi, H.S.K.; Garis, Frederic de; Sakai, Atsuharu. 1934-1950. *We Japanese: Being descriptions of many of the customs, manners, ceremonies, festivals, arts and crafts of the Japanese, besides numerous other subjects*. Yokohama, Japan: Yamagata Press. 592 p. 889 illust. Index. 21 cm.

• **Summary:** "Written with great style, this work brings traditional Japan to life in a way that no contemporary guide book can, explaining all the curious features of daily life in Japan." This is a combination of 3 books. Book I (p. 1-183), written by Frederic de Garis for H.S.K. Yamaguchi, was first published in Dec. 1934. Book II (p. 183-375), written by Atsuharu Sakai for H.S.K. Yamaguchi, in June 1937. Book III (p. 377-592), with the same authorship as Book II, was first published in June 1949. All contain entertaining

information on Japanese culture and foods.

They discuss: Red rice (*sekihan*, with azuki beans, p. 36). The Broken Needles Mass or Hari-Kuyo (p. 160, needles are stuck into tofu on Feb. 8 or Dec. 8), Sukiyaki (p. 264-66, incl. its origin and history), sembei (p. 267, senbei or rice crackers, incl. shoyu), Miso or bean-paste (p. 269-70), Shoyu or Japanese soy (p. 271-73, incl. Kikkoman, Higeta, Yamasa, Kagi-Yamasa, and Marukin logos and wooden kegs), Sekihan and hot water (p. 292, azuki beans as part of a taboo for Japanese girls), Setsubun or Bean-Throwing Ceremony (p. 554-55, mame-maki held on setsubun).

Note: This is the earliest English-language document seen (March 2009) that uses the term “bean-paste” (not preceded by the word “soy” or “soya”) to refer to miso. Address: Manager, Fujiya Hotel, Miyanoshita, Japan.

461. Inahara, K. ed. 1934. Japan Year Book. Tokyo: The Foreign Affairs Association of Japan. 29 + 1356 p. See p. 1083, 1168, 1172.

• **Summary:** Page 454: “Leguminous plants:... During the past decade area has been pursuing a slow, downward movement, while a sharp reduction was experienced by production. More than 72% of the total area and 67% of the total production were occupied by soy-beans and red beans.”

Soy-beans were planted on 341,752 ha which produced 4,351,806 hectoliters worth 31,724,890 yen.

Red [azuki] beans were planted on 119,101 ha which produced 1,002,988 hectoliters worth 9,752,490 yen.

Page 1083: The section on Chosen [Korean] agriculture [Korea is a Japanese colony] states that rice and barley plus wheat are the two most important crops. “Third in importance comes the soy bean. In earlier times it was far from being an important produce owing to ignorance on the part of Korean farmers of the proper method of preparation, such as drying and assorting. It is now, however, in high esteem on the Japanese market where there is a demand for it not only as food, but for chemical industrial purposes, and thus the amount exported to Japan is yearly on the increase. In 1930 the total area under cultivation was 803,000 cho and the amount produced reached 4,410,000 koku, which was an increase of more than six times, compared with the year 1910.

“Millet is for most Koreans what rice is for the Japanese people. They depend more upon it than upon rice on account of its cheapness in price. The Korean farmers sell their rice, but use their millet crops for their daily diet,...” Note: Do they voluntarily sell their rice?

Page 1168: The section on Manchoutikuo [sic] agriculture states that the great majority of exports go to Japan, with China a close second. The principal export commodities include soy beans (worth 143.899 million Haikwan taels in 1932; #1 in value), bean cakes (66.311 million HT; #2 in value), and soy bean oil (24.511 million HT; #4 in value after coal).

Page 1172: A large table shows “Export of agricultural crops, 1929-1931” from Manchuria. For each is given the quantity in piculs (1 picul = 133.33 lb) and value in yen. For soya beans:

46.012 million piculs in 1929

33,536 million piculs in 1930

46.897 million piculs in 1931

The first section below this table states: “Soy beans: Manchoutikuo produces about three-fifths of the total production of soy beans in the world. The beans contain about 10 per cent. of oil, and the cake which is obtained in pressing the beans is exported as fertilizers. The latest figure for production of soy beans in Manchoutikuo was 4,430,000 tons and its total plantation area 3,878,000 hectares. The average crop [yield] per hectare was 1,122 kg.

Kaoliang comes next in importance after soy beans. “It serves as the diet of the people. Its production is 3,722,000 tons a year...”

462. Japan-Manchoukuo Year Book. 1934. Tokyo, Japan: Japan-Manchoukuo Year Book Co. 26 cm. First annual issue. [Eng]

• **Summary:** Each year book is divided into two main parts: Japan, and Manchoukuo. The Preface begins: “The far reaching political and economic changes which have taken place in the Far East within recent years have created the need for a year book covering the Japanese Empire and Manchoukuo [pronounced mahn-CHO-ku]. Especially to be noted is the growing relationship between Japan and Manchoukuo; hence any volume which discusses one, without consideration of the other, would be incomplete.”

A table near the front gives “Weights, measures, and moneys.” 1.80391 hectoliters = 1 koku = 5.11902 dry bushels (USA). 1 yen = \$0.4984 dollars (USA) = 2.583 French francs = 2.0924 German marks.

A large color map (2-page spread) shows Japan, Manchoukuo, Chosen [Korea], Karafuto, and Taiwan—as well as the railways in each country.

Page 360: A large table shows the yield (in koku per tan) of 15 major Japanese crops, from 1904-08 to 1931—including rice, barley, naked barley, wheat, soya beans, red beans, etc. The yield of soya beans increased from 0.77 in 1904-08 to 0.86 in 1930.

Page 364: A table shows the production (in hectoliters) of beans, potatoes, and sweet potatoes in Japan from 1927 to 1931. For soya beans:

5.886 million hectoliters in 1927

5.370 million hectoliters in 1928

4.780 million hectoliters in 1929

5.473 million hectoliters in 1930

4.481 million hectoliters in 1931.

Production of red [azuki] beans in 1931 was 25.2% of soya beans.

Pages 626-34: The chapter on Agriculture in

Manchoukuo begins: Widely different views are entertained as to the possibilities of Manchoukuo as a field of agricultural enterprises. Undoubtedly, they are immensely greater than those of mountainous Japan or Korea, but to liken them to those of the great agricultural regions found in North and South America seems to have no ground. The soil is not in general so rich, and in many places has been much exhausted, nor is the area of arable land so extensive, nor the climate so moderate. One great advantage it has had over most other countries in Eastern Asia is the comparative thinness of its population, but this advantage is fast being diminished by the constant influx of Chinese immigrants from the South. Taking all these things into consideration, Manchoukuo is yet the most favored spot for agriculture in the Far East, and its opportunities may well be termed 'immense,' which epithet is often met with in Japanese publications on that country.

"The great mass of level land, extending over the whole of Central Manchuria and comprising the basins of the Liao, Sungari, Nonni, and Hulan, the productiveness of which can compare favorably with any part of Japan or Korea, is by itself as large as the whole of the Chosen Peninsula or of the mainland of Japan,..." The forecast for soya bean production in Manchoukuo in 1933 is 5.216 million metric tons. Manchuria is divided into north and south. About half of the total crop production is grown in each area.

Page 627: A table shows "Production of crops in Manchoukuo, 1931." For soya beans:

- 1.175 million metric tons in Mukden.
- 2.414 million metric tons in Kirin.
- 1.637 million metric tons in Heilungkiang.
- 5.227 million metric tons total.

Soya beans had the largest production of any crop in the country in 1931, followed by kaoliang (4.497 mmt) then millet (2.960 mmt).

Page 628: A large table gives "Crop output in Manchoukuo," 1922-1931. For soya beans:

- 3.088 million metric tons in 1922.
- 3.088 million metric tons in 1923.
- 3.448 million metric tons in 1924.
- 4.173 million metric tons in 1925.
- 4.775 million metric tons in 1926.
- 4.816 million metric tons in 1927.
- 4.834 million metric tons in 1928.
- 4.849 million metric tons in 1929.
- 5.297 million metric tons in 1930.
- 5.227 million metric tons in 1931.

Page 629: A large table shows "Cultivated area in Manchoukuo classified by crops, 1931. (Hectares)." For Soya beans:

- Mukden 960,030
- Kirin 1,902,210
- Heilungkiang 1,338,350
- Total: 4,200,590 ha

Previous year 4,118,450. "In one of the publications of the Chinese Maritime Customs" [*The Soya Bean of Manchuria*, 1911, p. 6] we read: "But when the Manchurian farmer pulls out the whole plant by the roots, or, having cut the crop with his sickle, proceeds to cut up the roots with a mattock for fuel, he is preventing the work of the bacillus radicola from bearing its fruit and depriving his land of the provision made for it by nature. Thus, the soil in South-west Manchuria, where agriculture has been carried on for 400 years, has been bereft of all vegetable and organic matter and no longer bears harvests. The wonderful natural loaminess of the soil in the newer regions further north—for instance, at Shwangchengpu, where it is said that no manure is or ever has been used by the farmers in the 40 years since the land has been cultivated—this loaminess will assure good harvests for many years to come; but in the course of time even the richest soil will become exhausted, and to prevent such a disaster steps should be taken to inform the ignorance of the peasants who are at present deriving such great profits from their crops. If they could be shown the value of the process of 'turning under' the green bean plants after the harvest, the fertility of the land might be preserved."

Page 630: In this chapter on Agriculture, a section on "Soya beans" appears on pages 630-34. Contents: Introduction. Cultivation of soya beans. Different species. Uses of the soya bean. Bean oil. Bean cake. Near the start of the Introduction we read: It was the soya bean that introduced Manchuria into world trade, "and it is still the soya bean that makes Manchuria famous. So predominant is the position of the soya bean and its products, bean oil and bean cake, in the trade of Manchoukuo, that these three articles now constitute nearly one-half the value of the entire exports of the country. Sir Alexander Hosie called them, 'the Wealth of Manchuria.' They are indeed the wealth of the country, which has been growing ever since the time of Sir Alexander, and is still growing. Without the 'three articles,' by which term [soya] beans, bean cake, and bean oil are collectively called by the Japanese, the trade of Manchoukuo would, at a stroke, shrink to one-half its present amount, not only in export but most probably in import also, for experience has shown that Manchoukuo seldom buys more than it sells."

A large table (p. 630) titled "Soya bean output in Manchoukuo: Classified according to districts" is divided into South and North Manchuria. It shows how many metric tons were produced in each district in 1931 and 1932.

On page 634 is a long, interesting discussion of: "Kaoliang: Apart from its trade value, kaoliang or tall millet may be considered even more important than soya beans, in that it is the staple food of the native population, and the principal grain food of the numerous animals engaged in the farm-work and in the immense carrying trade of the three provinces.

"Before soya beans attained their present importance,

half the total area of the cultivated land in Manchuria was devoted to kaoliang, and a large amount of it was exported to the provinces of China. Of late, however, the cultivation of kaoliang has given place to that of [soya] beans in many places, so that at present, in the northern part of South Manchuria, where beans are cultivated most extensively, about 50 per cent. of the whole cultivated area is devoted to beans, and only 20 to 30 per cent. to kaoliang. It is said that 8 pounds of seed suffice to sow an acre of land, producing in good years 10 to 12 cwt. [hundredweight] of grain. In a bad year or on poor soil, only a third of this quantity will be harvested. The crop is easily affected by climatic and soil conditions, and for this reason its cultivation is confined chiefly to Mukden Province, and in that province, too, it does not grow well in the Liaotung Peninsula or in the mountainous south-east.

“Kaoliang is not only used as a food-stuff for man and beast in Manchoukuo, but the native spirit is also made out of it. Nor are the grains the only useful part of it; the stalks play a very important role in Manchoukuo. The outer leaf layers, are woven into mats, so much required in the trade of the country, for roofing ricks and packing loads of grain and beans, and for numerous other purposes. The stalks are also utilized for fencing, bridging, and housebuilding, and where wood and coal are unobtainable or dear they are used for fuel.

“Kaoliang spirit, extensively used in both Manchoukuo and Mongolia, is colorless and transparent, and possesses a strong flavor, which peculiarly appeals to the taste of the natives.

“Kaoliang used to be an article of home consumption, and its market outside Manchuria was at most confined to China proper, but after the outbreak of the European War a trial shipment was made to Europe as grain food for horses, and being successful it has since continued to be exported. It is also exported to Japan, and the demand for it there is constantly increasing.”

463. Casas, Abelard Blanco. 1935. El frijol soya [The soybean]. *Cuba Agricola (Havana)* 2(6):15-17. June. [Spa]
• **Summary:** A basic introduction to soybeans. A large photo (p. 15) shows one man standing in a field of soybeans at the agricultural experiment station (*Estacion Experimental Agronomica*) of Santiago de las Vegas. Note the vigor of the plants.

Some years ago, at a time when he was director of the agricultural experiment Station at Santiago de las Vegas, Dr. Calvino cultivated soy bean there. The soya bean, *Soja max* Lin. originated in China.

In September of 1931 there were in the Department of Agriculture of the Station seeds of 23 varieties, which were sown in small lots; and since then, we have been observing their behavior, being able to make sure that some of them, in the type of land that we work, vegetate very well and

produce more grain than the black and red beans [azuki?] that are grown in our country for the table.

Page 16: A full-page table gives the nutritional composition (protein, oil, carbohydrates, crude fiber, ash, water / humidity, and calcium). The varieties are: Illini, Dunfield, Mansoy, Tarheel Black, Dixie, Tokyo, Hahto, Columbia, Mammoth Yellow, Brown C.5, Wilson Five, Midwest, Ito San, Hispida, Medium Green, Lexington, Mammoth Brown, Harbinsoy, Haberlandt, Peking, George Washington, Chiquita, O-too-tan [Otootan].

Page 17: Photos show: (1) A bundle of soybeans with many seed-filled pods. (2) The roots of a soybean plant bearing many nodules for nitrogen fixation. Address: PhD, Agronomo.

464. Morphy, Marcelle. comp. and ed. 1935. Recipes of all nations. New York, NY: William H. Wise & Company. 824 p. 22 cm. Index at the end of each nation.

• **Summary:** Contains recipes from 18-20 nations—each with a thumb cut or thumb index or cut-in index. Soy is mentioned frequently in the chapter on Japan (p. 751-69). “One sauce reigns supreme in Japan—*Shoyu*, which replaces salt in many dishes and which is used in the cooking of almost everything: soup, fish, poultry, meat, and vegetables. It is the popular condiment with cold fish or meat and is added to salad dressing. It is made from the Soya bean seeds, wheat, and pure salt, and has a pleasant and distinctive flavor, unlike that of any of our European bottled sauces.”

Soy-related recipes include: Nan yoy kow yook (Broiled pork steamed with Chinese cheese [fermented tofu], p. 737). Misoshiru (miso soup with tofu and miso, p. 755). Misozuke (fish with red or white bean curd and red or white miso, p. 758). Seki han (with azuki beans, p. 759). Suki yaki [Sukiyaki] (beef and vegetables, with tofu and shoyu, p. 761). Yokan (Japanese cakes with azuki beans, p. 762). Misso (miso, homemade with soya beans, malt, and salt, p. 763). Tofu (dried bean curd, p. 763).

Miso is said to be made as follows: “The proportions are 1 bushel of Soya beans, 1 bushel of malt, and 3 bushels of salt. The beans are squeezed and mixed with the malt and salt and kept in a cask for 6 months to mature.”

Concerning tofu: “Cubes of tofu are frequently mentioned in Japanese recipes. Tofu is made by soaking the dry beans in water for a day, pounding them in a stone mortar, straining into square molds and mixing with brine. They are then boiled till they become hard and firm.”

Address: Countess.

465. Kawashima, R. 1936. [The effect of reaction and lime content of soil on the yield of crops. VI: Soybean, pea and small red {azuki} bean]. *Nippon Dojo Hiriyogaku Zasshi (J. of the Science of Soil and Fertilizers / Manure, Japan)* 10(3):304-10. Sept. 15. [4 ref. Jap; eng]

• **Summary:** It is possible to overlime lands whose pH is near

to 7.0.

“To a highly acidic mineral soil of tertiary origin added CaCO₃, in ascending rates of amount and cultivated soybean, pea and small red bean (*Phaseolus mungo* L) From the experimental results the following summaries are briefly given:

“1. The harvest of soybean grain is the highest on the weakly acidic soil with moderate exchangeable lime content, but the ranges of soil reactions adapted for fairly good yield of soybean are very wide.

“2. The pea is a absolutely acid-intolerant plant. It has satisfactory yield only on the slightly basic soil with high exchangeable lime content.

“3. The harvest of small red bean grain is the highest on the weakly acidic soil with moderate exchangeable lime content. The degree of acid tolerance is much weaker than soybean, and the ranges of soil reactions adapted for satisfactory yield are very narrow.” Address: Japan.

466. Sadaoka, Sueichi. 1936. [On the ancient cereals and beans discovered in the old capital ruins, Fuyo, of Kudara, one of the ancient nations in the Korean peninsula]. *Nogyo Oyobi Engei (Agriculture and Horticulture)* 11:2437-3443. [2 ref. Jap]

• **Summary:** Introduction: Our ancestors had been taking leaves, roots and fruits of wild plants as their own food in very ancient times. Nevertheless, in the time before Jimmu, who was the first emperor of Japan, people had already utilized five principal plants as crops—rice in paddy field, pearl millet, barnyard millet, wheats (including barley) and beans in upland field.

In the time after the first emperor, Jimmu, many descriptions of rice can be found in some historical documents, but we can find only quite limited descriptions of the silkworm, mulberry tree, hemp, and some edible fruits. As for wheats, we have the following historical description: sericulture and wheat crops in Sinki 1150 [A.D. 490] were very productive..., and 1000 [?] of wheat seeds were given to the king of Kudara from the 29th year of emperor Kinmei's era. As for pearl millet, we can read the following historical record issued by the emperor's government in Sinki 1360 year [A.D. 700]; pearl millet is as important a crop as rice. so it should be preserved as much as the total volume of the seed could support people's food sufficiency for about 9 years' use...

It will be a very interesting problem to confirm what kinds of cereals and legumes were grown in ancient times. Ancient cereals and legumes can be occasionally discovered in burn condition at shell mounds and the remains of houses in ancient times. Burnt rice grains have already been discovered at Kinkai, Kinkai-gun, Keisho Nando (in Korea), Naka, Tsukushi-gun, Fukuoka-ken, and Nagamine, Yame-Gun in Fukuoka-ken. They were considered to be products of more than 1900 years ago according to the investigations of

Katô.

The very place where the author discovered many burnt cereals and legumes this time is considered to be the ruins of old food storehouses for supply to Kudara troops. These cereals might have been burnt when Kudara was conquered by some neighboring enemies. If so, they are the products of about 1,300 years ago and, in other words, the products of about 600 years later than the time that the burnt rice grains mentioned previously were produced. The author has a very strong interest in these cereals because many kinds of cereals were discovered there.

The next section (1) is on the history of Fuyo. It was the fifth capital of the Kudara kingdom. The very intimate relationship between Kudara and Japan lasted for 100 years plus several decades from emperor Kimmei's era until emperor Tenchi's era.

The next section (2) is: On the position in the soil profile where ancient cereals and beans were found. Kudara perished about 1300 years ago. The author conducted archaeological investigations in 1926 and 1927 [when Korea was part of Japan]. Eventually he found rice, wheat, mung beans, hulled barley, rye and azuki beans—in descending order of the numbers of each obtained. In addition he had a chance to look at burnt soybeans (at the Fuyo county government office) previously dug out from this place. Afterwards, Saburô Sugi discovered burnt soybeans at another place near the ruins and showed them to the author. Therefore the author considered that soybeans were possibly preserved in the storehouses at the time Kudara was thriving.

The next section (3) is: Some comparisons between ancient burnt rice, wheats and beans, and present varieties of these crops. Address: Chusei Nando Agric. Exp. Station [Japan].

467. Hector, James Masson. 1936. Introduction to the botany of field crops. 2 vols. Johannesburg, South Africa: Central News Agency Ltd. See vol. II, p. 697-709. Illust. Index. 26 cm. Series: South African Agricultural Series v. 16. 2nd edition 1938 (undated). [15 soy ref]

• **Summary:** Vol. 1 covers cereals. Vol. II is non-cereals. The transformation from the wild to the cultivated soybean has been accompanied by qualitative and quantitative changes due to gene mutation without alteration of the chromosome number.

Pages 697-709 discuss “*Glycine soja*, Sieb et Zucc. (= *Glycine max* (L.), Merr., and *Soja max* (L), Piper)—Soy bean.” Contents: Botanical description, stem anatomy, leaf anatomy, inflorescence (usually axillary), seeds per pod, structure of the seed coat, development of the flower, photoperiodism, conditions for vernalization, cytology and hybridization, classification and species, chromosomes, composition and uses, origins.

Concerning vernalization: “On the basis of his experiments, Lysenko considers that a short-day plant such

as the soy bean can pass through all its developmental stages, *with one exception*, in almost any light conditions. This stage which is influenced by light in reality requires continuous darkness, not an alteration of photoperiods. In other words, after the first or thermo-stage has been completed, the plant requires 10 to 15 days of darkness (or short-day) and thereafter its development is uninfluenced by the length of day... On this basis, Lysenko has devised a method of vernalizing the soy bean (and other short-day plants). The procedure is briefly as follows: The seeds are allowed to germinate (for approximately 24 hours) until cracks appear in their coats... Thereafter, the seeds are held for 10 to 15 days in darkness at a temperature of 20° to 25°C. During this period no light should be admitted and the temperature should be strictly controlled." A table shows conditions for the vernalization of five short-day plants. Note: This is the earliest document seen (Nov. 2020) that uses the word "vernalization" in connection with soybeans.

Pages 676-77 discuss "*Phaseolus angularis* Wight-Adzuki bean," also called "Adsuki bean," with a photo.

Page 694 discusses *Pueraria* or kudzu. Address: Prof. of Agricultural Botany, Univ. of Pretoria, South Africa.

468. Inahara, K. ed. 1936. Japan Year Book. Tokyo: The Foreign Affairs Association of Japan. 1389 p. See p. 464-65, 478, 1081, 1178-79, 1182.

• **Summary:** Page 464: In 1934 in Japan soy-beans were grown on 336,378.84 ha and produced 3,902,774 hectoliters of beans worth 29,185,101 yen. In 1934 azuki beans were grown on 119,491.24 ha and produced 1,126,554 hectoliters worth 10,391,920 yen. Thus, azuki bean production was 28.9% as much as soy-bean production.

Page 1081. The section on Chosen [Korean] agriculture states that the soy bean is one of the most important crops, after rice, barley, wheat and rye. "In 1934 the total the total area under cultivation was 795,000 cho and the amount produced reached 3,813,000 koku, which was an increase of more than five times compared with the year 1910."

Pages 1178-79. The pages on "Foreign trade" show that in 1933 imports to Manchoukuo first surpassed exports, and this new trend has continued until the most recent year, 1935, when imports were valued at 604 million Haikwan taels, compared with exports of only 421 million.

Page 1182. A large table gives production of major crops in Manchoukuo, 1929-1935 in metric tons. For soy beans:

- 4.849 million metric tons in 1929.
- 5.298 million metric tons in 1930.
- 5.227 million metric tons in 1931.
- 4.268 million metric tons in 1932.
- 5,205 million metric tons in 1933.
- 3.841 million metric tons in 1934.
- 3.822 million metric tons in 1935.

Other crops in the table are other legumes, kaoliang, millet, maize, wheat paddy-field rice, upland rice, and other

cereals.

In 1935 soy beans were grown on 3.249 million ha with a yield of 1,180 kg/ha.

The country now has an abundance of food to feed the roughly 30 million inhabitants. The surplus crops are exported every year.

A large table shows "Exports of agricultural products, 1931-1935." Exports of soy beans in 1935 were 29.203 piculs worth 130.053 million yen.

At the end is a large, colored fold-out map of the Japanese empire. There are many ads on unnumbered pages.

469. Read, Bernard E. 1936. Chinese medicinal plants from the "Pen ts'ao kang mu" of 1596. 3rd edition of a botanical, chemical and pharmacological reference list. Peking, China: Peking Natural History Bulletin. Sales Agent: The French Bookstore. xvi + 391 p. See p. 114-18. Index of romanized Chinese plant names. Index of common English plant names—Foreign names are in italics. Index of Latin plant names. 27 cm. [180+* ref]

• **Summary:** This book is largely one huge table (p. 1-288) titled "Chinese medicinal plants." It has seven columns: (1) Latin name. (2) Chinese name. (3) Part used. (4) Constituents. (5) Habitat. (6) References (highly abbreviated). (7) Remarks.

Contents: Introduction in Chinese. Introduction to the third edition (Shanghai 1935). Provincial abbreviations. Abbreviations for parts of plants. Bibliographical abbreviations (journals and books). Secondary references helpful to a study of Chinese materia medica. Comparative table of Western, Japanese, and Chinese dates (1868-1935). Table of classes, general, and species for which references are listed.

References related to soybeans are subdivided as follows (p. 114-18, 256): Soybeans, black variety (var. *nigra*; the fresh hulls used in medicine are known as *Ta Tou P'i*). Soybean sprouts, black variety (*Ta Tou Huang Ch'ian*). Bean relish, black variety (*Ta Tou Ch'ih*). Bean ferment, black variety (*Tou Huang* ["bean yellow"]; *Natto* in Japanese [sic]). Yellow soybean (*Glycine soja* S. et Z., var. *flava*; *Huang Ta Tou*). Soybean oil (*Tou Yu*). Soybean sauce, yellow variety (*Chiang Yu*; thick or thin). Soybean paste (*Chiang*). Bean curd, yellow variety (*Tou Fu*). White soybean (*Glycine soja*, S. et Z., var. *alba*). Soy sauce made with wheat flour (p. 256).

References for azuki beans (red mung bean, *P. mungo*, L. var. *subtrilobata*, Fr. et Sav. [HN. Br.]) are given on page 122. References for wheat gluten (*Mien Chin*) are given on page 256.

This book is largely a list of references relating to plants listed in the *Pen Ta'ao Kang Mu*. It is not a translation or summary of the latter work.

Note: This is the earliest English-language document seen (June 2013) that uses the term "the fresh hulls" to refer

to soy bran. Address: PhD, Head of the Div. of Physiological Sciences, Henry Lester Inst. of Medical Research, Shanghai, China.

470. Tezuka, Kaneko. 1936. Japanese food. Tokyo: Maruzen Co. Ltd. 84 p. See p. 28. 20 Cm. Half-title: Tourist Library: 14. [Eng]

• **Summary:** The chapter titled “Common everyday food” (p. 22+) notes that the three breakfast dishes are boiled rice, *misoshiru* (bean-paste soup [miso soup]), and *kô-no-mono* (pickles). With them are served “shell-fish *tsukudani* (foods boiled down in soy [sauce]), *shiokonbu* (the laminaria boiled in brine and soy), *nori* (laver), *nimame* (boiled beans [soy]), various kinds of bean-paste [miso] dishes, pickled plums [umeboshi], etc.” A brief description of how to make miso and miso soup is given (p. 24). Under “Dinner dishes” we read: The most simple of foods is bean-curd.” Fresh raw fish, “cut into shining thin slices (*sashimi*) is served with fresh grated radish or horse radish, and eaten dipped in vinegar or soy.”

The section titled “How Bean-curd is Made” (p. 28) states: “Tôfu (bean-curd) is made by soaking soy beans in water, mashing them, straining the mass through cloth and solidifying with the addition of magnesium chloride. It is a very nutritive food. The mush left over after straining *tôfu* is called *u-no-hana* (deutzia flowers) [okara] and is used in cooking vegetables.” A photo shows a “Vendor cutting bean-curd.”

A photo (p. 64) shows a hall full of Buddhist priests dining at Soji-ji temple, Tsurumi, Japan. In Japan, March 24 and Sept. 24 are national holidays—Spring and Autumn Worship of the Imperial Ancestors. To worship all the Imperial Ancestors, the people hang out the Japanese flag and “to honor the spirits of their own ancestors, make *Inari-zushi* (vinegar-spiced rice wrapped in fried bean-curd) and *botan-mochi* (boiled rice slightly kneaded and covered with [azuki] bean jam). They offer these to the spirits of the dead by placing them before the Buddhist altar in the home and sending them to the family temple and the homes of relatives.”

The chapter titled “Japanese Cakes” notes that the two basic types are *higashi* (dried cake) and *namagashi* (undried cake). “*Namagashi* is made of [azuki] bean-jam for the most part. Bean-jam is just like a cream made of red beans and sugar. *Namagashi* is divided into *yôkan* and others.” *Yôkan* is made of bean-jam gelled with agar (Japanese isinglass). A photo (p. 83) shows a bean-jam factory and show case of products.

Note 1. Editorial note signed: Board of Tourist Industry, Japanese Government Railways.

Note 2. This is the earliest English-language document seen (June 2013) that uses the word “mush,” or the term *u-no-hana*, or the term “deutzia flowers” to refer to okara.

Note 3. This is the earliest English-language document

seen (April 2021) that uses the term “bean-paste” to refer to miso. Address: Prof., Japan.

471. Swaminathan, M. 1937. The relative value of the proteins of certain foodstuffs in nutrition. *Indian J. of Medical Research* 24(3):767-86. Jan. [31 ref]

• **Summary:** A systematic examination of the relative biological values of the proteins of 13 foodstuffs was undertaken for reasons given below—using the nitrogen-balance method. Among these were three pulses—lentil (*Lens esculenta*), green gram (*Phaseolus radiatus*), and soya bean (*Glycine hispida*). Table 1 shows the English-language names of the 13 foodstuffs, the botanical name of each, the moisture content (%), and the crude protein (%). The soya bean had by far the largest protein content (40.00%).

In the “Discussion,” the section titled “Legumes” notes: “Legumes in general contain a high percentage of protein and so form an important source of proteins in the Indian diet.” The biological values for the three legumes in the present study are as follows: Lentil 41, green gram 51, and soya bean 54.4. Mitchell (1924) found that the soybean had an even higher biological value (64).

Conclusion: “At a 10% level of protein intake the digestibility co-efficient and biological value of lentil are 88 and 41, of green gram 86 and 51, and of soya bean 76 and 54 respectively. Taking into consideration both the digestibility co-efficient and biological value, the pulse proteins may be arranged in the following descending order of merit: green gram, soya bean, and lentil.” Address: Nutrition Research Laboratories, IRFA, Coonoor, S. India.

472. *Los Angeles Times*. 1937. Japanese serve fish at main meals. April 21. p. B16.

• **Summary:** A typical Japanese home menu is show. “Breakfast: Misoshiru [miso soup] and rice. Tamago-yaki [fried eggs]. Baked fish. Nori (seaweed). Pickles.”

At the bottom of the menu is a separate item (a filler) titled “Rice and red beans (Seki Han [sekihan]).” Note: These red beans are azuki beans.

473. Inahara, K. ed. 1937. Japan Year Book. Tokyo: The Foreign Affairs Association of Japan. 1240 + 32 p. See p. 474-76, 625, 987, 1071-72, 1076-78.

• **Summary:** The Preface indicates that this book was published in about Sept. 1937.

Pages 475-76. “Leguminous plants:... During the past decade area planted has been pursuing a slow, downward movement, while a sharp reduction experienced by production was more than made good by the increase of 1933. Soya beans and azuki (red) beans are predominant both in area and production.

Soy-beans were planted on 335,345 cho which produced 2.261 million koku worth 34,333,000 yen.

Azuki beans were planted on 109,389 cho which

produced 5.333 million koku worth 10,620,000 yen.

Note: It is surprising that Japan produced a much larger volume of azuki beans than of soy-beans. Perhaps azuki bean production should be 0.533 million koku.

Page 625. A large table shows production of vegetable oils in Japan (in yen) from 1936 to 1935. In 1926 rapeseed oil was the most valuable oil in Japan (13.474 million yen) followed closely by soya bean oil (13.386 million yen). The same general relationship existed in 1935; rapeseed oil was still the most valuable oil in Japan (20.019 million yen) followed by soya bean oil (15.329 million yen).

Next in value in 1935 were perilla oil (10.494 million yen), cottonseed oil (7.129 million yen), other oils (6.743 million yen), copra oil (5.376 million yen), sesameseed oil (2.835 million yen), linseed oil (3.691 million yen), groundnut oil (0.595 million yen), camellia oil (0.439 million yen), and paulownia oil (0.227 million yen).

A second table shows production of animal oils and tallow (in yen) from 1926 to 1935. These were much less important than vegetable oils, being worth only about one-sixth as much in total. Beef tallow and cod oil were the two most important animal oils in 1935.

Page 987. The section on Chosen [Korean] agriculture states that the soy bean is one of the most important crops, after rice, barley, wheat and rye. "In 1935 the total the total area under cultivation was 791,857 cho and the amount produced reached 4,375,278 koku, which was an increase of more than five times compared with the year 1910."

Page 1071. A large table shows "Values of principal articles exported abroad (in Manchoukuo yuan)," in 1935 and 1936. The export item of greatest value was soy beans, which increased from 130.053 million yuan in 1935 to 216.474 million yuan in 1936.

The export item of 2nd greatest value was [soya] beancake, which increased from 51.370 million yuan in 1935 to 53.126 million yuan in 1936.

The export item of 4th greatest value (after coal) was [soya] bean oil, which increased from 20.132 million yuan in 1935 to 21.282 million yuan in 1936.

Page 1072. A large table on "Quantities of principal articles exported abroad" (from Manchoukuo in piculs; 1 picul = 133.33 lb) are: The export item of greatest weight was soy beans, which increased from 9.203 million piculs in 1935 to 32.539 million piculs in 1936.

The item of 2nd greatest weight was [soya] beancake, which decreased from 16,925 million piculs in 1935 to 14,026 million piculs in 1936.

Another important export item was [soya] bean oil, which decreased from 1.479 million piculs in 1935 to 1,109 million piculs in 1936.

Page 1076. Two large tables show "Cultivated area and production of cereals" (in hectares and metric tons), 1929-1935. For soy beans:

3.822 million metric tons in 1935—grown on 3.249

million ha.

Other crops in the table are other legumes, kaoliang, millet, maize, wheat paddy-field rice, upland rice, and other cereals.

Page 1077 gives "Crop forecast by provinces (metric tons)." Soy beans is the first crop on the list. The provinces are:

Pinkiang 1,083,886 metric tons
Fengtien 985,362 metric tons
Kirin 980,789 metric tons
Lungkiang 464,940 metric tons
Sankiang 260,592 metric tons
Antung 154,664 metric tons
Chinchow 151,108 metric tons
Chientao 91,383 metric tons
Heiho 2,729 metric tons
Total 4,175,453 metric tons.

Also on p. 1077 a table shows "Exports of agricultural products, 1933-1935." (Quantity in piculs, value in yen). Soy beans was by far the leading export:

39.111 million piculs in 1933
41.308 million piculs in 1934
29.230 million piculs in 1935

Page 1078. "Soy Beans: Manchoukuo produces about 60 per cent of the total production of soy beans in the world. The beans contain about 10 per cent of oil, and the cake which is obtained in pressing the beans is exported as fertilizer. The latest figure for production of soy beans in Manchoukuo was 3,820,000 metric tons and its total plantation [planted] area 3,249,000 hectares. The average crop per hectare was 1,180 kg."

474. Larson, A.O.; Fisher, C.K. 1938. The bean weevil and the southern cowpea weevil in California. *USDA Technical Bulletin* No. 593. 71 p. April. See p. 10-11, 13-14. [98 ref]

• **Summary:** Table 2 shows that no weevils emerged from Mammoth Yellow soybeans after they were exposed to the larvae. No dead larvae were found within the seeds, and no seeds were infested. "In some kinds of seeds practically every larva becomes an adult weevil under favorable conditions, but in other seeds, notably the Windsor bean (*Vicia faba*), lima bean, and soybean, only a very small percentage of the young larvae reach maturity" (p. 11, 15). The authors have bred the southern cowpea weevil repeatedly on more than 9 varieties of soybeans, 3 varieties of adzuki beans (*Phaseolus angularis* Willd.), etc. Discusses *Acanthoscelides obtectus*, and the cowpea weevil, *Callosobruchus maculatus* F. Address: 1. Entomologist, Div. of Truck Crop and Garden Insect Investigations; 2. asst. entomologist, Div. of Fruit Insect Investigations. Both: Bureau of Entomology and Plant Quarantine.

475. Katagiri, Hideo; Mugibayashi, Narataro. 1938. [Relationship between nitrogen compounds of various seeds

of crops and the diastatic power of their malts. I. Kaoliang. II. Beans, especially mung beans]. *Nippon Noeikagaku Kaishi* (J. of the Agricultural Chemical Society of Japan) 14(10):1237-42; 14(1):1243-47. (Chem. Abst. 33:6456). English-language summary in Bulletin of the Agricultural Chemical Society of Japan 12(5):54-55, bound at the front of Nippon Noeikagaku Kaishi. [13 ref. Jap]

• **Summary:** Part II: Beans. The maltase, saccharifying and liquefying power of both germinated and ungerminated seeds of various kinds of beans were investigated, including mature and immature (green) soy-beans, azuki- and mung beans.

Maltase and the liquefying enzyme were never found in ungerminated seeds. Only germinated mung beans had the powerful capability to liquefy starch. During germination, the globulin nitrogen of all seeds was decreased and nonprotein nitrogen was always increased. It was concluded that the saccharifying power of mung beans could be estimated from the amount of total nitrogen, or more exactly the amount of albumin nitrogen, of the ungerminated seeds—as was already found with the seeds of kaoliang (see 14:1237). Address: Agricultural Chemical Lab., Kyoto Imperial Univ., Kyoto, Japan.

476. Bush, Lewis William; Kagami, Yoshiyuki. 1938. *Japanalia*: reference book to things Japanese. London: John Gifford, Ltd. xx + 193 p. Illust. Maps. Index. 20 cm.

• **Summary:** This little encyclopedia begins with an outline of Japanese history (p. xi-xx). Under Agriculture—rice (p. 3-4): Other cereals grown in Japan include barley, wheat, rye, oats, the soy-bean (*Daizu*) used chiefly for making [soy] sauce, and the small red bean (*Azuki*).

Under Festivals and holidays—February (48): “About the 3rd of 4th *Setsubun* (Bean-Throwing Rite) the last day of winter according to old lunar calendar. On this night a religious rite called *Tsuina*, or driving away the evil spirits and calling in fortune is held at many temples and shrines, and people scatter [soy] beans, one for each year of their age over the roofs of their houses shouting ‘*Fukuwa uchi, oni wa soto*’ (Welcome good luck, out with demons!).”

September 1st. *Ni-hyaku-tô-ka*, 210th day from *Setsubun*. Rice harvesting begins.

Under Food—rice (p. 59) soy sauce is mentioned.

In the front of the book is a map of “Old Japan” and in the rear a map of “Modern Japan.”

477. Wallace, G.B. 1939. French bean diseases and bean fly in East Africa. *East African Agricultural Journal* 5(3):170-75. Nov. [13 ref]

• **Summary:** “During the past year planters in the Tanga and Northern Provinces of Tanganyika Territory have inquired what explanations can be offered for the poor growth and low yields that have been obtained from French beans.” Halo Blight is a disease caused by the bacterium *Phytophthora medicaginis* var. *phaseolicola*. This disease was present in

the Territory in 1929. Legumes that are resistant to Halo Blight include Soy, Adzuki, and the Kudzu vine.

The bean fly, *Agromyza* (*Melanagromyza*) *phaseoli* “has been known for many years in tropical and sub-tropical countries. In Tanganyika Territory it was recorded in 1936 by Harris who referred to its larvae ‘boring into the stems of haricot beans at the collar, causing total loss of crop.’” W.H. Hargreaves states (1926, *in lit.*) that flies reared from larvae that attacked the stems of *Phaseolus vulgaris* (common beans) “have been identified as *Melanagromyza sojae* Zehnt. (?) by van Emden.” “Other Agromyzids parasitize other leguminous crops, usually in the leaves and seeds; a species is known in the pith of the stems of soy beans and other plants in Java.” Address: Ph.D. (Edin.), Plant Pathologist, Dep. of Agriculture, Tanganyika Territory.

478. Embree, John Fee. 1939. *Suye Mura*, a Japanese village. Chicago, Illinois: University of Chicago Press. xxxi + 354 p. Index. 21 cm. Reprinted in 1964 with new Foreword.

• **Summary:** This is the earliest known detailed anthropological study of Japanese village life. John Embree is a pioneer anthropologist who lived (with his wife) in the remote mountain Japanese farming village of *Suye Mura* in Kumamoto prefecture (on Japan’s southern island of Kyushu) from Aug. 1935 to Dec. 1936. Mr. Toshio Sano, a graduate of Tokyo Language School, lived with Embree and acted as his interpreter and translator.

Soybeans and soyfoods (particularly tofu) are discussed throughout the book.

Page 41: “*Tôfu* (soy-bean curd) is prepared in the *mura* by several *tôfu*-makers and sold to the rest of the villagers. It is made by grinding soybeans in a stone quern. It is eaten a great deal in soup and is used as a cheap substitute for fish at some social gatherings.

“The diet is largely vegetarian, though fish and occasionally chicken accompany a banquet. Plenty of proteins are available in the many foods made of soy beans, especially the soy-bean soup (*miso-shiru*), soy-bean sauce (*shôyu*), and soy-bean curd cake (*tôfu*) (see Table 1).

Pages 42-43: Table 1, titled “Agricultural products by season,” has four columns for each of the four seasons. Azuki beans and sasage are harvested in summer and autumn; soy beans and sesame seed in autumn. Note: Edamame is not mentioned.

“Page 45: “Pigs are raised for outside sale by most of the *tôfu* makers. A piglet is bought for 5 yen from some city broker, fed on *tôfu* waste [*tôfu* waste, *okara*] and general garbage (very scanty in a farmer’s house) for about a year, after which time the broker comes back and buys the grown pig for from 15 to 20 yen.” The “villagers never think of eating pig meat themselves.” “Some people make flour at home on revolving grind-stones (*hikiusu*), similar to those used in making the bean-curd *tôfu*.

A photo (facing p. 52) shows the front of a local *tôfu*

shop (Kakui), with two ladies seated on the low wooden platform. The caption reads: “This woman makes *tôfu* daily. Her shop carries a few tinned goods, some candy, beer, geta, thongs, etc. It is a favorite gathering-place for people to sit about and talk.”

Page 53: “Some widows and farmers’ wives, usually of the poorer families, make *tôfu* as a means of increasing the family income. Such a family has only a little farmland, otherwise the wife would not have the time to devote every morning to making and selling *tôfu*.” “Each *buraku* [village, community] has a *tôfu* maker.” Sometimes the wives of fishermen make *tôfu*.

Pages 60-61. In the *yakuba* (village office) there are frequent parties. Two men, paid as messengers, go to buy *tôfu* for these parties.

Page 115: On Kwannon Day, a party is held and a square of *tôfu* is served with *shôchû* to each person present. Tofu is also served at other types of parties and sometimes taken as a gift (p. 118, 122, 124, 128, 147).

Page 160: The author identifies six social classes in this village. Small shopkeepers and *tôfu* makers belong to the 4th class, the “lower middle.”

Page 241: Of the Seven Gods, Daikoku and Ebisu are the patron saints of shopkeepers and *tôfu* makers.

Page 254: Inari is the god of crops, especially of rice. “People always refer to Inari as *Oinarisan* (Honorable Inari).”

Pages 292-93. “The eleventh month” of the lunar calendar. On the 15th day is the old Ichifusa Shrine Day. On the evening of the 14th day, *tôfu* is roasted on special bamboo sticks in the fire pit. This preparation, called *dengaku* is made in honor of Otakesan (Ichifusa Shrine).

Page 315: Most *tôfu* makers specialize in doing just that, but some shopkeepers also make *tôfu*.

Page 318: Household expenses. Most miso is made at home. Tofu and other goods purchased at local stores may be paid for with rice instead of money.

479. Japan Year Book 1939-40. 1939. Tokyo: The Foreign Affairs Association of Japan. 26 + 1220 + 26 p. With folded map of Japanese empire. See p. 412-13.

• **Summary:** The Preface indicates that this book was published in about Sept. 1939. The editor’s name is not given.

Pages 412-13. “Leguminous plants:... Area of leguminous plants in 1937 was 606,184 cho and the production was valued at ¥96,048,470. During the past decade the area planted has been pursuing a slow downward movement, while a sharp reduction experienced by production was more than made good by the increase of 1933. Soy-beans and azuki (red) beans are predominant both in area and production. In 1937

Soy-beans were planted on 331,572 cho which produced 2.842 million koku worth 50,848,576 yen.

Azuki beans were planted on 104,288 cho which produced 0.833 million koku worth 17,272,620 yen.

Note: Production of azuki beans in 1937 in Japan was 29.3% that of soy-beans.

480. Piper, Charles V. 1939. Forage plants and their culture. New York, NY: The Macmillan Co. xxv + 671 p. Illust. Maps. Index. 20 cm.

• **Summary:** Note: The 1914 and 1918 editions of this book have the same pagination—618 pages.

The 1924 revised edition has 671 pages and all subsequent reprinted editions (the USDA National Agricultural Library has the 1924, 1928, 1936, 1939, 1941 reprints) also have 671 pages.

Chapter 27, “Soybeans” is on pages 571-96 in the 1924 revised edition (and all subsequent editions). Address: Agrostologist in Charge of Forage Crop Investigations, Bureau of Plant Industry, USDA.

481. Casal, U.A. 1940. Some notes on *sakazuki* and on the role of *saké* drinking in Japan. *Transactions of the Asiatic Society of Japan* 19:1-186. Dec. Series 2. A lecture delivered before the Asiatic Society of Japan, 20 Dec. 1939. [34 ref]

• **Summary:** This is an in-depth and well documented study by an expert of the history and cultural influence of sake and the *sakazuki* in Japan. A *sakazuki* is a small, shallow cup from which the Japanese drink saké, usually warm, with an alcohol content of about 11-14%, with some brands being much stronger (p. 70).

Contents: The article (p. 1-43). Notes (p. 44-73). Types of *sakazuki*, with illustrations of 16 types (p. 74-78). Bibliography (p. 79-80). Photographs of *sakazuki* and other paraphernalia (16 plates on unnumbered pages). List of sake and other paraphernalia in collection of U.A. Casal, Kobe (p. 83-112; 231 items). Index and glossary with some allied references (p. 113-186; excellent).

The *sakazuki* sake cup has long been made with lacquerware over a hard, close-grained wood core; the shallow face is ornamented. Both the cup and saké are said to be as old as the Japanese; they are mentioned in both the *Kojiki* and the *Nihongi*.

This study also contains brief discussions of—(1) *Amazake* (“sweet sake”): p. 48 (#19. Nigori may be the same as today’s amazake), p. 71 (#165. “Amazake is real ‘home brew.’ Boiled rice is left to mould, then mixed with fresh boiled rice and cold water. After some time fermentation sets in. *Shirozake* is a mixture of sake and glutinous rice, left to stand for a day, then will stirred in a rough bowl, so as to dissolve the grains. It is then ready to drink. These various turbid [cloudy, not clear] kinds of sake are stirred before being warmed and imbibed, but they are pure enough to ‘turn’ after a few days).

“Drinking amazake is supposed to impart a particularly jolly feeling. The expression *Okame ga amazake ni yotta*

yô—'as if Okame had gotten drunk on sweet sake'—gives the idea of somebody exuberantly happy and full of frolicking fun."

(2) *Nigori-sake* ("cloudy sake"): p. 48 (#19). (3) *Shirozake* ("white sake"): p. 48 (#20), p. 60 (#107), p. 71 (#165, see *amazake*), p. 73 (#171). This last entry states that in about 1898 the federal government's tax on sake in Japan brought in about 55 million yen out of a total of 120 million yen, so about 46% of the Japanese government's tax income. The next largest item was the land tax, almost 39% of the total. Business, income, and all other direct taxes combined accounted for less than 16%. In 1935 (according to the Japan Year Book of 1937), the sake impost [tax] was 151.3 million yen out of a total direct tax revenue of 926.1 million yen, or 16.3%.

For taxation purposes, Japanese law divides sake into five classes: "Seishu (refined, a: up to 23° alcohol, b: larger percentage); Dakushu (crude, up to 23°); Shirozake (white, a. up to 23°, b. above); Mirin (sweet, a: up to 30°, b. above); Shôchû (distilled, of 45° or more). The tax is levied at the factory, at so much per *koku*" (1 *koku* = 180 liters or about 40 gallons).

Page 27: The man searched about the house until he "found a little bean sauce in a small basin on a shelf in the kitchen." Note: What is meant by "bean sauce"? Does it mean miso? Shoyu?

A sampler from the index and glossary: "Dango are small dumplings of rice-flour, sometimes filled with sweet bean-paste" [*an*, made from azuki beans]. "Earthenware. See Clay, Porcelain, Pottery." "Engishiki, a large collection of the regulations governing court functions, of the 10th century." "Farmers were the backbone of the country and were classed immediately after the *samurai*; in fact, however, they were always taxed to such an extent that the great majority were no better than slaves. Hence there were a good many revolts and riots... Poetry considered the simple life of the farmer and the joy of seeing the crops grow and ripen from his efforts as a very desirable state; actually he often starved, and there was a saying that the farmer grew rice but did not know its taste (having to be satisfied with cheaper millet)." "Nihon-bashi ("Japan bridge"), one of the principal thoroughfares of the old Edo [Tokyo], from which all distances in eastern Japan were calculated." Kyôto, the antique Heian-kyô, capital of Japan from A.D. 794 to 1868. Nara, capital of Japan from A.D. 710 to 784. Osaka, the ancient *Naniwa* ("swift waves") settlement of Jimmu Tennô. Sake varieties (p. 165). Address: Shioya, Kobe, Japan.

482. Japan Year Book 1940-41. 1940. Tokyo: The Foreign Affairs Association of Japan. 1164 + 60 p. See p. 424, 955-56.

• **Summary:** The Preface indicates that this book was published in about Oct. 1940. The editor's name is not given.

Page 424. "Leguminous plants: Area of leguminous

plants in 1938 was 589,167 cho and the production was valued at ¥96,820,990. During the past decade the area planted has been pursuing a slow downward movement. Soya-beans and azuki (red) beans are predominant both in area and production." In 1938

Soy-beans were planted on 329,674 cho which produced 2.700 million koku worth 51,119,383 yen.

Azuki beans were planted on 102,997 cho which produced 0.677 million koku worth 16,800,777 yen.

Pages 955-56. Two large tables show "Cultivated area and production of cereals" (in hectares and metric tons), 1934-1938. For soya beans:

3.889 million metric tons in 1935

4.175 million metric tons in 1936

4.173 million metric tons in 1937

4.185 million metric tons in 1938

4.050 million metric tons in 1939

Other crops in the table are other legumes, kaoliang, millet, maize, wheat paddy-field rice, upland rice, and other cereals.

483. Japan-Manchoukuo Year Book. 1940. Tokyo, Japan: Japan-Manchoukuo Year Book Co. Index. 26 cm. Seventh annual issue. [Eng]

• **Summary:** Each year's book is divided into two main parts: Japan, and Manchoukuo. This book was published in late 1939.

In the Japan and Manchoukuo parts of the book, soya beans are most widely discussed in the respective chapters on Agriculture. In each case, information given the previous year is updated one year.

Page 290-91: In the chapter on "Agriculture and stockbreeding" in Japan, Table 19 shows "Production of various grains, potatoes, etc." in koku from 1927 to 1938. 1.80391 hectolitres = 1 koku = 5.11902 dry bushels (USA). For soya bean:

2.700 million koku in 1938

Table 19B gives the value of each crops (in yen) from 1927 to 1938. Other crops in this table are oats, millet, barnyard millet, proso millet, maize, buckwheat, red bean, sweet potato, and Irish potato.

Page 391: In the chapter on "Chemical industry" Table 3 shows the "Production of chemical fertilizers" (in metric tons) from 1926 to 1937. The quantity (in metric tons) and value (in yen) of each is given. These fertilizers are: Sulphate of ammonia [ammonium sulfate], calcium cyanamide, superphosphate of lime, and muriate of potash [potassium chloride].

Table 5, "Imports of commercial fertilizers" from 1931 to 1938 include "Bean-oil cake," the imports of which steadily decreased from 1.032 million metric tons in 1931 to 0.623 million metric tons in 1938.

Page 403: In the same chapter Table 38 shows "Vegetable oil production" with quantity in metric tons and

value in yen, from 1930 to 1937. Soya bean oil production increased from 36,977 metric tons (mt) in 1930 to 65,455 metric tons in 1937—making it the leading vegetable oil produced in Japan. The other leading vegetable oils made in Japan in 1937 were:

- Rapeseed 28,893 metric tons
- Perilla 23,206 metric tons
- Cottonseed 23,154 metric tons
- Coconut 16,112 metric tons
- Peanut 7,648 metric tons
- Sesamum [Sesame] 6,653 metric tons
- Linseed 4,254 metric tons
- Hempseed 329 metric tons
- Paulownia 76 metric tons

On the same page, Table 39 shows exports and imports of vegetable oils from 1933 to 1938. Exports of soya bean oil decreased from 2.242 million kin in 1933 (1 kin = 0.6 kg) to 1.795 million kin in 1938. Imports of soya bean oil increased from 128,000 kin in 1933 to 321,000 kin in 1938. The three main vegetable oils imported into Japan in 1937 were cottonseed oil (10.324 million kin), coconut oil (2.400 million kin), and paulownia oil (1.439 million kin).

Page 444: In the chapter on “Commerce,” Table 13 shows the “Average wholesale price of staple commodities in Tokyo” in yen per koku, average December each year from 1934 to 1938. The brand of soya beans was “Manchu White.” The price dropped from a high of 19.37 yen in 1936 to a low of 7.70 yen in 1937.

Page 453-54: In the chapter on “Foreign Trade,” Table B, “Imports,” shows trade of “Oil cake” from 1927 to 1938.

Pages 470-71 in the same chapter contain a very large table titled “Imports by countries of origin” in yen from 1937 to 1938. Categories include “Beans & Peas,” “Oil yielding materials” and “Oil cake.” For each of the three categories, Manchoukuo is the main country of origin, followed by Kwantung Province, then China, then British India, then D.E.I. [Dutch East Indies].

Page 714: In the chapter on “Agriculture” in Manchoukuo, a large table shows “Output of principal of crops (metric tons)” from 1924 to 1938. For soya beans: 4.612 million metric tons in 1938.

The other principal crops shown in the tables are other beans, kaoliang, millet, maize, wheat, rice, upland rice, and other cereals.

Page 715: The text about “Soya beans” is repeated on this page.

Page 739: In the chapter on “Commerce,” Table 12 shows “Wholesale prices of principal staple commodities in Hsinking [Changchun, in Jilin province] from 1934 to July 1939 in M¥ [million? yen]. The price of 1st grade soya beans went from 3.36 per 100 kin in 1934 to 7.76 per 100 kin in July 1939. That of bean cake rose from 0.90 per piece in 1934 to 2.68 in July 1938. The wholesale price of bean oil increased from 10.50 per kin in 1934 to 20.88 per kin in July

1939.

Page 779-80: The chapter on “Manufacturing industries,” has a long section “IV. Bean oil & cake.” The four principal cities of manufacturing in Manchoukuo are Dairen, Yingkow, Antung, and Harbin. Table 22 shows “Output of bean oil at the principal cities” in 1,000 kin [1 kin = 0.6 kg] from 1932 to 1938. The leading city by far was Dairen. The total bean oil produced decreased at the four centers decreased from 221.061 million kin in 1932 to 97.255 million kin in 1938.

The text below this table states (p. 779-80): “At first the main business of the industry was the extracting of linseed oil. The primitive linseed oil extraction method was applied to soya beans in Tiehling and Changchun (present Hsinking) districts, important market of beans, some sixty years ago. As the result obtained was satisfactory, the bean oil industry commenced. At that time, the bean oil was directed for local consumption alone, and was used for cooking, lighting, and other domestic purposes.

“The original method of pressing oil out of beans was very simple and primitive, only hand or mule operated wedge or screw system being used. But with the rapid progress made in the utilization of bean oil and the increased demands abroad, the method of oil extraction was improved. Hydraulic power came to be used in place of human labour or mule power, in operating the presses. Then a more scientific method of extraction by means of chemical solvents was discovered by the Central Laboratory of the South Manchuria Railway Company. Under this new extraction method, benzine, benzol or alcohol is used to extract and dissolve oil contained in beans.

“Uses of Bean Oil.—The uses of soya bean oil have increased markedly in the last three decades. At present they are used for such diversified purposes as the manufacture of soap, as a lard and butter substitute, as a constituent of paint, varnish and shellac, glycerine, water proofing, and as substitutes for rubber and petroleum.

“Bean Cake.—Soya bean cake is used for various purposes, the principal uses being fertilizer and animal feed, while with further processing it is manufactured into a celluloid substitute, medicine, sizing for paper-making and for ‘Ajinomoto.’ It is also used extensively for the manufacturing of sauce material, bean flour and ‘shoyu’ and ‘miso.’”

Below this (p. 780) is a large Table 23 “Output of bean cake in the principal cities” from 1932 to 1937 in 1,000 pieces (1 piece weighs 27.6 kg). Again, Dairen is by far the leading city. The total decreased from 44.744 million pieces in 1932 to 20.585 million pieces in 1938.

Below this (p. 780) is a large Table 24 “Number of bean-cake mills and productive capacity” in major South and North Manchuria [customs] districts from 1923 to 1937.

Page 782: In the same chapter, Table 29. “Production, etc. of soy and miso (bean paste) in Kwantung” gives values

from 1931 to 1937. The number of plants increased from 16 in 1931 to 22 in 1937. The volume of miso increased from 646,691 kwan in 1931 to 1,485,739 kwan in 1936. The volume of soy sauce increased from 20,950 koku in 1931 to 116,734 koku in 1936.

Above this table is a brief section on “Soy” sauce: “In sympathy with the rapidly increasing number of Japanese residents since the foundation of the country, the soy industry has made marked developments. The output of soy was 44,253 koku in 1937. Imports of soy were valued at ¥1,564,000 in 1938.”

Page 798: In the chapter on “Foreign trade” we read: “Soya beans constituted in 1938 the most important export article, representing 32% of the total export value, and 44% if other varieties of beans and derivatives are included. The most important customer for beans was Japan, followed by Egypt and Germany. In bean cakes and oil, Japanese imports concentrated on cake whilst European countries such as Germany, the Netherlands, and Great Britain mostly bought oil.”

On the same page (p. 798) Table 4, “Volume of principal articles imported and exported” from 1934 to 1938 gives values for soya beans (decreased), bean cakes (decreased), and bean oil (decreased).

Page 800: In the same chapter, Table 6, “Exports of principal commodities” 1934-1938 by country of destination shows that the total increased from 160,349 million yen in 1934 to 234,363 million yen in 1938.

Page 801: A similar table for bean oil appears.

Page 803: A similar table for bean-cake appears.

484. Japan-Manchoukuo Year Book. 1941. Tokyo, Japan: Japan-Manchoukuo Year Book Co. Index. 26 cm. Eighth annual issue. [Eng]

• **Summary:** This is the last issue of this Year Book. Each year book is divided into two main parts: Japan, and Manchoukuo. This book was published in mid-March 1941.

In the Japan and Manchoukuo parts of the book, soya beans are most widely discussed in the respective chapters on Agriculture. In each case, information given the previous year is updated one year.

Page 289-90: In the chapter on “Agriculture and stockbreeding” in Japan, Table 19 shows “Production of various grains, potatoes, etc.” in koku from 1927 to 1939. 1 koku = 1.803 litre = 5.11902 dry bushels (USA). For soya bean:

2,606 million koku in 1938

1.948 million koku in 1939

Table 19B gives the value of each crops (in yen) from 1927 to 1939. Other crops in this table are oats, millet, barnyard millet, proso millet, maize, buckwheat, red bean, sweet potato, and Irish potato.

Page 391: In the chapter on “Chemical industry” “Imports of commercial fertilizers” from 1931 to 1938

include “Bean-oil cake,” the imports of which decreased from 1.032 million metric tons in 1931 to a low of 0.376 million metric tons in 1936, then began to increase to 0.849 million metric tons in 1939.

Page 403: In the same chapter Table 38 shows “Vegetable oil production” with quantity in metric tons and value in yen, from 1930 to 1938. Soya bean oil production increased from 36,977 metric tons (mt) in 1930 to 65,711 metric tons in 1938—making it the leading vegetable oil produced in Japan.

Page 446: In the chapter on “Commerce,” Table 13 shows the “Average wholesale price of staple commodities in Tokyo” in yen per koku, average December each year from 1934 to 1939. The brand of soya beans was “Manchu White.” The price dropped from a high of 19.37 yen in 1936 to a low of 7.70 yen in 1937, then rose to 13.90 in June 1940.

Page 455: In the chapter on “Foreign Trade,” a table shows trade of “Oil cake” from 1927 to 1st half of 1940. The amount decreased from 1927 to 1936 then increased thereafter.

Page 460 in the same chapter contains a very large table titled “Imports by countries of origin” in yen from 1933 to 1938. Categories include “Oil cake,” which has increased from 41,181 in 1933 to 104,639 in 1939. Manchoukuo is the main country of origin, followed by Kwantung Province, then China, then British India, then D.E.I. [Dutch East Indies].

Page 684: In the chapter on “Agriculture” in Manchoukuo, a large table shows “Output of principal of crops (metric tons)” from 1924 to 1939. For soya beans: 4.091 million metric tons in 1938. 3.956 million metric tons in 1939.

The other principal crops shown in the tables are other beans, kaoliang, millet, maize, wheat, rice, upland rice, and other cereals.

Page 778: In the chapter on “Commerce,” Table 12 shows “Wholesale prices of principal staple commodities in Hsinking [Changchun, in Jilin province] from 1934 to 1940 in M¥ [million? yen]. The price of 1st grade soya beans went from 3.36 per 100 kin in 1934 to 7.69 per 100 kin in Dec. 1940. Wholesale prices for bean cake and bean oil also underwent dramatic inflation.

Page 812-13, in the chapter on “Manufacturing industries,” has a long section “IV. Bean oil & cake.” The four principal cities of manufacturing in Manchoukuo are Dairen, Yingkow, Antung, and Harbin. Table 20 shows “Output of bean oil at the principal cities” in 1,000 kin [1 kin = 0.6 kg] from 1932 to 1938. The leading city by far was Dairen. The total bean oil produced decreased at the four centers decreased from 221.061 million kin in 1932 to 97.255 million kin in 1938, then rose sharply to 127.850 million kin in 1939.

Pages 813-14, and their tables, are very similar to their counterparts in the 1940 year book.

485. *Central New Jersey Home News (The)* (New Brunswick, New Jersey). 1942. Hawaii Japs chew magic beans as protection from air raids. June 12. p. 16.

• **Summary:** A superhuman cow, Kudan, “told the Japanese to make pellets from his body and also to gather up small ‘azuki’ beans which grow on the island, and to send these the length and breadth of the empire. Anyone eating them would be immune from the pestilences of war, and would also escape death from bombing and aerial attacks.

“One Honolulu teacher reported seeing two of her Japanese students hastily eating the beans just before ducking into a shelter during an air raid. ‘They say if they eat them, they won’t get killed,’ she explained.

“From outside islands have come the azuki beans through the mail to young soldiers stationed on Oahu, from parents and sweethearts; one Honolulu lawyer, who has had an old Japanese man on his estate for many years, recently was surprised when the old man appeared at dinner and entreated him to eat the azuki bean to prolong his life.

“The reddish-brown beans, which have never been grown extensively in Hawaii, are the size of a little finger nail, with a white stripe on one side. They were usually part of a Japanese mochi cake and were, before the war, imported from Japan.

“Attempting to discount the rumor, the *Hawaii Hochi* ran a cartoon showing Kudan holding his bag of Azuki beans. In one corner is a prophecy saying: Let Tokyo send its small beans to Hawaii; America will shorten the war by mass production of planes, tanks and guns to Japan.”

486. Chun Hoon Market. 1942. Here are this week’s winners of Chun Hoon Market’s Victory vegetable contest (Ad). *Honolulu Star-Bulletin* (Hawaii). Oct. 6. p. 7.

• **Summary:** Winners get \$1 in War Stamps in each classification as follows:

“Kaimuki Victory Garden... Alice Young—Honorable Mention—Soy beans.”

“Moilili Victory Garden... Mildred Tanouye—Prize—Azuki Beans.” Address: Nuuanu and School Sts, Honolulu, Hawaii. Phone: 6441.

487. Japan Year Book 1942-43. 1942. Tokyo: The Foreign Affairs Association of Japan. 1020 + 2 p. See p. 398, 895.

• **Summary:** The Preface indicates that this book was published in about Oct. 1942. The editor’s name is not given.

Page 398. “Leguminous plants: Area of leguminous plants in 1939 was 583,123 cho and the production was valued at ¥167,950,279. During the past decade the area planted has been pursuing a slow downward movement. Soya-beans and azuki (red) beans are predominant both in area and production.” In 1939

Soya-beans were planted on 329,674 cho which produced 2.700 million koku worth 51,119,383 yen.

Azuki beans were planted on 97,392 cho which produced 0.701 million koku worth 29,770,625 yen.

Pages 895-96. Two large tables show “Cultivated area and production of cereals” (in hectares and metric tons), 1936-1940—in Manchoukuo. For soya beans:

4.147 million metric tons in 1936

4.352 million metric tons in 1937

4.624 million metric tons in 1938

3.995 million metric tons in 1939

3.799 million metric tons in 1940

Other crops in the table are other legumes, kaoliang, millet, maize, wheat paddy-field rice, upland rice, and other cereals.

488. Satow, Ernest Mason; Masakata, Ishibashi. comps.

1942. An English-Japanese dictionary of the spoken language. Revised by E.M. Hobart-Hampden, G.M.C. and Harold G. Parlett. South Pasadena, California: P.D. and Ione Perkins. ix + 1530 + 20 p. See p. 1232. 20 cm.

• **Summary:** The entry for “Bean” (*mame*) includes (p. 125-26): “broad bean(s) (*vicia faba*)” = sora mame; ketsu-mame (vulgar). “French bean(s)” = ingen-mame. “Indian bean(s)” = adzusa. “parched bean(s)” = iri-mame. “small red bean(s) (*phaseolus subtrilobatus*)” = adzuki; shōdzu (with 2 Chinese characters = 2 Cc). “soya bean(s),” soy = daidzu (2 Cc). “sugared bean(s) = ama-nattō.

The entry for “Beancurd” (*tōfu*) (2 Cc) states (p. 126): “served in hot water” = yudōfu. “baked” = yaki-dōfu. baked and “smeared with sweetened miso” = dengaku (2 Cc); dengaku-dōfu. (Note: Hachihai-dōfu is—cut small and stewed in a sauce of 4 parts water, 2 parts sake, and 2 parts soy [sauce]). “fried” = abura-age, aburaage.

Beanpaste, n. an.

The entry for “Rice” states (p. 1142-43): (the riceplant) = ine; (raw grain rice) = kome; (cooked rice) = meshi, gohan (2 Cc); gozen (2 Cc); o mamma (child’s word)... “glutinous rice” = mochi-gome. “glutinous rice and red beans” = o-sekihan (2 cc); kowa-meshi (given in Japan as a return for wedding); “new rice” = shimmai [shinmai]. “rice and red beans (eaten in Japan on the 1st, 15th and 28th day of each month and on birthdays, and supposed to be productive of good luck)” = aka no meshi; aka no gohan. “rice and tea”... = kigara-cha, or kigara-meshi, is rice boiled with a little soy and now generally given instead of cha-meshi. “uncleaned rice (husked but not polished) = gemmai [genmai]. “Rice-cake” = mochi; o kachin; ammo (child’s word).

The entry for “Sauce” states (p. 1176): kake-shiru; (of wheat, beans, salt) miso; shōyu (2 Cc).

The entry for “Sieve” (*furui*) states (p. 1232): “a memory like a sieve” = *misokoshi-mimi*. “a hair sieve” = kinugoshi.

Note: The word “kinugoshi,” in this sense, appears to have nothing to do with kinugoshi tofu.

The entry for “Soup” states (p. 1264): soppu; (o) tsuyu;

shiru; (flavored with soy) sui-mono;... (made with miso) o tsuke; miso-shiru; o-mi-o-tsuke (used only by women).

The entry for “Soy” (shōyu) (2 Cc) states (p. 1265): “o shitaji” (used by women). “soy pourer” = shōyu-tsugi; shōyu-sashi.

Soy-bean, n. daidzu (2 Cc). black soybean, kuro-mame; kuro-daidzu.

Words *not* listed: kinako, kinugoshi tofu, yuba. Address: 1. Japanese Secretary to H.M. Legation at Yedo; 2. Imperial Japanese Foreign Office.

489. Takenobu, Yoshitaro. ed. 1942. Kenkyusha’s new Japanese-English dictionary. Cambridge, Massachusetts: Harvard University Press. iv + 2280 p. 24 cm. American edition. Reproduced by a photolithographic process from the 82nd printing of 1939.” Title also in Japanese: *Shin Wa-Ei Daijiten*. [Eng; jap]

• **Summary:** “The present war has necessitated the publication in the United States of a new edition of Kenkyusha’s Japanese-English Dictionary because this country is cut off from the former source of supply of the dictionary and because the demand and need for all Japanese dictionaries has greatly increased. To meet this need, the Department of Far Eastern Languages of Harvard University has undertaken the project of publishing in the United States this dictionary as well as other essential Chinese and Japanese dictionaries, and the Rockefeller Foundation has supplied the necessary funds for the enterprise.

“This American edition of the dictionary has been reproduced by a photolithographic process from the eighty-second printing of 1939. No changes have been made in this edition except to increase slightly the size of the print and the book.”

The very first page, titled *Kaisetsu* (“explanation”), shows the Japanese syllabary and the romanization of each.

Near the end are two appendixes: (1) Pages 2264-74: *Saishin-go oyobi gairai-go ichiran* [List of most recent words and foreign words]. (2) Pages 2275-80: *Chugai hikaku nenpyo* [List of Japanese emperors and era names, with Japanese years and Western calendar years—starting with the first legendary emperor Jimmu (660-585 BC)].

The content of this pirated American edition is basically the same as that of Kenkyusha’s 1931 second edition of this dictionary. Address: General editor, Japan.

490. Allen, Gwenfread. 1943. Gardening hints. *Honolulu Star-Bulletin (Hawaii)*. Oct. 1. p. 14.

• **Summary:** “Have you read the lists of winners in the weekly Chun Hoon Victory Garden contests as they appear in *The Star Bulletin* each Tuesday? Or, better yet, have you visited the Chun Hoon exhibit on Mondays?

“One of the most interesting things is the variety of vegetables on display each week. All the old standbys are there, along with many vegetables that aren’t often to be

found on the market or in home gardens.”

“Kaiwiula gardeners won awards for Malabar spinach, Pak choy and bean sprouts. Piikoi St. Gardeners sent azuki beans and kava spinach...”

491. Naval Medical Research Institute, Bureau of Medicine and Surgery. 1944. Far Eastern nutritional relief (Japanese culture). OPNAV 13-18. Civil affairs guide. Restricted. Washington, DC: Office of the Chief of Naval Operations. vi + 19 p. See p. 4-13, 15-16. Aug. 15. 18 cm.

• **Summary:** From the title page: “Prepared by the Naval Medical Research Institute, Bureau of Medicine and Surgery, for Military Government Section, Central Division, Chief of Naval Operations.” At the top of every page is written the word “RESTRICTED,” which is also underlined for added emphasis.

Note: On 6 Aug. 1945 the U.S. dropped the first atomic bomb on Hiroshima, Japan. This manual was prepared about one year before that event. Therefore it appears that the U.S. believed, a year before the war was over, that it would win the war.

Page 4: Table 3. Proposed basic rations (daily intake per person). In the left column are the basic foodstuffs needed. Across the top are: Weight, calories, calcium, iron, vitamin A, thiamin, riboflavin, niacin. Soy sauce can be used as a source of salt. “Provisional emergency nutritional plan”—when the optimal diet is unavailable but a bare subsistence diet is all that is possible—for 2-3 months.

Page 5: Table 4, “Recommended emergency nutritional plan” includes soybeans and groundnuts as types of “Pulses”—of which 100,000 people will need 9.0 long tons per day.

Page 6: The basic Japanese food habits may be summarized as follows:

“(a) All Japanese, rich and poor, eat fair quantities of three types of food: rice, which provides bulk and carbohydrates; beans, especially the soybean, which provide protein and some fats; and pickled vegetables and fruits, which provide vitamins.

“(b) Fish is eaten by all, but only the more well-to-do eat it in quantity. It never replaces rice.

“(c) Fresh vegetables are common in the diet of all Japanese, although (as in other countries) the farmer probably eats more than the poor city dweller does.

“(d) Meat is not a major article of diet, although its popularity has increased greatly in recent years.”

Azuki bean paste is also used as a covering on some rice cakes. As for salads: “A Japanese dressing of vinegar, soy sauce, and sugar on thinly sliced cucumber or cold, boiled spinach would be more in keeping with Japanese food habits.”

Page 7: “Fried bean-curd (*age*) is sometimes served with boiled rice (*gohan*).” Discusses various types of sushi.

Page 8: Including inarizushi (with fried bean curds).

Note 1. This is the earliest English-language document seen (April 1913) that contains the word *inarizushi* (one word without hyphenation). “3. Beans (*Mame*). Beans are almost as important as rice in the Japanese diet. The two most important beans are the soybean (*daizu*), and a small red bean (*azuki*).”

Page 9: “The soybean forms the basis of the salty miso paste which in turn is the basis of bean soup or misoshiru. This bean soup, together with rice and pickles, is the standard breakfast throughout the country, and is eaten as part of dinner by millions of Japanese. Added to the thick salty soup are various bits of vegetable and fish which the housewife may have available.

“In cities miso is made by specialists and sold in small food shops, but each summer in the country every housewife makes her own annual supply.

“Soy sauce or shoyu is of vital importance in the Japanese diet. This is used as a sauce for fish, for rice dishes, and for meat dishes. It is to the Japanese what salt is to us, an indispensable adjunct to any meal. Any strange food might be made palatable if there were soy sauce to go with it.

“Tofu is a third important soybean product. This is a bean-curd cake. As a rule it is prepared in square blocks by special tofu makers who peddle it to the neighborhood. It forms a substitute for fish at a modest meal. The flavor and consistency of tofu vary with the region and maker. Tofu makers often raise pigs on the waste products of tofu making.

“The small red azuki beans are made into paste and used as stuffing for rice cakes, and the beans are sometimes mixed with rice on festival occasions. Azuki beans are in the nature of a minor special treat.”

“Most farmers grow at least part of the beans they need.

“4. Pickles (*Tsukemono* or *okoko*. ‘fragrant thing’). Almost nothing is served in Japan without some pickled product to go with it as an appetizer. Thus, pickle is served with all ordinary meals, with boxed lunches (*bento*), or often together with tea or wine at meals.

“The commonest form of processed pickle purchased in shops is pickled radish or daikon. (The pickle itself is called *takuan*). Another common form is pickled plum or *umeboshi*.”

Page 10: “Fish and shellfish often form a part of sushi, which is plain rice flavored with vinegar, with slices of fish, shellfish, or omelet laid on top or rolled in seaweed or fried bean-curd. Fish are also eaten in soup, especially a clear soup with chunks of the fish in it.”

Page 11: Fruits and vegetables include “(f) Konnyaku (paste made from the starch of the plant ‘devil’s tongue’).” “Konnyaku is boiled and processed into squares and sold—then cooked in soy sauce or soup. It is also used in shredded form.”

Other vegetables include “(d) Bean sprouts (*moyashi*).”

Page 12: “Most vegetables are boiled and eaten with

soy sauce and a little sugar. They are frequently put into soup, cooked into a stew, chopped up and mixed with rice, or pickled.”

Page 13: “Salt (brine production) is used generously in making miso and green vegetable pickles. Salt is a government monopoly and is sold at little or no profit.”

“8. Meat. Such meat dishes as *sukiyaki*, using either beef or chicken, are common in middle and upper-class urban families. Soy sauce is an important element in cooking *sukiyaki*. In general, before the war beef and pork were coming to be eaten more and more among the poorer classes, especially in cities.”

Page 14: “Major Japanese dislikes” include:

“(a) Entrails and internal organs of cattle or pigs, e.g., livers, tongue, or brain. (b) Lamb (said to smell). (c) Mutton. (d) Cheese (strongly disliked by most Japanese). (e) Milk and butter would be hard to make acceptable. This applies to foods fried in butter...”

Page 15: “11. Field recommendations:

“(a) Basic food habits are ingrained early in childhood. Food is a center of anxiety and fear. In times of war and calamity. Thus, food will be subject to wild rumor and constant criticism.

“(b) The cultivation of gardens should be encouraged.

“(c) So far as Japan is concerned, a general supply of fresh pickled vegetables and shoyu will go a long way toward making even the handouts of a conqueror palatable.

“(d) Because food habits are often difficult to change, it would probably be helpful to enlist local assistance in the preparation and distribution of food supplies. Cooks make excellent anthropologists. Given any food, a Japanese cook would manage to Japanize it. For instance, in cooking vegetables Japanese use soy sauce and sugar, not salt and butter. Similarly, spaghetti in tomato sauce or macaroni in cheese would not be acceptable. Cooked in soy sauce, sugar and dried bonito shavings, however, it would probably be eaten, as in this form it would be similar to Japanese *soba* or *udon*.”

Table 5, “Composition of Japanese foods per 100 grams (Ready to be eaten)” includes: “Bean-curd omelet. Pea curd. Bean curd (*Tofu*). Bean residue [*okara*]. Sprouted beans (5% protein).”

Page 16: Table 6 (8 columns), “Production and consumption of foodstuffs in Japan proper—1936” includes rice, wheat, barley, other cereals, soybeans, other beans,... For each food is given: Name of food. Area (1,000 acres). Value of production (million yen). Production (million pounds). Exports (million pounds). Imports (million pounds). Total (million pounds). Consumption per capita (pounds; Rice: 350.9. Wheat 42.2. Barley 36.3. Soybeans 27.2. Fish 67.3. Meat 4.8. Eggs 5.9. Dairy products 0.8, but fresh milk, of which consumption amounted to 1.04 gallons per capita, has not been included). Extensive notes accompany Table 6.

492. *Hilo Tribune Herald* (Hilo, Hawaii). 1945. Mrs. Satoru Kurisu of Wailea wins Hakalau Fair grand prize. Aug. 1. p. 3.
 • **Summary:** “azuki (shelled), Tookichi Sueno; azuki (in pod), Yoshio Takemoto;...”

493. Chao, Buwei Yang. 1945. *How to cook and eat in Chinese*. New York, NY: The John Day Co. xviii + 262 p. Foreword by Hu Shih. Preface by Pearl S. Buck. Illust. Index (of both recipe numbers and page numbers). 21 cm. An Asia Press Book. New editions, 1949 and 1963.

• **Summary:** A superb, funny, authentic Chinese cookbook. The “Author’s note” begins: “I am ashamed to have written this book. First, because I am a doctor and ought to be practicing instead of cooking. Secondly, because I didn’t write the book... You know I speak little English and write less.”

The section on “Conventions and hints” states: Clear-simmering is slow cooking without soy sauce. Red-cooking is slow-cooking with soy sauce (p. xvi).

In Chapter 2 titled “Eating materials,” the section on “Grains” (p. 21-22) notes: There are two important supplementary starchy foods in the Chinese diet: Sweet potatoes (the poor man’s luxury) and “beans: red beans [probably azuki], horse beans, and above all soy beans and their products. Bean milk and bean curd [tofu] are regarded in this country [America] as specialties. But in China, cabbage and bean curd mean a poor family’s home cooking. Soy beans not only give starch, but are also the most important source of protein, since most people cannot afford much animal food.”

In Chapter 3, “Cooking materials”: “The commonest vegetable oils in China are [soy] bean oil and peanut oil” (p. 24). Soy sauce is a “salter,” which is not freely exchangeable with salt. It is never used in the white kind of cooking but it is used (sometimes with salt) in red-cooking and red-stir-frying (p. 25).

“Flavorers.—The most important flavorer of Chinese food is soy-bean sauce or soy sauce for short. With soy sauce you can cook an untiring series of Chinese dishes with nothing but those foods you can get at any American chain market. In fact even pretty good soy sauce can now be bought at such chain markets. Chinese dishes are called red-cooked or white-cooked according as soy sauce is or is not used. But even in the white-cooked dishes, especially the slow-cooking ones, the morsels, or rather the chopsticks [chopsticks], of food are often dipped in soy sauce before eating. One thing we never do, however, is to pour soy sauce on rice. When Americans do that, it looks funny. It must taste funny too.

“Soy sauce is made from fermented boiled soy beans in which salt is added. Several kinds are now seen in this country. The least useful is called in Cantonese *chü-yau*, “pearl sauce,” a dark thick sauce without too strong a taste, which lends much color to the dish and is much used in

restaurants. Next is *shang-ch’au* “raw extract,” which is light brown, tastes very fine, but is not colorful enough for red-cooking and not available in any great quantity. The sauce most suitable for general purposes is called *ch’au-yau*, “extracted sauce,” which fortunately is made by several manufacturers in this country and Canada. All varieties of soy sauce are also called by the general name *shi-yau* in Cantonese.

“Similar to soy sauce is a soy jam [chiang], which is much thicker in consistency. In China, fermented flour jam is even more common. Good samples of such jams are scarce in this country.

“There is a whole class of whitish savory powder made mostly from gluten of flour. We shall call it **taste powder** in the recipes. The oldest form of this is made from the dried fermented muscle-of-flour (flour gluten), often made in old Chinese households. Almost thirty years ago the Japanese manufactured, from hydrolized gluten, a powder called *ajinomoto*, ‘prime element of taste.’ Later a Chinese firm manufactured *ve-tsin* [*vetsin*], “essence of taste, which is still found on some shelves of Chinatown. ‘Pickup’ and *mee boan* taste powders are made in this country and sold mostly in Chinatown.

“You will note that relatively few recipes in this book call for the use of taste powder.” “Other common flavorers are oyster sauce, sesame oil, and soy bean cheese (*fu-yü*) (p. 27-28).

Chapter 6, “Methods of cooking,” includes a discussion of red-cooking (stewing with soy sauce, which gives a reddish color. “Red-cooking is the typical family cooking.” Cooking time varies from 2-6 hours) and clear simmering (without soy sauce).

Soy-related recipes include: Bean curd stirs meat slices (p. 61). Bean curd stirs shelled shrimps (p. 118). Meat sauce meets lobsters (“Variation: As done in Chinese restaurants in America—Get from Chinatown 2 tb-sp salted small black beans [fermented black soybeans]. Wash off visible salt, boil 10 minutes, crush, and add to the stirring sauce,” p. 125). Arhat’s fast or Vegetarian’s ten varieties (with wheat gluten, bean curd skin [yuba], fried puffy bean curd, soy sauce, etc., p. 156-57).

Note 5. This is the earliest English-language document seen (April 2013) that contains the term “fried puffy bean curd.” It refers to a type of Chinese deep-fried tofu. “Get in Chinatown. The best is to get them ready fried,...”

Plain stirred bean curd (p. 158-59). Oyster sauce bean curd. Mushrooms stir bean curd. Scallions stir bean curd (p. 159-60). Pot-stuck bean curd (p. 160). Bean curd and meat-slice soup (p. 164). Huichou pot (with fried bean curd [large triangles or small cubes], p. 181-82). Sandy-pot bean curd (p. 183). Soy jam noodles (p. 201-02, with ½ can *yünshi* soy jam {get in Chinatown}); this is typical northern food).

Page 158 states: “Bean curd is made of soy beans. It has only a faint flavor of its own. That is why it can be easily

combined with other materials. Bean curd has the same nourishment value as bean, but in a much more digestible and palatable state and forms an important ingredient of the food for the poor people in China. It is cheap and easy to prepare. Those who can afford fancy dishes often combine it with meat, fish, and other sea foods. But just plain (Chinese) cabbage and bean curd connotes home sweet home. Bean curd is a versatile cooking thing. It can be boiled plain, with a little of any flavoring. It can be fried in deep oil by whole pieces so that the outer surface will become browned. We often stuff seasoned ground meat inside it like stuffed cucumber and then red-cook the whole thing. Bean curd can even be eaten as part of an American salad." The Chinese characters for all recipe names are given on pages 232-46. Address: Cambridge, Massachusetts.

494. United States, Office of Foreign Agricultural Relations. 1945. Civil affairs handbook, Japan. Section 7, Agriculture. Washington, DC: Headquarters, Army Service Forces. xii + 195 p. Maps. 25 cm. Supplement (xiv + 236 p.) issued in 1945. [1 soy ref]

• **Summary:** A digital version of this book is available on HathiTrust. This Section 7 is one in a series of 17 sections about Japan, including: 1. Geographical and Social Background. 2. Government and Administration. 3. Legal

Affairs. 4. Government Finance. 5. Money and Banking. 6. Natural Resources, etc.

This book offers many deep insights into Japan's agriculture in 1945 and before. For example, we read on page xi that shortly before the war: "Practically all of the sugar had to be imported from Formosa; two-thirds of the soy beans from Manchuria and Korea; and 20% of the rice from Korea and Formosa." Japan's hard-working farmers supplied the rest.

The book contains 57 tables, 14 figures, and one map (4 maps on one page, xiv).

Printed across the top of the title page: "Army Service Forces Manual M 354-7." On the same page below the title: "Headquarters, Army Service Forces, 1 April 1944."

Page 59 states: "The principal soybean foods used daily in Japanese life are soysauce, miso (red, white, black), tofu or bean curd, soybean milk, green vegetable beans [edamame], roasted beans, soy flour, natto, yuba (film from soybean milk when heated), and beverages (coffee substitute and tea mixture with roasted beans). Soysauce is extensively manufactured by large concerns throughout the Japanese Empire. It is used at every meal by the Japanese family, taking the place of salt and other condiments. Miso is a fermented product from rice or barley, salt, and soybeans, usually requiring from 6 to 12 months for curing. It is a daily

Table 41. - Leguminous crops: acreage and production in Japan
1930 to 1939

Year	Soy beans		Other beans		Peas		Peanuts	
	Acreage	Production	Acreage	Production	Acreage	Production	Acreage	Production
	:1,000:	1,000	:1,000:	1,000	:1,000:	1,000	:1,000:	1,000
	acres	bushels	acres	bushels	acres	bushels	acres	pounds
1930	857	15,532	617	11,856	95	1,967	14	23,372
1931	866	12,719	595	7,971	114	2,003	15	24,784
1932	844	12,350	599	6,766	112	1,672	16	25,608
1933	800	14,372	611	11,397	136	2,182	17	31,571
1934	831	11,075	596	8,185	140	2,824	19	25,055
1935	822	11,576	570	6,932	153	2,142	19	26,964
1936	807	13,484	554	7,611	135	1,922	19	30,237
1937	813	14,554	-	-	-	-	-	-
1938	808	13,822	-	-	-	-	-	-
1939	795	14,063	546	9,145	88	1,475	20	34,392

Office of Foreign Agricultural Relations. Compiled from official sources.

breakfast dish in the form of soup with vegetables and it is also used to preserve vegetables, fish, and meat. Tofu, made in small factories throughout cities and villages, is used extensively in place of meat. It is used in the fresh or dried state in soups with vegetables, mixed with vegetables and fried as squares in deep fat, and also toasted. Soy flour is used with wheat flour in the making of various breads, rolls, buns, crackers, and pastries. The roasted flour mixed with sugar is used in making various forms of confections. The roasted beans are used in much the same manner as salted peanuts, and in the making of numerous candies and cakes. Soybean milk is made in the tofu factories and sold as fresh milk [Interesting!]. Natto is a fermented bean, occurring in the various forms though not used as extensively as miso and tofu.

“Japan imports large quantities of soybeans, bean oil, and bean cake from Manchuria. The beans are used largely in the manufacture of soysauce and miso. Only a small percent of the Manchurian beans is processed for oil and meal as there are but three or four bean oil mills in Japan. The beans imported from Chosen [Korea] are of much higher quality than the Manchurian beans and, therefore, are used entirely in the manufacture of miso, tofu, and other food products. Bean oil is used in the manufacture of shortening, salad oil, cooking oil, and various industrial products such as paints, enamels, varnish, soap, and waterproof goods. Bean cake is used largely (90 percent) as fertilizer though considerable quantities are used as cattle feed and in the manufacture of a cheap soysauce. In recent years bean cake has also been used in the manufacture of a wool-like fiber.”

Pages 101 and 104, in the section on “Leguminous crops,” state: “The principal legume crops produced are soy beans, other beans, peas and peanuts. The most important is soy beans. Soy beans are a staple food of the Japanese, and are used for soy sauce, bean paste and bean soup. They are also in demand for a number of industrial purposes, chief of which is soy bean oil.

“The total area of all leguminous crops in 1936 was 1,516,000 acres (includes 19,000 acres under peanuts) or 7.6 percent of the total cultivated area. The soy bean crop alone covered 807,000 acres. The 1939 area under all these crops amounted to 1,449,000 acres of which soy beans are estimated at 795,000 acres (Table 41, p. 105). Because of competition from imported Manchurian soy beans, extension of mulberry tree plantations prior to the 1930’s, and increased acreage under orchards and vegetables, the soy bean area declined from an annual average of 1,091,000 acres during the 5-year period 1920-24 to 803,000 acres in the period 1935-39, or by 26 percent. Production followed suit, with a decrease from 18 to 13.5 million bushels. Despite the declining output, consumption of soy beans during the same period has increased from an annual average of 32 million bushels to about 44 million bushels. Production of soy beans in recent years has averaged about 30 percent of

the country’s consumption.

“The shortage of about 30 million bushels was made up by imports from Manchuria (supplying 80 percent) and Korea (20 percent). Next to rice, soy beans form the largest single imported foodstuff. From the Japanese point of view, the mitigating factor of this situation is that the colonies are the sole source of supply. This fact has led a Japanese to remark that from a practical point of view Japan is self-sufficient in soy beans. With respect to other beans, such as ‘azuki’ and ‘broad’ beans [*sora mame*], the ratio of domestic production to total consumption has been estimated at 55 and 85 percent, respectively. The condition that applies to imported soy beans applies to these beans as well, since they, too, originate in Manchuria.”

The word “soybeans” appears on 35 pages in this book, “soybean” on 28 pages, “soy” on 15 pages (p. 104, 101, 59, 68, 92, 105, 137, 140, 147, xii, 55, 58, 223, 228, 233), “soysauce” on 6 pages, “bean paste” [miso] on 5 pages, “miso” on 5 pages, “tofu” on 4 pages (p. 59, 100, 58, 233), “soy flour” on 3 pages, “soybean milk” on 3 pages, “green vegetable beans” on 2 pages (p. 56, 59), “shoyu” on 2 pages (p. 97, 100), “natto” on 2 pages (p. 59, 100), “yuba” (film from soybean milk when heated) on 2 pages (p. 59, 100), “roasted beans” on 1 page (p. 59). Address: Washington, DC.

495. Vavilov, Nikolai Ivanovich. 1946. Botanical-geographic principles of selection. Translated from the Russian by Mrs. Eugenia Artschwager. Prepared by the U.S. Bureau of Plant Industry, Soils, and Agricultural Engineering. 83 p. Sept. 5. [20 ref]

• **Summary:** This translation is based on the author’s 1935 work titled *Botaniko-geograficheskie osnovy selektsii*. Moscow & Leningrad: United Publishing Houses of the Federated Soviet Republics. 60 p.

Based on numerous expeditions conducted by the Soviet collective of plant breeders in Asia, Africa, Southern Europe, North and South America “we have established eight independent centers of origin for the most important cultivated plants.” One of the largest and most important of these is the Chinese center, whence comes many important cultivated plants, including five legumes: *Glycine hispida* Maxim. [the soybean], *Phaseolus angularis* L. [the azuki bean], etc. (p. 15-16). Address: Lenin Academy of Agricultural Sciences of the Inst. of Plant Breeding in USSR.

496. Cole, A.B. ed. 1947. A scientist with Perry in Japan: The Journal of Dr. James Morrow. Chapel Hill, NC: University of North Carolina Press. 307 p.

• **Summary:** For background on Commodore Perry and the opening of Japan, see Fairbank, Reischauer, and Craig. 1973. *East Asia: Tradition and Transformation*, p. 327; a summary is given in this bibliography.

In 1854, Dr. James Morrow of South Carolina, agriculturist with the U.S. Perry expedition to Japan, East

Asia, spent 18 weeks in Japan. He took seeds, plants, and scientific information from the USA to distribute as gifts for the shogun Tokugawa Iesada, and was instructed to collect the same and make observations, which he recorded in this journal. He explored the Great Liu Ch'iu (Okinawa), and sampled fried bean sprouts (we are not told what type [probably mung bean]) and soy sauce in "a little sauce of bean soy" in Canton (p. 48).

In April 1854 in Kanagawa, Japan, he "put in small papers more than two hundred papers of seed, and sent one of each kind to Mr. Allen, gardener of New York,—to Mr. Landreth, gardener in Philadelphia,*" (p. 155) (Endnote 89, p. 286: *"Probably Richard L. Allen, formerly of A.B. Allen & Co, dealers in agricultural implements in New York, and probably David Landreth of David Landreth & Son {David & Oliver Landreth & Thomas F. O'Neil} in Philadelphia."), "also to Mr. Buist, gardener in Philadelphia,—to Henry Gourdin, Esq., of Charleston,—and to Gen. Wade Hampton, of Columbia, South Carolina [a planter and congressman]. I sent the large Japanese papers to the Department of the Interior at Washington [DC].

Appendix G (p. 228) shows a list of seed bought in Simoda [Shimoda] Bay in large quantities in April 1853 (1854?) [sic, probably 1854]. Included are "Small red Beans (soya) [azuki?]," and "Black beans (another variety)."

Appendix H (p. 228-30) contains a "List of seed presented to me [Morrow] by the Japanese gentleman who was the principal in making the treaty & collected by himself as he said with great pains. These were principally from Yeddo [Edo, today's Tokyo] and Conagowa" [Kanagawa; an important port in 1854, a town north of Yokohama and a prefecture whose capital is Yokohama]. Included in the list of 56 plants are "Dolichos pease (green), Red Beans, Black pease, Red pea—Dolichos, and Small red Bean (soya) [azuki?]."

A photo (frontispiece) facing the title page shows Dr. James Morrow. Note: Morrow's soybean seeds were sent to the Commissioner of Patents, whence they were distributed to farmers, and planted from 1855 on.

497. **Product Name:** Tofu, Aburaage

Manufacturer's Name: Asato Soy Bean Food Shop.

Manufacturer's Address: 149 West Division [Chicago, Illinois]. Phone: DElaware 1816.

Date of Introduction: 1948.

New Product—Documentation: Chicago Shimpō, Inc. 1948. Chicago Japanese American directory. p. 40. A large photo shows the shop, looking in through the big glass window and open door. A sign over the window bears the name of the shop, but the smaller sign in decals on the window reads "Asato Food Shop. T.N. Asato, Proprietor."

To the left of the photo is a handwritten ad, entirely in Japanese, which states: *Asato Shokuryôhinten* [the name of the store in the photo]. *Shokuryô-hin issai, Sengyo. Oroshi.*

Kouri. Tofu, aburaage wa saishin-shiki kôjô de mainichi seizô. Shio-senbei. Mochigashi. In English: Asato Food Shop. All food products. Fresh fish. Wholesale and retail. We make tofu and aburaage everyday in our newest plant. Salted rice crackers / senbei. Japanese mochigashi sweets [mochi filled with sweet azuki paste (an)].

498. Japan Year Book 1946-48. 1948. Tokyo: The Foreign Affairs Association of Japan. 614 + 314 p. See p. 291, 367, 376. 22 cm.

• **Summary:** The Preface indicates that this book was published in about Dec. 1948. The editor's name is not given. World War II ended on 2 Sept. 1945.

Page 291. A full-page table shows "Annual yields of cereals and vegetables" (area in *chobu*, yield in *kan*, production in *koku*). For soy beans (dried):

2.299 million koku in 1943

2.072 million koku in 1944

1.321 million koku in 1945

1.565 million koku in 1946.

In 1946 production of azuki beans was 16.7% that of soy beans.

Page 367. "Soy-bean Cake: This is another item of fertilizer which was imported into this country before the war, principally from Manchuria. Of the demand for some 1,000,000 tons, 60 percent was imported in the form of soy-bean cake and 40 percent in the form of soy-bean."

Page 376. "Flavors: Oriental flavors are produced in considerable quantities as indispensable for Japanese cooking, of which soy, or Japanese sauce and miso, or soybean paste are important items.

"The domestic production of soybeans being insufficient, Japan imported before the war or in 1941-45 twice as much soybeans as domestic production from Manchuria and Korea to meet the home consumption of soy and miso."

Three tables (p. 376) show (1) Soybean imports [to Japan] during 1940-1944. These imports are from Manchuria, Korea, Central China, and total. (2) Production of soybeans in Japan 1943-1946, area planted, yield and production of dried soybeans. (3) Soybean allocations by kind [end use] in 1941 and 1944. The end uses are miso, soy sauce, staple food [beans eaten as beans], other food, chemical [industrial], fodder, and others.

499. Kagawa, Aya. 1949. Japanese cookbook (100 favorite Japanese recipes for Western cooks). Tokyo: Japan Travel Bureau. 162 p. Illust. (line drawings, and color-, and black and white photos). 19 cm. Series: Tourist Library No. 11.

• **Summary:** Contents: Preface. General remarks (The why of Japanese food, its nutritive value, table utensils, an ordinary meal, meals for guests, table etiquette, kitchen utensils, how to cut up fish and vegetables, glossary {incl. aburaage, miso, shoyu, tofu}). Japanese cookery: Table of measures, soups,

boiled foods, broiled foods, fried foods, saucepan foods, steamed foods, *hitashimono* (boiled greens in soy [sauce]), aemono (dressed vegetables), vinegared foods, sliced raw fish (sashimi), rice foods, sushi (vinegared rice foods), pickles, seasonal menus, New Year's foods, Girls' Festival foods. How to make Japanese cakes (incl. bean paste from red beans).

Many recipes call for "shoyu" [soy sauce]. Soy related recipes: Scrambled egg soup (with shoyu or Worcester sauce, p. 42). Tofu and Japanese leek soup (p. 49). Miso soups (p. 50-51). Broiled egg-plants (with miso, p. 70). Beef sukiyaki (with tofu, p. 79-80). Fish stew (with tofu, p. 81). Odamaki mushi (with yuba, p. 85). Boiled greens in soy (p. 91-92). Dressed food with white sesame [seeds] and vinegar (and aburaage {fried beancurd}, p. 96). Dressed carrot and kidney beans in pod (with tofu, p. 97).

On p. 14 we read: "Soy beans are used very much in Japanese food; especially in hilly regions where fish is scarce, or in vegetarian menus (in connection with Buddhism). Beans are not only simply boiled but eaten in various ways. They are made into *tôfu* (beancurds), *aburaage* (fried *tôfu*), *nattô* (steamed and fermented beans), *shôyu*, *miso*, [azuki] bean-paste used in cakes, etc." Key flavorings are miso, shoyu, sugar, and vinegar. Sake, mirin, dashi and ajinomoto (seasoning powder) are also important. "Seaweeds are usually eaten dry. Nori (seasoned laver), kombu (tangle), wakame (lobe leafed undaria), hijiki (spindle-shaped bladder-leaf), and so on, are rich in iodine,..."

Note: This is the earliest English-language document seen (April 2013) that contains the term "fried *tôfu*" (with diacritics).

"Of flavorings, *miso*, *shôyu*, sugar and vinegar are the most important. *Sake* (Japanese wine), *mirin* (a sweet kind of *sake*) and *dashi* are used in this way to give flavor. Properly speaking, *dashi* is formed by boiling shaving [sic, shavings] of *katsuobushi* (dried bonito) or *kombu* (tangle, a kind of kelp), but *ajinomoto* (seasoning powder) may take its place. Usually, however, *dashi* is not made, and instead *niboshi* (a small dried fish) is boiled together with the food to give it flavor. Besides, ground walnuts sesame, peanuts etc., are used to dress vegetables. In addition to these, mustard, red pepper, horse radish [wasabi], the leaves and berries of *shiso* (a kind of highly flavored leaf), the leaves and berries of *sansho* (Japanese pepper), Japanese leeks [*negi*], *myôga* (*myôga* ginger [*Zingiber mioga* Roscoe]), ginger [*shôga*, the root of *Zingiber officinale*], are used as flavorings, being found growing in most kitchen gardens."

"Our special thanks are due to Dr. R.H. [Reginald Horace] Blyth, professor of Gakushin University, who translated the original Japanese manuscript into English." Aya Kagawa was born in 1899. The book was first published in December 1949 but not copyrighted until 1952. The almost identical 9th printing appeared in April 1955. Only the color photos were changed (upgraded) by 1955. The first

true revision and 2nd edition was the so-called "Fourteenth & revised edition" of 1962. Address: M.D. and president of Joshi Eiyô Tanki Daigaku (Women's Nutrition College), Tokyo, Japan.

500. Vavilov, Nikolai Ivanovich. 1949-50. The origin, variation, immunity and breeding of cultivated plants (Translated from the Russian by K. Starr Chester). *Chronica Botanica* 13(1/6):1-366. Original Russian ed. 1935. Published as a book in 1973 by Ronald Press, New York [4 ref]

• **Summary:** N.I. Vavilov was a major contributor to scientific thought in the fields of genetics, plant breeding, and the study of plant variation, systematics, and evolution. Many consider this his classic work.

Page 2 notes: "the higher the technical level of a civilization the more highly bred are its crop plants. Thus, Chinese vegetables including different varieties of cabbage, soybeans, rice... are noteworthy for the quality and size of fruit and seed, and altogether bear witness of careful selection during many centuries."

Page 20 introduces a section titled "World centers of origin of the most important cultivated plants. Page 21 lists the major cultivated plants from the Chinese Center of Origin, including the soybean (*Glycine hispida* Maxim.), adzuki bean (*Phaseolus angularis* Wight.), broomcorn millet (*Panicum miliaceum* L.), Italian millet (*Panicum italicum* L.), Japanese barnyard millet (*Panicum frumentaceum* Fr. and Sav.), kaoliang (*Andropogon sorghum* Brot.), buckwheat (*Fagopyrum esculentum* Moench.), and Tartar buckwheat (*Fagopyrum tataricum* Gaertn.).

Page 26 notes: "The most important endemic plants of the temperate zone are three species of millet, buckwheat, soya bean, and a number of legumes... Moreover, the species are usually represented by enormous numbers of botanical varieties and hereditary forms. The varieties of soy bean, adzuki bean, persimmon, and citrus fruits include thousands of easily distinguished hereditary forms."

Page 43 lists the major cultivated plants from the Brazilian-Paraguayan Center of Origin, including manioc, peanut (*Arachis hypogaea*, on light soils), cocoa, and the rubber tree.

Page 46 discusses "Primary and Secondary Crops: Our research has suggested a division of all cultivated herbaceous plants into two groups. The first group consists of plants cultivated from ancient times and known only in cultivation or in wild state. These are called the primary group. To this group belong such plants as wheat, barley, corn, soy bean, flax, and cotton. The second group consists of all plants which have been derived from weeds which grew among the basic primary plants." Cultivated rye arose from the second group.

Four related tables on pages 75-78 show variability in 15 species of the Papilionaceae, including the soybean. The

heritable variable characters include: Color of blossom (8 characters), size of blossom (2), structure of pod wall (2), form of pod (7), color of ripe pod (6), size of pod (2), surface of pod (4), seed form (6), seed surface (2), seed color (8), variegation of seed coat (3), color of cotyledons (3), seed size (2; large and small), color of scar (3), leaf structure (2), leaf form (3), size of leaf (4), leaf margin (2, entire or toothed), hairiness of leaves (2), color of stipules (2, green or with anthocyanin; stipules are the pair of appendages borne at the base of the leaf), color of leaves (2), and waxy layer on plant (2 characters), stem structure (2), plant height (3), hairiness of stem (2), form of stem (3), color of shoots (2), color of stem (2), habit (2, erect or decumbent), vegetative period (2, early or late), formations of albinos (2, present or not present). On the basis of the Law of Homologous Series, though soybeans usually consist of forms with hairy pods, we might expect to find forms with smooth pods. Such forms originally came from Japan and Manchuria.

Page 84 discusses parallel variations in distant families. Fasciations—In almost all families there appears to be a tendency to the formation of fasciated or hypertrophied organs of different kinds—including in soybeans.

Note: *Soybean Digest* (March 1952, p. 36) reviewed this translation as follows:

“Books—Vavilov’s Classic.

“Vavilov’s great classic on biology has now been translated from the Russian into English and has been published by the Chronica Botanica Co.

“Translator is K. Starr Chester, supervisor of agricultural research at the Battelle Memorial Institute, Columbus, Ohio.

“The work contains a world of material and observations of interest to the biologist. The book is of interest in connection with the recent controversial developments of genetics and plant and animal breeding in Russia.

“As is well-known, science in Russia has gone through an upheaval, and no branch has been more affected than genetics and breeding. The leading roles were played by Vavilov, the famous champion of classical genetics, and by T.D. Lysenko, the exponent of a biology that received the stamp of approval of the Soviet state.

“Vavilov was liquidated by Stalin’s regime in the early 1940’s. Before that, he published this account, a masterful presentation of scientific reasoning, which remains the chief defense of orthodox genetics and breeding in Soviet Russia.”

A full citation of the new translation is then given. Price \$7.50. “Order through *Soybean Digest*, Hudson, Iowa.”

501. Borchers, Raymond; Ackerson, C.W. 1950. The nutritive value of legume seeds. X. Effect of autoclaving and the trypsin inhibitor test for 17 species. *J. of Nutrition* 41(2):339-45. June. [31 ref]

• **Summary:** Several legume seeds were compared as to nutritive value when fed raw or after autoclaving. Osborne and Mendel (1917) “were the first to observe that a legume

seed, the soybean, was improved by autoclaving” [cooking with moist heat and pressure].

Since then it has been reported that the nutritive value of many legume seeds has been improved by autoclaving, including the jack bean, velvet bean, adzuki bean, lima bean, and common bean.

However, not all legume seeds have been found to be improved by autoclaving; these include the peanut, chick pea, sweet pea, mung bean, and the common pea. Conflicting reports exist concerning the lentil and the black-eyed pea (*Vigna sinensis*). Address: Nebraska Agric. Exp. Station, Lincoln.

502. INEAC. 1950. [Soybeans: Selection, cultural methods, and experimental techniques]. *Institut National pour l’Etude Agronomique du Congo Belge, Rapport Annuel (Gembloux, Belgium)* 306 p. For the year (l’exercice) 1949. See p. 114, 120, 165-66, 262, 285, 291, 296.

• **Summary:** In the Section of Agronomic Research (p. 88+), in the subsection on Division of Food Plants (*Plantes Vivrières*) (p. 109+) a table (p. 114) mentions trials with rice, maize, Job’s tears (*Coix lacryma-Jobi*), soja, *Phaseolus angularis* [probably azuki beans], and sunflowers (*Helianthus*). A longer subsection on soybeans (p. 120, *G. soja*, *Soja hispida*) discusses hybridization, varietal trials, and selection. A table shows the results of a trial comparing 8 soybean varieties. For each is given the variety name, its main ancestor, the yield (the highest was S.H. 105, from Ootootan, at 1,320 kg/ha of seeds; 6 varieties yielded more than 1,000 kg/ha), seed color, duration of vegetation, protein content, and lipid content. A second, similar table shows the results of a trial comparing 7 soybean selections. The two highest yields came from Jubittan 109 (1,253 kg/ha) and Java 3334 (1,234 kg/ha).

In the section on the Eastern Sector, at the Experimental Station of Nioka (p. 157+), the subsection on soybeans (p. 165) has a table showing the results of a trial comparing 13 varieties. One column shows the percentage of plants with nodules (ranging from 11% to 75%) and another shows the yield; Tarruel was the highest at 907 kg/ha of seeds. A note at the end (p. 166) states that some recent introductions seem to be attracting interest.

The section on the Cotton Selection and Experimentation Service, Experimental Station of Gandjika (p. 224, 247+), the subsection on Edible legumes—Other edible legumes (p. 262) states that for 16 varieties of white soybeans (*soja blanc*), the yields ranged from 200 to 1,200 kg/ha of seeds, whereas for 8 varieties of black soybeans (*soja noir*), the yields ranged from 250 to 700 kg/ha of seeds.

The section on the Sector of Katanga, Station of Trials at Kiyaka (p. 271, 281+) has a subsection titled Various edible plants (p. 285) which states that 66 varieties and lines of soybeans produced very poor yields.

The section on the Stations of Ruanda-Urundi [Rwanda-

Burundi], Station of Trials at Rubona [in today's Rwanda] (p. 290+), the subsection on Food Plants—soybeans (p. 291) states that in a comparative trial of 20 varieties, the yields ranged from 700 to 850 kg/ha of seeds.

The section on the Station of Trials at Kisozi, also in Ruanda-Urundi (p. 295+), the subsection on Various edible plants has a table (p. 296) which shows that the soybean variety Tokyo Yellow gave a theoretical yield of 520 kg/ha, which was the lowest of the nine seeds shown in the table.

Peanuts (*Arachides*), bambarra groundnuts (*Voandzou*; *Voandzeia subterranea*), rice, maize, and Job's tears (*coix*) are also discussed in this annual report.

503. Nicholls, Lucius. 1951. Tropical nutrition and dietetics. 3rd ed. London: Baillière, Tindall and Cox. ix + 476 p. Feb. Illust. 24 cm. [40+* ref]

• **Summary:** Table XI (p. 22), "Chemical and biological evaluation of proteins for growing rats," contains 6 columns: Foodstuff, digestibility, Biological Value, Net Utilisation [NPU], Protein efficiency ratio, chemical score, and limiting amino-acid. "There is agreement in all methods of the high value of milk, eggs, and other foods of animal origin, and among those of vegetable origin, the proteins of soya bean flour hold a high place." Values for soya bean curd [tofu] are also included. The next section is on supplementing proteins.

The long section titled "Pulses (legumes)" (p. 219-35) has this contents: Introduction. Dhals (Dals; peas which have been shelled, split and polished). Peanut. Bambara earth pea (*Voandzeia subterranea*). Soya bean: Importance in Asia, used in many forms: Nearly-ripe seeds [edamamé or green vegetable soybeans], dry seeds, soya bean emulsion ('Milk'—contains a detailed description of how soya milk [Vitasoy] is made in Hong Kong, including exact amounts of all ingredients for 800 oz and the nutritional composition (%)), soya bean curd (may be smoked or dried), fermented curds [fermented tofu], fermented beans (tépépé), soya bean sauce, sprouted soya beans, soya bean flours, mixtures of soya beans and cereals, milk substitutes (for infant feeding in China). The genus *Phaseolus* may be divided into two types: Those of Asian origin and those of New World origin (Americas). Cow pea (*Vigna sinensis*, *V. unguiculata*, *V. sesquipedalis*). Egyptian kidney bean (*Dolichos lablab*). Horse gram. Chick pea. Cluster bean (*Cyamopsis psoralioides*). Four-angled bean or Goa bean (*Psophocarpus tetragonolobus*). Locust bean (*Ceratonia siliqua*). African locust bean (*Parkia biglobosa*, *P. filicoidea*). Sword bean (*Canavalia gladiata*). Jack bean (*Canavalia ensiformis*). Velvet bean (*Mucuna* spp.). Honey locust (*Prosopis juliflora*). Garden pea (*Pisum sativum*). Broad bean (*Vicia faba*—not a tropical plant). Yam bean (*Pachyrrhizus erosus*). West Indian locust (*Hymenaea courbaril*). Madras thorn (*Pithecellobium dulce*).

Phaseolus—Asian: *Phaseolus aureus*: green gram [mung bean]. *Phaseolus mungo*: black gram. *Phaseolus calcaratus*:

rice bean. *Phaseolus actinifolius*: moth bean. *Phaseolus angularis*: adzuki bean. New World: *Phaseolus lunatus*: lima bean. *Phaseolus vulgaris*: kidney bean. *Phaseolus multiflorus*: scarlet runner. The subsection titled "Substitutes for milk" (p. 231-35) discusses soya milk. Goitrogenicity of [raw] soya beans (p. 376). Saponins in foodstuffs (incl. soya bean; p. 385). Table 62 (p. 404-05) gives the botanical name and composition of pulses, incl. soya bean, soya bean curd, soya bean milk, carob bean, Goa bean, tepary bean. Table 66 (p. 410-11) does the same for fresh legumes, incl. broad bean, French beans, pea, pea nuts, and sprouted soya. Table 67 does the same for nuts, oil seeds, and miscellaneous seeds, incl. almonds, coconut, coconut "water," coconut "milk," linseed, pumpkin seed, sesame (gingelly), sunflower seed, and sunflower seed (kernel).

Note 1. This is the earliest English-language document seen (Oct. 2011) that uses the term "fermented curds" to refer to fermented tofu.

Note 2. The title C.M.G. (Companion of St. Michael and St. George) is an honor conferred upon those for distinguished service in the British colonies or commonwealth.

Also discusses: Marmite (autolysed yeast, p. 158, 302). Fluorine in teeth and fluorosis (p. 170, 38). The many species of millet and sorghum (p. 216-18). Coconut, coconut milk, palm oil, red palm oil benniseed of Nigeria, gingelly oil, sesame, sim-sim, til (p. 254-60). Yeast (dried; *Torula utilis*, Brewers' yeast, Bakers' yeast, Marmite) (p. 302-03).

Lucius Nicholls was born in 1884. Address: C.M.G., M.D., B.C., B.A. (Cantab.). Late Director of Bacteriological and Pasteur Institutes, and Director of Div. of Nutrition, Ceylon; Lecturer in Nutrition, Ceylon Univ.; Late Lecturer on Tropical Medicine, Ceylon Medical College; Nutrition Adviser to Commissioner General, South East Asia. Presently at Cookham Dean [just west of London, England].

504. Olival, Thelma B. 1951. Honokaans follow ancient custom to make mochi (good luck) rice cakes. *Hawaii Tribune Herald* (Hilo, Hawaii). June 21. p. 6-7.

• **Summary:** "Foods have been used as symbols of good omen by all people."

"Recently at Hanokaa members of the community followed a custom that has been handed down, generation to generation, by the Japanese people for more than two thousand years. The mochi, rice cake that is the sign of good luck, played an important role in dedication of the new Hongwanji temple there.

"Red and white mochi cakes were placed on the four towers of the building, tossed north, south, east and west. Cakes were scattered and flung in wide arcs to be caught by the populace standing below.

"Mochi is also pounded for anniversaries of marriages, deaths, and birthdays. Since rice is the main food of the Japanese people, in the courteous way of all people who

live close to the earth for their subsistence, the pounded rice cakes are offered at the altar in appreciation and gratitude. They do it in much the same spirit that they bring their first blooms, and the produce of their first crops to the temple.

“It has also been a firm Japanese custom to eat mochi on the first day of the new year, and it is so important that every family make zoni (mochi eaten on New Year’s day) since mochi is the sign of good luck.”

“Mochi pounding is a community affair, especially when mochi is to be used in large quantity. It is usually a very festive occasion with many taking part.

“The first step in making mochi is preparing the rice, which is a special rice known as mochi gome. It is stickier than ordinary rice. The rice that was used for the Honokaa dedication program came from Kauai.

“The people used five one hundred pounds of rice to make the almost 5,000 cakes for the Honokaa dedication. Hundreds of persons assisted in the preparations and 2,000 attended the ceremony.

“The day before using Mochi rice is washed and drained in large wicker baskets called ‘zaru.’ After draining from five to six pounds are put, at one time, in the ‘seiro,’ a small square wooden steamer, with bamboo matting ‘su’ at the bottom. This is then placed over a large ‘hagama’ (cast iron pot for steaming) holding water over the fire. The center of the seiro is clear of rice, the rice being pushed away to the sides to keep the center clear. In this way three or four boxes of rice may be steamed at one time, with the steam from the iron pot rising through the matting at the bottom of each box.

Rice is steamed approximately 15 to 20 minutes. The old timers do not use the clock. They ‘just know’ when the rice is done.

The next step involves the pounding, which is done in a heavy stone mortar, with heavy mallets. The mortar is called ‘usu.’ The mallet ‘kine.’ Mallets are usually homemade, and are hewn from coffee, orange or guava wood.

“Two young men wield the mallets in alternate rhythmic pounding. Someone, usually a woman, pats the dough with cold water, and turns it over at intervals, to keep it from sticking to the stone. This is done between the alternate swinging of both mallets, and requires skill and dexterity—also a certain amount of faith in human ability to keep rhythmic time. Mrs. Saka Ando of Honokaa is an acknowledged expert and to watch her agile performance was to enjoy the performance of an artist. Mochi pounding is traditionally accompanied by singing.

“Mochi, which must be pounded to a very stiff dough, becomes exceedingly heavy work when nearly done. From the usu (stone) it is taken to a table where the older woman, ‘the experts,’ roll it in cornstarch or potato starch, knead it softly, and pull it into sections to be rolled and shaped by others in small or large cakes as required.”

“The ways of eating mochi are various. It may be eaten fresh, while it is still soft. After three or four days it

becomes very hard, and it may then be placed on a rack on the charcoal brazier, or in the oven, to heat. It will swell in size and sometimes pop. It is then eaten with sugar, or with a mixture of sugar and shoyu.

Mochi is sometimes prepared with small red beans called azuki. This is a delicious way to eat it, but azuki mochi cannot be kept very long as it sours easily.

“Kinako mochi is prepared by soaking the hard mochi, broiling it on a rack, putting it into hot water, and then dipping into kinako to eat. Kinako is a preparation of soy bean powder with other ingredients.”

“Mochi may be preserved indefinitely in a tightly closed container in the refrigerator.

“Mochi making as an ordinary custom, is gradually going out of use—as nearly always happens to customs whenever people are transplanted from their native countries...”

505. Hui Manaolana Foundation (formerly Niji-no-Kai). 1951. Japanese foods (Tested recipes). Honolulu, Oahu, Hawaii: International Institute, Y.W.C.A. 122 p. Illust. (some colored). Index. 24 cm.

• **Summary:** The Hui Manaolana was formerly named Niji-no-Kai and is affiliated with the International Institute of the Y.W.C.A. The book was inspired by Mrs. Isaac M. Cox (Catherine E.B. Cox), an educator and volunteer advisor to the Y.M.C.A. Almost all the recipes in this book have been submitted by members of the group, and that woman’s name appears next to the recipe title. Shoyu is called for in many recipes.

Following a preface and an introduction, the recipes are organized by type. The many interesting ads related to soyfoods, scattered throughout the book, are cited elsewhere. Helpful hints (p. 12): “To prevent tofu from crumbling, soak in salted water for a while before using.” On p. 15 are 4 menus each for breakfast, lunch or supper, and dinner. Soups: Chiri (Fish & tofu soup). Kenchin (Vegetable soup with tofu). Basic miso soup. Satsuma jiru (Miso soup with chicken & vegetables). Oio fish dumplings in miso soup. Miso soup with long rice. Rice: Azuki meshi (Rice with red beans). Sekihan (Steamed azuki rice). Inari zushi (Sushi rice in aburage).

Fish and seafoods: Ebi no teriyaki (Barbecued shrimp. The sauce consists of: 3/4 cup shoyu, 1 teaspoon gourmet powder [Ajinomoto], 1/2 cup sugar, 1 teaspoon grated ginger, 1 clove garlic [crushed]. Mix well). Katsuo no miso yaki (Tuna broiled with miso sauce). Katsuo teriyaki (Broiled fresh tuna). Meat and chicken: Sukiyaki (with tofu). Pork and tofu. Tofu: Gan modoki [Ganmodoki]. Ankake tofu (Boiled tofu with thick sauce). Tofu with crab meat egg roll. Tofu tempura. Okara (Bean curd residue dish). Iri dofu. Okara nira (with aburage). Yudofu with goma [sesame] miso sauce. Fried tofu cooked in miso. Koya dofu (Frozen soybean curd cooked in shoyu).

Note 1. This is the earliest English-language document seen (April 2013) that uses the term “Koya dofu” (regardless of capitalization) to refer to dried-frozen tofu.

Note 2. This is the earliest English-language document seen (April 2013) that contains the term “Gan modoki” (regardless of hyphenation); it refers to deep-fried tofu burgers.

Vegetables: Kiriboshi and aburage. Nikomi oden with yakidofu. Cabbage with mustard & miso sauce. Shira ae–Watercress (With tofu dressing). Shira ae (Vegetable with tofu sauce). Daikon sumiso ae (Turnips in miso). Nikomi oden (Vegetables with miso). Nishime (with tofu). Nasu no shigiyaki (Fried eggplant with miso sauce). Negi–nuta (Green onions with miso sauce). Green pepper–miso yaki. Kuromame (black soybeans). Noodles: Kitsune udon (With aburage). Relishes: Konbu no tsukudani (Seasoned seaweed). Tekka miso (Fried miso with gobo). Kaibashira no tsukudani (Scallops cooked in shoyu). Shoyu turnips. Desserts: Ohagi (rice cake with bean paste and kinako). Many with kanten, azuki beans, and azuki koshi an (Sweetened bean paste).

Glossary (p. 97-98) includes: Aburage (fried bean curd). An (red bean paste). Azuki (red beans). Edamame (soybeans). Fu (gluten cake). Gourmet powder (monosodium glutamate). Kanten (gelatin made from agar-agar). Karashimiso (mustard miso). Kinako (yellow soy bean powder). Kirazu (bean curd residue). Konbu (seaweed). Kuromame (black soy beans). Miso (fermented rice and soy beans). Nori (sea weed). Okara (bean curd residue). Shira-ae (vegetables with mashed tofu). Shoyu (soy sauce). Sumiso (vinegar and miso sauce). Sushi. Tare (thick shoyu sauce). Tempura (fritters). Teriyaki (barbecue). Tofu (bean curd). Ume (pickled plum). Wakame (sea weed). Yakitofu [yakidofu, broiled or grilled tofu].

Note 3. This is the earliest English-language document seen (April 2013) that uses the term “Yakitofu” to refer to grilled tofu.

Note 4. This is the earliest English-language document seen (June 2013) that uses the term “bean curd residue” to refer to okara.

Note 5. This is the earliest English-language document seen (Nov. 2012) that uses the term “yellow soy bean powder” to refer to kinako [roasted whole soy flour]. Note 6. This is the earliest English-language document seen (April 2021) that mentions “Tekka” (spelled that way, which is now the proper romanization) or that gives a recipe for making it.

Note 6: This is the earliest English-language document seen (Oct. 2021) that uses the term “red bean paste” to refer to An. Address: International Institute Y.W.C.A., Honolulu, Hawaii.

506. Sakai (G.T.) & Co. (Sakai Shokai [Wholesale]). 1952. Yushutsu nyû sho [Jobbers and Wholesale: Imported Oriental Food Products (Ad)]. In: Nichi Bei Times. 1952. *Nichi-Bei Jiji Jushoroku [Japanese American Times Directory]*. [Eng;

jap]

• **Summary:** Ad (¼ page), p. 177. Name of company with diacritics is: Sakai Shôkai. The company sells soybeans and azuki beans. Address: 1111-1115 4th St., Sacramento, California. Phone: GI. 3-0252.

507. Tanda, Y. 1952. [On the differences in the growth, especially in the maturity of soybean and adzukibean grown in both districts, Settsu Plain and Tanba Plateau]. *Nippon Sakumotsu Gakkai Kiji (Proceedings of the Crop Science Society of Japan)* 20(3/4):321-22. July. [Jap; eng]

• **Summary:** “(1) Reasons why soybeans and Adzukibean grow better in mountain districts than in the plain land, were studied in this paper. Seeds of noted varieties of soybeans (Tanba-guro) and Adzukibean (Dainagon), produced in Tanba plateau, were grown in the summer season in both Tanba plateau and Settsu plain, in order to compare their growth, especially their maturity.

“(2) Soybeans and Adzukibean grown in the mountain districts had the following characteristics compared with those grown in the plain, (a) no signs of excessive vegetative growth or vinings, (b) greater yields of seeds in relation to those of stems, leaves and pods, (c) more seeds per pod, (d) more uniform maturity, (e) fine lustered seed coats, (f) greater absorption power of water of seeds, (g) scarce insect damages. These facts, may suggest that beans grown in the mountain districts, as a rule, show well growth and better maturity and better boiling characters than those grown in the plain.

“(3) The reason which may explain the above facts, will be probably due to the easy transport of carbohydrates and shapes by lower temperature in the night and the range of air temperature between day and night. The limit of the lowest temperature in the night for their growths was found to be nearly 10°C.” Address: Kyoto Liberal Arts College.

508. Japan Year Book 1949-52. 1952. Tokyo: The Foreign Affairs Association of Japan. 778 + 552 p. See p. 414-15. 22 cm.

• **Summary:** The Preface indicates that this book was published in about Aug. 1952. The editor’s name is not given.

Page 414. A large table shows “Production of cereals and vegetables” (area in chobu, yield in koku). For “Dried soy-beans

1.822 million koku in 1941
2.331 million koku in 1942
2.400 million koku in 1943
2.072 million koku in 1944
1.321 million koku in 1945
1.566 million koku in 1946
1.345 million koku in 1947
1.659 million koku in 1948
1.672 million koku in 1949

2.503 million koku in 1950

In 1950 production of red [azuki] beans was 16.5% that of soy beans.

Other crops mentioned in the table are dried maize, foxtail millet, sawa-millet, proso-millet, Indian-millet, buckwheat, and dried peas.

Page 415. This table continues on p. 415 with area in chobu and yield [production] in kan [1 kan = 3.75000 kilograms]. For Green soy-beans [Edamamé]:

11.275 million kan in 1941 on 9,671 million chobu
 8.442 million kan in 1942
 7.609 million kan in 1943
 8.073 million kan in 1944
 11.099 million kan in 1945
 8.026 million kan in 1946
 10.602 million kan in 1947
 8.578 million kan in 1948
 10.362 million kan in 1949
 9.890 million kan in 1950 on 6.000 million chobu.

509. Takenobu, Yoshitaro. ed. 1952. Kenkyusha's new Japanese-English dictionary. Tokyo: Kenkyusha. iv + 68 + 2266 + [2] p. 19 cm.

• **Summary:** This interim edition, between the 1931 second edition and the 1954 third edition has two dates written in Japanese in the front matter: March 1931 and April 1949. On the last page, the publication date is given in Japanese as 1 Feb. 1951.

This edition has two main parts: (1) "New Words (1949) consisting mostly of mostly English language words that entered the language due to the social and cultural influence of the American occupation of Japan. The words, a mini-dictionary on 68 pages, include words such as aakeedo = arcade (written in both rōmaji and katakana). There are also some new Japanese words.

(2) The entire content of the 1931 second edition—exactly the same, page for page.

New words related to soy: daizu [abura]: [soy] bean oil. Address: General editor, Japan.

510. Ichinohe, Minoru. 1953. [On the parasitism of the soy bean nematode, *Heterodera glycines*]. *Hokkaido Nogyo Shikenjo Iho (Hokkaido Agric. Expt. Station, Research Bulletin)* No. 64. p. 113-24. Feb. [9 ref. Jap; eng]

• **Summary:** Table 6 (p. 119) shows the "Amount of development of soy bean nematode, in the 32 species of plants tested."

The degree of susceptibility of soybean, azuki bean (*Phaseolus angularis* Wight), kidney bean (*Phaseolus vulgaris* L.) Spanish runner bean (*Phaseolus coccineus* L.) etc. to infection from *Heterodera glycines* was assessed in experiments in which the numbers of adult female nematodes attached to the tap roots of plants grown for 6 weeks in infested soil were counted. The degree of infection (the

average number of adult females per tap root) was 28.3 for soybean, 26.7 for azuki bean, 3.2 for kidney bean, and 0 for Spanish runner bean. Address: Sapporo, Japan.

511. Chattopadhyay, Haripada; Banerjee, S. 1953. Effect of germination on the biological value of proteins and the trypsin-inhibitor activity of some common Indian pulses. *Indian J. of Medical Research* 41(2):185-89. April. [21 ref]

• **Summary:** "1. Biological value of proteins of 5 varieties of pulses was determined by the rat-growth method, both before and after 48 hours of germination.

"2. The trypsin-inhibitor activity of 6 varieties of pulses was studied both before and after 48 hours of germination.

"3. Biological value of proteins of *Cicer arietinum*, *Phaseolus mungo* and *Lens esculenta* increased after germination, whereas that of *Phaseolus radiatus* and *Pisum sativum* decreased to some extent.

"4. The trypsin-inhibitor activity did not change with germination, indicating thereby that the altered biological value of the proteins is not due to either increase or decrease in their trypsin-inhibitor activity."

Note: Soy is mentioned in passing but it is not the main focus. Address: Dep. of Physiology, Presidency College, Calcutta.

512. Ackerman, Edward A. 1953. Japan's natural resources and their relation to Japan's economic future. Chicago, Illinois: University of Chicago Press. xxv + 655 p. Illust. Maps. Index. 26 cm. [3 soy ref]

• **Summary:** A revision and expansion of the author's 1948 SCAP report.

Tables 13 and 18 (pages 80 and 90) list production (in both U.S. tons and metric tons) and crop area (in both acres and hectares) of major crops in Japan for 4 time periods. Soybean production during the period 1931-1940 averaged 325,300 tonnes (metric tons) on 326,600 ha; it was 181,000 tonnes on 233,100 ha in 1947, then 224,300 tonnes in 1949, increasing to 330,000 tonnes on 303,400 ha in 1950. Production figures for red beans (azuki beans) are also given for the same periods.

Table 17 (p. 86-88) gives the caloric and protein food value for each of these crops in table 13. For soybeans 6.5% of the crop is used for next year's seed, and in 1947 some 15% was fed to livestock and 47% went to non-food industrial uses.

Commercial fertilizers (p. 404):... "For many years Japan has used organic commercial fertilizers, including soybean meal, other oil cake meals, fertilizer manufactured from fish, bone meal, and many other materials used in small quantities. Before its commerce was disrupted by World War II, Japan imported substantial tonnages of organic materials from other oriental sources."

Page 420: "The most calories per unit area of land generally are produced by sweet potatoes, rice, and white

potatoes in that order... The winter grains cannot be replaced by these crops, and certain minor crops such as soybeans, are of such importance for oil or protein, or both, that they are not likely to be replaced.” Moreover, “increased emphasis on sweet potato production would bring up serious storage problems.”

Page 431: The yields of soybeans can be increased “by tip pruning” (see p. 626, no. 63). In Japan the six staples are “rice, barley, naked barley, wheat, sweet potatoes, white potatoes.”

Page 524: A plastic board has been made in Britain from sawdust and other wastes. “Another similar material, ‘Excelite,’ made from excelsior, silicate of soda, soy protein, and quicklime, is reported from the United States. It is less well adapted to Japan because soy protein is needed for food.”

For many years. Japanese farmers used organic commercial fertilizers, including soybean meal. Large amounts were imported from other oriental countries (p. 404). Address: Univ. of Chicago, Illinois.

513. Katsumata, Senkichiro. ed. 1954. Kenkyusha’s new Japanese-English dictionary. Entirely new ed. [3rd ed.]. Tokyo and Kyoto: Kenkyusha. xvi + 2136 p. 24 cm.

• **Summary:** Soy related words:

aburaage: see aburage.
 aburage: fried beancurd.
 age: a piece of fried bean-curd.
 akameshi: see sekihan.
 ama-miso: slightly salted bean paste.
 amazake: a sweet drink made from fermented rice [koji].
 an: bean jam. an no haitte iru: stuffed with bean jam. an o ireru: to stuff with bean jam. an ni kurumu: to cover with bean-jam.
 anko: bean-jam = an.
 atsuage: not listed.
 azuki: a red bean; an India bean. azuki meshi [azuki gohan]: rice boiled with red beans. azuki-iro: reddish brown, russet.
 azuki-aisu: iced bean-jam.
 azuki-gayu: red-bean gruel.
 beni-shôga: red pickled ginger.
 Daitokuji natto: not listed.
 daizu: a soya (= soy) bean. daizu kasu: a [soy] bean cake [a co-product of soy bean oil]. daizu abura: [soy] bean oil.
 dengaku: bean curd baked and daubed with miso.
 dengaku-zashi ni sareru: to be transfixed; to be pierced through (as with a spear).
 edamame: green soybeans.
 ganmo: not listed.
 ganmodoki: not listed. Hamananatto: not mentioned.
 Hamananatto: not mentioned.
 inarizushi: fried bean-curd stuffed with boiled rice.
 kaiseki: a light [vegetarian] meal served before (a)

ceremonial tea.

kogoridôfu = kôyadôfu.

Note 2. This is the earliest English-language document seen (April 2013) that contains the term *kogoridôfu* (written as one word, with diacritics) which it says is the same as *kôyadôfu* [dried-frozen tofu].

Note 3. This is also the earliest English-language document seen (April 2013) that uses the term *kôyadôfu* to refer to dried-frozen tofu.

koikuchi: not listed.

koikoku: a carp cooked in bean (= miso) soup.

kôji: malt (mugi); yeast; leaven (kôbo); kôji-ya: a maltster [a maker of kôji]. kôji ni suru: to malt something.

kôridôfu: a frozen bean curd.

kuromame: a black soy bean.

miso (chomiryô = seasoning): bean paste; miso. miso o suru: to mash the miso [as in a suribachi]. miso kakeru: to put miso on something (as food). (2) (tokui to ten) sore ga kare no miso da: that is what he takes pride in [that is what he is good at]. (3) (hikakuteki-ni) miso o kakeru (shuppai suru): to make a mess (=sad work) of something; to make a miserable (=poor) showing. miso o suru (hetsurau): to flatter [someone, as one’s superiors]. [Modern is goma suru; kare, shatcho ni goma shitte-iru: he is flattering his boss. A grinding gesture goes with it. goma-suri: a person who flatters]. kuso miso ni iu: to speak meanly of a person; to speak of a person in the most disparaging terms. miso mo kuso mo isshoni suru: to mix up good and bad things. miso no miso kusaki wa, jô miso ni arazu: The secret of art lies in concealing art [Akiko never heard this saying]. soko ga miso darô: perhaps that’s the point he takes pride in [=the key point].

misokoshi: a *miso* strainer. [misokoshi de mizu o sukuu]: weave a rope of sand; attempt impossibilities [literally, to try to scoop up water with a miso strainer].

miso-mame: soy (= soya) beans.

misuzu-dofu: not listed.

momen: no meaning related to tofu is listed.

nama-age: fried bean curd.

Note 4. This is the earliest English-language document seen (April 2013) that contains the term *nama-age* which refers “fried bean curd.”

nattô: fermented soybeans. nattô uri: a vendor of fermented soybeans. nattô-jiru: miso soup with ground fermented soybeans.

nigari, nigashio: bittern; brine.

nimame: boiled beans [typically boiled soybeans served as part of *osechi* at New Year’s].

nori [no tsukudani]: laver boiled down in soy [sauce].

oboro: not listed.

okabe: = tofu.

okara: bean curd refuse.

okowa: = kawa-meshi, sekihan. Note 2. Okowa is usually made by cooking azuki beans with glutinous rice,

whereas *sekihan* is made by cooking azuki beans with regular (nonglutinous) rice.

sekihan: rice boiled together with red beans [azuki]; cooked rice and red beans.

shimidôfu = *kôridôfu* [frozen tofu].

Note 5. This is the earliest English-language document seen (April 2013) that contains the term *shimidôfu* (written as one word, with diacritics) which it says is the same as *kôridôfu*.

shiruko: red bean [azuki] soup with rice cake. *shiruko-ya*: a *shiruko* store; a bean-soup house.

shitaji (7): soy [sauce].

shôyu: soy [sauce].

tamari: [a kind of] soy; soy sauce; sauce from refined soy.

tôfu: beans curds (=cheese); *tôfu*. [*tôfu* itcho; in characters]: a piece (=cake) of bean-curds. [*tôfu-ya*]: a bean-curds dealer (=seller). [*yaki-dôfu*]: roasted bean-curd. *kare ni iken shita totte, tôfu ni kasugai da*: advice to him is like water sliding off a duck's back = It's a mere waste of words (=It is like pouring water into a sieve) to advise him. [*tofu-ya e ni ri, saka-ya e san ri to iu tokoro da*]: there is no human habitation within five miles of the place. [It's out in the boondocks].

tônyû: bean soup; soya-bean juice [sic, soymilk].

u-no-hana: (1) flowers of the *Deutzia scabra*. (2) [*tôfu no kara*] bean-curd refuse.

tsukudani: preserved food boiled down in soy.

yuba: dried bean curds [sic, the film that forms atop soymilk when it is dried]. Address: General editor, Japan.

514. Katsumata, Senkichiro. ed. 1954. Kenkyusha's new Japanese-English dictionary. Entirely new ed. Tokyo and Kyoto: Kenkyusha. xvi + 2136 p. 24 cm.

• **Summary:** Food words that are not related to soy: *akameshi*: see *sekihan*.

amazake: a sweet drink made from fermented rice.

an: bean jam. *an no haitte iru*: stuffed with bean jam. *an o ireru*: to stuff with bean jam. *an ni kurumu*: to cover with bean-jam.

anko: bean-jam = *an*.

azuki: a red bean; an India bean. *azuki meshi* [azuki gohan]: rice boiled with red beans. *azuki-iro*: reddish brown, russet.

azuki-aisu: iced bean-jam.

azuki-gayu: red-bean gruel.

beni-shôga: red pickled ginger.

kaiseki: a light [vegetarian] meal served before (a) ceremonial tea.

kaisô: seaweeds, marine plants; algae; seaware (*hiryô-yo*). *kaiso-hai*: ash from kelp. *kaiso-fun*: kelp meal [for food].

konbu: (sea) tangle; kelp; a devil's apron. *Laminaria*.

kizami konbu: sliced tangle. *konbu-maki*: a tangle roll. *tororo*

konbu: scraped tangle. *konbu-cha*: a sea-weed drink [tea].

mochi: rice-cake. *mochi o tsuku*: to pound steamed [glutinous] rice into cake. *mochi wa mochi-ya*: Every man has his forte = A specialist has his own strength (= strong point). = Every man to his trade.

nankin-mame: a groundnut. (American) a peanut; a monkey nut.

nori: laver, sloke. *hoshi* (*ajitsuke*) *nori*: dried (seasoned) *nori*. *ao* (Asakusa) *nori*: green (Asakusa) *nori*. *nori no tsukudani*: laver boiled down in soy [sauce].

okowa: = *kawa-meshi*, *sekihan*. Note 4. *Okowa* is usually made by cooking azuki beans with glutinous rice, whereas *sekihan* is made by cooking azuki beans with regular (nonglutinous) rice.

sekihan: rice boiled together with red beans; cooked rice and red beans.

shiruko: red bean soup with rice cake. *shiruko-ya*: a *shiruko* store; a bean-soup house.

wakame: *wakame* seaweed. *Undaria pinnatifida*.

zôni: rice cakes boiled with vegetables. *zôni o iwau* [to celebrate]: take the New Year's breakfast of rice cakes boiled with vegetables. Address: General editor, Japan.

515. Glacken, Clarence J. 1955. The Great Loochoo: a study of Okinawan village life. Berkeley and Los Angeles, California: University of California Press. xvi + 324 p. See p. 280. Illust. Maps. 23 cm. [134 endnotes]

• **Summary:** A very interesting study in human geography and culture, and of the details of life in three villages (incl. Hanashiro and Matsuda) on the island of Okinawa starting in 1951. This book is doubly interesting because by the year 2000 Okinawans were widely considered to be the longest-lived and healthiest people in the world (Willcox 2001).

The author decided to select a village whose economy was based on agriculture—this meant primarily the cultivation of rice, sugar cane, sweet potatoes, and soybeans (p. vii).

Okinawan villages have a striking “dependence on plants, not only for food but for other uses” (p. 3). Chapter 1 is about the geography and cultural history of Okinawa, which has long been pulled between and paid tribute to China and Japan. Okinawa is the largest and most populous of the Ryukyu islands. These islands are generally divided into four island groups (*gunto*); the Okinawa, Amami, Yaeyama, and Mikado groups. Three maps and a table (p. 8-16) shows these relationships. Naha, the capital of Okinawa island, is in the southwest.

Bean paste [miso] or bean curd [tofu] are used in the cooperative ceremonies of housebuilding (p. 70-71).

The most typical shops in rural Okinawa include import stores, which carry rice, flour, soybean sauce, and wheat (p. 74). Small retail shops sell foods, including soybean oil and Ajinomoto (p. 76).

“In the farming areas, sugar and rice are the only significant sources of cash income. Sweet potatoes, rice,

eggs, and soybeans may be sold,” but they do not provide much cash. The farmer “can produce much of his food and need spend little money if he is willing to subsist on sweet potatoes, bean curd, and bean-paste soup” (p. 86).

Chapter 7, titled “Agriculture” states: “Soybeans, grown for home consumption, are used for making bean curd (*tôfu*) and bean paste (*miso*)” (p. 131, 151). For soybean cultivation and crop rotation, see pages 136, 138, 151. Soybean plants are harvested with a small sickle and threshed by a flail; the residues are used for either fertilizer or fuel. Whereas soybeans are always used to make tofu or miso, soy sauce is always purchased.

Another type of bean is the “red dwarf bean (*adzuki*)” (p. 151).

Table 16 (p. 153) shows that soybeans are grown as a dry-land (rainfed) crop; in Hanashiro in 1952 they occupied 19.2% of the total land area; sweet potatoes occupied 50.8% and rice 15.5%.

The term “waste bean curd” (*tofu no kasshu [kasu]*) is used to refer to okara (p. 158-59); it is fed to horses and oxen.

When a person dies, if his descendants are devoted, his life will be remembered and celebrated periodically until 33 years after his death (p. 204).

Page 280: “One of the most significant links between family, village, and school is the annual athletic meet (*undôkai*)... There is much bustle, laundering, hair washing and cooking in a village the day before the meet. Special lunches including rice dyed red, bean curd, slices of fish paste, beef or pork are prepared.” The infant is with the mother “when she is turning the quern to make bean curd” (p. 204).

The main difference is the basic diet is that the poor eat more sweet potatoes and less rice. For most people, breakfast includes a “soup made of hot water and bean paste, perhaps with bits of other foods. For dinner: “Bean-paste soup, rice or sweet potatoes, bean curd and tea” (p. 223).

“Home-made bean curd (*tôfu*)” and bean paste (*miso*) are an important foods, but miso is the more important of the two in the daily diet. The present diet is better than before the war, when it consisted of mostly of the sweet potato and bean-paste soup. The latter usually has a few shred of shreds of fish or meat in it. “In times of scarcity, or if the family is poor, only the paste is used; when it is dissolved in hot water, it makes a kind of clear bouillon which is jokingly referred to as ‘mirror soup’ (*kagami miso*) because one can see his face in it; it is also called ‘nothing in it soup’ (*nnshiru*)” (p. 224)

The method of making bean curd is described (in part incorrectly). The remaining whey is used for pig food. “Bean curd, fried, boiled in a soup, in a mixture with vegetables, or as an ingredient in *sukiyaki* is always served at a party.”

“Most families serve bean-paste soup (*misoshiru*) every meal every day. It [miso] has four basic ingredients: soybeans, rice or barley—occasionally the cycad, salt, and

water. Recipes differ considerably among families... It is put in a large jar (*tsubo*) which is placed in the kitchen or in a storeroom and allowed to stand for at least a year, sometimes for three. With age, the paste becomes sweeter and is considered to be better; when ready for use, it is very soluble in water” (p. 225).

An excellent photo (p. 239) shows a woman making bean curd using a hand mill.

In observances in memory of the dead, when the “tomb is revisited on the seventh day, rice cakes [*mochi*], bean curd, favorite foods of the deceased, and a little sake may be taken as offerings” (p. 248).

After New Year, the next public holiday is *Jûrokunichi* (literally, sixteenth day), the 16th day of the first lunar month (Feb. 21, 1951); it “is a day of devotion and prayer at the family tomb.” In Hanashiru, food is taken in two lacquer boxes (*jûbako*), the second of which includes bean curd (p. 253).

In historical times, Okinawan culture was for centuries exposed to Chinese culture, especially from the 14th to the early 17th centuries, “The most significant borrowings, either directly from China or via Japan,” have included “articles of diet, such as bean curd” (p. 298).

Soybean or soybeans are mentioned on pages vii, 74 (soybean sauce), 76-77 (soybean oil), 86, 138 (“The second month (March 8 to April 5, 1951) is devoted to soybean planting which continues until about the middle of the month...” The soybean plots are weeded), 131 (“Four crops are the mainstays of Okinawan agriculture: rice, sweet potatoes, soybeans, and sugar cane”), 135-36 (soybeans in crop rotation), 138-39 (Soybeans are harvested in the fifth month, June 5 to July 3, 1951), 151 (After the soybean, the daikon is the most important of the minor crops grown for home use. Soybeans are planted once a year), 297 (sweet potatoes, soybeans, and sugar cane can be grown freely on land unsuited for rice). Address: Geographer, Berkeley, California.

516. Griffin, Stuart. 1955. Japanese food and cooking. Rutland, Vermont, and Tokyo, Japan: Charles E. Tuttle Co. 167 p. Illust. No index. 19 cm.

• **Summary:** This basic introduction by an American contains about 70 Japanese recipes. The best known of these in the USA is *Sukiyaki*. The chapter titled “Ingredients” states (p. 3-4) that ingredients available in the USA include “*fu*, or wheat gluten; *tofu*, or bean curd; *yuba* or dried bean curd [sic]; and *udon*, or macaroni... sugared red beans [*azuki*],... bean paste squares and jellies, seaweed rice-cakes [probably *mochi*], painted with *shoyu* sauce.” Sauces and flavorings are very important to Japanese cookery. “Foremost among these is *shoyu*, or soy sauce, made from wheat or barley, soybeans, salt, and water. A dark, inky, thirst-provoking liquid, it is similar to that found in Chinese restaurants. The wheat is grilled in a big iron pan until burnt-brown in hue.

It is then crushed. [Soy] Beans are boiled in an adjacent cauldron, with a heavy weight on the lid. Boiling lasts three to five hours, then the fire is put out, and the beans are kept in the kettle overnight. Steaming may be used as a method of bean preparation. This process lasts for five or six hours. The grilled wheat and boiled beans are mixed and placed in a malt-room [sic, koji room] where malt seed [sic, koji starter] are added. The mixture turns to malt [koji] in a few days. Salt water is put over the malt and left for a few more days, being stirred occasionally until fermentation takes place. This overall mixture is pressed, and the [soy] sauce obtained is bottled.

“Miso is another necessity. This is a mixture of malt [koji], salt, and mashed soybeans, the liquor of which is drained off in tubs and allowed to ferment. Miso will be discussed later in the soup chapter” (see p. 64). Soy sauce and Aji-no-Moto are frequently mentioned. Soy-related recipes: Chirashi-zushi (with beancurd, p. 31-34). Sashimi (with shoyu, p. 36-41). Miso soups (p. 49, 64-69). Bean curd soup (p. 52-53). Roasted on a plough (sukiyaki with bean curd, p. 70-81). Vegetables, white sesame & vinegar (salad, with “1 *aburaage*, a kind of fried Japanese bean curd,” p. 1124-25). Shoyu spinach (salad, p. 134). Turnips in shoyu (p. 134-35). Sweet soy beans (a festival dish at New Year’s, p. 154-55).

Also mentions: Red rice (with azuki beans and glutinous rice, p. 17-18). Norimaki-zushi (sushi wrapped with nori, p. 27-30). Red bean cake (*yokan*, with bean paste, made from red kidney beans, and agar-agar, p. 145-46). Red kidney bean soup cake (*shiruko* [with azuki beans and mochi], p. 148-49). Bean & jam cake (*kuzumanju*, [with azuki bean paste and kuzu], p. 150-51). Address: [Japan].

517. Alvarez, Walter C. 1956. Dr. Alvarez says: Money to educate scientists big need. *Los Angeles Times*. Nov. 11. p. C2.

• **Summary:** The section titled “Diet clue to cause of heart disease” notes that in the past 25 years there has been a major increase in the incidence of fatal heart attacks in Hawaii. Autopsies indicate that as Hawaiians have become more affluent, their consumption of butter, cream, eggs and milk has increased significantly.

In Japan, the village of Narusawa, at the foot of Mt. Fuji, had the lowest rejection rate for conscripts [into the Japanese military]. “These villagers lived largely on soybean soup” [probably miso soup].

The inhabitants of another village, Mukojima, have the greatest longevity of any village in Japan. Some 8.4% of the population are over 70 years of age. These villagers eat a diet that is very low in fat. It consists mainly of noodles made of sweet potatoes, wheat dumplings, “dried sweet potatoes, and azuki beans; also small fish and seaweed, carrots and pumpkins.” Address: Emeritus Consultant in Medicine, Mayo Clinic.

518. *Los Angeles Times*. 1956. Diet clue to cause of heart disease. Nov. 11. p. C2.

• **Summary:** In the last 25 years in Hawaii, there has been a large increase in the incidence of fatal heart attacks. After studying the hearts of persons who have come to autopsy, Dr. Nils P. Larsen of Honolulu suspects that this is because Hawaiians, whose income has risen significantly during this time, have been consuming much more “butter, cream, eggs, and milk” than before.

In Japan, the village of Narusawa, at the foot of Mt. Fuji, had the lowest rate of rejection of military conscripts during World War II; the villagers there lived largely on “soybean soup.” Note: Probably miso soup.

In Mukojima, another village, the people have the greatest longevity of any village in Japan. About 8.4% of the population are over 70 years of age. The diet of Mukojima, which is described, includes noodles made from sweet potatoes, azuki beans, small fish, seaweed, carrots, and pumpkins.

519. Chao, Buwei Yang. 1956. How to cook and eat in Chinese. London: Faber and Faber. 286 p. Illust. Index. 21 cm.

• **Summary:** The basic information about soy in this 1956 British edition is quite similar to that in the original 1945 American edition except: (1) British spelling is used (e.g., flavour instead of flavor), and additional information about European ingredients or substitutes; (2) The same (or almost the same) text appears on different pages. See pages 20-21 (Vesop is very much like soy sauce. Clear-simmering is slow-cooking without soy sauce. Red-cooking is slow-cooking with soy sauce), p. 43-44 (red beans, [probably azuki], horse beans, soy beans and their products, bean milk and bean curd [tofu]), p. 46 ([soy] bean oil and peanut oil), p. 47 (soy sauce), p. 49-50 (soy-bean sauce, soy sauce or *shi-yau* in Cantonese, “Acceptable substitutes for soy sauce in the order of preference, are as follows: ‘Vesop’ sauce (Italian), ‘Maggi’ (German), and ‘Kub’ (French)).” “Similar to soy sauce is a soy jam, fermented flour jam, “In Cantonese the soy jam is called *mo-shi*.” Oyster sauce, sesame oil, soy bean cheese (*fu-yü*).

Soy-related recipes include: Bean curd stirs meat slices (p. 84-85). Bean curd stirs shelled shrimps (p. 144). Arhat’s fast or Vegetarian’s ten varieties (with wheat gluten, bean curd skin [yuba], fried puffy bean curd, soy sauce, etc., p. 180-81). Plain stirred bean curd (p. 181-82). Oyster sauce bean curd. Mushrooms stir bean curd. Scallions stir bean curd (p. 182-83). Pot-stuck bean curd (p. 184). Bean curd and meat-slice soup (p. 188). Huichou pot (with fried bean curd [large triangles or small cubes], p. 204-05). Sandy-pot bean curd (p. 205-06). Soy jam noodles (p. 224-25, with ½ can *yünshi* soy jam {also called *mo-shi* in Chinese foodshops}).

Pages 181-82 discuss bean curd. The Chinese characters

for all recipe names are given on pages 257-71. Address: Cambridge, Massachusetts.

520. Sato, Chieko. 1956. Japanese cooking of all kinds. Tokyo: Japanese Cooking Research. Printed by the Kenkyusha Press, Tokyo. [v] + 191 + 224 + 4 + [4] p. of color plates Illust. (incl. 4 color plates). 19 cm. [Eng; Jap]
• Summary: This remarkable book is written in both English (from front to back, first 191 pages) and Japanese (from back to front, 221 p.). There are advertisements for Aji-no-moto and Kikkoman soy sauce on unnumbered pages in the middle of the book between the two sections. p. iii: Japanese words and their English equivalents: aburaage: fried bean-curd. koyatofu: dried frozen tofu. miso: bean-mash. shoyu: soy bean sauce or soy sauce. tofu: cake bean-curd or bean-curd. unohana: bean curd dross [okara].

Pages 8-16: Seasonings: Irizoyu (heated soy sauce, also called Tosa shoyu). Nikirijoyu (boiled soy sauce). Terijoyu (glossy soy sauce, often used for teriyaki). Awasejoyu (mixed soy sauce). Umejoyu (pickled plum soy sauce). Nambanjoyu (cayenne pepper soy sauce). Gomajoyu (sesame seed soy sauce). Satojoyu (sweet soy sauce). Kabayakijoyu ("Eel" soy sauce). Karashijoyu (mustard soy sauce). Wasabijoyu (horseradish soy sauce). Hosokawajoyu (Hosokawa soy sauce). Momijijoyu (maple soy sauce). Tamajoyu (egg soy sauce, also called tamago hitajiru). Mizorejoyu ("Sleet" soy sauce). Sujoyu (vinegar soy sauce). Nambangomajoyu (cayenne pepper and sesame seed soy sauce). Karashisuyu (mustard vinegar soy sauce). Awasemiso (mixed miso). Sumiso (sour miso). Karashisumiso (sour mustard miso). Gomamiso (sesame seed miso). Gomasumiso (sour sesame seed miso). Remonkamiso (lemon miso). Nambanmiso (cayenne pepper miso). Sanshomiso (Japanese pepper miso). Dengaku miso (bean curd miso). Shigiyaki miso (broiled snipe miso). Tamagomiso (egg miso). Mizoremiso ("Sleet" miso). Wasabi miso (horseradish miso). Shogamiso (ginger miso). Negi miso (leek miso). Ninniku miso (garlic miso). Ume miso (pickled plum miso). Note: Japanese mustard and western mustard are different.

Basic art of cooking (p. 17-36): Bean-curd (p. 27). Sea weeds: Kombu, arame, hijiki, nori. Tofugayu (bean curd rice gruel, p. 40-41). Inari zushi (p. 45-46). Bokkake gohan (bean curd on rice). Taisatsuma (sea bream miso over rice). Goma miso soba (sesame seed miso soba). Kansai style miso zoni (p. 58). Miso mochi (miso rice cake). Natto mochi (fermented soy beans with rice cake). An mochi (rice cake with sweet bean [azuki] paste). Abekawa mochi (Rice cake with soy bean flour).

Soup cookings (p. 60-67): Shiratama dofu no sumashi (clear soup with white bean curd dumplings). Gion dofu no sumashi (clear soup with lemon flavored bean curd). Agedashi tofu no sumashi (clear soup with fried bean curd). Miso soup. Taiyaki miso shiru (broiled sea bream miso soup). Satsumajiru (Miso soup with chicken and mixed

vegetables). Kenchin jiru (with 1 square tofu). Yoshinojiru (with a piece aburaage).

Boiled cookings (p. 68-92): Most recipes call for soy sauce. Asari no tsukudani (shellfish boiled down in soy sauce). Nasu no namban-miso-ni (Egg-plant and hot pepper with miso). Konnyaku no goma-miso-ni. Iridofu-ni (boiled parched tofu). Tofu no agedashi-ni (boiled fried bean curd). Yamakakedofu (bean curd with yam dressing). Kombu no tsukudani (dried tangle boiled down in soy sauce). Sukiyaki. Yudofu nabe (hot bean curd in a pan). Oden (Kanto style). Yosu nabe (with tofu, p. 89). Matsutake no nabeyaki (with tofu). Niyakko nabe (Tofu and chicken in a pan). Miso no oden (Oden with miso). Iwashio miso nabe (sardines with miso in a pan). Chukafu yose nabe (Chinese style mixed food in a pan).

Broiled cookings (yakimono, p. 93-113): Ika no miso-yaki (cuttle-fish broiled with bean-mash). Pork broiled with namban goma-joyu (with black sesame soy). Asparagus saute with bean-mash (miso). Satoimo no gomamiso-yaki (taro broiled with sesame bean-mash). Bean-curd gomokuri-yaki (with tofu). Bean-curd oribe-yaki (with 2 tofus). Bean curd matsukaze-yaki. Kinome dengaku. Dengaku daikon.

Fried cookings (p. 114-131): Kodai no fukuro-age (with 1 tofu). Hyuga tempura (with 1 tofu). Fried pork with sansho soy sauce. Tofu no isobe-age. Age-dashi-tofu. Kenchin-make-age. Tofu no sarasa-age.

Steamed cookings (p. 132-54): Tai no kenchin mushi. Mackerel no natto mushi (with 6 box of natto). Shojin chawamushi. Tofu no mangetsumushi. Tofu no soboromushi. Tofu no narutomaki. Ginnan tofu (with ginkgo and tofu). Nannohana tofu. Sesame tofu. Uguisu tofu. Koyatofu no kohaku mushi. Tamago tofu.

Blended cookings (aemono, p. 155-185): Sardine's sumiso-ae. Herring roe seasoned with mustard bean-mash. Dried shrimp seasoned with shironuta (bean-curd mash). Sardines mashed with bean-curd dross (unohana). Daizu no nahaizubitashi (Soybeans seasoned with 2 combination dressing of vinegar and soybean sauce). Mamemoyashi no isoka-ae (bean sprouts flavored with laver). Gomoku shira-ae (with 1 cake of bean curd). Hijiki no shira-ae (with soybean sauce and bean curd). Takenoko no kinome-miso-ae (bamboo sprout seasoned with buds bean-mash). Agetofu no gomamiso-ae (fried bean curd blended with sesame bean-mash). Nasu no karashi-miso-ae (eggplant blended with mustard bean-mash). Ingredients should be all at room temperature when blended and served promptly.

Solidified cookings (p. 186-91): Awayuki-tofu. Tamagawa-yose. Mizutama-tofu. Suisho-tofu.

Note: Most recipes call for the use of ajinomoto.

521. Judd, Judith E. 1957. Century-old dietary taboos in 20th century Japan. *J. of the American Dietetic Association* 33(5):489-91. May.

• Summary: Certain pairs of foods should not be eaten

together, such as muskmelon and fried soybean curd (*aborakge*) [sic, *aburage*], or loquats with red beans (*asuki*) [sic, *azuki*].

Religious restrictions: “As elsewhere, the great religions impose dietary restrictions. The Buddhists are mainly strict vegetarians [vegans?], eating only cooked vegetables on fast days, though a few sects are beginning to permit the eating of fish, but no other products of animal origin.”

There are “seasonal and agrarian influences” and a fixed sequence of food service. “The final course always consists of a broth-based soup (*shirumiso*) made from fish and other ingredients.

The daily meal plan of a laborer is given. Breakfast includes shellfish or seaweed in soy sauce.

The final section, “Foreign influences, notes that the ten-year occupation of Japan by the United States Armed Forces has had only superficial and limited influence.

Note: The tone of this article is condescending and seems to assume that food restrictions are harmful—which many are not. Address: New York City.

522. *Times of India (The) (Bombay)*. 1957. Confectionery & foodstuffs. Aug. 20. p. 18.

• **Summary:** The foods of Japan have changed noticeably since World War II. The islands of Japan, whose combined area is 15% smaller than that of California, are much too small to grow enough staple food crops (such as rice) to feed the 80 million inhabitants. So Japan, which has been shorn of its overseas empire (Korea, Taiwan, Manchuria, etc.) has now become a major importer of wheat flour, and the number of bread eaters has been rapidly increasing.

Great efforts have also been made to incorporate more protein into the daily diet. “Scientists today have begun to view time-honored seasonings like miso and soy sauce, made largely from soybeans, from a new angle.”

The most popular confections are *namagashi* which are traditional Japanese. They include *yokan* (hard red bean paste) [made from azuki beans].

523. Oka, Takashi. 1957. English aside. *Christian Science Monitor*. Sept. 26. p. 8.

• **Summary:** The “older members were consulted about courses, about philosophy, and about the best ice cream parlor or shirukoya [shiruko-ya] (sweet bean paste parlor) in Ikebukuro.”

Note: “Sweet bean paste” [*an*] is made from azuki beans. Ikebukuro is a part of Tokyo, Japan.

524. Anthony, K.R.M.; Willimott, S.G. 1957. Cotton interplanting experiments in the south-west Sudan. *Empire J. of Experimental Agriculture* 25(97):29-36. [4 ref]*

• **Summary:** During 1952-1955 field experiments were conducted in Equatoria to determine the feasibility of interplanting cotton into groundnuts, soyabeans, cowpeas, or

Phaseolus angularis [azuki beans], the legumes being sown at the beginning of the cropping season. Results showed that this system cannot be recommended in south-west Sudan unless the legume crop is sown no later than early April. Address: Yambio Exp. Farm, Research Div., Ministry of Agriculture, Republic of Sudan.

525. Leese, Bernard M., Jr. 1958. Identification of Asiatic species of *Phaseolus* by seed characters. *American Midland Naturalist* 60(1):132-44. July.

• **Summary:** Eight Asiatic species of *Phaseolus* are presently recognized: (1) *P. aconitifolius* Jacq. (moth bean). (2) *P. angularis* (Willd.) W.F. Wight (Adsuki bean). (3) *P. aureus* Roxb. (mung bean). (4) *P. calcaratus* Roxb. (rice bean). (5) *P. mungo* L. (Urd). (6) *P. radiatus* L. (7) *P. scaberulus* Miquel. (8) *P. trilobatus* (L.) Schreb.

A glossary of terminology includes: Caruncle (a wart-like excrescence formed on the collar surrounding the hilum cushion), cotyledon ridge, hilum cushion, hilum line, hilum slit, micropyle, palisade ridge, sclerenchyma bundle, parahilum.

The adsuki bean is native to India. It is cultivated in northern China and Japan where it is eaten boiled with soup or mixed with rice. Note: The Japanese use adsuki beans for making pastry. “Twenty-nine sample were examined. Eighteen of these were collected around Echo and Chihli, China; seven near Harbin, Manchuria; and four in India. Some of the samples were mottled and a very few were a light yellowish brown color; this light coloration often appears to be an indication of immaturity.” A detailed description of the botanical differences between each species is given. Illustrations (figures 2 and 11) show the adsuki bean seed. Address: USDA, Washington, DC.

526. Masui, Masamiki; Hara, Masami; Hiramatsu, Takashi. 1958. Depolymerization of deoxyribonucleic acid by the juice of soy-bean sprouts. *Biochimica et Biophysica Acta* 30(1):215-17. Oct. [6 ref]

• **Summary:** The enzyme deoxyribonuclease, with remarkable activity, was found in the juice of soy-bean sprouts and in the juice of the sprouts of *Phaseolus radiatus* var. *typicus*. Address: Dep. of Bacteriology, Osaka City Univ. Medical School, Osaka, Japan.

527. Bonnier, Charles; Seeger, Jacques. 1958. Symbiose *Rhizobium*-légumineuses en région équatoriale (Deuxième communication) [Legume / Rhizobia symbiosis in equatorial regions (second communication)]. *Publications de l'Institut National pour l'Etude Agronomique de Congo Belge [INEAC] Serie Scientifique* No. 76. 66 p. [22 ref. Fre]

• **Summary:** During a 1957 visit to Yangambi, in the equatorial region of the Belgian Congo, observations were made on inoculated cultivated legumes, some of which had been studied previously. Results confirmed the

great advantage of inoculation, particularly of soybeans, groundnuts, *Phaseolus angularis* [azuki beans], and two other species. In field trials inoculation of soybeans was shown to increase yields by 80 to 300%.

Soybeans (*Soja hispida*) are mentioned on pages 33, 36, 44-47, 50-51, 53-58, and 62. Other plants cultivated included *Mucuna pruriens*, *Canavalia ensiformis*, *Pueraria javanica* [maybe kuzu], *Crotalaria longithyrsa*, and *Stylosanthes gracilis*. Address: Institut agronomique de l'État, Gembloux, Belgium.

528. Hopper, T.H. 1958. Amino acid composition of foodstuffs. In: A.M. Altschul, ed. 1958. Processed Plant Protein Foodstuffs. New York: Academic Press. xv + 955 p. See p. 877-91. Chap. 33. [38 ref]

• **Summary:** Contents: Introduction. Table I: Conversion factors (incl. almonds, coconut, cottonseed, flaxseed, hempseed, peanut, sesame seed, soybean {5.71}, sunflower seed, corn {6.25-highest}, adzuki beans, jack beans, lima beans, mung beans, navy beans, velvet beans). Table II: Amino acid content of selected products (incl. soybean meal, soybean protein, soybean varieties—Akadian [sic, Acadian], Arksay [sic, Arksoy], Chief, C.N.S., Earlyana, Gibson, Lincoln, Manloxi [sic, Mamloxi], Ogland [Ogden?], Richland, Roanoke). Address: USDA, New Orleans, Louisiana.

529. Li, Changnian. ed. 1958. Doulei [Selected historical sources on legumes [in China] (Part I)]. Beijing, China: Chung-hua (Zhong-hua shu-ju; Chung Hwa Book Co.). 410 p. 19 cm. Chinese Agricultural Heritage Series No. 4. [200+ ref. Chi]

• **Summary:** Wade-Giles reference: *Tou Lei (Shang P'ien)*, edited by Li Ch'ang-Nien—who is also the editor-in-chief of the entire series. A superb compilation of many (but not all) excerpts concerning soybeans and soyfoods from early Chinese texts. The material is reprinted/reproduced as in the original text; it is quoted verbatim, not summarized and not recreated in a modern rendering. The section on the soybean, as such, is on pages 213 to 251 (38 pages). Sixty-nine books (Nos. 286-354), from the 10th century B.C. to 1927, are cited and their material on soy presented. Many of the books he has cited are no longer easily available, so he has made a tremendous contribution. This book on beans is part of a series on various agricultural subjects, sponsored by the Chinese Academy of Agricultural Sciences. They commissioned the University of Nanjing Agricultural College, which has an institute for the history of agriculture.

But there are many scattered and important references to soya on the pages before that the section on the soybean, in the section titled *Shu* (Legumes; p. 13-212). These include pages 13, 15-18, 22, 26, 28-34, 36-53, 55, 57-58, 60-61, 64-65, 67, 69, 71-72, 75-77, 78-82, 85-86, 91, 93-95, 98, 103, 106, 120. Much of the material in both of these sections

has been translated into English for the Soyfoods Center by Steve Fuller-Rowell and H.T. Huang. The author's name in pinyin is written Li Zhangnian.

The azuki bean [written with the Chinese characters small + bean] is discussed on p. 253-60. Written with the characters red + bean or red + small + bean it is discussed on p. 261-70. Address: Prof., Chinese Agricultural Heritage Inst., Nanjing Agricultural Univ., Nanjing, China.

530. *Chicago Daily Tribune*. 1959. Find soybean plant pest in south Illinois: Threatens 250 million dollar crop. Sept. 19. p. 13.

• **Summary:** The soybean cyst nematode has invaded southern Illinois. It is estimated that Illinois will produce 126 million bushels of soybeans this year, 72% more than any other single state.

"The nematode, a worm, attacks the roots of soybeans, lespedeza, common vetch, snap beans, and adzuki beans."

531. Egami, Tomi. 1959. Typical Japanese cooking. 1st ed. Translated by V.A. McKenzie Skillman. Tokyo: Shibata Publishing Co. Ltd. Exclusive distributors: Japan Publications Trading Co., Ltd (Tokyo). [viii] + 146 p. Illust. (incl. color photos by Yoshikatsu Saeki). Index. 27 cm.

• **Summary:** Foods marked with an asterisk (*) are exported from Japan to the USA. Many recipes include "soy sauce" and monosodium glutamate (Ajinomoto). Soy related recipes include: Aburage * ("fried soy bean curd"—4 recipes). Broiled soy bean curd [*yakidofu*] (3 recipes). Sukiyaki, Yasainabe, Osechi). Chu-miso paste * ("made from soy beans, salt and rice malt [koji], seasoning for miso soup"—2 recipes). Ganmodoki * ("fried soy bean curd and vegetables"—Nikomi oden). Nama-age ("half fried soy bean curd"—Boiled vegetables).

Note: This is the earliest English-language document seen (April 2013) that contains the term "fried soy bean curd" or the term "half fried soy bean curd."

Okara ("soy bean curd leftovers"—Yoshino sushi). Red miso paste * ("made from soy beans, salt and rice malt [koji], seasoning for miso soup"—2 recipes). Soy bean (3 recipes). Soy bean curd * (14 recipes, incl. Gizeidofu / Gisei-dofu, p. 39). Soy bean powder * [kinako] (2 recipes; Kinakomochi, Kushi dango). Soy sauce ("Kikkoman"). White miso paste ("made from soy bean, salt and rice malt [koji], seasoning for miso soup"—2 recipes). Worcestershire sauce (Skewer nibblers).

Other interesting recipes include: Amazake. Azuki-sarashian ("red bean powder"—7 recipes). Black sesame seed (in Sekihan). Mochi rice. Red bean [azuki] (Sekihan). Rice cake ("made of mochi rice"). Seaweeds (kanten / agar-agar, kombu / konbu, nori / green laver & purple laver, wakame). White sesame seed. Yamaimo ("Japanese yam"). Tomi Egami was born in 1899. Address: [Japan].

532. Lo-yang Ch'ü k'ao-ku fa chüeh-tui. 1959. Lo-yang Shao-kou Han-mu [The Han dynasty tomb? at Shao-kou on the northwest outskirts of Lo-yang in northern Honan province]. Peking, China: Science Press. See p. 112-13, table 26. [Chi]*

• **Summary:** Ying-shih Yü (1977, p. 71) notes: At Shao-kou “a total of 983 earthenware grain containers were unearthed in 1953 from 145 tombs datable from middle Earlier Han to late Later Han [about 100 B.C. to 200 A.D.]. Found in many of the containers are grain remains of the following: millets of various kinds (*Panicum miliaceum* Linn., *Setaria italica* Beauv. var. *maxima* Al., spiked millet, etc.), hemp, soybean, rice, and Job’s tears (*Coix lacryma-jobi*). Moreover, most of the containers bear inscribed labels indicating the food content of each. In addition to the grains just given above, we also find the following names: wheat, barley, bean, lesser bean [azuki?], hulled white rice, and others (see p. 112-13, table 26).”

Lo-yang was the capital of the Eastern Han, Chin, Northern Wei, and Sui dynasties. It was also the east capital under the T’ang dynasty and the west capital under the Sung dynasty. Address: China.

533. Shih, Shêng-han. trans. 1959. On “Fan Sheng-chih shu”: An agriculturist book of China written by Fan Shêng-chih in the first century B.C. Peking, China: Science Press. (Kexue Press). 68 p. 28 cm. Reprinted several times, incl. 1974. No index. [10 ref. Eng; Chi]

• **Summary:** This book is “A collection of the fragmentary remains of original Chinese text of ‘Fan Shêng-Chih Shu,’ rearranged, translated into English and discussed in an analytical essay.” The Chinese text appears on each left-hand page, and a parallel text translation with critical commentaries in English appears on each right-hand page.

Contents: Preface. The fragmentary remains of the original text of Fan Shêng-Chih Shu (with English translation): 1. Basic principles of farming. 2. Choice of date and sorts for sowing. 3. To treat the seeds (to give drought-tolerant plants). 4. Cultivation of certain crop plants. 5. Harvesting. 6. Seed corn, selection and storage. 7. Cultivation in shallow pits. A brief analytical survey of *Fan Shêng-Chih Shu*: I. Fan Shêng-Chih the agriculturist and his book *Fan Shêng-Chih Shu*. II. The background of Fan Shêng-Chih Shu. III. Subject matters dealt with in *Fan Shêng-Chih Shu*. Appendix I. Table of approximate equivalents of measures used in Fan’s book. Appendix II. Table of the 24 sub-seasons of a Chinese calendar year.

The text of more than 3,000 words was translated by Shih Shêng-Han at the Northwestern College of Agriculture, Wukung, Shensi.

A translation of the parts that mention soybeans is given at the original document: See *Fan Shengzhi shu* (10 BC).

4.8 To plant hemp: Ameliorate the ground thoroughly before sowing... 4.9 To plant *male* hemp: Plough and drill the

field in spring time when it thaws. After sprouting of weeds, apply manure and plough down, harrow to level out (then sow). See also 4.8.1 to 4.9.1.

“5. Harvesting... 5.2 How to harvest beans: When the pods begin to darken and stalks are grey, reap immediately,– or else you will lose the falling seeds. Hence the saying goes: “beans ripen on (threshing) ground.” Ripening on threshing ground means harvest with green pods above and darkened pods below.” Then describes how to harvest female and male hemp plants. “5.3.2. Twenty days after summer solstice, soak harvested male hemp plants in water to soften. Basts thus obtained are as good as silk.”

7.5 Lesser beans (azuki) “4 to 5 *shêng* per *mou*, may be sown among melons; the bean leaves can be sold as greens.” 7.8 mentions cultivation of *Perilla* and sesame in shallow pits. Address: Ph.D., Prof. of Plant Physiology, Northwestern College of Agriculture [Wukung, Shensi], China.

534. Thompson, Edna. 1959. The yoga cook book. New York, NY: Philosophical Library. 156 p. Index. 19 cm.

• **Summary:** The Yoga diet, as presented here, is not vegetarian. This book contains recipes for meat (liver, heart), fish, and shellfish. “Yogans” are said to eat at least some food each day which carries the life principle (fresh, raw food), to prefer whole foods in modest amounts, to avoid inert demineralized foods (such as white flour and white sugar), and alcohol. Yoga is not a religious movement; its followers practice self discipline in eating, without fasting. The rear dust jacket states: “This book banishes the idea that the modern Yogin is an ascetic with caveman dietary habits.” The true Yogin regards his food as sacred and has heightened powers.

Soy-related recipes include: Soybean soup (p. 18). Shoyu sauce (soy sauce, p. 26). “Auxin” salad (freshly sprouted mung beans sprinkled with soy oil, etc., p. 48). Eggs foo yung (with bean sprouts, water chestnuts, green onion, celery, 4 beaten eggs, salt to taste. “Brown desired size patties of the mixture in soy oil.” Serve with a brown sauce made with cornstarch, soy sauce, monosodium glutamate, sugar, and salt. p. 58-59). Vegetable sukiyaki (with Tofu {bean curd} and shoyu sauce, p. 65). Soyburgers (with mashed cooked soybeans, p. 66). Vegetable chop suey (with soy oil, bean sprouts, and soy sauce, p. 68). Korean soybean noodles (made with soybean flour, p. 72). Soy spoon bread (with soy flour and soy oil, p. 97-98). Making soy bean cheese (tofu, coagulated with vinegar, p. 104). Yoga puddings and desserts (white flour is replaced by soy flour and lard is replaced by soy oil, p. 114). Chinese sweet soy beans (p. 122). Manchurian soy bean milk drinks (p. 136).

Also discusses: Japan yokan cakes (with red beans [azuki], p. 116-17). Oat peanut butter wafers (p. 123). Red bean cake (Korea, with red kidney beans [azuki], p. 131-32).

535. Sun (Baltimore, Maryland). 1960. Chopsticks, chicken

help spur U.S.-Japan goodwill. March 29. p. 36, 24.

• **Summary:** Have you ever tried to eat Maryland fried chicken with chopsticks? Between courses of *misoshiru* (soy bean [miso] soup), *oshinko* (Japanese pickles), *sunomono* (fish salad), *asashimi* (fillet of raw fish), *nori* (toasted seaweed), *gohan* (steamed rice), *yokan* (jellied confection containing azuki bean paste), and *ocha* (tea), several dozen individuals, representing both Japan tourists and Baltimore hosts, did just that yesterday. It created good will and plenty of laughs.

Baltimore's only Japanese restaurant is a little place on Jefferson street.

536. Ohsawa, George S. 1960. Zen macrobiotics. New York, Paris, Brussels, Tokyo: Ohsawa Foundation. 103 p. Undated. 28 cm.

• **Summary:** Note: This is the earliest English-language document seen (Sept. 2017) that contains the word "macrobiotics" (or "macrobiotic"). This is also the earliest book known to macrobiotic recipes (Sept. 2017).

This bound, cloth cover book was owned by Herman Aihara, and is now (April 2011) in the library of the George Ohsawa Macrobiotic Foundation in Chico, California (President: Carl Ferre). The size is 8½ by 11 inches. The cloth cover is pea green and on it, near the top, is written (on two lines): "Zen macrobiotics" with the word "Zen" in large bold capital letters. In the middle: "George S. Ohsawa," the author. And near the bottom (on two lines): "Ohsawa Foundation: New York-Paris-Brussels-Tokyo."

The book consists of leaves and the text is typewritten. All of the leaves in this edition are edited, some heavily, in two colors of ink: red edits by George Ohsawa, and blue by Lou Oles (According to Herman Aihara). There is no table of contents or copyright page. On the first leaf, near the top, the title is typewritten again on two lines: "Zen Macrobiotics." Then the book begins:

"Two ways to happiness through health. Happiness is the goal of everyone in the world. But what is happiness, in the West, and specially in the Far West, America? I do not know. In the Orient happiness was defined by sages some thousands of years ago as consisting of five factors, as follows:

"(1) The first fundamental factor of happiness is joyfulness, an amusing, interesting, brilliant and healthy longevity.

"(2) The second, not to be worried about money.

"(3) The third, instinctive capacity to avoid accidents and difficulties that would cause premature death.

"(4) A loving realization of the order of the infinite universe at all levels.

"(5) Not to become the first as you will become the last. But try to become the last so that you will become the first forever.

"All Oriental philosophy is the practical teaching of

how to realize such happiness. It is biological, physiological, social, economical, and logical. It is prohibited for the teacher to explain the deep significance of the philosophy of the constitution of the infinite universe..."

"... School education is completely unnecessary, and even detested. All great men are autonomous and self-made..."

Note 1. This section (two leaves) becomes the Forward in the next edition, which was printed in Japan.

The third leaf is a title page: Like the cover, it has text on 3 levels, but is typewritten. Title: "Macrobiotics: The Biological and Physiological Foundation of Zen Buddhism." Author: George Ohsawa. Publisher: Ohsawa Foundation: New York-Paris-Brussels-Tokyo.

Note 2. The relationship between this title page, the title page of the mimeographed edition, and the cover is unknown.

The next two leaves, are titled "Health to Peace" and numbered "i" and "ii." Note 3. They become the Preface in the next edition, which was printed in Japan.

Next is "iii" which is the Foreword in this mimeograph edition but becomes Chapter 1 in the next edition, printed in Japan.

Next are leaves "iv" through "xxii" which are the Introduction in this edition, but become Chapter 1-3 in the next edition printed in Japan. After leave xxii, the leaves are numbered "8" through "86," and after that is the back cover. The last section of the book is titled "The Case of Mr. E" (leaves 77-86). Note 4. It becomes the first appendix in next edition printed in Japan, which also contains a second appendix titled "The Pro-Forma Death Certificate..."

The mimeograph edition is thus missing pages 3-7. Moreover, all the pages are renumbered by Ohsawa by hand in the upper right corner. In Ohsawa's numbering there are no pages numbered 1, 2, 5, 6, 7, 8, 10, 33 and 34 (a total of 9) and thus his page is numbered 112.

Because the mimeograph edition is bound, it appears that the pages were rearranged after typing but before publication and distribution.

Page 19: "With the conception of Principal Food and that of secondary food clearly distinguished, people of the Orient could live a happy, free and peaceful life from the beginning up to the importation of the brilliant Occidental civilization, more or less violent, with its industrial and scientific instruments... The Principal Food should occupy at least 60% of your eating."

This bound, mimeograph book contains many recipes, all of which are numbered. Soy-related recipes include the following: In the section titled "Beans": 117. Boiled soy beans with miso (the soy beans are first roasted until they pop). 118. Boiled beans ("Boil soy beans until tender. Seasoned with soy sauce and salt. Boil until liquid is gone. Prepare black [soy] beans in the same way)."

Note 5. Later writings by Ohsawa show that by "black

beans” he meant black soy beans, *Kuro mame* in Japanese. This is the earliest macrobiotic document seen (April 2013) that gives a recipe for whole soybeans.

119. Gomoku beans (boiled soy beans with vegetables). 120. Goziru soup (Gôjiru; ground soaked soybeans with vegetables). 121 and 122. “Aduki” [azuki, adzuki] beans. 159. Hiziji [Hijiki] with age (seasoned with “soyu” [sic, shoyu]). 160. Hiziki and soyabean (seasoned with syoyu [shoyu]).

In the section titled “Miso and syoyu preparation”: “Both miso and syoyu should be of traditional make.” 201. Sauce miso (miso-tahini sauce). 202. Miso cream. 203. “Muso” (miso and tahini with minced orange peel). 204. “Miso” soup (5 persons). 205. Carrot and onion au “miso” (15 persons). 206. Vegetable au miso. 207. “Oden” au miso. 208. Buckwheat “dango” au “miso.” 209. “Miso-ae.” 210. “Tekka” no. 1 (miso with minced yang vegetables—lotus root, burdock root, ginger—fried in sesame oil until very dry. Good for all yin diseases).

In the section titled “Syoyu”: Recipes 212-221 are seasoned with “syoyu” (shoyu, traditional fermented soy sauce). “Use the traditional syoyu in all cooking (vegetables and fish). Syoyu diluted with a little water is very good for ‘Sasimi’ [sashimi] and fried oyster, ‘Tempura’, fish ‘Sukiyaki’, ‘Tohu’ ([tofu] vegetable cheese of soya beans), etc.”

803. “‘Tohu’ plaster. Squeeze ‘tohu’ (white soya bean cheese) add 10% of flour; stretch this directly on the front or any part painful with inflammation. All pain or inflammation will go away soon.” Note 6. This book does not use tofu in any recipes, probably because Ohsawa considered it too yin. However Ohsawa was the one person most responsible for introducing the word “tofu” to popular American culture; his later writings and especially his students and admirers spread the word to the four corners of the United States.

Note 7. This is the earliest macrobiotic document seen (April 2013) that mentions tofu.

Note 8. This is the earliest English-language document seen (Oct. 2021) that uses the word “aduki” beans to refer to azuki beans. This spelling was subsequently widely used, but only in macrobiotic publications.

Also discusses: In the section on “Egyptian beans” (p. 30): Pois “chiche” (chickpeas, basic preparation by boiling). “Beignet” pois chiche (deep-fried balls of mashed chickpeas mixed with flour). Pois chiche croquette (chickpea croquettes).

Publication: “Published by Ohsawa Foundation, 331 Riverside Drive, New York City, U.S.A. (Secretary Aihara, 44 W. 96th St., New York City, U.S.A.).” Underneath this is “Printed in Japan.”

Note 9: Concerning the date of publication, we read: “My first two books in English will arrive beginning of November: *Zen Macrobiotics* and *The Philosophy of Oriental Medicine*.” (Source: G.O. [George Ohsawa].

1960/09. “Letter from the editor.” *Macrobiotic News* (New York, NY). No. 6. Sept. p. [7]). Address: New York, USA.

537. Ohsawa, George. 1960. *Zen macrobiotics* [Continued, Part II]. New York, NY: Ohsawa Foundation. 103 p. Undated. 28 cm.

• **Summary:** This mimeograph bound book with the pea green cover, the only known copy of which is owned by the George Ohsawa Macrobiotic Foundation in Chico, California, raises many interesting questions about the publication history of this and closely related titles.

Carl Ferré, an expert on this subject, believes: (1) That there were several “printings” of mimeographed edition and that “printings” may vary. (2) There is a strong possibility that the first editions were sold in Jan., Feb., and March of 1960, before there was any editing on them. (3) It is unlikely that any books were sold with only Ohsawa’s red edits on them. (4) It is probable that no books were sold with both Lou Oles’ blue editing and George Ohsawa’s red editing on them.

Was there a printed edition prior to and different from this edition?

Does anyone own such a copy?

How many pages did it contain and how were the pages arranged? For example, did the original book start with the title page, followed by ages i, ii, iii, etc?

Were the original pages reshuffled to create this bound edition? In this edition, why are there xxi pages of front matter numbered in roman numerals followed by pages 8 through 86 in Arabic numerals.

Why do some pages seem to be missing from this edition. Carl Ferre believes that someone typed the entire book, then Ohsawa decided to move some of the pages around, which they did before they bound and sold the books (for \$0.50 each) at Ohsawa’s lectures.

How did they bind the books? Did they bind the books by themselves or send them out to a professional bookbinder? Or did a person (who attended the lectures) who was in the bookbinding business offer to bind the books free of charge so they could be sold for only \$0.50 each. Was it originally hardcover or paperback? Is the pea green book in Chico simply an example of all the books sold in 1960 at Ohsawa’s lectures? Or is it unique—one of a kind? When and where did Ohsawa make all this handwritten changes in red? Was someone suggesting the changes to him? If yes, who?

Why is the title on the cover different from the title on the title page.

Why was the original title page numbered “9” in Ohsawa’s handwriting.

What do the Japanese characters under the handwritten “9” mean?

Why is there content before the title page?

We are told the original mimeograph edition was duplicated and bound in the Aihara’s apartment in New York

City; how was it bound?

Carl Ferre reminds us (e-mail of 2 May 2011): Lou Oles took the recipes out of *Zen Macrobiotics* to create a separate book, *Zen Cookery*. “The problem that has always existed is that *Zen Macrobiotics* has numbers in it that refer to numbers in *Zen Cookery* and they have never corresponded. For example *Zen Macrobiotics* says “See *Zen Cookery* No. 103” and you go to *Zen Cookery*, find that number, and its something totally different—or even nonexistent.” Address: New York, USA.

538. *Macrobiotic News* (New York, NY). 1960. Our activities in July. No. 4. July. p. 4.

• **Summary:** (1) Live with Mr. & Mrs. Ohsawa joyful and happy summer time at the New Horizon Camp, Southampton, L.I. [Long Island, New York City].

(2) Lecture on Macrobiotics by Mr. G. Ohsawa. Thurs, Fri, Sat, & Sun at 8:30 p.m. Fee: \$2 for one. Macrobiotic meal cooked by Mrs. G. Ohsawa—Three meals a day.

Fee: special reduction has been done by Mr. G. Ohsawa. Lectures, meals:

\$40.00 per week & other activities without sleeping accommodations.

\$75.00 per week with sleeping accommodations.

\$6 per day.

(3) Distribution of Macrobiotic Foods: (Unrefined Rice [Brown Rice], Yannoh [Ohsawa coffee], Kokko [Kokkoh; grain milk], Azuki, Goma [sesame seeds], Sea Salt, Miso, Tamari—Ohsawa Sauce, Mu-Tea, Sesame Oil, Tahin [Tahini] and Umeboshi, etc.): sold at Azuma Inc. & Ginza Inc.

(4) Presents to Mr. & Mrs. Ohsawa—Smith-Corona Portable Electric Typewriter—has been done by the attendants of the Welcome Party at Am. Buddhist Academy [American Buddhist Academy, founded in 1951, later renamed American Buddhist Study Center] on June 30.

Note 1. This is the earliest document seen (March 2012) that mentions “Tamari” in connection with macrobiotics.

Note 2. This is the earliest document seen (Aug. 2017) that mentions “Mu-Tea”—regardless of hyphenation or capitalization.

Note 3. This is the earliest document seen (May 2011) that mentions “Kokko” (or “Kokkoh”), a milk alternative containing soy, developed and used by macrobiotics. Address: Ohsawa Foundation, 331 Riverside Dr., New York 25, NY.

539. Ohsawa, G. 1960 *Zen macrobiotics: The art of longevity and rejuvenation*. New York, NY: Ohsawa Foundation. Printed in Japan. 218 p. Undated. Index. 17 cm.

• **Summary:** This is the earliest known printed edition of *Zen Macrobiotics*. The cover is gray. The author is George Ohsawa. The content is basically the same as the original mimeograph edition, however it has been edited and several of the parts have been rearranged and renamed to create

a Forward [sic] (p. 3-5), a Preface (p. 6-8), and Chapters 1-3 (p. 15-43). At the end are two appendixes: One, which was titled “The Case of Mr. E,” appeared at the end of the mimeograph edition. The second, which has been added is titled “The Pro-Forma Death Certificate of the American World Empire and its Gold Dynasty.”

Concerning the date of publication: Although the date is not given in or on the book, the periodical *Macrobiotic News* announced it as being available in November 1960.

Distinguishing marks of this printing: Page 3: “Forward” is misspelled. Page 7: “... hundreds of ways of cookin [sic] and eating. They are all aim [sic] to create...” Page 62: “The yellow part is most yound [sic, yang],...”

These four errors were corrected in the next printing.

Both printings have 218 pages. However, pages 217 and 218 are different in the two books.

At least two printings were done in Japan. As of April 2011, Carl Ferré, President, George Ohsawa Macrobiotic Foundation (Chico, California) has one original of each.

Carl adds (e-mail of 30 April 2011): “Page 218 of the book you have (*Macrobiotics: The Art of Longevity and Rejuvenation*, by G. Ohsawa) appears to be exactly the same as the second Japan printing. It seems to confirm my hypothesis of a first printing in Japan in 1960, a second printing in Japan around 1962, and a third printing of the same edition in the U.S. after the 1962 Japan printing (and might even be the 1964 book referred to in Yin Yang). I believe the first reference in *Macrobiotic News* to a printed book is November 1960. Because editions of *Zen Macrobiotics* may have been printed at the same time as *Philosophy of Oriental Medicine*, we may need to look into that title as well in order to determine the full story.” Address: Ohsawa Foundation: 331 Riverside Dr., New York City. Secretary Aihara, 44 W. 96th St., New York City, U.S.A.

540. Joya, Mock. 1960. *Things Japanese*. Tokyo: Tokyo News Service, Ltd. [vi] + 782 + xlv p. Index. 21 cm.

• **Summary:** In Chapter 7, titled “Food, ‘Sake’ and Tobacco” (p. 275-331) the following may be of interest: Asakusa-nori (includes shoyu), azuki (incl. soybeans, tofu, miso, shoyu, natto), bento and kashi, cattle, chameshi, chawan-mushi (“somewhat similar to Western custards.” Make katsuo-bushi {shaved dried bonito} soup stock, cool, pour into individual *chawan-mushi* bowls {each has a cover}. Mix in an equal quantity of beaten eggs. Add additional flavoring ingredients, cover, and steam until set. “One of the few Japanese dishes that resemble Western dishes in taste”).

Chazuke, cooking (incl. sukiyaki and tempura), daikon (incl. miso), drinking cups and customs, eel-eating day (eels are broiled, steamed, then put in a specially prepared shoyu and broiled again), ginnan (ginkgo nuts), gobo (burdock, incl. miso soup and shoyu), gohan (boiled rice), kabayaki (eel), kamaboko, kashi (confections and sugar), katsuo-

bushi (incl. shoyu), kawara-senbei (incl. miso), konnyaku (its shredded form, called shirataki, is used in sukiyaki), manju, matsutake mushrooms (widely used in sukiyaki in the fall), menrui (noodles, incl. soba, udon, shoyu), mikan (mandarin oranges), misoshiru (miso soup, incl. tofu, shoyu, tekka-miso, tai-miso, yuzu-miso, wakame), mochi, mochi-tsuki (pounding), myoga (*Zingiber mioga*), oden (with tofu, miso, and shoyu), one-sided fish, red rice (*sekihan*, made with azuki = red beans), ringo (apples), sakana (fish, incl. shoyu and tofu), sake drinking, sake eating, sashimi (incl. shoyu and mirin), satsuma-imo, seaweeds (sea vegetables), shinchu (new tea), shoyu (Japanese-style soy sauce; per capita consumption is nearly 4 gallons a year), snake eaters, soba (incl. shoyu), souvenir cakes, sugar, suimono (clear soup, incl. miso and shoyu), sukiyaki (incl. tofu and shoyu), sushi (incl. Inari-zushi made with fried tofu), sweets in season, tea varieties, tea water, tempura (incl. sesame oil and shoyu), tobacco tradition, tofu (incl. bittern/nigari, yaki-dofu, aburage, ganmodoki, Koya-dofu, fried tofu, hiyayakko, sukiyaki, dengaku, miso, miso-shiru, shoyu), tokoroten (kanten, tengusa), tsukemono (pickles, incl. miso), umeboshi, wasabi (incl. shoyu), yasai (vegetables), yokan, and yonaki-soba. Note: Different types of yokan (yōkan, a paste made of azuki beans and sugar) include: mizu-yokan (soft azuki-bean jelly) and mushi-yokan (steamed yokan). Yokan-iro is a liver or rusty color.

Other subjects related to soy: Home cures (p. 66-67, for burns, apply the white of an egg or shoyu). Setsubun (p. 119, incl. mame-maki or throwing roasted soybeans). Brother mountains (p. 192, the most loved one, Fudo-iwa, was fed azuki or red beans but the unloved Gongen-yama was fed soya beans). Fox messengers (p. 207-08, aburage or fried tofu). Kuyo (p. 373-74, incl. hari-kuyo or mass for broken needles—but tofu is not mentioned). Azuki (p. 276-77). Red rice (*sekihan*, p. 303). Lunar calendar (p. 400, setsubun and bean throwing). Bamboo (p. 410, incl. bamboo shoots served with shoyu). Hi-no-kami (p. 474, incl. amazake). Sacred rice (p. 504, incl. setsubun and throwing roasted soybeans). Shoulder-chipped Jizo (p. 517, concerns the stone statue of Jozo at the Kiunji Temple, Tozaki-machi, Bunkyo-ku, Tokyo, and foxes and a tofu shop). Inari-san (p. 616-17, Inari-sushi and aburage). Address: Japan.

541. Joya, Mock. 1960. Azuki beans (Document part). In: Mock Joya. 1960. Things Japanese. Tokyo: Tokyo News Service, Ltd. [vi] + 782 + xlv p. See p. 99, 191-92, 276-77, 292, 295, 303, 330.

• **Summary:** Azuki beans are discussed throughout this book under the following headings: Baby's fetes (p. 99): On the evening of the seventh day after its birth, a baby is traditionally given its name, which is announced at a fete by the father. "This occasion is naturally a joyous one, and everything pertaining to it signifies joy and pleasure. *Sekihan* (red rice) is the main dish served at the feast. Rice cooked

with *azuki* (red beans) is always used on happy occasions."

Brother mountains (p. 191-92). Two mountains in Kumamoto prefecture were considered "brother mountains. Their mother treated Fudo-iwa with affection, but mistreated Gongen-yama because the latter was her stepson. Daily she fed Fudo-iwa with *azuki* or red beans, which was a luxury food, but gave Gongen only soya beans which were very cheap. Her kindness to Fudo-iwa did harm to her favorite son, because *azuki* was not very nourishing and he became weak. On the other hand, Gongen grew big and strong, being raised on the nourishing soya beans."

Azuki (p. 276-77): "The Japanese people eat a great deal of beans and peas, from which they obtain protein. Of various beans and peas they use, *daizu* (soybeans) and *azuki* (red beans) are the most important... In the quantity used, *azuki* falls far below soya beans, but they are nonetheless very important in the life of the people. They were at first included among medicinal materials. Many people still believe in its healing properties. All beans were formerly believed to possess the power to dispel evil and diseases.

"Red beans are still eaten by many rural folks to cure various diseases. For beri-beri, *azuki* is believed to be the most effective medicine. It is also recommended for stomach and blood ailments. Red beans are also cooked in rice on many occasions. On Jan. 15 the custom of eating rice gruel with red beans is still widely followed. Old-fashioned people eat *sekihan* or rice with red beans on the 1st and 15th of every month. On various festive occasions the red-bean rice is regarded as a necessity.

"The habit of eating red-bean rice periodically was formerly believed necessary to preserve one's health. Most Japanese sweets contain *an* or sweetened bean paste made of red beans.

"Of course the red color of the *azuki* is very attractive, and the red-colored rice bright and appetizing. This might have helped to make red-bean rice popular. But fundamentally it is the people's belief in the curative property of *azuki* that has popularized its use and made it inseparable from their life."

Kashi (p. 292): "The Japanese are great eaters of *kashi* (sweets and cakes) and its variety is great... When a visitor comes, tea and *kashi* must be offered. In visiting it has become etiquette to take a gift of *kashi*." *Kashi* is always served with the Tea Ceremony. *Kashi* were first introduced to Japan from China during the Heian Period during the 8th and 9th centuries. "They were first called *togashi* (or [T'ang dynasty] Chinese cakes). *Togashi* was made of rice, wheat, or bean flours and fried in oil... There was also *yokan* (sweet bean jelly) which was made of red bean [*azuki*] flour and sweetened with the juice obtained from kuzu (arrowroot). In the Kamakura Period (14-15 century) Priest Ryuzan brought from China *manju* (buns filled with sweetened [*azuki*] bean paste [*an*]). *Senbei*, *yokan*, and *manju* became the principal *kashi*." "Sugar was introduced into Japan in the Muromachi

Period (16th century) and with sugar all kinds of kashi greatly improved in taste.”

Manju (p. 295): “At a Japanese dinner, guests are served green tea and Japanese sweets, just before starting to eat and drink. This custom of eating sweets at the very beginning of dinner was introduced from China in 1332 by the Chinese Zen priest Lin Chingyin, it is said.”

“*Mantou* means a bun eaten at the beginning of a meal, and Lin’s *mantou* soon found favor with Japanese monks and officials... *Mantou* called *manju* by the Japanese became very popular. In the Ashikaga Period, about 130 years after the first *mantou* was made, Shao-pan, fifth descendant of Priest Lin, opened a shop in Kyoto and started to sell Shioze *manju*, naming it after the family of the Japanese woman he married. This was a Japanese bun filled with *an* or sweet paste.

“A branch shop was opened at Tenmachi, Edo, and soon Shioze *manju* ranked among the famous sweets of Edo.”

Red rice (p. 303): “On festivals, birthdays, and other happy occasions, the Japanese family eats *sekihan* or red rice. Many old-fashioned families still insist on eating red rice on the first and fifteenth days of every month for good luck. To the people in general, *sekihan* marks special occasions of happiness.

“*Sekihan* is different from the ordinary rice eaten at daily meals. *Mochigome* or glutinous rice, a species different for *uruchi*, the rice in common use, is used. *Sekihan* is also steamed, whereas ordinary rice called *gohan* or *meshi* is boiled. *Azuki* or red beans cooked with the *sekihan* gives the rice its red coloring, the color of joy.”

“Steamed hard rice is commonly recognized as having a richer taste than boiled non-glutinous rice. But most of the people prefer the common kind for their daily three meals, because *sekihan* is too rich.”

Yokan (p. 330): “*Yokan* is the most representative Japanese sweet.” Many varieties are made throughout Japan. “*Yokan* originally came from China where it was at first a table delicacy. Zen sect priests introduced it in their dishes. The first import of sugar in 754 brought a radical change in Japanese sweets... *Yokan* was greatly improved in the Muromachi Period (1392-1573) with the progress of the tea ceremony. When *yokan* was first produced, it was the kind which is now called *mushi-yokan* (steamed *yokan*). Red beans [*azuki*] are boiled and crushed, and with sugar and wheat flour the juice is made into a thick paste. The paste is put in moulds and steamed.”

“*Yokan* is relished by tea drinkers, who think that the taste of tea is enhanced by the sweetness of *yokan*.” Address: Japan.

542. Leach, Bernard. 1960. A potter in Japan, 1952-1954. London: Faber and Faber Ltd. 246 p. Frontispiece. Illust. Index. 22 cm.

• **Summary:** The author (1887-1979) is as fine a writer as

he is a British potter and artist. Regarded as the “Father of British studio pottery,” he was born in Hong Kong and spent his early years in Japan before returning to England in 1920.

On Feb. 16, 1953, he arrived in Japan at Tokyo Airport, an 18-hour’s flight from Honolulu [Hawaii] (including a hour stop at Wake Island) by Pan American Clipper. He went to Japan to study Japanese pottery-making with traditional masters—not long after the end of World War II. Each entry is dated.

June 15, 1953 (p. 98). Near the great extinct volcano of Daisen on the borders of Tottori Province, the author and friends climbed up the old rough stone-paved pilgrims’ way to the Kongoin temple. “There we were served the best meal I have eaten in Japan, vegetarian priests’ food, over which infinite pains had been taken... strange fungi, mountain potatoes, crisp fried bean curd and some soft curd mixed into a paste with crushed sesame seed.”

June 30, 1954 (p. 104). Met with Robert Blythe at a supper party. “We sat and talked for five hours. Zen, Haiku, crafts, Japan and life. I was delighted to meet an English poet who knows the inside of the East. We just flowed... Blythe lived for years in a Zen temple in Korea and has drunk deep from that source.”

July 1, 1953 (p. 105): “A great feed of Continental sausages and Chinese riceballs stuffed with mincemeat and ‘Funiu.’ The last is a strange and fascinating decoction of fermented bean curd [fermented tofu] something like a smoky Camembert in taste and texture.”

August 19, 1953 (p. 132). In Nagano, Japan, the author and friends visited the very large and famous temple of Zenkoji. They noted “all the commercialized signs of Buddhist decadence, as far from Sakya Muni [Shakyamuni, the Buddha] as Rome from Christ... the vulgarized business of popular religion is equally sickening, East or West.

After that they made their way to a soba shop and the author ordered Soba Gaki which was not on the menu. “This was a kind of porridge no longer in fashion... We ate it first with shoyu sauce and then with sweet adzuki beans.”

Oct. 22, 1953 (p. 166). In Toyama the author and his friends had “lunch at a Buddhist vegetarian restaurant [probably serving *shojin ryôri*] which made me wish once again that I could share the meal and its setting with artist and craftsman friends in the West. The manner of serving surpassed all, it was the service of the heart. There is a saying that the Chinese eat with their stomachs and the Japanese with their eyes. The sheer beauty of each tray or dish of food, the quiet discretion. This represents a peak of culture and its home is in Japan.”

Facing the title page (frontispiece) is a portrait photo of Bernard Leach, whose sketches are scattered throughout the book.

Note: Edmund de Wall wrote a “de-mystifying” biography of Bernard Leach, published in 1998. He says that Leach spoke little or no Japanese. He wrote: “The great myth

of Leach is that Leach is the great interlocutor for Japan and the East, the person who understood the East, who explained it to us all, brought out the mystery of the East. But in fact the people he was spending time with, and talking to, were very few, highly educated, often Western educated Japanese people, who in themselves had no particular contact with rural, unlettered Japan of peasant craftsmen.” Address: Japan.

543. Ma, Nancy Chih. 1960. *Mrs. Ma's Chinese cookbook*. Rutland, Vermont; Tokyo, Japan: Charles E. Tuttle, Publishers. 178 p. Illust. 27 cm. [1 ref]

• **Summary:** About the author: Because she was born in a Manchurian banker's family, she never had the opportunity to prepare even a single Chinese dish while in China. Only after her arrival in Japan did she become enthusiastic about learning how to prepare Chinese dishes. She did most of her study in Hong Kong. In 1957 her first Chinese cookbook, *Chugoku no Katei Ryori* [Chinese Home Cookery] was published in Japan by Fujin no Tomo. This book is a translation of the Japanese edition.

The section “Sizes and amounts of ingredients” (p. 15-16) mentions “Bean curd,” which is called *tou fu* in Chinese and *tôfu* in Japanese.

The section “Spices and flavourings” (p. 17-18) mentions: “Bean paste (*mien chiang* in Chinese, *miso* in Japanese): Thick, syrupy paste made from soy beans and used for added flavor in such dishes as Pancake Rolls.” Monosodium glutamate (and its many names). Soy sauce.

Recipes include: Braised salmon with soy beans (soak 1 cup dry soy beans overnight, p. 49). Fish with bean curd (with 2 cakes bean curd, cut into 1-inch squares, p. 49). Chilled bean curd with shrimp (p. 56). Braised shrimp with bean curd (p. 58). Bean curd with ground beef and chili peppers (and soy sauce, p. 76). Bean curd with sliced pork and chili pepper sauce (and bean paste {*mien chiang*}, p. 85). Molded steamed bean curd (p. 90). Pressed bean curd with assorted meat (p. 112-13). Braised bean curd (p. 116).

Note 1. This is the earliest English-language document seen (April 2013) that uses the term “braised bean curd” but it does *not* refer to grilled tofu. To make the recipe: 1. Wrap 2 cakes “bean curd in cheesecloth and press gently to drain off liquid. Cut each cake into 8 square pieces. Mix flour, eggs and salt to form batter. 3. Heat 6 tablespoons oil. Coat bean curd squares with batter and fry on both sides to light brown. Remove to plate...

Bean curd paper sheet rolls (with 3 rolls dried bean curd {*tou fu pei chüan*} in Chinese, dried yuba in Japanese, p. 118). Spiced soy beans (with 3 cups green soy beans, unshelled [edamamé], p. 126). Pancake rolls (with bean paste {*mien chiang* in Chinese, *miso* in Japanese}, p. 133. Note 2. These rolls are used in many different recipes).

The section titled “Foodstuffs” (p. 171-72) is a glossary of major Chinese ingredients, with the name of each given

first in English (they are arranged in alphabetical order), then in Mandarin (Wade-Giles), then in Chinese characters. These foods include: Bean curd, *Tou fu*. Bean paste, sweet, *Tou sa* (“bean + sand.” Note 3. This appears to be azuki bean paste). Oil, soybean, *Tou yu*. Soy bean paste *Chiang*. Soy beans, green *Mou tou* [*Mao tou*]. Soy beans, dried *Ta tou*. Soy sauce *Chiang yu*. Address: [Japan].

544. Ouei, Mimie. 1960. *The art of Chinese cooking*. New York, NY: Random House. x + 242 p. Illust. by Jeanyee Wong. Index. 21 cm.

• **Summary:** The author was the daughter of a diplomat and she learned how to cook from the family's chief cook (*Ta Shih Fu*) who always traveled with them—and from whom she learned the recipes in this book.

“There were no recorded recipes of the Chinese cuisine until the twentieth century, and even then only in Western countries. In China, cooking was done by feel and taste, and its secrets were passed on from one generation to another” (p. 4).

One chapter titled “Soy beans and bean curd” (p. 171-83) begins: “The story of the soy bean: This miracle bean is a legume...” Tells the legend of how, 2,000 years ago a party of explorers sailing up the Yangtze in a flat-bottomed boat, discovered accidentally how to sprout soybeans, when they found that some beans in a damp bag in the bottom of the boat had sprouted. “The soy bean is so nutritious it is known as the cow of China.”

The next brief section, “How to sprout the soy bean,” begins: “Mung beans are used to grow bean sprouts.” No instructions are given for soy beans! And only “bean sprouts” are called for in the following recipes. Recipes are given for: Roasted soy bean nuts (Ts'an tou). Beef with bean sprouts (Tou ya niu jo). Bean sprouts and celery. Bean sprouts and pork. Soy bean milk (homemade; To fu chiang). Soy bean curd (homemade; Tou fu). Fried bean curd (Cha tou fu). Bean curd cheese (homemade; Fu ju). Stuffed bean curd (Tou fu chen jo, with “3 squares bean curd”). Bean curd with sea bass. Bean curd with flounder. Stewed bean curd. Braised pork with bean curd. Bean curd with braised pork. Bean curd with shrimps. Bean curd with scallions. Bean curd with mushrooms. Bean curd with eggs. Bean curd soup. Mushrooms and bean curd soup. Pork with red bean curd cheese (Nan ju jo, with “2 tablespoons red bean curd cheese in sauce {nan yu}”).

Note 1. This is the earliest English-language document seen (April 2013) that contains the term *Cha tou fu*, a type of deep-fried tofu.

Also: Soy paste noodles (Cha chiang mien, with “6 tablespoons vegetable paste (Hoisin),” p. 189).

The Glossary (p. 223-30) includes entries for: Beans, black [black beans] (*Hei tou*). Beans, black, fermented [fermented black beans] [fermented black soybeans] (*Tou shih*). Bean, yellow paste [yellow bean paste] (*Tou chiang*).

Bean curd (*Tou fu*). Bean curd cheese (*Tou fu ju*). Bean curd cheese in sauce (*Nan ju*). Beans, red [red beans] (*Tou sha; Hung dow*; “For making sweet black bean fillings”). Bean sprouts (*Tou ya; Da dow ngah*; “Specially grown soy bean sprouts, gold in color”). Monosodium glutamate (*Wei ching; Mei ching*; “Brings out food flavors”). Soy jam (*Chu yu*; “A thick sweet and salty soy paste. Residue of soy sauce”). Soy bean skin (*Fu tsu; Foo jook*; “Creamy-colored dried bean curd skin”).

Note 2. This is the earliest English-language document seen (Nov. 2011) that uses the term “fermented black beans” to refer to fermented black soybeans.

Note 3. This is the earliest English-language document seen (July 2011) that uses the term “Soy bean skin” to refer to yuba, or to Dried yuba sticks or rolls.

Soy sauce, light (*Chiang yu; pronounced jeung yow*; Used for cooking). Soy sauce, thick [thick soy sauce] (*Chiang yu; pronounced jeung yow*; “Imported and suited for table condiment or for special cooking”). Vegetable paste (*Hai hsien chiang; pronounced hoi sin*). Address: New York City, New York.

545. Wong, Ella-Mei. 1961. Chinese cookery. London: Angus and Robertson. [xi] + 100 p. Illust. Index. 23 cm. *

• **Summary:** *Foo Jook* [dried yuba sticks] and “red bean curd” are mentioned. Address: [Australia].

546. Williams, Jim. 1962. Special food center to be opened in near future. *Chico Enterprise-Record (The) (Chico, California)*. Jan. 12. p. 8.

• **Summary:** “Chico-San Inc., formed by members of the New York families who came to Chico last fall and specializing in foods conforming to the philosophy of George Ohsawa, has been organized here.

“According to Lou Oles, a member of the group, the business will get underway ‘within a few weeks.’ In addition to a mail order business there will also be a retail store. A location on Mangrove Avenue is being planned.

The organization has been formed to promote health foods whose content and method of being grown fits into the philosophy developed by Ohsawa, ‘a specialist in traditional Buddhist (Zen) medical practice.’

“J. Robert Kennedy, distribution manager, announced that the foods will be packaged in individual containers and also in a combination package that provides one full week’s supply for an adult.

“They include: Organic, short grain, brown rice; rice cream (roasted, ground rice cereal); Soba noodles (buckwheat); Udon noodles (wheat); Goma salt (blend of sesame and sea salt); natural sea salt, Miso paste (soybean, wheat, salt); Tahini (sesame butter); Tamari sauce (naturally fermented soy sauce); Umeboshi plums (dried, salted and preserved); Aduki beans (imported red beans); Kuzu starch (food thickener); Mu tea (a blend of 16 herbs); Banacha Twig

tea (organically grown, green, roasted); Dentie (natural dentifrice).

“Also included in the company’s specialties are Puri crackers (puffed, whole grain crackers); Karinto crackers; Arare crackers (Japanese rice crackers); Ricettes (roasted rice snack) and bread and other whole grain specialties.

“For more information about the organically-grown foods and the Ohsawa concepts, Kennedy urges the reading of *Zen Macrobiotics* and *The Philosophy of Oriental Medicine*.

“The combination package, containing food for one adult for one week is being advertised at \$6 with postage included.”

547. Thomas, Harriett. 1962. Island food tastes of international scope. *Honolulu Star-Bulletin (Hawaii)*. Jan. 31. p. 51.

• **Summary:** “Food—the universal language—has become one of the most valuable assets in the economy of the Islands.”

“The Japanese use a surprising amount of dried beans. Lima beans, a red bean (azuki), a black soy bean (kuromame), and dried [sic, fresh green] soy beans (edamame) are most often used.

“Soy beans are used fresh and green, as a dry powder [kinako] and for sprouts. Other soy bean products are tofu (a soy bean curd), kirazu [okara] (the residue from tofu manufacture), aburage (tofu pressed dry and fried in deep fat), miso (a fermented paste of rice and beans), natto (fermented beans), and shoyu, a sauce made from soy beans.

“Dried beans are cooked with sugar and shoyu.”

“Many varieties of seaweed are used, fresh and dried.” Sushi is “rolled in sheets of black seaweed. Kanten is similar to agar agar, a seaweed product used in making desserts.

In the section on “Sukiyaki,” soy sauce and tofu are mentioned as ingredients.

In the section on “Tempura” we read: “Perhaps no other Japanese recipe has become so nationalized since the war as teriyaki steak. Its flavor appeals to the average American.

“Soy sauce, ginger and garlic are the main ingredients of the sauce used for marinating thinly sliced meat before it is broiled.”

548. Sutton, Horace. 1962. English aside. *Washington Post, Times Herald*. March 25. p. E11.

• **Summary:** In the new Tokyo, the roof garden of the Daimaru Department Store is quite stylish. “There were bottles of pop and fried crullers for sale, and also steamed buns called manju made of rice flour with sweet bean paste [an, made from azuki beans] inside.”

549. **Product Name:** Azuki Beans (Dainagon Red).

Manufacturer’s Name: Chico-San Inc. (Importer). From Japan.

Manufacturer’s Address: P.O. Box 1004, Chico, CA

95926.

Date of Introduction: 1962.

Ingredients: Azuki beans.

How Stored: Shelf stable.

New Product–Documentation: Midwest Natural Foods Distributors, Inc. 1972. Catalog and price list. Nov. 1. Ann Arbor, Michigan. 58 p. See p. 7. “Azuki Beans.” 8 oz or 1 lb.

Chico-San, Inc. 1973. July. Chico-San Inc. products: A catalog of unique foods. p. 12. “Azuki Beans–Dainagon Red. From the coldest part of Japan–Hokkaido. They are organic–untainted by sprays, insecticides, or preservatives, and can be used as a basic food. They are rich in proteins and minerals.”

Ad in Tom Riker and Richard Roberts. 1979. *The Directory of Natural & Health Foods*. p. 126. “They can be used as a basic food. They are rich in protein and minerals.”

Chico-San, Inc. 1982. June. Mail order–Price list. p. 2. “Since 1962 we have also been importing the very finest Japanese Azuki and Black Beans.”

Note: Chico-San appears to be the first company to have sold azuki beans to Caucasian Americans.

550. Doi, Masaru. 1962. *The art of Japanese cookery*. Tokyo, Japan: Shibata Publishing Co., Ltd. [x] + 110 p. Illust. (some color). No index. 22 cm. [Eng]

• **Summary:** Soy-related recipes include: Tempura sauce (*Tentsuyu*, with soy sauce, p. 5). Miso soup with soy bean curd (p. 5). *Kuya-mushi* (Egg custard with tofu, p. 13). *Kenchin-mushi of Kodai* (Sea bream steamed with tofu filling, p. 17). *Kayaku-gohan* (With aburaage, fried soy bean curd, p. 24). *Koya-dofu* (Dry frozen bean curd as an ingredient in sushi, p. 39). *Chirashi-sushi* (With Koya-dofu, p. 46). *Sukiyaki* (With tofu, and shoyu in warishita, p. 50-52). *Mizutaki* (With tofu, and shoyu in tsuke-jiru dipping sauce, p. 58-61). *Yudofu* (With tofu, and shoyu in tsuke-jiru, p. 62-63). *Dote-nabe* of oysters with white miso paste (p. 63-64). *Shigiyaki* of eggplants (With tsuke-miso, p. 66-69). *Teri-yaki* (Meat, fish, with *tare* of 2 parts soy sauce and 3 parts mirin, p. 73-73). Miso soup (with akamiso, shiro-miso, soy bean curd, wakame, etc., p. 94, 96-99). Ohagi (with kinako {soy bean powder} and sesame seeds, p. 106). *Shoyu-sashi*–A small soy sauce dispenser (p. 110).

Also discusses: *Sekihan* (Rice with azuki beans and gomashio, p. 24-25). *Sushi with nori* (p. 37). Toasted *fu*–Light wheat gluten cake (p. 77). “How to make red bean paste. Red beans, 1½ c[ups], Sugar, 9 oz.”(p. 106).

Note 1. This is the 2nd earliest English-language document seen (May 2001) that contains the word “Teri-yaki” (or “Teriyaki”). The text reads: “In *Teri-yaki* rich sauce which gives a sheen to ingredients is used as seasoning. *Teri-yaki* is preferred for fatty ingredients.”

Note 2. This is the earliest English-language document seen (July 2003) that uses the Japanese word “gomashio” to refer to “sesame salt.”

551. Ohsawa, G. 1962? *Zen macrobiotics: The art of longevity and rejuvenation*. New York, NY: Ohsawa Foundation. Printed in Japan. 218 p. Undated. Index. 17 cm.

• **Summary:** This is the second printed edition of *Zen Macrobiotics*. The cover is gray. The author is George Ohsawa. The content is basically the same as the first printed edition, except that (1) Typographical errors on pages 3, 7, and 62 have been corrected; (2) A folded, undated insert, titled “Dictionary of Macrobiotic Terms” was found in this printing between pages 216 and 217 (for details, see below). The insert is 17.0 cm / 6.69 inches high by 30.0 cm / 11.81 inches wide. Folded crosswise into thirds, it fits perfectly into these books; (3) The information on pages 217 and 218 is different and updated. The following appears on page 218: Brazil (Casa Longavida, Sao Paulo), Sweden (Miss Ilse Clausnitzer, Stockholm), U.S.A. (Ohsawa Foundation, 61, W. 56th St., New York; Ohsawa Foundation, P.O. Box 238, Chico, California; Chico-San, Inc., 64, 5th Ave., Chico, California; Musubi, 61, W. 56th St., New York–Macrobiotic Restaurant).

Concerning the date of publication: Although the date is not given in or on the book, Carl Ferré (who owns an original of this 2nd Japan printing) notes (8 May 2011): “Chico-San is listed. This means it was after Nov. 1961 at the earliest and most likely very early in 1962. I say this because the address given is not the Mangrove Ave. one.” “There is no ‘Printed in Japan’ in this book either but it is so similar to the earlier one that it has to be printed in Japan. It is also undated. It is not ‘revised’...”

In the 3-column “Dictionary of Macrobiotic Terms” (insert), for each entry there is the word or term, its definition, and one page number on which that word appears. Because the page numbers refer to pages in this edition, the dictionary was probably published at about the same time as this book—or at the time of the previous edition in 1960. The following is a selection from the Dictionary, with pages given for soy-related words: Aduki: Japanese red bean. Ae: Dressing (vegetables) with soy bean paste [miso], orange juice, etc. (p. 96). Aemono: Japanese salad (p. 88). Age: Fried bean curd. An: Red [aduki] bean jam. Ankake: Pouring [aduki] jam. Bancha: Coarse green roasted a few minutes. Bansho: Bancha with soy sauce (p. 152). Daikon: Long, white Japanese radish. Dango: A dumpling. Dentie: Head of eggplant salted, kept, dried and then burned into a powder. Egoma: A type of sesame seed—most yang. Gobo: Burdock. Gomashio: Sesame salt. Goma Tofu: Sesame curds (p. 87). Goziru [gôjiru, gojiru]: Soup made of grated soy beans and vegetables (“Ziru” means soup in Japanese) (p. 84). Gyoza: A Chinese food—vegetable mixture wrapped in pieces of thin dough. Hako: A mold or box in Japanese. Haru Tea: A very yang herb beverage. Hiziki [Hijiki]: Spindle-shaped, small, black seaweed. Jinenjo: A wild potato or a Japanese yam. Karinto: A kind of deep-fried cookie. Kasha: Russian buckwheat grain preparation. Kayu: Thin rice preparation

[porridge]. Kinpira: Burdock and carrots preparation. Kitune [Kitsune]: Boiled rice or noodles cooked with thin fried bean curds [*agê*] (p. 68). Kobu (or Konbu): A (sea) tangle coming from deep ocean waters. Kobu Maki: Kobu stuffed with vegetables. Koi-Koku: A special carp and miso soup (p. 109). Kokkoh: A creamed blended cereal. Konnyaku: A paste made from flour of this Japanese tuberose [tuber]. Kuzu: Powdered plant-gelatine obtained from kuzu plant. M.U. tea: A tea made of 15 blended herb's roots. Matuba [Matsuba]: Pine leaves. Miso: Soy bean paste (p. 65). Miso Ae: Boiled vegetables served with miso cream (p. 96). Misoni: Carrots and onions cooked with miso (p. 129). Mochigome: Glutinous rice. Moti [Mochi]: Rice cake. Musubi: A knot. Nisime [Nishime]: Same as Nituke. Nituke [Nitsuke]: Vegetables sauteed. Nori: Laver or sloke—a kind of seaweed. Ogura: Aduki (red bean) preparation. Omedato: Dessert made of roasted rice and red beans. Originally Japanese word for congratulation. Oshitashi: Boiled vegetables, served with Tamari (p. 97). Ransho: Egg—Tamari preparation. Renkon: Lotus root. Sashimi: Sliced raw fish. Sarashina: A kind of buckwheat dish. Originally it means the name of a place famous for producing good buckwheat. Shiitake [Shiitake]: A kind of Japanese mushroom. Sio [Shio]: Salt. Sio Kobu [Shio Kombu]: A kobu (seaweed) preparation. Soba: Buckwheat. Sukiyaki: Fish (or beef) and vegetables cooked a la japonaise. Sushi: A rice preparation. Syo-ban [Sho-ban]: Coarse green tea with soy sauce (p. 101). Tahini: Sesame butter. Tai: A red snapper [fish]. Tamari: Traditional soy sauce (p. 62). Tekka: A preparation of minced lotus root, burdock root, carrot, ginger, and miso (p. 96). Tempura: Japanese process of deep-frying in oil. Tofu: White soya bean cheese (p. 134). Tororo: Wild potato [wild yam]. Udon: Wheat vermicelli or noodle or macaroni. Umeboshi: Japanese plum salted and conserved for years. Ume-sho-ban: Medicinal beverage [containing umeboshi and shoyu] (p. 156). Yannah (Ohsawa coffee): A cereal coffee made of roasted rice, wheat, aduki, chick peas and chicory. Yomogi: Mugwort (or wormwood). Yuba: Soybean protein prepared into transparent paper-like sheets (p. 77). Zosui: A rice preparation. Zaru: A bamboo basket. Address: Ohsawa Foundation: 331 Riverside Dr., New York City. Secretary Aihara, 44 W. 96th St., New York City, U.S.A.

552. Ishiguro, Kôzô. 1963. Studies on pantothenic acid intake. I. Pantothenic acid content in Japanese foods. *Tohoku J. of Experimental Medicine* 78:375-80. Jan. 25 (Chem. Abst. 59:2095). [8 ref]

• **Summary:** Tables show: (1) Pantothenic and 4'-phosphopantothenic acid content in foods (Pantothenic acid {Pa A}) is highest in slimy agaric 0.80 mg/100 gm, moderate in stone leek {white part}, stone leek {green part}, and Japanese radish ("Daikon"). 4'-phosphopantothenic acid is very low in the 10 foods listed.

Note: The "slimy agaric" is probably *Stropharia*

aeruginosa, commonly known as the verdigris agaric, a medium-sized green, slimy woodland mushroom.

(2) Free pantothenic acid and total panthetine [panthetine] content in foods. The section of the table titled "Pulses" includes the following two values:

Soybeans, dried 0.86 / 0.08.

Azuki beans, dried 1.35 / 0.03.

Black soy beans, dried 0.76 / 0.24.

Soy bean curd ("Tohu") 0.10 / 0.02.

"Abura-age" 0.12 / 0.04

"Miso" 0.37 / 0.17.

Fermented soy beans ("Natto") 1.60 / 0.60.

Peanut 1.80 / 0.20.

Congeaed "Tohu" [perhaps dried frozen tofu] 0.12 / 0.02.

The foods with the highest content of free pantothenic acid in this table are: (1) Rice bran 6.50. (2) Pine agaric, fresh 2.00. (3) Peanut 1.80. (4) Natto 1.60.

The foods with the highest content of total panthetine in this table are: (1) Rice bran 2.20. (2) Fresh kantake mushroom 1.20. (3) Natto 0.60.

Note: Pulses generally contain a substantial amount of free Pa A, but are rather poor in total panthetine; however natto is rich in the latter. Address: Dep. of Hygiene, Tohoku Univ. School of Medicine, Sendai [Japan].

553. Matlock, Ralph S.; Oswalt, Roy M. 1963. Adsuki bean, *Phaseolus angularis* (Willd) W.R. Wight. *Oklahoma Agricultural Experiment Station, Bulletin* No. B-617. 4 p. Nov. [2 ref]

• **Summary:** Contents: Introduction. Results: Description, disease, performance. "Adsuki bean (Sp-168) (also commonly spelled Adzuki) has been a subject of research by the Oklahoma Agricultural Experiment Station since 1960. This report summarizes results of research to date. The original seed was obtained from Formosa through the courtesy of Stassen Soong, a former graduate student."

554. Kagawa, Aya. 1963. Japanese cookbook: 100 favorite Japanese recipes for Western cooks. [14th & rev. ed.]. Tokyo: Japan Travel Bureau. 198 p. Illust. (some color). Index. 19 cm. Series: Tourist Library No. 11.

• **Summary:** The first edition was published in 1949. This is actually the 2nd ed., which is 36 pages longer. Most of the information about soyfoods in the 1st edition is also in this 2nd edition, but often on different pages: Several examples: Long passage about soybeans and soyfoods (p. 16). Glossary (soy entries, p. 40-42). Nameko miso soup (p. 81). Miso-shiru (introduction, p. 82). Tofu and Japanese leek soup (p. 89). Four kinds of miso soup (p. 90-92).

The last two pages in the 1963 printing are devoted to full-page ads: (1) "Zest that's best with Kikkoman." "Brewed by Noda Shoyu Co., Ltd., Tokyo, Japan. Sole agent in U.S.A.: Kikkoman International Inc., 900 Marin St., San

Francisco 24, California. 930 San Mateo St., Los Angeles, Calif. 11-31 31st. Ave., Long Island City 2, New York.” Photos show a can and a bottle of Kikkoman All-Purpose Soy Sauce.

(2) “Try Aji-no-Moto: The super seasoning.” “Just add a pinch of Aji-no-Moto before, during, or after cooking and see how it unlocks those hidden flavors in all foods—raw, cooked, dried, canned, or frozen.” An illustration shows an Italian chef with a white chef’s hat (*toque blanche*), moustache, kerchief, and upward pointing right index finger. Illustrations show a small glass shaker and a metal can of Aji-no-Moto.

Aya Kagawa was born in 1899. Address: M.D. and president of Joshi Eiyō Tanki Daigaku (Women’s Nutrition College), Tokyo, Japan.

555. Keys, John D. 1963. Food for the emperor: recipes of Imperial China with a dictionary of Chinese cuisine. New York, NY: Gramercy Publishing Co. xxii + 121 p. Introduction by Kee Joon. Illust. Index. 18 x 17 cm.

• **Summary:** This book is about the Mandarin or Peking school of Chinese cooking. Contents: Introduction, by Kee Joon. Food for the emperor (recipes; for each recipe is given the name written vertically in large Chinese characters, the Cantonese transliteration of that name, and the English translation of that name. On some left-hand pages are short translations from old books related to food). A dictionary of Chinese cuisine (arranged alphabetically by English name of food). Index to the recipes (by recipe type, and within that by English recipe name).

Almost all recipes in this book are based on meat, fish, or poultry. There are no soy-related recipes in this part of the book, although many recipes call for “soya sauce.”

The Dictionary includes: Bean curd (*dou foo*, with 2 recipes). Bean curd cheese [fermented tofu] (the two varieties are white bean curd cheese {foo yoo} and red bean curd cheese {narm yoo}). Bean curd, dried (*tim jook* [sweet dried yuba; also spelled *tiem jook*]).

Note: This is the earliest English-language document seen (Oct. 2012) that uses the term *tim jook* to refer to sweet dried yuba.

Bean filling, sweet (*doe sha*, made from black soya beans, sugar, and a little oil. “This paste is available in Chinese bakeries, and is used in New Year’s cakes and other sweet pastries”).

Note: This is the earliest document seen (March 2011) that uses the term “Bean filling, sweet” to refer to a sweet paste, made of black soybeans, that is used as a filling like for cakes, like sweet red bean paste [azuki bean paste].

Bean sauce—see Soya bean condiment. Black bean sauce—see Soya beans, black fermented. Black beans—see Soya beans, black fermented. Brown bean sauce—see Soya bean condiment. Cheese, red—see Bean curd cheese. Fermented black beans—see Soya beans, black fermented. Red bean sauce (*sharng she jerng*; a popular canned cooking

sauce consisting of mashed red soya {or often azuki} beans). Red cheese—see Bean curd cheese. Seaweed (purple laver, hair seaweed). Sesame oil (*jee ma yo*). Sesame seeds (*jee ma*).

Soya bean condiment (*yewn she jerng*. “Variously called soy jam and brown bean sauce, this condiment is prepared from the residue left when making soya sauce. Wheat is sometimes added to the condiment, which is fermented and then called *Meen She Jerng*. These condiments are most commonly use in cooking fowl; also in meat dishes).

Soya beans, fermented black (*doe she*. “Tiny fermented beans which are washed, crushed, and used to add a pleasant spiciness to dishes. They are often used in fish dishes to alleviate any strong smell. It is a prime ingredient in Cantonese lobster”).

Note: “Black bean sauce” is not explained here, as expected.

Soy jam—see Soya bean condiment. Soya sauce. “The general term in Cantonese for soya sauce is *She Yo*. There are three main subdivisions: (1) *Shang cho*: Light brown, fine taste, light color. Used in cooking delicate foods where a heavy soya flavor is not desired. (2) *Cho yo*: Dark and thick, containing molasses, yet not too strong a taste. Used mostly in restaurants. (3) *Jew yo*: Most suitable for general cooking purposes and for use at the table. Also: Japanese soya sauce, which is prepared with the addition of malt [*koji*], is much respected by the Chinese.”

Sweet-sour sauce: The recipe, which is given, contains 1 teaspoon soya sauce.

Sweet vegetable sauce (*hoi seen jerg* [*hoisin sauce*]). “A canned red sauce prepared from soya beans, red rice, and garlic. It is used in preparing Peking Roast Duck, fish and shellfish dishes.”

“Tomato Catsup: Tomato catsup originated in China, as can be seen from the pronunciation of the Cantonese (*Kair* = tomato; *Jup* = sauce). Used in some braised dishes such as Shrimp Braised in Tomato Sauce.” Address: San Francisco.

556. Mei, Yu Wen; Adams, Charlotte. 1963. 100 most honorable Chinese recipes. New York, NY: Thomas Y. Crowell Company. xi + 140 p. Illust. by Wen Mei. Index. 24 cm.

• **Summary:** Contents: Introduction. Chinese ingredients. Chinese cooking utensils and Western equivalents. Some tips on Chinese cookery. Menu for a Chinese dinner party. Daily dishes. Cold wine dishes. Hot wine dishes. Main dishes. Soups. Rice dishes. Desserts. General recipes. Mail order shops. Geographical locations of honorable recipes.

This is a collection of the greatest classical recipes of China. All five major “schools” of Chinese cooking are represented: Shanghai, Peking, Yang Chow (120 miles northwest of Shanghai; pinyin: Yangzhou; Wade-Giles: Yang-chou), Szechuan, and Canton. Yu Lin Chuan, one of Old China’s most renowned restaurateurs, has selected these

recipes, all of which were translated by his daughter, Yu Wen Mei, and carefully tested by Charlotte Adams—to ensure ease of preparation by American homemakers.

The chapter on “Chinese ingredients” describes the following soy-related ingredients: Agar-agar, bean curd (fresh, or fermented), Hoisin sauce, laver (seaweed), red beans [azuki] (tiny beans used for making sweet bean paste), sesame oil, soy bean paste (very salty, or lightly salted). Hoisin sauce is “A delicious, thick, dark-brownish-red condiment, often used as an ingredient in cooked dishes, also as a side-dish sauce for dipping” (p. 2).

The chapter titled “Some tips on Chinese cookery” states (p. 7). Peanut oil is the preferred type of oil. If food is truly fine, “there is no reason whatsoever to add monosodium glutamate to it, and you will note that it is required in none of the recipes.” “We strongly suggest that you buy imported soy sauce by the quart. The soy sauce made here is much saltier than that which comes from Hong Kong, and its use therefore alters the recipes.” Many recipes are seasoned with soy sauce or soy bean paste

Soy-related recipes: Shrimp and bean curd (Yang Chow; p. 24). Crabmeat and bean curd soup (p. 94). Shrimp ball, ham, and bean curd soup (p. 103). Red roast pork (Yang Chow, with soy sauce; p. 113). Almond bean curd (Peking; p. 121). Red bean paste I and II (p. 127-28). Address: New York City.

557. Tanaka, Heihachi; Nicholas, Betty. 1963. The pleasures of Japanese cooking. Englewood Cliffs, New Jersey: Prentice Hall, Inc. viii + 247 p. Illust. Index. 22 cm.

• **Summary:** Contents: Introduction. 1. A chat about Japanese food: Seasonings and flavorings, table settings and utensils, kitchen utensils, etiquette, cooking and serving a Japanese meal. 2. Appetizers. 3. Soups. 4. Broiled dishes. 5. Steamed dishes. 6. Saucepan foods. 7. Fried foods. 8. Salads. 9. Vegetables. 10. Rice and noodle dishes. 11. Thirst-quenchers. 12. Desserts. 13. Festival foods. Glossary [of Japanese foods and utensils]. List of retail outlets for Japanese food products (national chains and alphabetically by state in the USA).

The book begins (p. 1): “To many Westerners, the cuisine of Japan consists almost entirely of *sukiyaki*, *tempura*, rice and soy sauce. Nothing could be further from the truth.”

Vegetables “are harvested at the height of their season,” when tender and full of flavor, then cooked lightly and used (for example) “as an ingredient in *misoshiru* (thick soup [miso soup]) or pickled” (p. 3).

“If one were to single out the most important vegetable cultivated in Japan it would be the soybean. For this legume,... is such a versatile food that it is served in some manner at practically every Japanese meal.

“In the hilly interior of the country where fish is scarce, or in the vegetarian menus of the Buddhists, soybeans are called the ‘fish of the field’ and relied upon as a valuable

source of protein. A favored way of preparing the green soybean is simply to boil and hull it. Dried soybeans are ground [sic, soaked before grinding], soaked in water, cooked and mashed, sieved through silk, and finally cooked again to produce bean curd or *tofu*.

“Steamed and fermented beans become *natto*. *Miso*, a bean paste made by boiling soybeans, mashing them, adding wheat ferment [sic] and salt and allowing this mixture to ferment for several months, lends itself to use in countless dishes. *Moyashi*, the tender young sprouts of the soybean, are cultivated on indoor racks to conserve precious space in the fields.” In a few days, a single cup of soybeans will produce 3-4 pounds of succulent sprouts (p. 3-4).

“Queen of Japanese seasonings is *shoyu* or soy sauce, a dark, red-brown, thirst-provoking liquid made from wheat or barley, soybeans, salt and water. *Shoyu* is loved by the Japanese for its piquant flavor and its use is so extensive that almost no dish is conceivable without it.” A brief history of *shoyu* and its forerunner, *hishio*, and the process for making *shoyu* are given. *Shoyu* “mash is allowed to ferment and mature naturally for a full eighteen months when it is pressed and the sauce obtained pasteurized to become refined *shoyu*.”

“Another multi-purpose seasoning and foodstuff is *miso*, a paste made from fermented rice and soybeans.” Most *miso* “lasts for years without spoiling or deteriorating. There are two types of *miso*—red and white. Both are widely used in Japan but western palates seem to prefer the white type. Both are highly nutritious and are used in literally hundreds of ways: as a seasoning, a main dish and the basis of many hearty, potage-type soups” (p. 5-6).

“For centuries [sic] Japanese cooks have used a dashi of *aji-no-moto*, a seaweed or vegetable protein derivative, to intensify the natural flavors of the foods they cooked. Translated, *aji-no-moto* means ‘essence of taste’ (it is often referred to as taste powder) because the minute white crystals heighten the inherent flavors of foods,... but lending no flavor of their own” (p. 6).

Yakimono are broiled foods. “Flavor broiling includes *yakitori* (broiled chicken), *teriyaki* (fish marinated in a sauce containing *shoyu* and then broiled),... Miso-broiling is used for such vegetables as eggplant as well as for fish or meat” (p. 13).

“Inasmuch as *shoyu*, or soy sauce, is such an all-important seasoning and is called for in almost every Japanese recipe, it should be noted that the use of genuine *shoyu* is quite essential. Most other soy sauces, while excellent for other types of cuisine, really don’t do justice to Japanese cooking” (p. 19). Also discusses wasabi, sesame seeds, sesame oil, katsuobushi, konbu, sake, and various mushrooms (p. 20-22).

“*Tofu*, or soybean curd, is such a versatile foodstuff—it may be boiled, fried, steamed, sautéed or marinated—that it is included as an ingredient in many recipes in this cookbook. Fresh *tofu* is sold in cakes; refrigerated, it will

keep about one week. It is also available in cans and, while the processed product is not quite as tender as the fresh, it does make a satisfactory substitute. The consistence of *tofu* resembles thick custard and it should be handled carefully to avoid breaking and crumbling. Western taste buds seem to find *tofu* bland and a bit flavorless, but when deftly sauced it is very delicious—and also nutritious. Note: *tofu* must not be overcooked or it will toughen and develop a rubbery texture” (p. 24).

Recipes include: Norimaki-Sushi (with nori, shoyu, and sashimi). Tiny teriyaki (ingredients: 2 pounds beef tenderloin, 1 cup shoyu, 3/4 cup water, 1/2 cup mirin, 3/4 cup honey, 1 clove garlic, crushed, and 1 one-inch piece fresh gingerroot, grated; p. 46). Liver tsukudani (with shoyu; p. 55). Fish and tofu stew (p. 69). Oyster miso (p. 71). Vegetable and noodle miso (p. 72). Shrimp or prawn miso (p. 73).

Chapter 4 is titled “Broiled foods.” “... almost all cooking in Japan is done over a charcoal fire,...” “Without a doubt, the most popular of all broiled dishes with the Japanese people is *yakitori*, or broiled chicken... Almost as popular as *yakitori* is *teriyaki*, usually fish marinated in a *shoyu* sauce, arranged on long skewers, and then broiled over charcoal. *Teriyaki* means ‘glaze broiled’—*teri* meaning ‘shiny’ and *yaki* ‘broiled’ or ‘roasted.’ Actually any meat may be *teriyaki*,” but all have in common “the marinade of shoyu, sake, and sugar” (p. 75-76). Recipes include: Salmon teriyaki. Shrimp teriyaki. Stuffed beef teriyaki (p. 88-90). Shoyu marinade basting sauce (p. 93). Sukiyaki (with tofu and shoyu; p. 110). Tempura sauce (with shoyu, p. 121). Fried tofu with sauce (p. 127). Pickled seaweed (with konbu and shoyu, p. 140). Sesame-shoyu dressing (p. 151). Vegetables with tofu sauce (p. 154). Cabbage with mustard-miso sauce (p. 157). Eggplant with miso sauce (p. 164). Azuki meshi (red beans and rice; p. 181). Domburi soboro (with tofu; p. 182-83). “Red bean paste (sweetened).” Ingredients: “2 cups red beans (azuki). 2 cups sugar. 2 teaspoons salt.” (p. 203.) Also called “sweetened red bean paste” (p. 200; Jap. *azuki an*; p. 200-203). Yokan (with “1½ cups strained red bean paste”—*koshi-an*; p. 204). Hikishamanju (Bean jam buns with strained red bean paste; p. 207). Shiruko (Red bean soup [azuki] with rice cakes {mochi}; p. 209). Zoni (Rice cake soup, with mochi; p. 215-16). Sweetened soybeans (for New Year’s, p. 217-18).

The glossary includes *abura-age*, *azuki* (“red beans”), *azuki-an* (“red bean paste”), *daizu* (soybean), *ganmodoki*, *kanten*, *konbu*, *konnyaku*, *miso* (aka miso, shiro miso), *misoshiru*, *mochi*, *mochigome*, *mochiko*, *nori*, *shiru-miso*, *shoyu*, *teriyaki*, *tofu*, *wakame*, *yakidofu*.

Note: This is the earliest English-language document seen (Oct. 2021) that uses the term “sweetened red bean paste” to refer to sweet azuki bean paste [*azuki-an*] or that uses the term “strained red bean paste” to refer to strained azuki bean paste [*koshi-an*]. Address: 1. Head Chef, Japanese

Cuisine, Japan Airlines.

558. Teriyaki and sushi: Selected 72 recipes. 1963. Elmsford, New York: Japan Publications Trading Co. 58 p. Illust. Index. 21 cm.

• **Summary:** On title page: “Compiled by the Japanese cooking companions.” The 12th printing was Jan. 1976. Contents: Rice dishes (incl. How to cook delicious sushi rice, oshi zushi, norimaki). Vermicelli dishes (incl. tsukejiru, kakejiru, somen, soba, udon). Soups. Broiled dishes (incl. teriyaki). Marinated dishes. Boiled dishes. Steamed dishes. Fried dishes. Casseroles. Tart dishes. Pickles. Confectionery. Glossary. Note: Brands promoted in the recipes throughout this book, by appearing in large boldface type, are: Kikkoman soy sauce. Aji-no-Moto, Manjo mirin (sweet rice wine).

Soy-related recipes include: Kenchin-jiru (with “½ tofu (bean curd) (1/3 lb),” p. 17). Miso soup (with 4 tbsp. bean paste (miso)” and “2 aburage,” p. 19). Konnyaku (devil’s tongue) and carrots with white bean curd paste dressing (with tofu, p. 29-30). Bean curd with liquid starch (with tofu, p. 32). Meat and vegetables in aburage-bags (with “2 large aburage, p. 34). Bonito cooked with bean paste (with miso, p. 35). Steamed squid (“stuffed with tofu and vegetables,” with “1 tofu (bean curd),” p. 38-39). Sukiyaki (with “2/3 lb. broiled bean curd,” p. 46). Yudofu (with “1 lb. bean curd,” p. 47). Yosenabe (with “1/3 lb bean curd,” p. 47).

Note 1. This is the earliest document seen (April 2013) that calls for the use of grilled tofu (“broiled bean curd”) in sukiyaki. That is the standard way of making sukiyaki in Japan.

The recipe titled simply “Teriyaki” (p. 22) states: “Teriyaki is fish or meat marinated in a mixture of mirin and saké, sugar and soy sauce and roasted directly over fire. This method of roasting is most suited for oily fish, fish with thick meat, chicken and beef.” The sauce contains: “2 tbsp. Kikkoman soy sauce, 2 tbsp. Manjo mirin, 1 oz. ginger, and sweetened vinegar (mixture of 1 tsp. vinegar, 1 tsp. sugar, and a few shakes of salt)” (p. 22-23).

The Glossary (p. 47) includes: “Aburage—fried soy bean curd. An—[azuki] bean jam [also called ‘red bean jam’ in index]. Miso—bean paste. Misozuke—pickles in bean paste. Tofu—bean curd. Yudofu—boiled soy bean curd.”

559. Nichols, Teal. ed. 1964. Zen cookery. Chico, California: The Ohsawa Foundation. 83 p. Index. 22 cm. A second edition appeared in 1965.

• **Summary:** This is the earliest known macrobiotic cookbook written by an American, and its influence was profound.

Note 1. The Nov. 1964 edition of *Yin Yang* magazine, published in Chico, California, announced that the book had been published that month (Nov.).

“Acknowledgements: Our heartfelt gratitude goes

to Lima Ohsawa, the foremost authority on Macrobiotic Cookery, without whose patient assistance and teaching this book would not have been possible. Many of the recipes appearing in Zen Cookery are from her collection in an earlier edition of Zen Macrobiotics. The Editor wishes further to thank the following people for recipes, suggestions, and invaluable comments: Joanne Hirsh, Dorothy Salant, Nina Bauman, Cornelia Aihara, Penny Smith, Shayne Oles, Betty Kennedy, and Jane Andrews."

"Zen Cookery is a collection of recipes gleaned from the files of many people, all of whom have adjusted their salt intake to suit their own needs. Their recipes reflect this."

Contents: 1. Grains. 2. Noodles. 3. Vegetables. 4. Soups. 5. Sauces. 6. Salads. 7. Inspirations from around the world. 8. Special dishes. 9. Miso soy bean paste. 10. Tamari soy sauce. 11. Breads. 12. Pancakes and crepes. 13. Pie doughs. 14. Desserts. 15. Beverages.

Note 2. This is the earliest English-language document seen (March 2012) that contains the term "tamari soy sauce." It is also the earliest English-language cook book seen that contains the word "tamari" or the term "tamari soy sauce."

Each recipe is numbered. Recipes mentioning soy in recipe name (and a few other recipes introducing foods new to the USA): 2. Rice with tamari soy sauce. 3. Rice with aduki beans. 4. Rice & aduki pudding. 7. Sesame rice. 9. Rice with chick peas (garbanzo). 21-28. Buckwheat recipes. 34. Bulgur. 48. Buckwheat noodles in soup (Soba with kombu). 50. Buckwheat noodles with fried bean curds [tofu]. 54. Buckwheat noodles with miso sauce. 55-56. Buckwheat noodles in kuzu sauce. 61. Udon with aduki. 62. Carrot sesame nituke [nitsuke]. 75. Scallion nituke with miso (soybean paste). 76. Carrot and onion nituke with miso. 77. Onion nituke with miso. 78. Vegetable miso stew. 79. Boiled pumpkin with miso. 80. Vegetable sauces with kuzu arrowroot (and tamari soy sauce).

81. Vegetables with tamari soy sauce and tahini. 98. Jinenjo (5 recipes). 101. Miso-vegetable relish. 102. Aduki beans, black [soy] beans, chick peas. 105. Baked chick peas. 106. Buckwheat-aduki pancakes. 107. Udon with aduki beans. 108. Chestnut-aduki gelatine. 109. Chick pea party dip (with tahini and tamari). 110-118. Sea vegetables (kombu, nori, hiziki, wakame, most with tamari). 119. Clear broth (with tamari). 122. Tamari-vegetable broth. or stock. 123. Miso soup (2 types). 124. Creamed miso soup. 125. Root vegetable soup with miso. 131. Soybean soup. 134. Wakame soup (with miso). 149. Sesame sauce. 150. Miso sauce. 151. Miso salad dressing. 152. Thick tamari soy sauce. 153. Tahini tamari soy sauce. 154. Onion tahini sauce (with tamari). 172. Wakame salad.

189. Clam miso. 190. Scallop miso-lemon. 203 Miso spread [with tahini]. 204. Miso sauce [with tahini and orange rind]. 205. Sauce for vegetables [with black sesame and miso]. 206. Scallion miso. 207. Miso salad dressing. 208. Miso-vegetable relish. 209. Miso soup. 210. Udon with miso

sauce. 211. Rice porridge with miso. 212. Deep fried miso balls. 213. Carrots and onions miso. 214. Vegetables miso. 215. Tekka (2 types). 216. Tea with tamari soy sauce. 217. Tamari broth. 218. Stringbeans. 219. Dried radish (daikon). 220. Shredded sea vegetables (hiziki). 221. Thick tamari soy sauce. 222. Tahini-tamari sauce. 223. Vegetables with tahini-tamari soy sauce. 234. Aduki muffins. 238. Miso spread (for sandwiches). 239. Tahini-tamari spread. 246. Buckwheat aduki pancakes. 272. Aduki pudding. 273. Chestnut-aduki gelatine. 274. Kanten jello (with agar).

291. Grain Milk (Kokkoh [Kokoh]; a finely ground combination of roasted rice, glutinous rice, oatmeal, soybeans, and sesame seeds). 294. Tea with tamari soy sauce (syo-ban).

Note 3. This is the earliest document seen (Feb. 2005) that mentions Kokkoh (or Kokoh), a grain milk introduced by macrobiotics.

Note 4. Tofu, amazake, and seitan are not mentioned in this book. 287 is Ohsawa Coffee (Yannoh) and 288 is Dandelion Coffee.

Note 5. This is the earliest document seen (June 2000) that mentions the use of miso in a salad dressing (Nos. 151 and 207).

Note 6. In 1985, when writing a revised edition of this book titled *The First Macrobiotic Cookbook*, Herman Aihara wrote (p. v) that this 1964 edition, published by the Ohsawa Foundation of Chico, California, was first the edition of the various subsequent and very influential books with this title.

Note 7. This is the earliest document seen (March 2011) concerning Herman or Cornelia Aihara and macrobiotics (or soyfoods).

Note 8. Along with soyfoods, this cookbook (and its many successors) also introduced numerous other basic Japanese foods such as aduki [azuki] beans (3-4, 102, 106-08, 234, 272-73), sea vegetables of all types, and soba. Address: Chico, California.

560. Robinson, R.G. 1964. Dry field beans for Minnesota. *University of Minnesota Agricultural Extension Service, Bulletin* No. 310. 12 p. *

561. Choy, Jung Suck (Mrs.). 1964. The art of Oriental cooking. Los Angeles, California: The Ward Ritchie Press. xi + 156 p. Introduction by Dr. Lee Wok Chang. Illust. Index. 18 x 18 cm.

• **Summary:** Contents: Introduction. Korean food. Chinese food. Japanese food. Shopping guide for Oriental ingredients (1 p., with emphasis on the names and address of stores selling Oriental foods). For each category of food (such as Soup) and for each recipe, the name in English is given first, followed by the Asian name in parentheses. ½ to 1 teaspoon "monosodium glutamate" is called for in many recipes. Likewise "soy sauce" is used in many recipes.

Note 1. The index to this book is not a typical index. For

example, although “bean curd” is called for in many recipes, it does not appear in the index. So one must read the entire book and all the ingredients in each recipe to find which recipes call for bean curd.

Note 2. The book has an unusually heavy emphasis on animal foods—meat, chicken, fish, shellfish, and eggs. Did people in Korea, China, and Japan really eat like this in 1964?

In Korean, bean curd is called dubu or do-bu (p. 13); bean curd is also called for on pages 45, 50, 54, 125, 136, 137, 138 Other ingredients used: Miso, p. 125. Red beans [azuki], p. 63.

Recipes include: Fish teriyaki, p. 134. Sukiyaki, p. 136. Mizu-taki, p. 137-38. Beef teriyaki, p. 140-41. Pork teriyaki, p. 141.

The shopping guide mentions: Bean curds. Chinese black beans [fermented black soybeans]. Miso. Monosodium glutamate. Sesame seeds. Sesame oil. Soy sauce.

Note: The author was born and raised in Korea. She and her husband joined the faculty of Seoul National University in 1947; she taught home economics. Since 1950 in the United States, she has been giving courses on Oriental cooking to various social and church groups. Address: Berkeley, California.

562. Mabuchi, Toichi. 1964. Tales concerning the origin of grains in the insular areas of Eastern and Southeastern Asia. *Asian Folklore Studies (Nagoya, Japan)* 23(1):1-92. See p. 3. [80+* ref. Eng]*

• **Summary:** Page 3 tells a story from the *Kojiki*, which first appeared in Japan in 712 A.D.: “A heavenly god asked an earthly goddess for a meal. Having seen her cooking various kinds of food taken out of her mouth, nose and anus, the heavenly god killed her in anger. Shortly afterward there appeared seeds of various crops from her corpse; from her eyes rice, from her ears the ‘millet’, from her nose the red bean [probably azuki], from her anus the soya bean, from her vagina barley, while the silk worm came out of her head.”

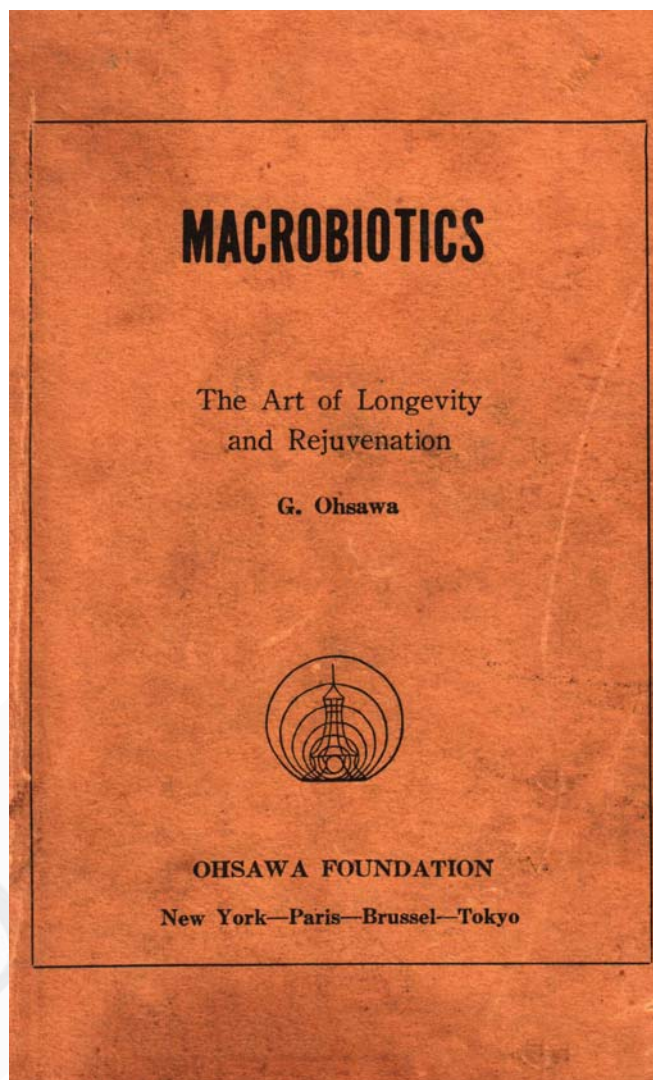
Harlan (1975, p. 45) notes: “The source of the soybean suggests flatulence,…”

Note: This paper was first presented on 20 June 1962 at Indiana University.

563. Ohsawa, G. 1964? *Macrobiotics: The art of longevity and rejuvenation*. New York, Paris, Brussel [sic], Tokyo: Ohsawa Foundation. Printed in the U.S.A. by Eastern Technical Publications (Boston & New York). 218 p. Undated. Index. 17 cm.

• **Summary:** This is the earliest known American printing of “Zen Macrobiotics.” The word “Zen” was removed from the title at Michio Kushi’s suggestion. The cover is yellowish tan. The author is George Ohsawa.

Contents: Foreword: Two ways to happiness through health. Preface: Health to peace. Books by the same author (7



in French, 9 in Japanese, one in English, plus 4 periodicals). Table of contents. 1. Macrobiotics and Oriental medicine. Why I have written this book. What is the philosophy of the Far East? 2. What is my therapy? Unhappiness, illness, crime. Incurable disease. Three categories of cure. What we must not cure. Satori. Courage, honesty justice. Tolerance. 3. The six main conditions of health and happiness. 4. Nothing shall be impossible to you. You should have infinite freedom. You must be your own doctor. 5. Ohsawa’s macrobiotic cuisine. 6. Principal foods: Rice, buckwheat, udon etc., millet, raw rice etc. (p. 62-71, with recipes). 7. Secondary foods (p. 72-103, with recipes): Nituke, soup (lotus root ankake, kuzu gruel, cracknel yuba), pie, gyoza (piroshiki), chapati, jinenjo (wild potato, tororo). Egyptian beans (chick peas, *pois chiche*), beans (boiled soy beans with miso, gomoku beans, goziru [gojiru] soup, aduki beans), corn, aduki (ogura vermicelli), goma-tohu [sesame tofu], aemono (salads), varieties (chou farci, buckwheat crepe), wild vegetables, seaweeds (shi kobu [shio kombu], kobu maki, fried kobu, musubi kobu, kobu soup, matsuba kobu, salmon

head kobu-maki, hiziki with lotus root, hiziki nitsuke, hiziki with “age,” hiziki and soyabean, gomoku hiziki, hiziki rice), wild plants (dandelion leaves or root, aozu {wild spinach}, fuki), miso and tamari preparation (sauce miso, miso cream, muso [miso with tahini and orange peel], miso soup, carrot and onion au miso, vegetable au miso, oden au miso, buckwheat dango au miso, miso ae, tekka no. 1 and 2), soyoyu [shoyu] (sakura rice, sauce au shoyu, sauce au sesame, bouillon au shoyu, ositashi [ohitashi], oatmeal cream, potage oatmeal, sauce bechamel a la sauce shoyu, mayonnaise a la sauce shoyu, sauce Lyonnaise; “Shoyu diluted with a little water is very good for Sasimi [Sashimi = raw fish] and fried oyster, tempura, fish Sukiyaki, tofu {vegetable cheese of soya beans}, etc.”), beverages (rice tea, wheat tea, dandelion coffee, Ohsawa Coffee {Yannoh; incl. roasted and ground rice, wheat, aduki, chick peas, and chicory}, Kokkoh {incl. roasted rice, glutinous rice, oatmeal, soya beans, and sesame seeds}, Mu tea, syo-ban {coarse green tea with soy sauce}, kuzu [cream, with shoyu] {“A good drink for everyone”}, aduki juice, radish [daikon] drink no. 1 and 2, ransyo {one beaten egg + 50% of traditional Ohsawa shoyu}, soba tea, umeboshi juice, ume-syo-kuzu, special rice cream).

8. Special dishes. Desserts. 9. Yin and Yang. 10. Macrobiotic suggestions for various symptoms of disease (p. 131-36, with recipes): General suggestions (by disease), macrobiotic external treatment (tofu plaster, soya bean plaster, Dentie). 11. Specific curative dietary suggestions: Examples of diseases and their macrobiotic treatments. 12. Kokkoh: Macrobiotic food for baby. 13. On cooking. Salt. Folk medicine. Your history. Appendix: The case of Mr. E. (Cure in 10 hours). “Pro-forma death certificate of the American World Empire and its Gold Dynasty.”

Ohsawa centers and friends (p. 217-18): England (Trustin Foods, London; Mrs. R. Takagi, London), France (Centre Ignoramus, Longue Vie, Guenmai [Genmai = brown rice], Yamato, Ohsawa-France; all in Paris). Germany (Miss M. Arnoldi, Heidelberg; Dr. P. Martin, Munich; Dr. Henning, Hamburg), Italy (Miss H. Onoda, Rome; Mrs. Baccolis, Rome), Japan (Nippon Centre Ignoramus, 8 Kasumi-cho, Minato-ku, Tokyo; Shinsekai, Osaka), Brazil (Casa Longavida, Sao Paulo), Sweden (Miss Ilse Clausnitzer, Stockholm), U.S.A. (Ohsawa Foundation, 61, W. 56th St., New York; Ohsawa Foundation, P.O. Box 238, Chico, California; Chico-San, Inc., 64, 5th Ave., Chico, California; Musubi, 61, W. 56th St., New York—Macrobiotic Restaurant).

This book is undated, but it contains clues as to when it was published. On page 190 is reference to an article in *Time* magazine dated 7 March 1960 about the sad state of health in the United States. Then on page 189, Ohsawa states: “Upon my arrival in the United States last November, I began my lectures on the philosophy and medicine of the Orient. I gave some in Los Angeles and San Francisco [California], but mostly in New York institutes and schools such as the Universalist Church, The New School for Social

Research, Columbia University, New York City College, and the American Buddhist Academy. I have postponed my departure twice. But I am very happy as I have confirmed my assumption: marriage between paradoxical philosophy of the Orient and the materialistic techniques of precision of American science, which must be realized for the infinite freedom of Man and for world peace” (p. 189).

Concerning the date of publication, which is not given in or on the book. One guess is about 1964, because when you do a printing of a book, you want to print enough to last for at least two years. This $1962 + 2 = 1964$. A pretty weak reason! Carl Ferré (6 and 8 May 2011) states: I’ve done enough printing to know that the book printed in the USA uses the same plates as the second printing in Japan except for two changes. They added “Printed in the USA by...” (in a different type face) to the back side of the first page, which is blank; and, they whited out “Zen” and the smaller “Macrobiotics” on the cover and title page and replaced both with one word: “Macrobiotics” (again, in a different type face). The rest of the book appears to be exactly the same as the second printing from Japan.”

“My thinking is that 1964 is a pretty good guess because I believe it may have been arranged by the East Coast Group—thus, the word ‘Zen’ was off the title and it was printed by a printer in Boston and New York. This would be about the time Michio Kushi was getting settled in Massachusetts.”

Note 1. These lines almost certainly describe Ohsawa’s first visit to the United States. He arrived in November 1959 and stayed well into 1960.

Note 2. All recipes in this book are numbered, from No. 1 (Unpolished rice, p. 162) to No. 816 (Rice plaster, p. 136). The recipe numbers are identical to those published in the mimeograph edition of *Zen Macrobiotics* (also titled *Macrobiotics—The Biological and Physiological Foundation of Zen Buddhism*), published in early 1960.

Note 3. The contents of this book is very similar to that of the earliest published edition of *Zen Macrobiotics*, which was printed in Japan and was 218 pages long.

Note 4. This is the earliest known macrobiotic document that uses the word “Satori” (Enlightenment).

564. Ohsawa, George. 1965. *Zen macrobiotics: The art of rejuvenation and longevity*. Revised, edited and annotated by Lou Oles. Los Angeles, California: Ohsawa Foundation, Inc., The Ignoramus Press iii + 120 p. No index. 22 cm. Series: *The Philosophy of Oriental Medicine*, Vol. 1. [20 ref]
 • **Summary:** This is probably the 3rd English-language edition of *Zen Macrobiotics*. The 1st edition was published in Nov. 1960 in New York. Address: Los Angeles, California.

565. Hesseltine, C.W. 1965. A millennium of fungi, food, and fermentation. *Mycologia* 57(2):149-97. March/April. [38 ref]

• **Summary:** A landmark, widely cited work on indigenous fermented foods. Interestingly, it makes no mention of amazake, or kanjang (Korean soy sauce). Contents: Tempeh. Ragi. Sufu (describes process, mentions pehtzes and the mold *Actinomucor elegans* NRRL 3104).

Color photos (sent by Dr. Clifford Hesseltine) show: (1) Luxuriant growth of *Actinomucor elegans* mold on some skewered cubes of tofu in an incubator; on the top row are uninoculated cubes. (2) Cubes of sufu (fermented tofu) in their final form after removal from brine.

Thamnidium (meat tenderizer and flavor enhancer from the mold *Thamnidium elegans*). Miso. Shoyu (incl. tamari. “In China, shoyu is more of the tamari type, that is, more soybeans are used and less wheat,...”). Tea fungus. Ang-kak (red fermented rice [red rice koji], p. 179-81). Advantages of fermenting foods. The future of food fermentations.

The glossary gives brief descriptions of aga-koji, akakoji, amylo process, anchu, angkak, angkhak, ang-quac, anka, anak, arack, arak, arrack, atsumandie, awamori, bagoong, bakhar, beni-koji, benikoji, braga, brem, busa, chao, ch’au yau (Chinese name for shoyu), chee-fan (a type of Chinese cheese or sufu), Chiang (Chinese equivalent of miso), chicha, Chinese cheese (sufu), Chinese red rice (ang-kak), chiu-chu (Chinese yeast), chiu-niang (Chinese term for koji), chou [*ch’ü; qu*] (Chinese equivalent of koji), dahi, dawadawa (made from African locust bean—*Parkia filicoidea*; soy is not mentioned), dhokla, dosai, fermentation of citron, fermented fish, fermentation of maize, fermented minchin (wheat gluten), fermented soybeans (“a Chinese food prepared from small black soybeans.” See A.K. Smith 1961 [fermented black soybeans]), fish paste, fish sauce, fish soy, fu-yu, fu-yue, fuyu (see sufu [fermented tofu] for all 3), ginger beer plant, grib, hamanatto, hon-fan [fermented tofu], hongo, hung-chu, idli, injera, jamin-bang, java yeast, jotal, kaffir beer, kanji, katsuobushi, katyk, kefir, ketjap, kimchi, kishk, kisselo mleko, koji, kombucha (tea fungus fermentation), kome-miso, kuban, kumiss, kumys, kushik, kushuk, kvass, kwass, kyoku-shi, lao-chao, leben, lebeny, levain of khasia, levain of sikkin, lontjom (ontjom), magou, mahewu, maize fermentation of the maoris, mazun, medusen tee, meen, meitauza, meju (fermented soybeans of Korea), mén, mien (Chinese yeast), mirin, mish, miso, moromi, mugi miso, murcha, nappi, nata, natto, ngapi, nuoc-mam, nukamiso, ontjom, patis, paw tsay, peh-khak, pehtze, peujeum, peyem, poi, prahoc, pulque, raggi, ragi, ranu, red pepper sauce, red rice, red sufu, sajur asin, saraimandie, sekihan [rice cooked with azuki beans; not fermented], shiro koji, shottsuru, shoyou, sho-yu, shoyu, soja japonais (shoyu), sonti (a rice beer wine of India), South African fermented corn, soy, soybean cheese [fermented tofu], soy sauce, sufu, su fu [both fermented tofu], sweet flour paste, taette, tahuli, tahuri [both “Philippine fermented soybean curd”], takuwan, tamari, tane koji, tao-cho [taotjo], taokoan [pressed or firm tofu, not fermented], tao dji (see taotjo {sic}), tao-si

([fermented black soybeans]; see Handbook of Philippine Agriculture. 1939. p. 132-43), tao-tjung, tao-yu, taotjo, tapej, tape ketan, tape ketella, tarhana, tea beer, tea cider, tea fungus, teekwass, teeschwamm, tempe, tempeh, tempeh bongkreke, tempeh kedele, thamnidium, thumba, tibi, tien mien chang [chiang], tojo (“Philippine name for soybean curd”), tokua (“Philippine name for soybean curd”), torani, tosufu, toyo, trassi, tsue fan, tuwak, uri, u-t-iat, wunder pilz, yen-tsai.

Note 1. This is the earliest document seen (Oct. 2011) that mentions *Actinomucor elegans* in connection with sufu [fermented tofu]. In 1966 Hesseltine describes it as the best mold for use in making this fermented food.

Note 2. This is the earliest English-language document seen (Oct. 2011) that uses the terms “fuyu” or “fu-yue” or “chao” to refer to fermented tofu.

Note 3. By the mid- to late-1960s, macrobiotic companies in the USA were importing barley miso from Japan and labeling it “Mugi Miso.”

Photos show: (0) Clifford W. Hesseltine (portrait). (1-3) *Rhizopus oligosporus* mold, used to make tempeh (3 views). (4) Skewered cubes of sufu in an incubator, with one skewer of uninoculated tofu cubes and three rows of tofu inoculated with *Actinomucor elegans* showing luxuriant growth of mold. (5) Cubes of Chinese cheese [fermented tofu] removed from brine. (6) Dilution plate of tane koji showing different types of *Aspergillus oryzae*. Address: Northern Regional Research Lab., Peoria, Illinois.

566. Kushi, Michio; Fulton, Robert E.; Blum, Cecil. eds. 1965. Macrobiotics study report: The way of life according to the order of the universe. Vol. 1. Cambridge, Massachusetts. East-West Institute. 41 p. 27 cm. [4 ref]

• **Summary:** Contents: Seven principles of the order of the universe. Twelve theorems of the unifying principle (both, inside front cover). Editorial, by the 3 editors. Cigarettes and cancer, by George Ohsawa (age 73), founder, world macrobiotic movement [Conclusion: smoking is yangizing; smoking cures cancer]. The new discovery of the transmutation of the atom, by Michio Kushi, Director, East West Institute [he has given numerous lectures for the past 8 years in New York, Boston, Philadelphia {Pennsylvania}, and Washington, DC; discusses Louis Kervran and Saneshide Komaki]. My conclusions in biological research, by Kikuo Chishima, M.D., Prof., Gifu Univ., Japan. Thoughts of man, by Michio Kushi. Love, by George Ohsawa.

What is macrobiotics?, by Roger E. Fulton, Cambridge, Massachusetts. Order of the macrobiotic diet (from No. 7 to No. -3). One week’s menu (No. 7) for health and happiness, by Aveline Kushi (p. 29-30); includes miso soup, azuki beans, bulgur with tahini sauce, and sesame rice. Sakura meshi (rice with tamari). “1. Grain: Brown rice, whole wheat, buckwheat,... azuki beans. “2. Seasoning: Sea salt, tamari (soy sauce), miso (soy bean paste), gomashio (roasted

sea salt and sesame seeds mixed), kuzu, umeboshi (salted plums), sesame oil, corn oil. 3. Beverage: Grain coffee, bancha tea, mu tea, dandelion tea, etc.” Note 1. This is a vegan menu. Note 2. This is the earliest English-language document seen (Dec. 2006) that uses the term “salted plums” to refer umeboshi salt plums.

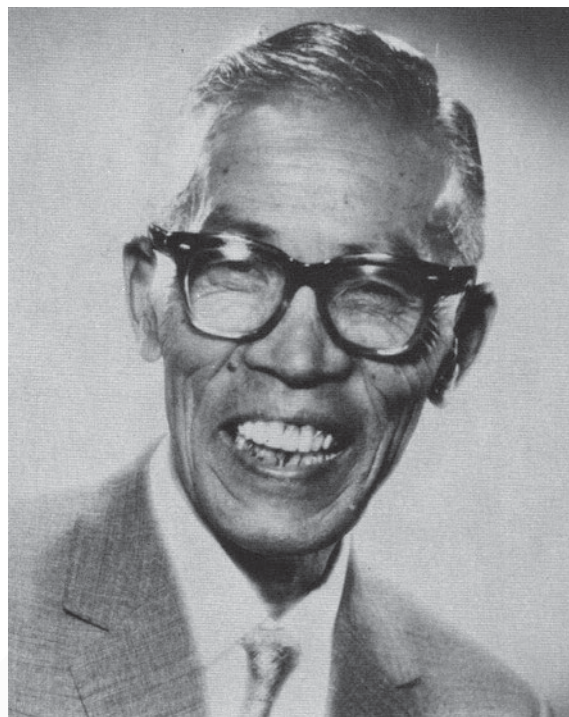
EWI news (a chronology of events from Sept. 1964 to the present). Miraculous events [and cures]. Leprosy cured in Argentina. Testimonials. Open letter to Dr. Frederick Stare, Harvard School of Public Health, by Simone Billaudeau. George Ohsawa’s schedule (May to Aug. 1965). Literary contributions. Financial contribution and subscription. Announcement: 1965 Macrobiotic summer camp. Useful addresses: USA, Brazil, Argentina, Sweden, Belgium, France, Germany, England, Spain, Italy, India, Japan. Key CI = Centre Ignoramus. E = Editor. R = Restaurant. MC = Macrobiotic Camp. MF = Macrobiotic Foods. MFF = Macrobiotic Foods Factory. OC = Ohsawa Center. OF = Ohsawa Foundation. Classification of yin and yang (inside back cover). Poem titled “Wind chimes” by Cecil Blum on back cover (11 June 1965).

EWI News: 1964 Sept.—After the Macrobiotic Summer Camp on Martha’s Vineyard, Michio Kushi and his family moved from the Island to Cambridge, Mass. For the previous year, Mr. Kushi’s lectures were conducted almost every month in Boston at the Mattson Academy of Karate. George Ohsawa was also in Boston and Martha’s Vineyard in 1964. In Sept. 1964, East-West Institute was incorporated as a non-profit educational establishment. Mr. David Levin and Mr. Ramsay Wood initiated it with several others. Address: East-West Institute, 101 Walden St., Cambridge, Massachusetts.

567. Ohsawa, George. 1965. *Zen macrobiotics: The art of rejuvenation and longevity*. Revised, edited and annotated by Lou Oles and Shayne Oles Suehle. Los Angeles, California: Ohsawa Foundation, Inc. xiv + 128 p. No index. 17 cm. Series: *The Philosophy of Oriental Medicine*, Vol. 1. [20 ref] • **Summary:** Note: This book was probably published after July 1970, even though the copyright date is 1965. This is probably the 4th English-language edition of *Zen Macrobiotics*. The 1st edition was published in Nov. 1960 in New York and the 2nd edition in 1965 in Los Angeles, revised by Lou Oles. The front cover of this edition has a black background and an orange circle near the lower right, on which is written “zen macrobiotics” in white. On the back cover is an excellent portrait photo of George Ohsawa, dressed in a suit and tie, wearing glasses, and sporting a big smile.

Note 1. Shayne’s maiden name was apparently Shirley S. Federbush. California marriage records state that she married Ferdinand E. Suehle on 24 July 1970. So this book was almost certainly published after their marriage date.

Note 2. The date on this book is too early, as explained by Carl Ferre (e-mail of 15 April 2011), president of the

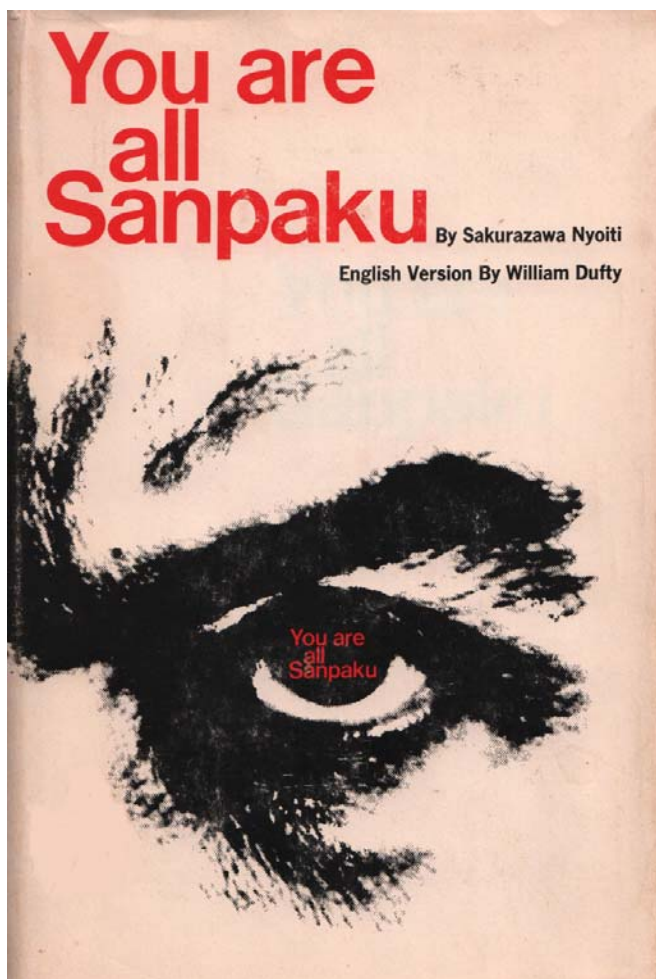


George Ohsawa Macrobiotic Foundation. “The libraries are going by copyright dates and do not correspond to when they were printed and made available to people. The second one was printed after Lou Oles had died, which was in 1967 if I recall correctly, and she had remarried! It should have had a new copyright date, but didn’t.

“From the early magazines, it appears Lou and Shayne Oles moved to Los Angeles in December, 1965. He announced the move in the January 1966 issue of the magazine and there is nothing about an intended move in the November 1964 issue... Note also that they used ‘Ignoramus Press’ for some of their books.” Address: Los Angeles, California.

568. Sakurazawa, Nyoi [Ohsawa, George]. 1965. *You are all sanpaku*. English version by William Dufty. Hyde Park, New York: University Books. 224 p. Index. 22 cm. First paperback edition published in 1980 by Citadel Press, Secaucus, NJ.

• **Summary:** Contents: Introduction. The divine ritual. A land of sanpaku. Faith and medicine. The cause. The cure. The daily check-up. Food and sex. Prayer and fasting. The sacred act. About salt. About sugar. About milk. About liquids. About chewing. About principal foods. Soulfood: Brown rice, rice cream, buckwheat, buckwheat cream, wheat, cous cous, chapati, millet, raw rice, bread, gomasio [gomashio] (sesame salt), umeboshi plums, miso and shoyu, tahini, miso cream, about tea, coarse green tea (bancha), soya ban (coarse green bancha tea with soy sauce), mu tea, lotus tea, lotus tea, mint tea, thyme tea, Ohsawa coffee (Yannoh; made of rice, wheat, aduki beans, chick peas, chicory, and



a little oil), Dandelio (dandelion coffee substitute), kokoh, kuzu, umeboshi juice, ume syo kuzu (umeboshi + shoyu + kuzu), aduki juice, radish drink (daikon #1 and #2), special rice cream, brown rice tea, wheat tea. The oneness of the universe [Ohsawa's profound and beautiful credo]. Tables: 1. Macrobiotic table of daily food in order of yin to yang. Note: The most yin foods are indicated by 3 downward-pointing triangles; the most yang foods by 3 upward-pointing triangles. Beans (except aduki) are quite yin, being symbolized by 2 downward-pointing triangles. Eggplant, tomato, and potato are the most yin vegetables. The most yang cereal is buckwheat, followed by rice. 2. Physical phenomena–Yin/yang table. Biographical note on Ohsawa (p. 213-18).

This was the first popular book in English to explain the principles of macrobiotics. “*Sanpaku* describes a condition in which the white of the eye can be seen between the pupil and the lower lid as the subject gazes directly forward. This, we quickly learn, connotes a grave state of physical and spiritual imbalance.” It is the Oriental sign of impending disaster.

Introduction (p. 19-20): “After reading Ohsawa’s book it struck me once more that in my extensive experience with

U.S. physicians, I could not remember a single doctor, out of dozens who treated me, who had ever shown the slightest curiosity about what I ate and drank.”

Pages 165-66: “About Sugar: “I am confident that Western medicine will one day admit what has been known in the Orient for years: sugar is without question the number one murderer in the history of humanity—much more lethal than opium or radioactive atomic fallout—especially for those people who eat grain as their principal food. Sugar is the greatest evil that modern industrial civilization has visited upon the macrobiotic countries of the Far East and Africa. Sugar turns to water and CO² in the body, it decreases yang elements in the blood and increases the ratio of K to Na. It is the most yin of all products used as human food and is the direct cause of numerous fatal diseases.”

Soy-related recipes and information include: Soya bean plaster (p. 140). Tofu plaster (p. 141; tofu is called “white soya bean cheese”). Tekka [miso] for anemia and general weakness (p. 143). Miso and shoyu (p. 190). Miso cream (with tahini, p. 190-91). Soya ban: Coarse green bancha tea with soy sauce (p. 194). Ume syo kuzu (p. 199; a proven medicinal beverage [made from umeboshi, shoyu, and kuzu]).

About milk (p. 169): “There is no reason for man to live on the milk of an animal—especially an animal inferior to him biologically and intellectually.” People of the Orient avoid milk “because they respect the biological natural laws of the Order of the Universe... Once the young offspring of animals have their teeth and are weaned from nursing, they no longer drink milk... No animal ever does.” “The quality and quantity of a mother’s milk controls her child’s destiny. In cases where the mother’s milk is not available, babies can be fed with *Kokoh*—a macrobiotic cereal milk made with roasted rice, glutinous rice, oatmeal, soya beans and sesame seeds reduced to powered form” (see recipe p. 198).

About Mu Tea (p. 194): “This is the most Yang of beverages. It contains the legendary herb ginseng—the most Yang of all herbs used to make tea and fifteen other medicinal plants: peony; root of Angelica; sea thistle; carthanne; rush; ginger; hoelen; japonica; licorice; cinnamon; bitter orange rind; rehmanial radix [rehmannia radix]; moutan cortex [the root bark of *Paeonia suffruticosa*]; carophyll flos and persical semen [semen persicae]. The word *mu* means space or infinity in Japanese, and Mu tea is so named because it is the beverage for development of superior judgment. It is usually obtainable only through macrobiotic channels and comes in small packages...” Note: This is the earliest document seen (Aug. 2017) that lists all the ingredients in Mu Tea.

Miscellanea: The Ohsawa Foundation at 317 Second Avenue in New York City, located on the first floor of an old tenement, had a 4-table restaurant in the front and a kitchen in the rear. There were several macrobiotic restaurants in Paris, plus a tiny macrobiotic food store named Les Trois

Epis and the Librarie Ohsawa, both on Rue Lamartine Guy Massat was editor of the French monthly journal *Yin/Yang*. The author: "I could not remember a single doctor, out of dozens who treated me, who had ever shown the slightest curiosity about what I ate and drank."

"The stark facts presented to the President of the U.S. by his Special Commission on the Nation's Health in December of 1964 are staggering: In 1963 heart-artery disease caused 55% of all U.S. deaths, and cancer 16%. Strokes 210,000; diseases of arteries outside the brain combined with diseases of the heart to kill 793,000. Cancer killed 285,000" (p. 66). Occidental medicine is symptomatic medicine; it does not seek to cure the basic causes. And it is microscopic/analytical. It seeks the truth in a maze of details; but the "truth is whole." The "ultimate cause of every illness is violation of the order of the universe through ignorance or through arrogance,..." (p. 80-81). "Disease is a divine warning, a message from nature seeking to guide us to the correct path" (p. 98). The essential factor in the proper nutrition of the human body is the proper proportion of Yin and Yang. The best proportion of Yin/Yang or Potassium/Sodium is 5 to 1. All those foods whose K/Na ratio is greater than 5 to 1 are Yin. The book ends with a "Biographical Note: Sakurazawa-Ohsawa" who is said to have "published some 300 works in Japanese and more than 20 books in Western languages, principally French." His wife, Lima, is a professor of traditional Japanese music. There is a selected bibliography of Ohsawa's books, especially those published in French. Address: New York.

569. Brandemuhl, William. 1965. Tsukudani and nimame (Document part). In: William Brandemuhl. 1965. Soybean Utilization in Japan. San Francisco, California. xxii + 478 p. See p. 387-99, Unpublished manuscript. 28 cm. [2 ref]

• **Summary:** "Description (Endnote 170): With the hope that certain types of food—mainly fish—could be preserved, an emperor of Japan at one time gave an island to certain parties for the development of a long lasting food made of common perishable food items. The result was Tsukudani, (mentioned in the Shoyu section), one or more of a variety of foods that are soaked if necessary, steamed, cooked with Shoyu, sugar, and other seasonings, cooled, and packed. The first to develop was Tsukudani made of whole small fish. After that came shrimp, other types of fish, and sea foods, many kinds of kelp, many kinds of seaweed, vegetables, beef, red beans and soybeans. All such types of Tsukudani have found acceptance among certain groups, attested to by the fact that such items were made in great quantity at home throughout Japan. With the thought of capturing a portion of the market, companies began to promote commercial Tsukudani and did same with a great degree of success. At present Tsukudani is very often produced in large modern factories. The greatest advancement that the companies brought forth was in the field of packing as sealing a quantity of Tsukudani in plastic

after exhausting the air results in a product that lasts six months to one year. The most used Tsukudani is made from kelp, although whatever kind is produced, quick-method Shoyu is an important component. Figure 165 somewhat indicates Shoyu's use for Tsukudani as pictured are five large vats that are used exclusively for quick-method Shoyu for Tsukudani. In certain kelp Tsukudani as much as 30-50 percent of total volume is accounted for by Shoyu. Soybean Tsukudani has only 10 percent Shoyu because of the inherent qualities of the whole soybean.

"Manufacture (Endnote 171): Soybean Tsukudani as mentioned before contains about 10 percent Shoyu. In addition to soybeans it usually contains water, carrots, lotus root, kelp, and sugar in possible proportions as follows:

"Soybeans 56 kilograms

"Kelp 2 kilograms

"Carrots 3 kilograms

"Lotus root 4 kilograms

"Sugar 13 kilograms

"Light Shoyu 20 liters

"Water 20 liters

Note. This is the earliest English-language document seen (June 2013) that contains the term "Soybean Tsukudani." "A very large maker might use 300-350 kilograms of soybeans per day however statistics on total soybean usage for Tsukudani are unknown as data are not kept for soybean Tsukudani alone. U.S. soybeans are too small for making Tsukudani so only Hokkaido soybeans are used at present. If domestic soybeans continue to decrease in production it is believed that Tsukudani producers will shift to using imported soybeans, possibly Red Chinese. At first the Hokkaido soybeans are soaked for 8-16 hours depending on the season then steamed in an autoclave with a small quantity of kelp for 30 minutes at one kg per square cm pressure.

"While the soybeans and kelp are steaming the water, Shoyu, carrots, lotus root, and sugar are boiled for 30 minutes in a steam cooker as shown in Figure 166. Some Tsukudani makers believe that high grade Tsukudani can only be made if the proportion of material and size of cooking facilities are reduced from the quantity and capacity mentioned above. Such makers therefore may have as many as 40 small size cookers and many small autoclaves. The boiling material is stirred a number of times during the 30 minutes. When both steaming and cooking are completed the steamed soybeans and kelp are added to the boiled material and boiled for an additional 15 minutes. After such cooking the entire batch is placed in a container and allowed to cool naturally and soak for 12 hours in the liquid that it was boiled in (see Figure 167). After soaking, the liquid is drained but by this time the volume has increased two-fold. The drained material is then vacuum packed and sterilized making it ready for marketing.

"Use of soybeans Tsukudani (Endnote 172): Soybean

Tsukudani is usually packed in 140, 200, or 300 gram packages. The making cost of the 140 gram package is supposedly \$0.061 (22.5 yen) while the wholesale price is \$0.065 (25 yen) and retail price might be \$0.083 (30 yen). The 200 and 300 gram packages may retail for \$0.097 and \$.16 (35 and 58 yen) respectively. Soybean Tsukudani is available at all department stores (for the purpose of advertisement), all market places, Shoyu shops, and variety food shops. Tsukudani of all types increased in demand more than six times since World War II however since 1955 growth has been rather stable. Soybean Tsukudani, as with most other types, is mainly consumed by the lower classes. If combined with rice Tsukudani makes an adequate if not complete meal. Since it is a cooked product it can just be unpacked and eaten. Because of this, Tsukudani is very often used every day in the laborer's as well as the lower ranked office worker's lunch box. Besides of the product similar to Tsukudani mentioned below, people eat soybean Tsukudani very infrequently, if ever, preferring instead a high quality kelp Tsukudani.

"Nimame (Endnote 173): Nimame is a product very similar to soybean Tsukudani except that Nimame is most often sold from open containers (see Figure 168) and it does not have as many ingredients in one type but it may be combined with a greater number of other foods depending upon the season, festival, financial status, and other factors.

"Nimame was originally a farm household dish that provided a use for domestically grown soybeans. Such soybeans were first put in an iron pot with water, salt, and sugar and cooked for as long as 24 hours. Experimentation proved that a small quantity of sea weed or kelp improved the flavor. After that the practice of eating Nimame spread to the cities where other foods were found suitable for complementing the taste of the soybeans. At present shrimp (see Figure 169 and 170), other seafood, and vegetables all can be found in small shops that prepare cooked foods. It is made by Tsukudani companies as well so its usually sold in Tsukudani shops. Nimame is made from domestic soybeans and is commercially prepared in the same way as Tsukudani minus a number of components. Nimame is prepared at home by boiling the components between 12-24 hours. Nimame eaten as an ordinary dish is, like Tsukudani, a lower class food except around the New Year's season when the original form of Nimame, that is, just soybeans cooked with Shoyu and sugar are consumed by virtually all Japanese regardless of class. At that time Nimame may be prepared in the home or purchased (see Figure 171). For an unknown reason black soybeans (Figure 171) rather than yellow ones are preferred for New Year's consumption although it is thought that since black soybeans have the tendency to become very shiny when boiled with sugar so when served as shown in Figure 172 a more decorative setting can be achieved. Black Tanba paddy field soybeans (mentioned previously) are the most demanded for New Year's purposes,

with black Tanba dike soybeans following and Hokkaido black soybeans a close third. Japan's total consumption of Nimame is completely unknown as there are unknown thousands of unspecialized shops selling an unrecorded amount of Nimame. Nimame is considered an important way in which farmers use their unmarketed domestic production, although again statistics are lacking."

Figures (black and white photos) show: (165) Shoyu vats, outdoors but under a roof, at a Tsukudani factory. (166) A Tsukudani cooker. (167) Cooling Tsukudani. (168) Nimame being sold retail in a market. (169) Nimame with shoyu and shrimp. (170) Nimame with shrimp. (171) A Japanese woman with a scale selling Nimame. (172) Nimame as served.

Endnote 170: Genroku Shoyu, April 26, May 2, 4, 1963. Nomura Tsukudani, May 20, 25, 1963.

Endnote 171: Genroku Shoyu, May 2, 1963. Hashizume Tsukudani. Nakamura Yuba, March 6, 1964. Nomura Tsukudani, May 20, 25, 1963.

Endnote 172: Hashi Tsukudani. Nomura Tsukudani, May 20, 25, 1963. Shimamoto Tofu. Tada. June 5, 1963. Endnote 173: Kurosawa Miso. Tada, May 29, 1963. Yamamoto Farm, information obtained interviewing owner of same, Taki-gun, Hyogo-ken, Japan, Dec. 7, 1983. Address: San Francisco, California.

570. Kondo, Yasuo. 1965. Azuki soba no hanashi [The story of azuki soba]. Tokyo: Hitotsubashi Shobō. 235 p. Illust. (part color). 17 cm. [Jap]*

• **Summary:** The author was born in 1938.

571. Li, Shih-chen. comp. 1965. Pen-ts'ao kang-mu [Collected essentials of herbs and trees. Illustrated compendium of pharmacopoeia with commentaries]. Hong Kong: Commercial Press. [Chi]*

• **Summary:** This 1965 edition of the classical work incorporates the following works on plants by earlier authors, now largely unpreserved, which were cited extensively by Schafer (1977) in his chapter: Chen, Ch'üan. *Yao hsing pên ts'ao*.

Ch'en, Ts-ang-ch'i. *Pên ts'ao shih i*.

Hsiao, Ping. *Ssu sheng pên ts'ao*.

Li, Hsün. *Hai yao pên ts'ao*.

Meng, Shen. *Shih liao pên ts'ao*.

Su, Kung. *T'ang pên ts'ao chu*.

Sun, Ssu-mo. *Ch'ien chin shih chih*.

572. Ohwi, Jisaburo. 1965. Flora of Japan (in English): A combined, much revised, and extended translation by the author of his *Flora of Japan* (1953) and *Flora of Japan, Pteridophyta* (1957). Edited by Frederick G. Meyer and Egbert H. Walker. Washington, DC: Smithsonian Institution. ix + 1067 p. See p. 570-71. Illust. Map. Index. 28 cm. [Eng]

• **Summary:** Gives a botanical description of *Glycine soja*

Sieb. & Zucc. (the wild soybean, called *tsuru-mame* or *no-mame* in Japanese) and *Glycine max* (L.) Merr. (the cultivated soybean, called *daizu* in Japanese). The author was born in 1905. Address: Ohwi: National Science Museum, Tokyo, Japan; Meyer: Research Botanist, U.S. National Arboretum; Walker: Research Associate, Smithsonian Institution.

573. Kilpatrick, James J. 1966. Right to be let alone is the most precious of all. *Los Angeles Times*. July 12. p. A5.

• **Summary:** Benevolent paternalism has become rampant in the USA; Big Brother is watching you—and is sure he knows what's best for you. "Nowhere is this arrogance of power less restrained, or more abused, than in the Food and Drug Administration" [FDA]. "For example, in New York City, on the complaint of the FDA, marshals recently swooped down upon the Ohsawa Foundation at 317 Second Ave., and there confiscated a large quantity of 'macrobiotic foods,' and a large quantity of books and pamphlets on Zen cookery."

The confiscated foods were not mislabeled, not contaminated in any way, and not adulterated. The Azuki beans were pure and natural—as were the soy sauce, rice cakes, millet, and sesame oil.

It was the ideas behind the food that were bad. The Zen philosophy holds that a certain type of diet is good and that certain of these foods will cure certain diseases. "Such diets are dangerous," says the FDA in a press release. Four persons are known to have died in New Jersey and one in California for following strictly these dietary precepts.

If a handful of Zen Buddhists think they will enter nirvana by eating soybean paste [miso], why should the FDA care? Is this a major threat to public health? Judge Brandeis once said that the most precious of all rights is the right to be left alone. Note: Supreme Court Justice Louis Brandeis said this in 1928, invoking a right to privacy.

574. Schenk, E.G.; Naundorf, G. 1966. Lexikon der tropischen, subtropischen und mediterranen Nahrungs- und Genussmittel [Dictionary of tropical, subtropical, and Mediterranean foods and delicacies]. Herford, Germany: Nicolaische Verlagsbuchhandlung Herford. xiv + 199 p. Foreword by H. Kraut. MD honoris causa. Index. 21 cm. Series: Manualia Nicolai 1. [200* ref. Ger]

• **Summary:** Pages 70-71, under *Japanische Nahrungsmittel* (after Mayerhofer and Pirquet 1926) give a list of Japanese foods in no apparent order, with the Japanese name followed by a translation of that name into German. Included in the long list are the Japanese words:

Akamiso, braunes Miso, Sojapräparat
Miso, Sojapräparat
Shiromiso, weisses miso, Sojapräparat
Tofukasu [okara], Pressrückstand von der Tofudarstellung
Daizu, Sojabohne

Fu (Kingyo-fu), trockene, wabige Mehlspeise
Fu (Kirifu) [dried wheat gluten], Mehlspeise aus Weizenkleber

Korimochi [frozen and dried rice cake], Reiskuchen, gefroren und dann getrocknet.

Ame [malt extract], eine Art Malzextract

Mirin, Likör

"Aburage [tofu fried in vegetable oil], in Pflanzöl gekochter Tofu

"Natto, Bohnenkäse

Tofu, Sojatopfen

Tonyu, Sojamilch

azuki [small red beans], kleine roten Bohnen

Fu (Kwansen-fu), leichte Mehlspeise

Kinako, Sojabohnenmehl, geröstet

Amasake, unvergorener Sake

Umeboshi, in Salzwasser eingelegte

Koritofu [dried frozen tofu], gefrorener und getrockneter Tofu

Midzuame [soft ame = rice syrup], weiche Ame, (Malzextrakt)

Shoyu, Sojasauce

Yuba—eine Bohnenspeise.

Plus many types of sea vegetables such as Konbu, Nori, Hijiki, Kanten, Wakame, etc.

On pages 140-42 the following terms are each defined in 2 to 20 lines in German: Soja [soya], Sojabohne [soybeans], Sojabohnenkäse [soy cheese or tofu], Sojabohnenmehl [soybean meal], Sojabohnenöl [soybean oil], Sojakäse [fermented soy cheese], Sojamilch [soymilk], Soja-Nahrungsmittel [soyfoods]: Koji, Miso, Tofu, Nato [sic, natto], kondensierte Soja-Milch [condensed soymilk], Japanische Verarbeitungen [Japanese processed foods: Japanische Soja-Sauce Shoyu (Shoyu), Miso, Tofu], Soja-Nahrungsmittel, javanische [Javanese] soyfoods: Tao-Hoe, Tempeh, Ketjap, Tao-Tjong [a term, and perhaps a product, between *doujiang* and *tao-tjo*, Indonesian-style miso], Sojatunken, Soja-Verarbeitungen: Sojamilch, Bohnenkäse, Teoufou (China), Tofu (Japan), Dan Phu (Vietnam), Natto (Japan), Tao-tehe (China).—Bohnenbrei Miso (Japan), Tao-tjiung (*doujiang*, China).—Sojasauce: Shogu [sic, Shoyu] (Japan), Tsiang-Yeou, Tao-yu (China), Ketjap (Java), Tuong (Vietnam).—Gärmittel: Kiut see (Japan). Then a table shows the nutritional composition of 8 of these foods.

Note 1. This is the earliest German-language document seen (Dec. 2020) that uses the word *Sojabohnenkäse* ("soybean cheese") to refer to tofu.

Note 2. This book contains more than its fair share of errors and could be better organized. Address: 1. Prof., Doctor of Medicine with Postdoctoral Qualification, Doctor of Philosophy in Natural Sciences (Prof. Dr. medicinae habilitatus, Dr. philosophiae naturalis (Laurensberg ueber Aachen, Germany); Professor, Doctor of Natural Sciences with Postdoctoral Qualification (Professor Doctor rerum

naturalium habilitatus).

575. Sun, Ying-Hsing. 1966. *T'ien Kung K'ai Wu*: Chinese technology in the seventeenth century. Translated by E-tu Zen Sun and Shiou-Chuan Sun. University Park & London: Pennsylvania State University Press. xiv + 372 p. See p. 24, 29, 31, 215-16. Illust. 28 cm. [3 soy ref. Eng]

• **Summary:** The *Tiangong Kaiwu*, by Song Yingxing (W.-G. *T'ien Kung K'ai Wu*, by Sung Ying-Hsing) was first published in 1637. The title can be rendered as “The Creations of Nature and Man.” This English-language translation of the 17th century work on Chinese technology contains 18 chapters, 151 superb illustrations, and extensive information on soybeans. The author concluded his preface in 1637 by warning “An ambitious scholar will undoubtedly toss this book onto his desk and give it no further thought; it is a work that is in no way concerned with the art of advancement in officialdom.”

In Chapter 1, “The growing of grains,” the section on “General terms” states (p. 3) that “the ‘five grains’ are sesamum, legumes, wheat, panicked millet, and glutinous millet. Rice is not included because the ancient sages who wrote on the subject were natives of northwestern China. Nowadays 70 per cent of the people’s staple food is rice, while wheat and various kinds of millet constitute 30 per cent. Sesamum and legumes are used exclusively as vegetables as [for making] oil, although tradition still classifies them among the grains.”

The section on “Hemp” (p. 24) notes that the seeds of hemp and sesame are only two kinds that can be used as grain or for oil. “Sesame is both delicious and nutritious; indeed it would be no exaggeration to say that it is the king of all grains.”

The section on “Legumes” (*shu*, p. 24, 29, 31) states that one of these legumes is the soy bean, of which there are two varieties [colors]: the black and the yellow. They should be planted not later than the time of the Ch’ing-ming festival [in early April of the solar calendar] or thereabouts. There are three types of yellow soy beans: “fifth-month yellow,” “sixth-month popper,” and “winter yellow.” “The yield of the first of these is small, while that of the last is always twice as much. The black variety is harvested invariably in the eighth month. North of the Huai River horses and mules that are used on long journeys must be fed this black soy bean before they can become strong and sturdy. The amount of the yield of the soy bean depends on the quality of the soil, the frequency of cultivation, and the amount of rainfall. All bean jams (*shi*) [fermented black soybeans], sauces (*jiang*), and curds (*fu*) [tofu] are made from soy.

“South of the Yangtse [River] there is another species known as ‘long-legged yellow,’ which is planted in the sixth month after early rice has been cut, and is harvested in the ninth or tenth month. The method of planting this bean in Chi-an, Kiangsi [Ji’an, Jiangxi], is quite amazing:

After the rice stalks are cut the stubble is not ploughed over, but in the open end of each stalk are placed three or four beans, which are pushed down with fingers. The beans are nourished by the dew gathered in the stalk stubs; later when the beans begin to grow the stubs will rot, providing further nourishment for the growth of the new crop. Should the weather be dry after the shoots appear, one pint of water [per plant?] is fed to the plants. In all, one watering and two cultivations are sufficient to bring forth a plentiful harvest. Birds must be kept away after the beans have been planted and before the young shoots appear, and man is the only effective guard against them.”

There are also “black-skin and brown-skin varieties of soybeans.” “In cultivating the fields of soybeans and green lentils [sic, mung beans], the land should be lightly ploughed, because the roots of the legumes are short and the shoots straight. If the furrows are deep the clods will pile up, preventing half the seeds from growing. Our ancient agriculturists did not know that deep ploughing was not suitable for legumes” (p. 29).

Other legumes include: (2) The green lentil (*lūdou*) [sic, mung bean], “shaped small and round like a pearl.” (3) The pea (*wandou*, *Pisum sativum*). “It is round like the green lentil, but it has a black spot and is larger in size.” (4) The broad bean (*candou*, *Vicia faba*), “with its pod shaped like a silkworm and seeds larger than the soybean.”

(5) The small lentil (*xiaodou*) [sic, azuki bean]. “The red variety (*chixiaodou*) is effective when used medicinally, while the white variety (*baixiaodou*) (also known as the rice bean), is good as a vegetable. Planted at the time of the summer solstice, this variety is harvested in the ninth month, and is prevalent in the Huai and Yangtse river regions.”

(6) The black lentil (*lūdou*), “which is now a common garden vegetable in north China. Its flour, made into thin sheets, serves the same purposes as that of the green lentil [sic, mung bean]. In Peking the street peddlers cry their ‘black lentil sheets’ all day long, indicating that the amount produced is considerable.

“A further kind is the white bean (*baibiandou*) [*Dolichos lablab*], which grows along trellises and is also known as the ‘eye-brow bean.’ In addition there are long string beans, tiger-spot beans, knife beans (large French beans [jack beans, *daodou*]), as well as the black-skin and brown-skin varieties of soybeans, and so forth, which are too numerous to describe. In all, they can serve as a vegetable and take the place of grains in the feeding of mankind. How can students of Nature ignore them?”

In Chapter 4, titled “The preparation of grains,” a section on “Preparing millet, sorghum, sesamum, and beans” describes (p. 106) how to separate beans from their pods using a flail or a stone roller pulled by an ox. These two processes are shown in full-page illustrations (p. 83, 105).

In Chapter 12, “Vegetable fats and oils,” the section on “Gradation of vegetable oils” begins (p. 215-16): “For

eating, the oils of sesame seeds, turnip seeds, yellow soy beans, and cabbage (also called ‘white cabbage’ [i.e., celery cabbage]) seeds are the best. Next in quality come *Perilla ocymoides* ([the plant] resembles *Perilla nankinensis*; the seed is larger than that of sesame) and rape-seed oil (in the South it is called ‘vegetable seed’); next, camellia or tea-seed oil;... the last in quality is hemp-seed oil...”

The yield of oil (in catties per *tan*) is given (p. 216) for many Chinese oilseeds. The two oilseeds with the lowest / worst yields of oil are: cotton seeds 7, and yellow soy beans 9. By contrast, sesame, castor, and camphor seeds yield 40 and rape seeds yield 30-40. In “Kiangsu [Jiangsu] the bean oil is used as food for humans, and the meal cakes are fed to pigs...” Note: 1 catty = 1 *jin* = 590 gm = 1.3 lb = 20.7 oz. 1 *tan* = ca. 180 liters. Thus, for soybeans, 9 catties = 5.31 kg of oil from ca. 180 liters of soybean seeds.

The next section in this chapter, titled “Methods and implements [for oil-extraction]” gives details of wedge presses and processes—but soybeans are not mentioned. Large illustrations show: Roasting and steaming oil seeds (p. 214). Press for making vegetable oils in China (p. 217). Pounding and grinding vegetable tallow tree seeds (p. 220).

Also discusses: Hemp seeds and oil (p. 24, 216). Sesame seeds and oil (p. 3-4, 24, 106, 215-16, 219). Address: China.

576. Wong, Ella-Mei. 1966. Chinese cookery. New York, NY: Arco Publ. Co. [xi] + 100 p. Illust. Index. 23 cm.

• **Summary:** A charming book by an Australian born woman of Chinese ancestry, copyrighted in 1961. She presently “conducts the Chinese Cookery course at East Sydney Technical College... She has also published features in the *Australian Woman’s Weekly*.”

On the copyright page we read: “First published 1966 in the United States by Arco Publishing Company, Inc., 219 Park Avenue South, New York, N.Y. 10003. Copyright in Australia by Ella-Mei Wong, 1961.”

The foreword is by D.W. Grover, 1961 Head of Food School, East Sydney Technical College.

Chapter 1, “Chinese ways and means,” includes three sections on ingredients. The first such section, “Dried ingredients,” has an entry for “Bean curd (*foo jook*) [dried yuba sticks] (p. 7). This is sold in sticks or sheets [yuba]; soak in warm water for 10 to 15 minutes. It has little flavor of its own but is highly nutritious and is served with other foods to absorb their flavours. Used in soups and braised dishes—the latter are served on days of fasting.”

The third such section, “Sauces and seasonings,” includes (p. 10-11): “*Hoysin jeung* [Hoisin sauce, *hoy sin jeung*]: Obtainable in tins. This is made of [soy] bean flour and spices, very rich in flavour and color. It is easy to become accustomed to this taste.”

“Monosodium glutamate... It is of vegetable origin and used very sparingly and with discretion it enhances the natural flavour of foods. The Chinese version is a fine white

powder called Ve-tsin. In Australia it is known as Zip.”

“Red bean curd [red fermented tofu]: A soy bean product, obtainable in tins. The red colour is added.”

“Soy sauce: Made from salted and fermented soy beans. No Chinese kitchen is ever without it. There are different grades, ranging from thin to thick, and the colour varies from light brown to dark reddish brown...”

“*Taofu* [tofu]: Made from soy bean curd, a similar texture to soft cheese. It has no flavour of its own, but is highly nutritious. It is usually cut into blocks about one inch by 3 inches. In its fresh state it has a milky colour and is also cut into one-inch cubes and deep-fried.”

“White bean curd: Made from soy bean, salted and used as an appetizer or with vegetable dishes.”

In Chapter 4, “Vegetables” (p. 31): “Bean sprouts can be cultivated in the kitchen by sprinkling green beans [mung beans] with warm water... The soy bean can also be sprouted, but usually the sprout is tougher.” In this chapter, the recipe for “Fasting food” (*jie*) (p. 33) calls for “3 sticks bean curd (*foo jook*)” and “4 blocks bean curds (*taofu*).” “This dish is eaten during the Moon Festival and on the second day of the New Year.” Each recipe has an English name and a Cantonese name.

In Chapter 7, “Seafood,” the recipe for Steamed whole fish with black beans (*dow see jing yee*) calls for “1 tablespoon preserved Chinese black beans (*dow see*)” (p. 69).

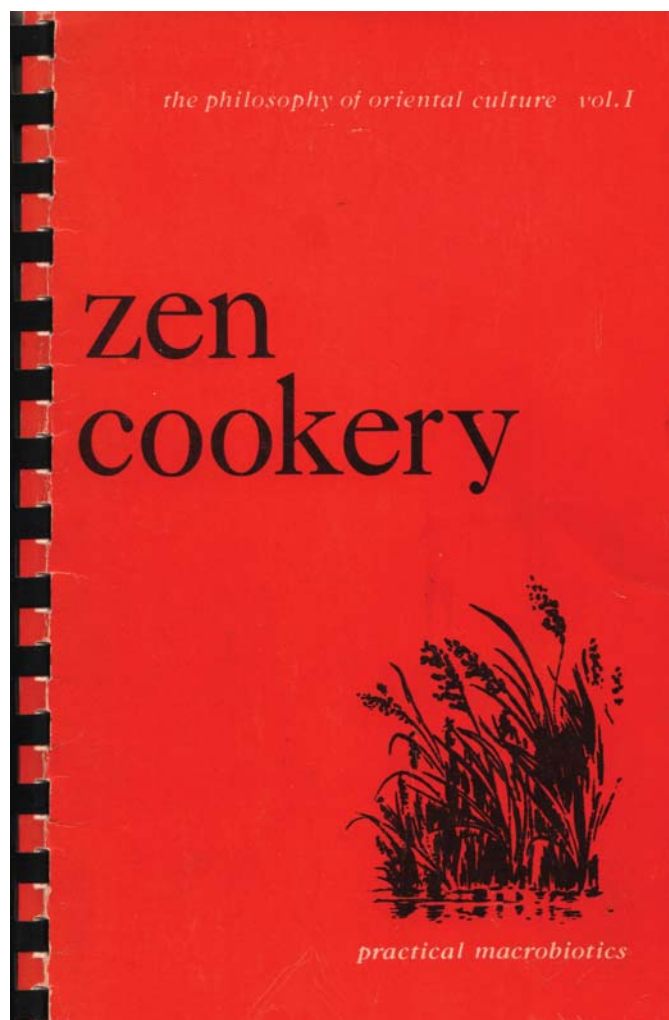
Note 1. Soy sauce and monosodium glutamate (typically ½ teaspoon per recipe) are called for in many recipes in this book.

(2) Rice with red beans (*Hoong dow farn*) calls for “4 tablespoons red beans (*hoong dow*)” (azuki beans) (p. 87). Address: [Australia].

577. Zen cookery: The philosophy of Oriental culture. Vol. I. Practical macrobiotics. 1966. Los Angeles, California: Ohsawa Foundation, Inc., The Ignoramus Press. 84 p. Index. 22cm.

• **Summary:** The revolutionary little reddish-orange or yellow book, with a black plastic comb binding, that introduced many to macrobiotic cooking. No author or editor is listed. The Ohsawa Foundation has branches in Los Angeles, New York, Wellesley, Paris, and Tokyo. Contents and format are identical to the 1964 edition edited by Teal Nichols, published by the Ohsawa Foundation of Chico—which see.

Contents: Acknowledgments (“Our heartfelt gratitude goes to Lima Ohsawa whose patient assistance and teaching have made this book possible. Many of the recipes that follow are from her collection in the original edition of *Zen Macrobiotics*). Preface to the second edition, by the Editor. Menu for a week (winter menu, summer menu). Seasonings. Cutting vegetables. Grains. Noodles. Vegetables. Soups. Sauces. Salads. Inspirations from Around the World. Special



Dishes. Miso Soy Bean Paste. Tamari Soy Sauce. Breads. Pancakes and Crepes. Pie Doughs. Desserts. Beverages.

The recipes are numbered from 1 to 296 and all numbers in the index refer to recipe numbers. Address: Ohsawa Foundation, Inc., 1434 N. Curson Ave., Los Angeles, California.

578. *Herald-Bulletin (Burley, Idaho)*. 1967. Cassia sweets for the Japanese? Feb. 22. p. 4.

• **Summary:** “You can start right now hoping that the word ‘adzuki’ becomes as familiar in the Burley area as ‘beans.’

“In fact, just like love and marriage, the two words go together and it just might be that the adzuki bean could play an important part in the economy of our agriculture and business communities.

“The adzuki bean is not an entire stranger to the Burley area and more and more people are discussing its possibilities. It is sure to be discussed more as the result of what was said at yesterday’s meeting of the Burley Rotary Club.

“In case you don’t know, the adzuki bean makes a soup that is so bitter it can’t be eaten. Adzuki baked beans are

equally out of the question. So why all the excitement? They make a confection out of them in Japan that is as popular—or more so—than the doughnut and the ginger cookie combined and the Japanese just can’t raise enough of them to meet the demand.

“Last year, Bill Morgan, of Burley, and Harold West, of Boise, secretary of the Idaho Bean Commission, visited Japan and made a thorough investigation of the adzuki situation. They were impressed. Besides the adzuki shortage in Japan, they had two interesting and important matters to consider from the start.

“The Japanese who raise adzuki beans are on the same parallel as Burley and have just about the same climate.

“Besides this, the beans are being grabbed up eagerly by Japanese confection manufacturers at about \$45 a hundredweight [hundredweight = 100 pounds].

With these facts staring them in the face, the Idaho men bought a ton of the beans and had them shipped to Idaho for planting. Some were planted here but most were tested in the Parma-Caldwell area. Due to late planting, adverse weather conditions and the fact that it was an entirely new venture and beginners’ mistakes were plentiful, the experiment did not turn out very well.

“But another ton of adzuki seed beans will be planted this year. West said that Burley’s climate—slightly colder than that of the Caldwell area—is nearer to the Japanese weather and the Burley area will be used more extensively this year than last. It seems, he said, that the beans do their best in a climate that has a growing season just barely long enough to allow the beans to mature. That would suit the average season in this area perfectly.

“We certainly need a diversification of industry in our area. Recent events have proven only too well how much we need a little more diversity in our agricultural setup, too.

“Certainly it is a bit early to start spending our adzuki bean money. In this area, we know quite a bit about bean money and we’re learning more this year.

“But it is something to watch. From a personal standpoint, our dealings with the Japanese have been anything but sweet. But that was more than 20 years ago and if Cassia County can satisfy the Japanese craving for sweets and keep them happy, we’re all for it.

“Especially at \$45 per cwt.”

Note: A “cwt” = 100 pounds.

579. Epps, James M.; Chambers, Albert Y. 1967. Control of the soybean cyst nematode. *Soybean Digest*. June. p. 6-9. [9 ref]

• **Summary:** The long subtitle: “The cyst nematode is now found in 91 counties in nine states, the most recent being Vanderburgh County, Indiana. Rotation, use of nonhost crops, summer fallow, or a resistant variety to reduce soil infestations are all important as methods of control. Three resistant varieties have been released to date—Pickett, Dyer,

and Custer. Commercial seed of all three varieties will be available in 1968 for planting in infested areas.

“Introduction: The soybean cyst nematode, *Heterodera glycines* Ichinohe 1952, causes a disease of soybeans described as ‘Yellow Dwarf’ in Japan and as ‘Soybean Cyst Nematode Disease’ in the USA. The disease was first found in Japan in 1915, in Korea in 1936, and in Manchuria in 1938. In 1954, Winstead, Skotland, and Sasser (9) reported finding the disease in Pender County near Wilmington, North Carolina. Two years later, it was found in Lake County, Tennessee, near Ridgely (1). The U.S. Department of Agriculture has since found infestations in 91 counties in 9 states as follows:

“Arkansas—Arkansas, Clay, Craighead, Crittenden, Cross, Desha, Greene, Independence, Jackson, Jefferson, Lawrence, Lee, Lincoln, Lonoke, Mississippi, Monroe, Phillips, Poinsett, Pope, Prairie, Randolph, St. Francis, and Woodruff.

“Illinois—Alexander, Johnson, Massac, Pope, Pulaski, and Union.

“Indiana—Vanderburgh.

“Kentucky—Ballard, Carlisle, Fulton, Graves, Henderson, Hickman, and McCracken.

“North Carolina—Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Edgecombe, Gates, Johnston, New Hanover, Pasquotank, Pender, Perquimans, Sampson, Tyrell, and Wayne.

“Mississippi—Boliver, Coahoma, De-Soto, Issaquena, and Tunica.

“Missouri—Bollinger, Butler, Cape Girardeau, Dunklin, Mississippi, New Madrid, Pemiscot, Ripley, Scott, and Stoddard.

“Tennessee—Benton, Chester, Carroll, Crockett, Dyer, Fayette, Gibson, Hardeman, Haywood, Henry, Humphreys, Lake, Lauderdale, Madison, Obion, Shelby, Tipton, and Weakley.

“Virginia—Isle of Wight, Nansemond, Norfolk, Princess Anne, and Southampton.

“Additional new infestations are being found each year.

“Most recent counties and the states where the nematode has been found in some cases on single farms:

“Vanderburgh County, Indiana; Pope County, Illinois; Chester and Humphreys Counties, Tennessee; Norfolk County, Virginia; Henderson and McCracken Counties, Kentucky; Boliver and Issaquena Counties, Mississippi; Carteret, Chowan, Craven, and Edgecombe Counties, North Carolina; and Independence, Jefferson, Lincoln, Lonoke, Monroe, Pope, and St. Francis Counties, Arkansas.

“Symptoms and Signs: Soybeans grown in soil heavily infested with the soybean cyst nematode are stunted, appear generally unthrifty, and undergo a yellowing that progresses upward from the lower leaves. Death of plants may occur where infestations are extremely heavy. Symptom expression is more severe early in the growing season during periods of

moisture stress.

“Reduced nodulation and extensive rotting of the roots are frequently associated with severe infection, but the only specific sign is the presence of the white-to-brown-colored females on the roots. Weeds often develop in the infested soybean fields due to reduced shading and lack of competition by infected plants.

“Studies indicate great variability in symptoms and pathogenicity in the various infested areas. Cooperative studies are under way at Jackson, Tennessee, and Beltsville, Maryland, to determine whether or not morphological differences in the nematode species can be associated with the variable symptomatology and pathogenicity of populations found in the various infested areas. In preliminary studies, the results indicate that there are morphological (physical) differences in nematode populations in the several infested areas.

“Host Range: The kinds of cultivated plants on which the soybean cyst nematode can reproduce appears to be fairly limited. Common crop or host plants that support the nematode are wild soybean; annual, common, and *Sericea lespedeza*; Azuki, mung, and snap beans; hairy vetch; and white lupine (2, 3, 6). Henbit deadnettle, or winter mint, a member of the Labiatae family, was the first recorded host that is not in the legume family.

“Over 2,000 other plants have been studied by scientists to determine the full host-range of plants to the soybean cyst nematode (4, 7, 8). More than 1,100 different species are known to allow at least limited reproduction of the nematode. Fortunately, most of the susceptible species are wild plants not found in soybean fields. However, such common weeds as henbit deadnettle (winter mint), mouse-ear and common chickweed; beard-tongues; common mullen; *sesbania* (coffee bean); low hop clover; and sicklepod will serve as alternate hosts for the soybean cyst nematode.

“Spread: Soybean cyst nematodes may be spread by movement of the nematodes alone or in infested soil associated with farm implements, plants, animals, wind, and runoff water. The nematode can move only a few feet each year by its own efforts.

“During bean harvest, small balls of soil or ‘peds,’ about the size of seed, become mixed with seed. If the soil in the field were infested with the nematode, the peds may contain enough cysts to spread nematode infestation to new fields when the seed is planted. We are now conducting experiments to develop methods of killing nematodes that occur in seedstocks containing infested peds.

“Control We are investigating four methods for reducing or controlling nematodes in soybean fields. The methods under study are soil fumigation, crop rotation, use of resistant varieties, and adjusting the time of planting so as to prevent excessive crop damage. The experiments reported here were conducted at Ridgely, Tennessee.”

Discusses: Soil fumigation. Crop rotation. Resistant

varieties. Time of planting. Expanded nematode research.

A photo shows a typical view of a field showing severe damage caused by the soybean cyst nematode.

Seven bar graphs show: Soybean cyst nematode larvae counts in spring and fall under different cropping sequences: (A) continuous Hill soybeans; (B) continuous cotton; (C) cotton, Hill soybeans, cotton, Hill soybeans, cotton; (D) cotton, cotton, Hill soybeans, Hill soybeans, Hill soybeans; (E) cotton, Hill soybeans, Hill soybeans, cotton, cotton; (F) Peking soybeans, Hill soybeans, Peking soybeans, Hill soybeans, Peking soybeans; (G) continuous Peking soybeans. Address: 1. Nematologist, Crops Research Div., Agricultural Research Service, USDA; 2. Asst. Prof. of Plant Pathology, Dep. of Agricultural Biology, Tennessee Agric. Exp. Station, Jackson, Tennessee.

580. Chico-San Inc. 1967. Chico-San Inc.—Unique foods: Retail price list. P.O. Box 1004, Chico, California. 2 p. July 15. 35 cm.

• **Summary:** See next 2 pages. This single-sheet catalog and price list, printed front and back with dark brown ink on pink paper (8½ by 14 inches), begins:

“Dear retail customer: We encourage you to buy Chico-San products through your local health food store. When you buy directly from Chico-San you must add shipping costs to the cost of food.” Includes the following interesting items. Those followed by an asterisk (*) are marked “OEI” meaning “Our Exclusive Import.

Specialties: Rice cakes, buckwheat cakes, millet cakes, wheat cakes, roasted rice, rice crackers*. Condiments: Tekka [miso], Tamari soy sauce*, soybean puree (miso)*, sesame salt, sesame spread, sesame butter, kuzu arrowroot*, salt plums, salt, sesame oil. Crude salt (1 lb to 10 lb). Cereals: Rice cream. Rice: Brown short grain (2 lb to 100 lb). Sesame seeds: White-brown. Black. Beverages: Ohsawa twig tea*, 16 herb tea*, Grain beverage—Koko, Grain beverage—Yano, Lotus root tea*, green tea. Noodles. Beans: Azuki red* (\$1.72/lb), Imported red, black beans [soy] (\$1.37/lb).

Note 1. This is the earliest English-language document seen (April 2021) that uses the term “Soybean Puree” to refer to miso. During the next decade, many macrobiotic publications referred to miso as a “Soybean puree.”

Sea vegetables: Shredded hijiki, kombu*, wakame—curly*, nori—thin sheet, kanten—sea veg gelatin. Dried foods: Lotus root, shrimp, dried fish, small fish—chirimen, tazukuri, shaved bonito [sic, bonito], dried radish [daikon], gourd strips [kampyo, kanpyo], mushrooms. Grain: Barley, buckwheat groats, corn meal, cracked wheat, millet, oat groats & oat meal, rolled oats, rye, wheat—hard red. Flour: One from each grain. Tooth powder jar. Cosmetics. Utensils.

Note 2. This is the earliest document seen (July 2017) that mentions Chico-San. It is also the earliest known Chico-San catalog and price list, and the earliest known Chico-San catalog and price that mentions “Rice cakes.”

Note 3. This is the earliest document seen (April 2021) concerning the use of miso in a second generation product (tekka).

Note 4. This is the earliest English-language document seen (Dec. 2006) that uses the term “salt plums” to refer umeboshi salt plums.

Note 5. This is the earliest English-language document seen (July 2021) that mentions seitan, which it calls “seitan.” The entry for “Seitan” (actually misspelled as “Sietan”) is different from all other entries in this catalog, since no weight, no price, and no explanation is given—as if Chico-San has ordered the product, but it has not yet arrived. Moreover, no “OEI” (“Our exclusive import”) appears after the word “Sietan.” Address: P.O. Box 1004, Chico, California.

581. Dubawsky, Rebecca. 1967. Cooking with grains and vegetables plus: Booklet one—A beginning. Boston, Massachusetts: Order of the Universe Publications. 29 p. Illust. No index. 28 cm.

• **Summary:** This was the first macrobiotic cookbook written entirely by a Westerner. Rebecca, an older woman who never married and who later moved to Florida, collected these recipes from Aveline Kushi’s cooking classes in Boston. The dedication (p. 3) states: “The teaching of Aveline Kushi has made the information that follows possible.” The preface (p. 7), written by Michio Kushi on 20 Oct. 1967, begins: “Life is a dream. The purpose of our life is to realize our dream. Those who see a happy, peaceful dream shall become happy and peaceful...” The book has no copyright page, date or place of publication. It was printed by Jacques de Langre [DeLangre], 7557 Sunset Blvd., Hollywood, California 90046. Address given by Farmilant (1972) as Box 203, Prudential Center Station, Boston.

The section titled “Condiments” (p. 11-12) states: “Soya sauce—(Tamari- Japanese word for thick soya sauce)—always used in cooking—never at table, except with noodles, tempura, or soup. Miso—is a dark brown vegetable protein—much more digestible than animal protein.” Recipes are given for making Scallion miso, and Carrot top miso.

The section titled “Beans” (p. 17) mentions black beans: “Dried beans—*aduki*, *navy*, *pinto*, *kidney*, *black beans* and *chick peas*—double in bulk on cooking. 1 cup = 4 servings (side dish to main course)—wash 3 times and soak beans 1 to 3 hours before using.” It then warns: “Cook *black beans* by pot—they clog pressure cooker.” The section titled “Soups, Sauces, and Spreads” (p. 19) includes a recipe for “Vegetable, soya vegetable, and miso vegetable soup.” There are simple recipes for: Miso sauce (p. 22). Cooking black beans (p. 25). Vegetable soya soup (p. 27). Vegetable miso soup. Vegetable sauces (with soya or miso, p. 27).

Description of book: The covers are dark green, with the title printed in black ink and all lowercase letters. In the lower left corner of the cover is written: The Order of the Universe Publications, Box 203 Prudential Center Station,



CHICO-SAN INC. - Unique Foods

P.O. Box 1004 • Chico, California

RETAIL PRICE LIST

Dear Retail Customer:

We encourage you to buy Chico-San products through your local health food store. When you buy directly from Chico-San you must add shipping costs to the cost of food. Of course to meet your needs in areas where we have no retail outlets or where retail outlets are not meeting your needs properly, we want to bring you the service you deserve. We shall be pleased to send you the names of local retailers of Chico-San products. We are seeking the best means to serve you.

Items marked OEI - OUR EXCLUSIVE IMPORT - Through rigorous inspection, we can attest to the purity of these foods organic grains and complete absence of all chemical additives.

SPECIALTIES

Rice Cakes	4	oz	.54	
Buckwheat Cakes	4	oz	.54	
Millet Cakes	4	oz	.54	
Wheat Cakes	4	oz	.54	
Case	@ .49		11.76	
Roasted Rice	2	oz	.18	
	4	oz	.33	
	8	oz	.54	
	1	lb	.96	
Roasted Pumpkin Seeds	1	oz	.28	
	2	oz	.50	
	4	oz	.91	
	8	oz	1.73	
	1	lb	3.35	
Rice Cracker OEI	2-3/4	oz	.54	

CONDIMENTS

Tekka OEI	3-1/2	oz	3.04	
Tamari Soy Sauce OEI	8	oz	.75	76
	pint		1.35	150
	quart		2.35	268
Soybean Puree OEI (Miso)	8 oz	Cont.	.81	92
	16 oz	"	1.43	159
	2 lb	Bag	2.24	250
	5 lb	"	5.42	570
Sesame Salt	2 oz	jar	.37	
	4 oz	"	.57	
	8 oz	"	.96	
	8 oz	Bag	.72	
	16 oz	"	1.28	
Sesame Spread	4 oz		.60	73
	8oz		1.14	126
Sesame Butter	4 oz		.57	

CEREALS

Rice Cream	1 lb	.61	
	2 lb	1.10	
	5 lb	2.65	
	10 lb	5.30	

Blended Cereal	1 lb	.88	
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Instant Cereal	12 oz	.36	
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RICE

Brown Short Grain	1 lb	.35	
	2 lb	.66	
	5 lb	1.55	
	10 lb	2.80	
	25 lb	6.25	
	50 lb	11.50	
	100 lb	21.00	

Rice Flour	2 lb	.70	
	5 lb	1.65	

SESAME SEEDS

White - Brown OEI	8 oz	.55	
	1 lb	.98	

Black OEI	8 oz	.74	
	1 lb	1.36	

BEVERAGES

Ohsawa Twig Tea OEI	8 oz	1.90	205
16 Herb Tea OEI	2 pkt	.51	54
	8 pkt	1.82	186

Grain Beverage - Koko	8 oz	.49	
	1 lb	.85	

Grain Beverage - Yano	8 oz	.64	
	1 lb	1.27	



CHICO-SAN INC. - Unique Foods

P.O. Box 1004 • Chico, California

RETAIL PRICE LIST

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Items marked OEI - OUR EXCLUSIVE IMPORT - Through rigorous inspection, we can attest to the purity of these foods organic grains and complete absence of all chemical additives.

SPECIALTIES

Rice Cakes	4	oz	.54
Buckwheat Cakes	4	oz	.54
Millet Cakes	4	oz	.54
Wheat Cakes	4	oz	.54
Case	@	.49	11.76

CEREALS

Rice Cream	1 lb	.61
	2 lb	1.10
	5 lb	2.65
	10 lb	5.30
Blended Cereal	1 lb	.88

Boston, Massachusetts-02199. At the bottom of page 29 (the last numbered page): "Booklet II, *More About Grains and Vegetables*, will come out as soon as possible." Near the bottom of the back cover: "November 1967. Revised edition-July 1969. \$1.00."

Note: Jacques de Langre, Ph.D., also spelled his name DeLangre and Delangre. Address: Boston, Massachusetts.

582. Susan's Balanced Foods: Yin-Yang. 1968. Retail price list: Terms and prices. Valley Center, California. 4 p. Jan. 1. 28 cm.

• **Summary:** This catalog is printed with black ink on orangish-yellow paper. The title on page 1 is printed in red. The contents look similar to those in the Chico-San catalog. Soy products include tamari, miso, soy-beans, soy-bean flour. They also sell: Azuki red beans, sea vegetables, rice crackers, herb teas, and many breads. Address: Remy Ranch, 29757 Anthony Road, Valley Center, California 29757. Phone: 745-6336.

583. Ozawa, Yuriko; Watanabe, Yoshiko; Suzuki, Shigeo. 1968. [Physical and chemical properties of [azuki] beans for an manufacture]. *Shokuryo Sogo Kenkyujo Kenkyu Hokoku (Report of the National Food Research Institute)* No. 23. p. 225-29. March. [8 ref. Jap; eng]

• **Summary:** Reprinted from *Nihon Shokuhin Kogyo Gakkai Shi (J. of Food Science and Technology)* 14(3):114-17 (1967). Address: Food Research Inst., Shiohama 1-4-12, Koto-ku, Tokyo, Japan.

584. Abehsera, Michel. 1968. Zen macrobiotic cooking. New

Hyde Park, New York: University Books/Avon. 224 p. Index. 18 cm. [15 ref]

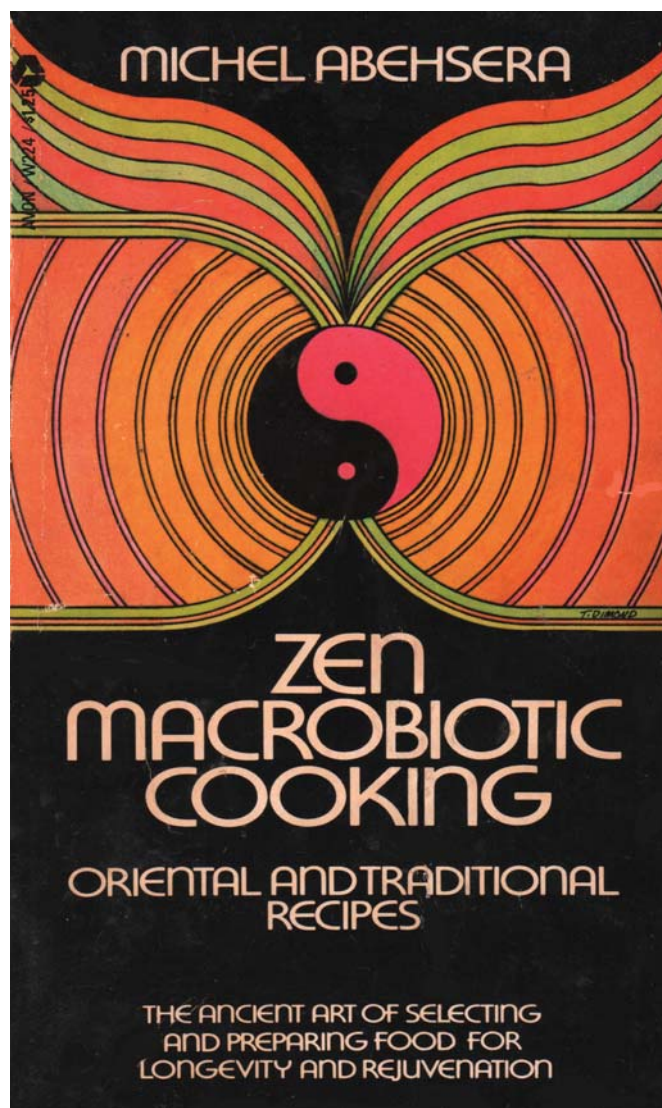
• **Summary:** Abehsera's first macrobiotic cookbook contains a strict approach to macrobiotics. Includes many short stories by and about George Ohsawa.

In the Introduction, the author states (p. 13) that if he had been asked to write a cookbook 5 years ago, he would have been utterly amused, for he was in a precarious state of health and, for him, a cookbook was basically a collection of "recipes for stuffing one's belly."

"These five years have been an exhilarating adventure and happiness spent with my dear wife and children together with a 'thousand' friends. The anguished thoughts of a 28-year-old have been dissipated and he has been freed from the tortures and agony that previously pervaded his existence.

"This new and happy change has been due to the profound influence of George Ohsawa, who made it possible for me to recover my health so that I could leave France [Paris] and journey to New York, the city of my dreams. Now, I have decided to write a cookbook."

Contents: "Introduction. How the Author of This Book Became a Cook. A Simple Introduction to the Law of Opposites Before We Get to the Recipes. A Few Do's and Don'ts. Don't Worry About Essentials—They Are in Your Foods. The Vitamins. The Minerals. Recommendations. The Foods from Yang to Yin. A Quick Summary of What You Will Learn. Before You Dive into Your Pots. Grains—Cereals. Rice, the King of Kings. Couscous. Crepes and Pancakes. Millet. Breads. The Children of Grain. Secondary Foods [grains are the primary food]. Nituke [Nitsuke]. Seaweed.



Tempura. About Eating Only Rice. Hors d'oeuvres and Accompaniments. About Balance. Soups. About Fasting. Fish and Seafood. The Wisdom in Grains. "Main Dishes." How About Cold Drinks? Gomasio [Gomashio]. Sesame Salt. About Chewing. The Worst Thing [with respect to food: overeating]. Sauces. About Salt. Desserts [without sugar]. Little Things to Know. Bibliography [12 books]. Monthly Publications [3]. Shopping Guide.

Glossary: Aduki or azuki beans. Bancha, Brown rice. Bulgur. Burdock. Cellophane noodles. Chapati. Couscous. Daikon. Ginseng tea. Gomasio [sesame salt]. Hiziki [Hijiki]. Japanese knife. Kasha. Kokkoh. Kuzu. Lotus tea or kohren tea. Miso. Mu tea ["A very yang beverage from Japan. An herb tea made with ginseng and 15 medicinal plants"]. Nituke [Nitsuke]. Nori. Sea salt. Semolina. Soba. Soy or soya sauce (see Tamari). Suribachi. Tahini. Tamari. Tempura. Tofu. Udon. Umeboshi plums [preserved in salt]. Vegetable brush or tawashi. Wok.

Contains the following soy-related recipes: Miso spread

(with sesame butter, p. 105). Miso onion spread (p. 106). Miso in green (with green pepper and scallion, p. 106-07). Miso soup (p. 117). Chinese soup (with miso, p. 120). La belle jardiniere (with miso, p. 123). Koi-koku (with carp, burdock, and miso, p. 125-26). French onion soup (with tamari, p. 132). Soup stock made with miso paste (p. 137). There are no tofu or seitan recipes in this book. It is not a vegetarian cookbook, since many recipes call for fish and seafood.

Monthly publications (p. 208): (1) *Yin-Yang*, Centre International Ignoramus, 26 Rue Lamartine, Paris 9eme, France. (2) *The Macro-Biotic Monthly*, Ignoramus Press, Los Angeles, California. (3) *The Order of the Universe*, Order of the Universe Publications, Box 203, Prudential Center Station, Boston, Massachusetts.

Shopping guide (p. 209-10): Those marked with an asterisk (*) welcome mail orders. (1) Chinese products (incl. tofu, woks): Wo Fat Co., 16 Bowery, New York, N.Y. 10013. Mon Fong Wo Co., 36 Pell St., New York, N.Y. 10013. Yuit Hing Market Corp., 23 Pell St., New York, N.Y. 10013.

(2) Organic fruits, vegetables and whole grains. Also oil, sea salt and many other health foods. * Good Earth-Natural Foods, Inc., 1336 First Ave., New York, N.Y. * Nature's Cupboard, 80 E. Seventh St., New York, NY. Living Foods Coop, Inc., 165 Ninth St., New York, N.Y. * Greenberg's. 125 First Ave., New York, N.Y.

The next two stores are the same as above but no fruits and vegetables: * Brownie's Natural Food Stores, 21 E. 16th St., New York, N.Y. * Kalustyan Orient Export Trading Corp., 123 Lexington Ave., New York,

(3) Japanese food products: Bancha tea, seaweed, Japanese vegetables, Japanese knives, soba and udon noodles, dried lotus, burdock, tofu, sesame seeds, bonito and other dried fish, tawashi [vegetable scrubbing brush], daikon [giant white radish]: * Japan Mart Inc., 239 W. 105th St., New York, N.Y. Katagiri & Co., Inc., 224 E. 59th St., New York, N.Y. Tanaka (K.) Co., Inc., 326 Amsterdam Ave., New York, N.Y.

(4) Wholesale organic products and all macrobiotic products: Chico San, Inc., 1262 Humboldt, Chico, California. The Infinity Co., New York, N.Y., 10012. Balanced Foods, 2500 83 St., North Bergen, N.J. [New Jersey]. Specialty Food, 116 W. Houston St., New York, N.Y.

Glossary (p. 211-15): Aduki or azuki beans, bancha, bonito flakes, brown rice, bulgur, burdock, cellophane noodles, chapati, couscous, daikon, ginseng tea, gomasio [gomashio], hiziki [hijiki], Japanese knife, kasha, kokkoh [grain milk; weaning food for babies], kuzu, lotus tea or kohren tea, miso, mu tea, nituke [nitsuke], nori, sea salt, semolina, soba, soy or soya sauce (see tamari), suribachi, tahini, tamari, tempura, tofu, udon, umeboshi plums, vegetable brush or tawashi, wok.

A few glossary definitions: "Tamari: A pure soy sauce concentrate, a byproduct of miso. Commercial soy sauce is

not recommended; macrobiotic stores have the right kind.”

“Tofu: A curd made of the liquid in which crushed soybeans have been softened; it is solidified by boiling” [sic].

Note: This book was published in London in 1969 by Anchor Press, Ltd. (201 p.). Address: New York.

585. Hahn, Emily. 1968. *The cooking of China*. New York, NY: Time-Life Books. 206 p. Illust. (many color photos). Index. 28 cm. Series: Foods of the World.

• **Summary:** Another superb work in this superlative series from the editors of Time-Life Books. This book is about cooking in China, where the author lived (in Shanghai), before the 1949 Communist revolution.

Contents: Introduction: The cooking of the world’s oldest civilization. 1. An ancient and honorable art. 2. “Chinese cooking” in your own kitchen. 3. Secrets of savor and spice. A reverence for good food. 5. Oriental staff of life. 6. Gentle teas and strong spirits. 7. Feasts for festivals. 8. A cuisine for all continents.

China, the world’s oldest existing civilization, has the world’s most ancient cuisine—as well as one that is both great and profound (p. 6). When the Red Guards of China’s Cultural Revolution appeared in the 1960s, they “attacked every symbol of what they regarded as bourgeois culture. Among the targets in Peking were the city’s fine restaurants.” In the process they destroyed much of China’s culinary heritage—but only inside of China (p. 7). An article by Peggy Durdin in the *New York Times* was titled “Mao’s great crime against cuisine” (p. 184). Chinese food is, of course, about life, but it is also about health, and it can resonate on numerous symbolic levels (p. 7).

The southern provinces of China, Fukien, Kwantung, Yunnan, and Kwangsi, enjoy tropical temperatures year round and more than 80 inches of rain. Here rice is the main crop. Yet China is a mountainous country, with 60% of its land at elevation 6,500 feet or higher; only 11% of its land can be cultivated (compared with 80% in the USA) (p. 10). Fukien, a coastal province to the south, makes the best soy sauce in China, and stewing is called “red cooking” because of the color imparted by the soy sauce (p. 16, 42).

Vegetable oil is very important in China because the Chinese rarely use butter (p. 29). “For protein the Chinese depend heavily on the soybean, which has for this reason been called the cow of the East.” Soybean oil is used for cooking. Soybean milk is a good substitute for cow’s milk. And “doctors, even Western doctors—prescribe it for babies who cannot get mothers milk and are allergic to cow’s milk” [sic]. From soymilk one can make “bean curd, an exceptionally high-protein food known in China as ‘the meat without bones.’” Bean curd is made by curdling soybean milk with gypsum, then pressing the curds into pieces about 3 inches square by ½ inch thick. “The thickened curd skin [sic, yuba] is a food by itself, with a more concentrated flavor. Fermented bean curd [fermented tofu] tastes much

like cheese.” Both soy and mung-bean sprouts are used in China, “In one form or another the soybean can be found in dishes eaten at every meal” (p. 29).

A two-page color photo spread and legend (p. 61-63) shows (numbered) basic Chinese ingredients, incl. “13. Fresh bean curd. 14. Dried bean-curd skin” [yuba]. Buddhist monks and nuns in China are strict vegetarians; special foods that simulate meat have been developed for them. The main ingredients in these dishes are bean curd and gluten. These include vegetarian “duck made from crisp bean-curd skin, colored and shaped to look like the bird’s flesh” and “chicken roll in *hoisin* sauce, the ‘chicken’ made of soft soybean curd” (p. 64, 67, 70).

Note 1. This is the earliest English-language document seen (Oct. 2012) that uses the term “beancurd skin,” apparently to refer to yuba.

Note 2. This is the earliest document seen (Jan. 2014) that describes the use of yuba, or of tofu, to make meat alternatives.

A full-page color photo and legend (p. 74-75) shows (numbered) Chinese sauces and condiments, incl. “1. *Hoisin* sauce. 3. Soy sauce. 8. Yellow-bean paste, or thick bean sauce. 11. Fermented black beans. 14. Red bean [azuki] paste.” “Among the best known of Chinese seasonings is soy sauce, which was mentioned in several Confucian classics as early as the Fifth Century B.C.” [sic]. Other condiments made from soybeans are bean paste (for preserving and flavoring meat) and *hoisin* sauce (widely served with Peking duck). “It is said that the best grades of soy sauce can take as much as six to seven years of aging to reach perfection, and that the making of superb soy sauce requires ‘as much art in its preparation as good French wines’” (p. 74-75, 77).

The controversy over M.S.G. is discussed. “A really god Chinese chef considers it a questionable shortcut for giving taste to second-rate foodstuffs, but most Chinese cooks admit that its use in certain dishes is perfectly valid” (p. 77-78).

The emperor Chien Lung (1735-1796), 4th ruler in the Manchu [Qing] dynasty, wrote an *Ode to Tea* (p. 91). In China there is an intimate association between eating and health (p. 91).

Recipes: “Steamed bass with fermented black beans *Tou-shih cheng hsien yu* (with “2 teaspoons fermented black beans,” soy sauce, Chinese rice wine, and shredded fresh ginger root, p. 104).

Most festivals (each with a feast) in China are based on events of agricultural importance; the two most important are New Years and the Moon Festival (p. 155, 162, 164-65). A Peking duck is “brought to the exact degree of plumpness and tenderness through force-feeding,” then roasted slowly, suspended by hooks, in a mud-lined oven “until the thick, fat skin becomes golden in color. This crackled skin is the choice part of the dish.” The skin, a piece of the meat, a spring onion, and thick, sweet *hoisin* sauce are served enfolded in a thin wheat-flour “pancake” (p. 158, 15).

The history of chop suey (unknown in China) and chow mein (had an honorable origin in China) are discussed (p. 178-79).

The first wave of Chinese to America came with the gold rush and transcontinental railway. Most were laborers from southern China. The first Chinatown in the USA was established in San Francisco (1850s), followed by New York City (Manhattan, 1870s). Most early American Chinese restaurants reflected their social status, serving inexpensive foods. In the early 20th century, as China's Republican revolution was gaining momentum, a second wave arrived to study. These young people, also mostly from southern China, came from far more prosperous backgrounds than those in the 1st wave and they wanted better food. Restaurants were started or upgraded to suit their tastes. Thus, it "was the southern school of cookery that first spread over the world outside China" (p. 179).

China has three great regional cuisines: Cantonese (southern), northern, and Szechuan (p. 179). Six photos show "The Americanization of the fortune cookie: Assembly line at a factory in New York City's Chinatown." A two-page spread shows many of the "fortunes" found in fortune cookies (p. 195-97).

"A guide to ingredients in Chinese cooking" (p. 198-99) includes: Bean curd, fresh: Square. Bean-curd skin [yuba] ("Thin stiff sheets of dried bean curd. Sold by weight... {5 to 6 sheets weigh about 1 ounce}"). Bean sprouts ("Young sprouts of the mung bean"). Black beans, fermented ("Strongly flavored, preserved black soybeans." Sold in cans or plastic bags). Brown bean sauce ("Thick sauce made from fermented yellow beans [huang dou = yellow soybeans], flour and salt. Sold in cans of 1 pound or more"). Hoisin sauce ("Sweet, brownish-red sauce made from soybeans, flour, sugar, water, spices, garlic and chili for use in cooking. Sold in 1-pound cans and up"). Oyster sauce ("Thick brown sauce with a rich flavor, made from oysters, soy sauce and brine"). Red bean paste ("Thick, sweet paste made from red soybeans" [sic, azuki beans]). Salted eggs and thousand-year eggs. Sesame seeds and sesame seed oil. Soy sauce ("Pungent, salty, brown liquid made from fermented soybeans, wheat, yeast [sic, mold] and salt"). Vegetable steak ("A vegetarian food that looks like a small beefsteak but is made from wheat gluten. Sold in cans"). Address: Author, lives in England with her husband.

586. *Kojiki*: Record of ancient matters. Translated and with an introduction by Donald L. Philippi. 1968. Tokyo: University of Tokyo Press. vii + 655 p. See p. 87, 404-05. Index. 24 cm. [Eng]

• **Summary:** This is an English-language translation of Japan's oldest chronicle, the *Kojiki*, written in 712 A.D. The text concerning the origin of soy beans in Japan is given under the original document. In Appendix A (p. 404-05) is a translation of the portion of the *Nihon Shoki* that relates

to soybeans. Philippi notes, in comparing the two: "The similarities of this myth [the *Nihon Shoki*] with the Chinese P'an-ku myth have often been pointed out, but there appear to be even more strikingly similar myths in Taiwan and the Philippines. Matsumura, arguing from the rather large divergences in detail between the *Kojiki* and *Nihon shoki* versions, concludes that this myth was originally a native Japanese folk tale which was incorporated into the official mythology in various current versions.

"Some of the explanations suggested for the slaying of the food-goddess are: the idea that all things of value in life originated in a criminal act; the practice of slaying a victim to ensure a good crop; the practice of performing rites to pacify the grain spirits slain when plants are cut down at harvest."

Concerning azuki, the *Kojiki* states that when the god *Susano no Mikoto* came to earth, he killed a man and azuki sprang from the man's nose. Address: Philippi: Tokyo.

587. *Harmony: Macrobiotics*. 1969. Contents. No. 2. 24 p. [3 ref]

• **Summary:** See next page. Contents: Twelve theorems of the Unique Principle. The seven principles of the order of the universe. The winter. Change, The diet of the Viet Cong (their main food is organically grown dry-roasted brown rice; they also eat red rice). From the country. O-sushi (ingredients include brown rice, "2 blocks daya tofu (dried soya bean curd), quality soya sauce (Tamari or Kikkoman)," etc.). About the foods of the Viet Cong. Some recipes made with mainly wheat. The way of eating (one's principal foods should be grains and vegetables. Balance is essential). A couple of random pieces and a piece of poetry. A rather lurid article about sugar. A copy of the Macrobiotic menu (The macrobiotic restaurant is located at 136a westbourne terrace, london, w.2. tel: (01)-723-7367. entrance around corner in Bishop's Bridge Road. The basic menu is divided into Meal 1. Meal 2. Today's special meal. A la carte. Drinks (Green tea-bancha. Grain coffee. Mu tea. Lotus root tea with ginseng and ginger). Items on the menu include brown rice, mixed vegetables, "Bean Cake [tofu] with frosting of hummus tahini," Red beans [azuki] and rice). Literature for sale (all macrobiotic).

"The seven principles of the order of the universe.

"1. That which has a front has a back.

"2. That which has a beginning has an end.

"3. There is nothing identical in the universe.

"4. The bigger the front the bigger the back.

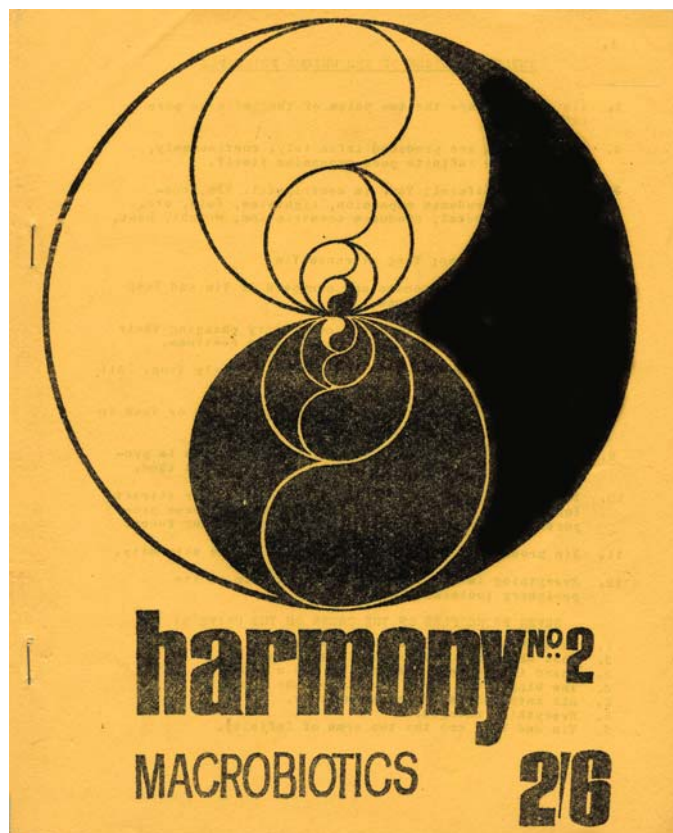
"5. All antagonisms are complementary.

"6. Everything changes.

"7. Yin and Yang are the two arms of Infinity."

The editor and publisher is Gregory Sams. Address: 136a Westbourne Terrace, London W.2, England.

588. Hansen, Barbara. 1969. Dolls, dolls for a festive



occasion. *Los Angeles Times*. Feb. 27. p. K1.

• **Summary:** Little girls and dolls are celebrated together on Hinamatsuri, the doll day festival, one of the five major festivals in Japan. "The peaches are actually made of rice dough with a sweet bean paste [*an*, made from azuki beans] filling. A cherrywood platter carved with leaves will contain sakura mochi, or bean paste-stuffed cakes wrapped in cherry leaves which have been soaked in brine."

589. *Times Standard (The)* (Eureka, California). 1969. Paulsen's: headquarters for All specialty foods! (Ad). March 21. p. 13.

• **Summary:** "Featuring Chico San Products. Rice cakes. Mu tea. Sea vegetables. Tamari sauce. Aduki beans. Miso.

"Now we have Zen Cookery books.

"We accept food stamps."

"Paulsen's House of Better Living." Address: 505 H. St., Eureka. Phone: 442-6325.

590. *Macrobiotic (The)* (Carmichael, California). 1969. 1969 West Coast macrobiotic summer camps. 9(7):13-15. Sept/Oct.

• **Summary:** "The first (July 26th through August 2nd: 8 days), at Mayaro Lodge, in the deep green mountains of Northern California, was attended by about 40 people. Three delicious meals a day were served by the hard-working kitchen staff of Cornelia Aihara, Penny Smith, Mrs. Shayne Oles, Susie Richards and Lynn Good. General

activity, however, was somewhat limited by (1) hot weather, (2) modern conveniences, and (3) relatively private accommodations (2-5 people per cabin). There was ample opportunity to be alone, and this was often the case.

"Mr. Aihara's daily lectures and nightly discussions were extremely interesting and stimulating; we were all amazed to find how limited our understanding of Macrobiotics really is. Other discussions were led by Mrs. Shayne Oles and Lennie Richards (Camp Directors), Gene Neufeld (on T'ai Chi Ch'uan), Bill French (The I Ching), and Jordon Good (Zen and Macrobiotics; We Need Both).

"The Second camp (August 16th through 25th: 10 days), at a panoramic location near Big Sur, was attended by about 150 people. Two meals a day were served. Other than two group camp sites, there were no accommodations. People slept in tents, cars, or sleeping bags. Temperatures ran about 20 degrees lower than at Mayaro. There were no telephones, refrigerators, stoves, toilets or hot water. People were asked to bring their own cups, plates and bowls. Camp Directors Warren Durbin and David Schleiger kept costs to a bare minimum. Cooking had to be done outside, with wood for fuel (which gave the food a wonderful flavor), and therefore everybody was kept very active: chopping wood, cooking, and washing dishes and pots. Since there was little chance for privacy in the camp sites, we all interrelated, grew, and learned—from changes in ourselves, others, and in all of us as a group. A fantastic experience we will never forget.

"Mr. Aihara's daily lectures were again inspiring and instructive, and Michel Abehsera also gave several very stimulating lectures (on Using Your Own Judgment, Seven Stages of Art and other topics). Other talks were given by Loring Palmer (The Practice of Zen), Gene Neufeld (T'ai Chi Ch'uan), John Collett (Macrobiotic Farming), Bernie Schechter (Macrobiotics and Tooth Care), and Bill Tara (Blood Circulation and other topics).

"There were many 'miraculous' cures. One man, suffering from severe back pains, was cured in five days. And a young mother who complained that people were criticizing her because her 3-year old boy was often crying and 'Why don't they leave me alone? They have problems of their own!', when advised that she must accept all criticism as a way of helping herself to grow, that she must learn to balance not only her food but also her relationships with other people, and that she would only find a solution to this or any other problem when she realized that it was the result of her own actions, suddenly understood very clearly and became very grateful and happy. And many others also said they had never felt better in their lives.

"Were the differences in activity, involvement, interrelating and joyousness in these two camps the result of the differences in foods, their proportions and quantities (as shown in the following chart) or vice versa? Or both? A two-column table shows the amount of the categories of foods that were used at Mayaro Lodge and Plaskett Creek:

Grains: 40% vs. 50% (brown rice, rice cream, flour 60, oats, corn, noodles, millet, buckwheat)

Vegetables 45% vs. 30%

Beans: 2% vs. 2% (aduki, black beans, chick peas, kidney beans)

Seaweeds: 1% vs. 1% (kombu, wakame, nori, hijiki)

Animal foods: 1% vs. 6% (dried small whole fishes, fresh fish, eggs)

Fruits: 6% vs. 6% (apples, watermelons, nuts)

Seasonings: 5% vs. 5% (miso, tamari, sea salt, gomasio, corn oil, sesame oil, sesame seeds, sesame paste, arrowroot starch, kuzu)

“The daily consumption averages per person were: Mayaro Lodge, 2.6 pounds; Plaskett Creek, 1.3 pounds! This in spite of (?) the much greater amount of activity at Plaskett Creek.

“As for the increase in animal foods, it was partially to balance the colder weather. But after observing many beginning macrobiotics, it is our opinion that it is unwise to limit fish too strictly for the first few years. Our bodies became accustomed to animal foods over a period of several years, and to severely limit the amount we eat when still in the first few years of Macrobiotics will be such a strain on the body that it will sooner or later rebel (binge). Small amounts of fish once or twice a week as a general average, depending on climate, activity, basic constitution, age, and other factors will usually be a good amount. (A person who works at a hard physical job can take a little more fish, men need a little more than women, and older people need less than others). The less animal foods the better, but don't torture yourself. Macrobiotics is not asceticism.” Address: The Ohsawa Foundation, Inc., 2523 Gunn Road, Carmichael, CA 95608.

591. Shurtleff, William. 1969. *The Tassajara food trip*. Tassajara, California: Published by the author. 63 p. Dec. 28 cm. [8 ref]

• **Summary:** Each of the 167 recipes is numbered, all show a strong natural foods influence, and many show a macrobiotic influence. Soy-related recipes include: 60. Fresh daikon nitsuke with miso. 74. Squash in miso-tahini sauce. 76. Nori with tamari.

77. Basic soybean preparation. “Put 2 cups soybeans in a quart container and fill the container with water. Let soak overnight. Pour into a pressure cooker and cook at 15 lb. for 40-50 minutes. Allow pressure to go down naturally. If water remains, continue to simmer beans in open pot until it is gone. Add tamari [soy sauce] to taste 10 minutes before finishing. Note: It is very important that soybeans be well cooked. They should be boiled until they are very soft and easily crushed between the thumb and ring finger, otherwise they will cause digestive problems (to put it nicely!).” We enjoyed boiled whole soybeans for breakfast almost daily as an important source of protein in our vegetarian diet.

Note: Pressure cooking soybeans can be dangerous! The skins can come off, foam up, and clog the pressure regulator.

78. Soybeans with hijiki. 79. Soybeans with hijiki and tahini (with miso). 80. Soybeans sauteed in miso. 81. Soybeans with lentils and buckwheat flour. 82. Soybeans with carrots and lentil sprouts. 83. Soybeans with dried daikon. 84. Soybean stew. 85. Broiled soyburgers. 86. Roasted soybeans. 87. Tofu sauteed. 96. Miso soup with tofu, carrots, burdock and mushrooms. 97. Miso soup with wakame. 98. Wakame soup with tofu. 99. Soy sauce & lemon soup. 101. Thick lentil soup with miso. 102. Thick lentil soup with miso & vegetables sauteed. 103. Lentil soup with miso and parsley garnish. 105. Aduki/azuki bean soup with miso. 107. Thick split pea soup with miso & vegetables. 110. Navy bean soup with miso. 115. Mushroom soup with dried tofu.

119. Miso-zuke pickles. 120. Kombu pickled in miso. 122. Bancha with tamari. 123. Kuzu cream with tamari. 125. Ume-syo-kuzu (with umeboshi, tamari and kuzu). 131. Basic soybean spread. 133. Lentil miso spread. 135. Garbanzo and miso spread. 138. Muso (miso-tahini) spread. 139. Peanut butter & tamari spread. 142. Peanut butter, miso, apples, carrot and parsley spread. 161. Sesame tofu (no soy). 163. Nut and seed loaf with miso.

San Francisco's largest natural foods store is New Age Natural Foods, 1326 Ninth Ave. run by Fred Rohe [Rohé]. Also recommended are The Food Mill, 3033 MacArthur, Oakland [founded in 1933 by John Denis, Sr.]; and Chico-San, P.O. Box 1004, Chico, California. Selling Spiral Foods miso and tamari in bulk; The General Store, 5th and Junipero in Carmel.

Note 1. This is the 2nd earliest document seen (Nov. 2010) concerning the work of William Shurtleff with soyfoods. He wrote the book on a typewriter while practicing at Tassajara Zen Mountain Center, made about 30 photocopies, and sent them to friends as Christmas presents. He did not meet Akiko Aoyagi until 25 Dec. 1971 in Tokyo, Japan.

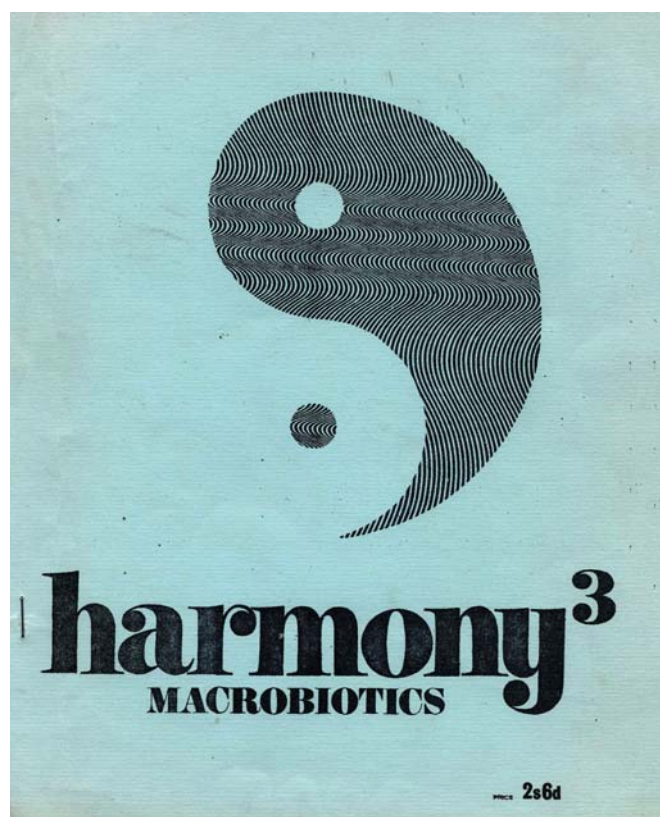
Note 2. This is the earliest document seen (Jan. 2014) in the SoyaScan database concerning or under the subject heading “Soyfoods Movement.”

Note 3. “The Tassajara Zen Mountain Center in the Ventana Wilderness area of the Los Padres National Forest, southeast of Carmel-by-the-Sea, California, is the oldest Japanese Buddhist Soto Zen monastery in the United States. The Center is very isolated, more than 16 miles (26 km) from the nearest paved road, and only accessible via a narrow, steep, one-lane dirt road. During the winter months, practitioners live alone on site. During the summer months, the Center is opened to day and overnight guests. The hot springs have been developed into Japanese-style baths. It is the first Zen monastery established outside Asia” (Source: Wikipedia). To get food especially perishables, for 40-60 students, we sent a truck on a “town trip” to Carmel and

Monterey once a week. Among the foods we bought there were tofu (unpacked, in cans filled with water) and miso.

Note 4. This is the earliest document seen (March 2020) that mentions “New Age Natural Foods” run by Fred Rohe in San Francisco. Address: Zen Mountain Center, Carmel Valley, California.

592. *Harmony: Macrobiotics*. 1969. Contents. No. 3. 22 p. [3 ref]



• **Summary:** Contents: Twelve theorems of the Unique Principle. The seven principles of the order of the universe. We are what we eat. Recipes for aduki (azuki) beans, hiziki [sic, hijiki], daya tofu [dried frozen tofu], miso soup, and apple jelly. Erewhonian history, by George Ohsawa. The seven levels of eating. Oats. Oriental medicine, by Michio Kushi. Yin and Yang. A few suggestions, by Gregory Sams. A poem, by rick daw. From The Aquarian Gospel.

Ceres (“... the name which we have given to the new macrobiotic food shop which we have opened in the Notting Hill area... at 8a All Saints Road, London W.11.” “We will be offering the whole range of health foods which fit into the macrobiotic diet such as wholemeal flours and flakes of as many grains as possible, whole rice, oats, millet, buckwheat, barley, and wheat, most of the lima products, etc. We also offer a wide range of Japanese and Chinese products, such as seaweeds, dried vegetables, bean curd, etc. We have just received a load of top quality products produced at the

macrobiotic factory in Japan. We will be offering miso, mu tea, tamari, umeboshi, and kuzu arrowroot at unheard of prices... We have a mail order service” and “Some literature is on sale at the shop as well as free recipe sheets”). A map shows the location on All Saints Road near Portobello Road.

“Seed, the macrobiotic restaurant. 136a Westbourne Terrace, London W.2 Tel: 723-7367. open 6:30 to midnight, six days a week (closed Monday) (entrance on Bishop’s Bridge Road).

Literature for sale (by George Ohsawa and Michio Kushi).

The editor and publisher is Gregory Sams. No month of publication is given for this last issue. A possible 4th issue is mentioned on the back cover but it never happened. Address: 136a Westbourne Terrace, London W.2, England.

593. Ohwi, J.; Ohashi, H. 1969. [Azuki beans of Asia]. *Shokubutsu Kenkyu Zasshi (J. of Japanese Botany)* 44(1):29-31. *

• **Summary:** This was the document that first reclassified azuki from the genus *Phaseolus* into the genus *Vigna*.

594. Pak, K.H.; Han, K.C. 1969. An analysis of food consumption in the Republic of Korea, 1964-1967, with projective trends, 1968-1971. Seoul, South Korea: Yonsei University. *

• **Summary:** A table shows production and food use of beans and consumption of some soybean products from 1964-1967 (reprinted in Wang 1976, p. 56-57). Bean production (see footnote) was 190,000 metric tons (tonnes) in 1964, increasing to 203,000 tonnes in 1965, then to 236,000 tonnes in 1967, with 361,000 tonnes projected for 1971.

The amount of soybeans used for food was 94,000 metric tons (tonnes) in 1964 (49.5% of the soybeans produced), increasing to 104,000 tonnes in 1965, then to 134,000 tonnes in 1967 (56.7% of production), with 206,000 tonnes projected for 1971 (57.1% of the soybeans produced).

Consumption of bean curd [tofu] was 223,000 metric tons (tonnes) in 1964, increasing to 243,000 tonnes in 1965, then to 290,000 tonnes in 1967.

Consumption of soybean sprouts was 227,000 metric tons (tonnes) in 1964 (1.8% more than tofu), increasing to 240,000 tonnes in 1965, then to 270,000 tonnes in 1967 (93.1% as much as tofu).

Consumption of bean sauce [soy sauce] was 57,400 metric tons (tonnes) in 1964, increasing to 61,000 tonnes in 1965, then to 69,700 tonnes in 1967.

Consumption of bean paste [Korean-style miso] was 22,900 metric tons (tonnes) in 1964, increasing to 24,300 tonnes in 1965, then to 27,700 tonnes in 1967 (only 39.7% as much as soy sauce).

Footnote: Based on the average production of the 4 years surveyed, the beans consisted of 85% soybeans, 8.5% red beans [azuki], 1.6% green beans [Mung beans], 1.3%

peanuts, and 3.4% other beans. Address: South Korea.

595. *Cooking good food*. 1969. Order of the Universe Publications, Box 203, Prudential Center Station, Boston, MA 02199. 34 p. No index. 28 cm.

• **Summary:** A simple, concise source of the basic macrobiotic ideas adapted to the American way. Note 1. This booklet was written by Jim Ledbetter, a student of macrobiotic teacher Michio Kushi, although his name does not appear in it.

Contents: The traditional food of man. The way of eating. Salt and oil. Special foods. Useful kitchen items. Cooking brown rice. Cooking other grains. Cooking vegetables. Cooking sea vegetables. Cooking beans. Cooking soups. Cooking with flours (Cooking noodles, cooking creams, baking bread, variations with flour). Cooking animal food. Preparing salads. Preparing condiments. Preparing drinks. Cooking desserts. Plasters. Traveling and eating out. The manner of eating. The seven levels of cooking.

In Chapter 4, titled “Special Foods” is a section on “Soybean foods” (p. 6), which states: “The soybean has been called the ‘Vegetable Cow’ of the Orient. It is full of good vegetable quality protein (43%). It was not traditionally eaten without special preparation, because it is fairly yin, except by monks who wished to limit their sexual desires. When cured with salt, however, it was used as a daily food. You will find

these traditional preparations very helpful in your kitchen.

“Tamari is the ancient form of soy sauce, fermented for at least eighteen months from soybeans, salt, wheat or barley, and water, without chemicals or preservatives. It has a very distinctive, delicious taste. It is used mainly in cooking vegetables when it is added after salting and just before the end of cooking time, and in broths. It is rarely used directly on grains, but is often found on the table to use with deep-fried foods. Some women mix tamari with an equal amount of water to make it less strong.

“Miso is a paste made from the same ingredients as tamari. There are two varieties; one (Hacho) is a little harder and darker in texture than the other. It has many uses, especially in soups, in which case it is added towards the end of cooking time so that the wonderful digestion-aiding bacteria it contains will not be destroyed. (All of these soybean condiments produce their best flavor when cooked slightly.) Miso soup has a deep, satisfying bouillon flavor, and is often taken every day as a delicious source of energy. It is helpful to thin miso in a little water before adding it to soups and sauces.

“Morromi [sic, moromi] is the pulp from which tamari has been made. It has a very special tangy flavor, and is used like miso.

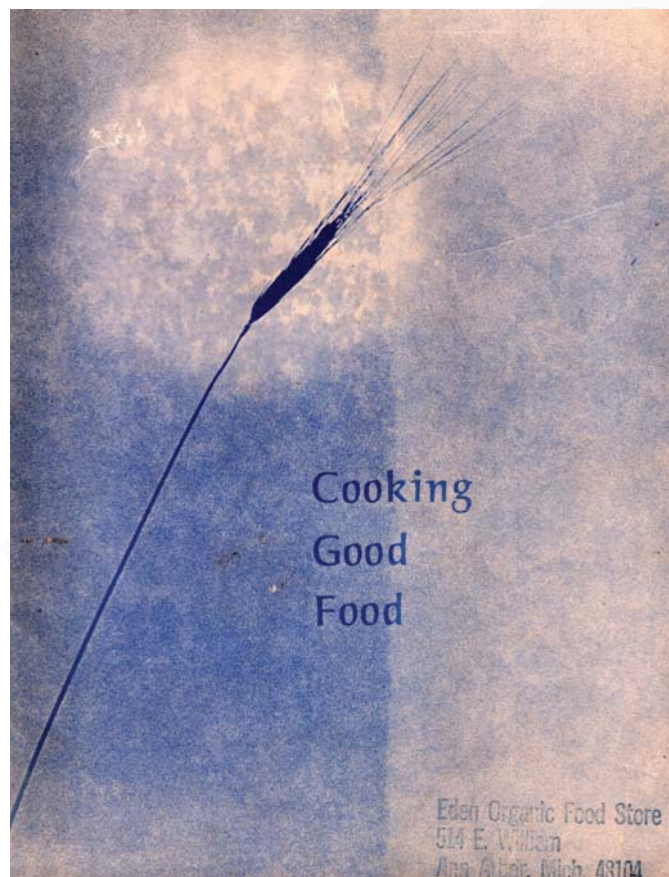
“Seitan or ‘Protein X’ is made from the same ingredients as the above condiments. A slightly different process produces a strong jerky which, when boiled or sauteed, resembles beef in appearance and taste. It is very good in soups” (p. 6). Note 2. This is the earliest document seen (July 2021) that mentions “seitan.” It is also the earliest English-language document seen (July 2021) that contains the word “seitan.” By placing seitan in the category of “Soybean Foods,” the author is apparently emphasizing the importance of soy sauce as one of its two main ingredients. He seems to have tasted seitan, but it is not clear that he knows what its other main ingredients are (wheat gluten, ginger, sesame oil) or how it is prepared.

“Tofu is made from fresh soybeans. This curd or ‘cheese’ is a good quality, strong yin food which is very refreshing for occasional use in summer when it is cooked with tamari. It is helpful to store tofu in water. The more yang pulp, which is usually thrown away, can sometimes be obtained from the Oriental stores which make tofu, and used to make delicious casseroles or well-sauteed vegetable dishes.”

The section on “Condiments” (p. 6-7) discusses Gomasio (Sesame salt), umeboshi (salted plums), and Tekka. The section on “Oriental vegetables” (p. 7) discusses lotus root, daikon, ginger root, Chinese cabbage, jinenjo (Japanese potato), and kuzu arrowroot.

In the chapter titled “Cooking Beans” the author considers “Aduki Beans” to be the “King of Beans.”

“Black Beans: The imported Japanese black beans are higher nutritional quality and superior taste. They are very



sweet, delicious beans. They should be soaked and boiled, because their skin can become loose and clog a pressure cooker spout.”

“Miso Soup: This hearty bouillon is the staple everyday soup. Prepare vegetables and boil for at least one-half hour (if you want a really good soup); thin miso with a little of the stock in a bowl and add it to the soup towards the end. Do not boil the soup after adding miso or the beneficial digestion-aiding bacteria will be harmed. If it is simmered very slowly, it can be cooked from 5 minutes to one hour.

“Tamari Soup: Prepare as above using tamari instead of miso for flavoring. A simple tamari broth with onions or carrots and onions is often served over dishes such as noodles.”

In the chapter titled “Preparing Condiments” (p. 27) we read: “Vegetable Miso. Slice vegetables finely and saute. Add diluted miso and water and cook. Scallions, chives, carrot tops and many other vegetables are good prepared in this manner. ‘Tekka’ is made from lotus root, burdock root and carrots. ‘Sigure’ [Shigure] (‘November Rain’) is prepared with lotus roots, carrots, and onions. A little freshly grated ginger is often added towards the end of the cooking. A small amount of these condiments is usually sufficient.”

The chapter titled “Preparing drinks” (p. 28-29) discusses Mu tea, umeboshi tea, chicory, Yanno [Ohsawa coffee], dandelion coffee, Bardan, Kokkoh, kuzu, ume-syo-kuzu, and daikon drink.

The chapter titled “Cooking Desserts” (p. 30) states: “Amasake (Homemade Rice Wine). For special occasions this drink is very smooth and sweet.”

Tofu is also mentioned in the chapter titled “Plasters” (p. 31). “Tofu Plaster. Squeeze tofu (soy bean curd, see *Special Foods*) and mix with 10% flour to make it more manageable. Apply this to any painful, feverish, or inflamed area. Alternating tofu plasters with ginger compresses often helps stubborn cases.”

Note 3 This is the earliest document seen (July 2000) that mentions “Hacho” miso (spelled that way). Subsequently, many macrobiotic publications used this word and spelled it that way.

The chapter titled “Cooking sea vegetables” briefly defines kombu, wakame, hiziki (the incorrect idea concerning “black rice” comes from a casual remark by Evan Root), arame, dulse, and nori (laver).

Note 4 One original edition of this booklet, sent to Soyfoods Center by Tim Redmond (a founder of Eden Foods), has one dark blue stalk of wheat against a light blue background. In the lower right corner of the cover the following has been stamped with a blue ink stamp: “Eden Organic Food Store, 514 E. William. Ann Arbor, Mich. [Michigan] 48104.” Address: [Massachusetts].

596. Ohsawa, Georges (Nyoiti Sakurazawa). 1969. *Le Zen macrobiotique; ou, l'art du rajeunissement et de la longévité*

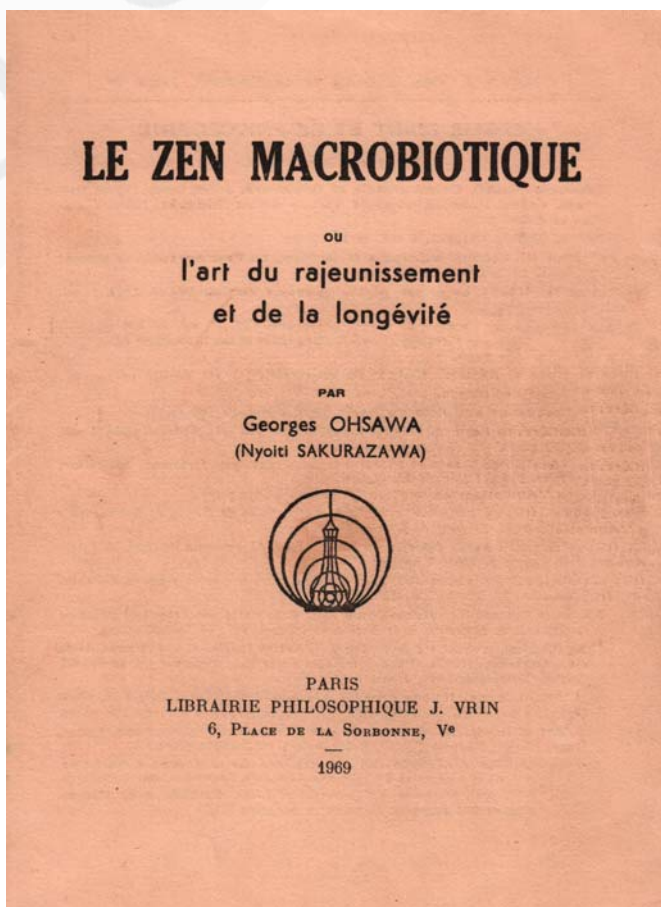
[Zen macrobiotics, or the art of rejuvenation and longevity]. Paris: Librairie Philosophique J. Vrin. 212 p. Index. 19 cm. Preface by Cauvet-Duhamel. [Fre]

• **Summary:** Contents: Preface, by Cauvet-Duhamel.

Foreword, by G. Ohsawa. 1. Macrobiotics and the medicine of the Orient. My therapeutics. 3. The seven conditions of health and happiness. 4. With faith, nothing is impossible. 5. Yin and yang. 6. My macrobiotic cuisine and the ten ways of eating properly. 7 Principal foods (*Les aliments principaux*). 8. Secondary foods. 9. Special dishes. 10. Suggestions for some illnesses / maladies. 11. Healing regimens. 12. Food for infants. 13. Some ideas.

Appendixes: A cure in 10 hours. Pro-forma death certificate for the world empire of the American gold dynasty. My talks in the United States (starting in Nov. 1959, in New York, Los Angeles, and San Francisco). The despair of American doctors according to the *Times* of 7 March 1960 (listing of the number of people with 17 incurable diseases). How much does the death of a civilization cost? The real cause of sickness, unhappiness, and war. Professional education and religion. Medicine's last cry of despair. The medical revolution in the China of Mao Tse-tung. Medicine: God alone understands it. My prophecy.

The following foods are discussed: Rice, buckwheat, millet and other cereals (p. 67-77). Azuki beans (p. 98).



Sesame tofu (p. 98). Sea vegetables (konbu, hijiki, p. 101-05). Miso and miso recipes (p. 105-08, incl. Tekka). Shoyu and shoyu recipes (p. 108-10). Ohsawa coffee (Yannoh, with azuki, p. 111-12). Syo-ban (Natural green tea with shoyu, p. 113-14). Kuzu (p. 114). Umeboshi juice (p. 116-17). Ume-syo-ban (umeboshi and tamari shoyu, p. 117). Ume syo-kuzu (with umeboshi, shoyu, and kuzu, p. 117). Miso fried in sesame oil (p. 118).

Note 2. The author, born in 1893, lists his name on the title page as “Georges Ohsawa (Nyōiti Sakurazawa).”

Note 3. This is the earliest French-language document seen (April 1912) that uses the term *tamari* to refer to soy sauce.

597. Patiño, Victor Manuel. 1969. Plantas cultivadas y animales domesticos en América equinoccial. Tomo IV. Plantas introducidas [Cultivated plants and domesticated animals in equinoctial America. Vol. 4. Introduced plants]. Cali, Colombia: Published by the author. 574 p. See p. 97-98. Illust. Index. 24 cm. [12 soy ref. Spa]

• **Summary:** In chapter III, titled “Granos y menestras (Grains and legumes)”, the section on “Soya, soja” (p. 97-98) states: “This legume, a native of East Asia (*Extremo Oriente*), has been known by Europeans since 1712, thanks to Englebert Kaempfer, who introduced it under the Chinese [sic, Japanese] name ‘daidsu.’... It was introduced to the United States at the request of Benjamin Franklin (Klose 1950, p. 14). Many thousands of varieties have been imported since then (Klose, p. 134-35). At Rio de Janeiro [Brazil] it has been raised since the end of the 19th century, by the Botanical Garden (Barbosa Rodrigues, 1908, p. 124).

“The soybean was not well accepted initially in tropical Latin America because the introduced varieties were not well adapted to the day length. Only when day-length neutral varieties from Manchuria were introduced, did the plant start to succeed (Schwanitz 1966, p. 119-20).

“Russian botanists found soya cultivated in Guatemala and in the state of Chihuahua, Mexico, in about 1925 (Bukasov 1930, p. 541).

“In the Canal Zone it was introduced at about the same period, although with results that were not very encouraging (Canal Zone Gardens 1924, p. 9).

“To be sure of the data of Hipólito Ruiz, the first equinoctial country to which the soybean was introduced was Peru. The illustrious botanist found in Huamalíes [a province in the department of Huanuco in central Peru], cultivated, a plant whose name at that time was *Dolichos soja* L. (Ruiz, 1952, I, p. 201).

“This legume, which originated in Asia, was introduced by the Agricultural Station [of Palmira] in Colombia at the beginning of 1929 through the importation of the varieties Biloxi, Otoo-tan, and Barchet from the Agricultural Experiment Station at Crowley, Louisiana. These varieties were planted at the Palmira station on 23 March 1929.

On the following April 16 the soybean variety Mammoth Yellow was planted, brought from Cuba by the agronomic engineer Dr. Rafael R. Camacho... On 23 Oct. 1929 these four varieties were planted a second time. That same year, distribution of the seeds to the public began. Later, the varieties Hollybrook, Aksarben and Laredo were introduced (Durán Castro: Molina Garcés, 1930, p. 47, 15).

“The variety Seminole was introduced [to Palmira, Colombia] from the experiment station at Santiago de las Vegas, Cuba, on 21 Oct. 1947, and the varieties Biloxi, Otoo-tan, and Mammoth Yellow, which were already known, were reintroduced. The varieties Palmetto and Dominicana would come from Turrialba [Costa Rica] on 23 Nov. 1947. On 28 July 1948 the varieties Mukden, Virginia, O-too-tan, Trinitaria, and Illini were received from the ministry of agriculture of Argentina. On 14 Feb. 1949 the variety Bansei was received, sent by the Office of Foreign Agricultural Relations (Villegas Duque: García Vásquez, 1936, p. 28). Note: How could a 1936 document discuss events of 1947-1949? This 1936 citation must be a mistake!

“Other introductions [to Colombia] were made starting in 1950.” Other legumes discussed in this chapter include adsuki [azuki], *Phaseolus angularis* (Willd.) W.F. Wight (p. 99), and seguidillas or asparagus bean [winged bean], *Psophocarpus tetragonolobus* (p. 101).

Note 1. This document contains the earliest reliable date seen for soybeans in Colombia, or the cultivation of soybeans in Colombia (March 1929). The source of these soybeans was the Agricultural Experiment Station at Crowley, Louisiana, USA.

Note 2. The first Japanese immigrants (25 people) to Colombia arrived in Oct. 1929. It is not clear if or when they first grew soybeans in Colombia.

Note 3. This is the earliest Spanish-language document seen (Oct. 2021) that mentions azuki beans, which it calls *adsuki*. Address: Cali, Colombia.

598. Perkins, Dwight H. 1969. Agricultural development in China 1368-1968. Chicago, Illinois: Adeline Publishing Co.; and Edinburgh: Edinburgh University Press. xv + 395 p. Index. 24 cm. [515* ref]

• **Summary:** A very important book on this subject. “Economically oriented interpretation of the relations between population increase and rises in agricultural productivity. Rather dubious use of statistical techniques” (Bray 1981). A map (p. 3) shows the provinces of China, and another (p. 4) shows the country’s seven regions plus Taiwan and Tibet. A table (p. 49) shows China’s crops and animals during the Han dynasty (206 B.C.–A.D. 220). “Grains: Rice, wheat, barley, millet (3 varieties), sesame. Beans: Soybeans, small beans [azuki]. Vegetables...”

Concerning beancake (p. 71): “Beancake may not have appeared until around 1500, although the evidence is hardly conclusive.* The discovery of the fertilizer potential

of beancake is a significant exception to the more general picture of a stagnant technology (Footnote: *Beancake is not mentioned in the *Nung shu* (1313 ed.)). The first reference of which I am aware is referred to in the Ch'en Tsu-kuei (1958, p. 99). It is also mentioned in Hsu Kuang-ch'i, 1628, and in the *T'ien-kung k'ai-wu* [1637], both seventeenth-century publications." Conclusion (p. 77): "Beancake made its appearance for the first time in the Ming period [1368-1644]..." Beancake was one of the few commodities generally transported over long distances.

A table (p. 131) shows exports of selected Chinese farm and processed farm products (selected decades from 1880 to 1959). Amounts are in 1,000 *taels* prior to 1909 and 1,000 *yuan* after 1920. During the period 1880-1889, tea was China's leading export (41% of total value), followed by silk (36%), and cotton and cotton textiles (1.6%); beans, seeds, and oils accounted for only 0.4%. During the period 1900-1909, silk was China's leading export (32% of total value), followed by tea (12%), beans, seeds, and oils (8%), and cotton and cotton textiles (6%). During the period 1920-1928, silk was still China's leading export (24%), followed by beans, seeds, and oils (17%), cotton and cotton textiles (7%), grain (5%), and tea (3%).

A map (p. 143) shows the major cities in China in about 1900. The three with the largest population are: Shanghai, Peking, Tientsin. A map (p. 179) shows that in about the year 1400 half of China's population is concentrated in 250 miles radius around Nanking, including Shanghai, Hangchow, and Hankow.

A table (p. 258) shows soybean acreage statistics in individual Chinese provinces during 1914-1918, 1931-1937, and 1957. Soybean acreage grew substantially in the decades prior to 1937, then decreased markedly by the 1950s. In 1957 the provinces with the most soybean acreage (in million hectares) were: Shantung 2.07, Honan 1.79, Heilungkiang 1.52, Anhwei 1.037, Kiangsu 0.937, Kirin 0.907, Liaoning 0.729. Total: 12.74 million ha.

A table (p. 280) shows soybean yield statistics (in catties/mou) in individual Chinese provinces during 1931-1937, those given by Buck, and 1957. In 1957 the provinces with highest soybean yields were: Liaoning 233, Heilungkiang 149, Hupei 114, and Kweichow 111.

A map (p. 352) shows the Chinese treaty ports as of about 1900.

A *likin* is a commercial tax on commodities passing a revenue station.

China's agriculture feeds a quarter of the world's population on 7% of the Earth's cultivated land. During the Han dynasty China's population and hence its agriculture were concentrated on the North China Plain and to the west of the gorges of the Yellow River where, for reasons of military defense, the capital was located. The crops were almost entirely dry farmed, with millet as the key crop. Perkins speaks very highly of Ho Ping-ti. China has never

been a major producer or consumer of meat. Pork has always been the principal meat of the common man. Hogs were profitable only because they were a source of both pork and fertilizer; they were fed on chaff and garbage, rarely on grains.

For two centuries China was in turmoil from the rise and fall of the Mongols in China. Initially the Mongols sacked almost all of North China and parts of the south. Large numbers of people were killed and crops destroyed leading to vast starvation. This ended in 1368 with the inauguration of the Ming dynasty. Then there was relative peace until about 1840.

Prior to the T'ang dynasty the people of China concentrated in the North China Plain. In the early Ming they gathered in five east-central provinces along the lower Yangtze River.

The Taiping Rebellion (1851-1864) killed over 20 million people; the Taiping provinces were around Shanghai.

Manchuria was China's principal source of new land in the early 20th century. Manchuria's population was (in millions): 2.0 in 1819, 2.9 in 1851, 3.3 in 1873, 5.4 in 1893, 20.1 in 1913, 35.3 in 1933, 41.7 in 1953, 51.5 in 1957.

In China, major rice producing areas are not found north of Kiangsu, Anhwei, and Hupei.

The best ways for China to expand agricultural output: expand cultivated land, improve seeds, improve cropping patterns (e.g., double cropping), add new crops, improve farm implements, water control / irrigation, fertilizer, draft animals, and labor intensity.

The first farm cooperative was set up in 1955-56, followed by the communes in 1958. World production of chemical fertilizers in terms of nutrients. 1906-2 million tons. 1947-10 million tons, 1965-40 million tons. 1988-113 million tons estimated.

In the 1960s, following the poor harvests of 1959-61, China's government shifted emphasis to the promotion of a modern revolution in agricultural investment and technology, the key to which was the rise of a large chemical fertilizer industry, plus rural electrification, motors, pumps, and modern farm machinery.

Land tenure is related to tenancy-how the land is held. Each Chinese person has an "ancestral home," which is very important. Address: Prof. (Location not given).

599. Rudzinski, Russ. 1969. Japanese country cookbook. San Francisco, California: Nitty Gritty Productions. xvi + 198 p. Illust. by Mike Nelson. 14 x 22 cm.

• **Summary:** An innovative but hard-to-read book printed with red ink on dark tan paper. The many illustrations (black line drawings) are excellent.

A surprisingly large number of the recipes in this cookbook contain soyfoods. Soy-related recipes include: Sukiyaki (with "1 block of fresh bean cake (*tofu*) or 1 can *tofu*, cut into bite-size squares," and shoyu, p. 5-10). Teriyaki

(normally done on a hibachi grill; *teri* = shiny or glazed and *yaki* = broiled, p. 16). Miso shiru (p. 20). Chicken teriyaki with sesame seeds (with shoyu, p. 24). Chicken liver teriyaki (with shoyu, p. 26). Shrimp teriyaki (with shoyu, p. 28). Spicy shrimp teriyaki (with shoyu, p. 28-29). Tofu dengaku (p. 29). Tofu yaki (fried) (with tofu, miso and shoyu, p. 29). Tofu soup (p. 48). Kaki no miso suimono (Oyster soup with soybean paste, p. 55). Vegetable and noodle miso soup (p. 56). Shrimp miso (p. 56). Takara yaki (omelette with tofu, p. 65). Tofu-egg cakes (p. 66). Tofu-egg omelette with white toasted sesame seeds (p. 66). Fried tofu with egg (p. 67). Cabbage with miso sauce (p. 85). Horenso (spinach) with miso (p. 89). Karai nasubi miso (Spicy eggplant with miso, p. 94). Goma nasubi miso (Eggplant with miso and sesame seed paste, p. 95). Tofu sauce (p. 102). Inari sushi (with aburage, p. 110-11). Miso dango (meatless rice-based patties / balls, p. 117). Soba (buckwheat noodles) with miso sauce (p. 122). Tofu to niku donburi (bowl with meat and tofu, p. 127). Sakana no nitsuke (fish cooked with miso, p. 135). Shiroyaki sakana no nitsuke (white fish with miso, p. 136). Tofu to ebi no kuzu-ni (tofu and prawns in kuzu sauce, p. 139). Simple kaki (oyster) miso (p. 140). Kaki nabe (pot of oysters with miso, p. 141). Kaki to tofu nabe (oyster pot with tofu and white miso, p. 141). Yaki hamaguri (broiled clams with white miso, p. 143). Kawari tofu nori zuke (prawn dumplings with tofu, p. 148). Tori dango miso (fried ground chicken with miso, p. 162). Tofu, pork and vegetables (p. 167). Mashed tofu and ground pork (p. 168). Buta nabe (pot-au-pork with “4 fried tofu, fresh or canned, cut in strips,” p. 168). Pork mizutaki (with tofu, p. 169). Beef mizutaki (with tofu, p. 175-76). Shabu-shabu (with tofu, p. 181). Shoyu is used in many, if not most, of the recipes in this book.

At the back is a glossary, which includes definitions of aburage, miso, shoyu, and tofu. Address: California.

600. Steinberg, Raphael. 1969. *The cooking of Japan*. New York, NY: Time-Life Books. 208 p. Illust. General index. Recipe index (English). Recipe index (Japanese). 28 cm.
• Summary: A superb, elegant book, that (with its spiral-bound companion volume of recipes) captures in both words and photos (by Eliot Elisfon) the true spirit of Japanese food and cookery. Contents: Introduction: Solving the mysteries of Japan's marvelous cuisine, by Faubion Bowers. 1. The heritage of a remarkable past. 2. Foods to suit the seasons. 3. The logic of Japanese cookery. 4. The world's greatest seafood. 5. Simple, satisfying foods of home. 6. A ceremony that sired a cuisine (*kaiseki* or tea ceremony cooking, with roots in 13th century Zen Buddhism). 7. Eating out as a way of life. 8. Magnificent meals in elegant settings.

Soy-related: The writer of the introduction snacked on odorous, fermented soy beans (*natto*) at night before retiring (p. 6). His son said to him recently, “Please, Dad. Not *tofu* again!” (p. 7). Importance of the soybean (p. 16-17; China has had a huge impact on Japanese culture. “Perhaps the

most important food innovation contributed by China was the soybean, which in various disguises is still the foundation stone of Japanese cooking”). Shoyu is the Japanese word for soy sauce (p. 26). Tofu (soybean curd), which is cooked with other foods throughout most of the year, becomes a dish in its own right during the summer, served on ice and flavored with soy sauce (as *hiyayakko*, p. 32). Photos of tofu, shoyu, green soybeans [*edamame*] and *akadashi* miso in prepared festival dishes (p. 34-35). *Matsutake* mushrooms with tofu or shoyu. “The most important lesson to be learned deals with the ubiquitous role of the soybean. Generally considered by Westerners to be the most humble of vegetables, the soybean is in fact the king of the Japanese kitchen. One might almost say that Japanese cuisine is built upon a tripod of soybean products: *miso*, a fermented soybean paste; *tofu*, a custardlike soybean cake; and soy sauce, used both to season foods as they are being cooked and to make dipping mixtures that enhance the flavors of the foods as they are being eaten.” Details about these three products and their uses is then given (p. 41-42). Teriyaki or “shining broil” (p. 43). Two-page color photo shows (p. 44-45): Azuki beans and *kuromame* (black soybeans), sesame seeds, sesame oil, *fu* (wheat gluten croutons), *aonori* (powdered green seaweed), Kikkoman shoyu, *aka miso*, *shiro miso*, *tofu*, nori and wakame.

Ponzu, a dipping sauce which is half soy sauce and half lemon or lime juice (p. 46). Sukiyaki (p. 46). Tempura (p. 49). *Aemono* and *sunomono* with tofu, miso, or soy sauce (p. 48). Photo of a tofu-slicing knife with a serrated blade (p. 50). Recipes: Clear soup with tofu and shrimp (*Sumashi wan*, p. 55). Miso soup with red and white miso (p. 56-57, 59). Miso-flavored pork and vegetable stew (*Satsuma-jiru*, p. 61). Soy and sesame-seed dressing with string beans (*Goma joyu-ae*, with “½ cup white sesame seeds, toasted and ground to a paste,” p. 62). Tofu and sesame-seed dressing with vegetables (*Shira-ae*, p. 63; “Add the sesame seeds..., warm them until lightly toasted. Grind them to a paste in a *suribachi* {serrated mixing bowl} or, more easily, pulverize them at high speed in an electric blender with 1/8 teaspoon of soy sauce. Transfer the sesame-seed paste to a mixing bowl...”).

Two color photos show: (1) Toasted sesame seeds in a *suribachi* with a wooden pestle. (2) When ground, they “quickly release their oil and turn into a paste.” White miso dressing (*Neri shiro miso*, p. 67). Photo of *zensai*, incl. miso-marinated asparagus, and abalone cooked in soy sauce (p. 72). Sashimi dipped in soy sauce (p. 81-83, 90-91).

Undersea vegetables: nori, kombu, wakame, hijiki (p. 88-89). Recipes: Sushi (p. 95-101). Tempura (p. 103). Mirin and soy dipping sauce for tempura and noodles (*Soba tsuyu*, p. 104). Deep-fried tofu in soy-seasoned sauce (*Agedashi*, p. 105).

Tofu is the Japanese word for soybean curd (p. 108). Umeboshi (p. 109). Miso soup (p. 109-10). Natto and miso

(p. 115). Tofu and shoyu in *yudofu* (p. 116). Sekihan and azuki (red beans, p. 120). *Mame* ("beans") are served at traditional wedding feasts; the word also means good health. Mochi (p. 121). Recipes: Sekihan (p. 126). Fox noodles with deep-fried tofu (*Kitsune udon*, p. 127). Bubbling tofu (*Yudofu*, p. 132-33). *Sukiyaki* (p. 134, with tofu and soy sauce). *Shabu shabu* (with tofu, p. 135).

Tofu and miso in *kaiseki* cuisine based on Zen Buddhism and the tea ceremony (p. 146-49). Teriyaki, mirin, ponzu, tofu (p. 152). Tofu and shoyu (p. 159). Sasanoyuki restaurant in Tokyo (uses tofu as a main ingredient in every dish, p. 160-61). *Sukiyaki*, with tofu and soy sauce (photo, p. 166-67). Broiled mackerel in miso marinade (*Miso zuke*, p. 169). Dengaku tofu (p. 172-73, with color photo). Beef teriyaki (with shoyu, p. 174-75). Yakitori (with teriyaki sauce, p. 174-75). Grilled chicken with sweet soy-seasoned glaze (*Tori teriyaki*, p. 176). Black soybeans and tofu (p. 188). At a geisha house, shoyu is called *murasaki* ("the purple").

A guide to Japanese ingredients (glossary): Incl. aji-no-moto, aonoriko, azuki, fu, goma, goma-abura, hichimi (shichimi) togarashi, kombu, konnyaku, mirin, miso, MSG, nori, shoyu, soba, tofu, umeboshi, wakame, wasabi.

Note: The spiral-bound recipe book accompanying this volume contains the recipes in the parent volume and no new information; the binding makes it easier to use in the kitchen. Address: USA.

601. Erehwon Trading Co., Inc. 1970. Traditional foods: Importers, processors, distributors. Wholesale-retail catalogue. Boston, Massachusetts. 12 p. Jan. 1. 22 cm. [2 ref]

• **Summary:** On the cover is the silhouette of three heads of grain on the plant, by a Japanese crest. Prices are given for each item. The company sells the following types of foods: 1. Grains: Brown rice (short grain Kokuho Rose grown by Koda Brothers, in 2 lb, 5 lb., 10 lb., 25 lb., 50 lb., or 100 lb. quantities). Sweet brown rice (Koda Bros.; it is more glutinous than brown rice, in the same 6 quantities). Note: No claim is made, anywhere in the catalog, that this rice is organic, or unsprayed, or "natural" or anything other than regular brown rice.

2. Beans: Azuki beans (imported from Hokkaido), Black beans ("Kuromame, a black soy bean import"), Chickpeas (Garbanzo, imported from southern Europe).

3. Sea vegetables: Dulse (From Grand Manan Island, Canada), hiziki, kombu, nori (dried laver), wakame (the latter 4 imported from Japan).

4. Soy Bean Products: Soy sauce (Aged naturally in wooden kegs at least 18 months; 16 oz for \$1.20, 32 oz for \$2.25, ½ gallon for \$4.25, 1 gallon for \$8.00, 4.75 gallon keg {21.13 liters} for \$30.00). Hacho miso ("Soybean puree made from soybeans, salt & water. No chemicals used in fermentation. Aged at least 18 months"; 1 lb for \$1.20, 2 lb, 4 lb, 44 lb keg for \$36.00). Mugi miso ("Soybean puree. A lighter miso made with barley"; 1 lb, 2 lb, 44 lb keg).

Moromi ("A thick sauce removed from the bottom of the soy sauce kegs after fermentation. Its uses are unlimited in soups & sauces"; 7 oz for \$1.20.). Seitan ("Wheat and soy sauce cooked together for a long time. When used in soups or sauteed in vegetables it has a taste much like beef"; 3½ oz for \$1.20). Note 1. This is the earliest document seen (July 2021) that mentions seitan and clearly understands what it is.

5. Condiments: *Furikake* ("A tangy sesame condiment made from Miso, sesame seeds, soy flour, nori and bonito [sic, bonito] flakes"; 3½ oz.), Daikon pickle, Sesame miso ("A hearty condiment for use on rice and other grains. Made from miso and unhulled sesame seeds"; 3½ oz). Tekka ("A strong dark condiment; famous for its medicinal qualities. Made from carrots, burdock, lotus, ginger, sesame oil, and miso"; 3½ oz), Sesame seeds, Sesame tahini.

6. Sea salt: Grey unrefined (from the Mediterranean Sea, unwashed and unground), White unrefined. 7. Oils: Corn germ oil (unrefined, pressed. No solvents, chemicals, or preservatives), Sesame oil. 8. Noodles: Ito soba, Kame soba, Udon. 9. Beverages: Kukicha, Kohren (Lotus root powder), Mu beverage (made from 16 different herbs), Yannah (coffee-like drink made from grains and beans).

10. Miscellaneous: Dentie toothpowder (made from eggplant and salt), Kuzu arrowroot, Umeboshi & chiso [shiso, shisonoha, or beefsteak leaves], Umeboshi ("Salt plums aged in wooden kegs for at least 3 years").

11. Cookbooks (written in America): *Cooking Good Food*, and *Cooking with Grains and Vegetables*.

The majority of the above products are imported, mostly from Japan.

The inside front cover states: "Due to the growth of our business and our belief that good quality food should be available at low cost, we have eliminated many items from our wholesale list. We have eliminated most grains because excellent quality grains are available from many sources at more reasonable prices than we are able to charge. Two excellent sources for grains are Arrowhead Mills, Box 866, Hereford, Texas, and Pioneer Specialty Foods, Box 427, Fargo, North Dakota. Also eliminated from our wholesale list is Chico-San products. For these please write directly to Chico-San, 1262 Humboldt Ave., Chico, California, or contact any health food distributor."

Note 2. The products in this catalog do not require refrigeration; they contain no refined sugar / white sugar, no meat, and no dairy products—just like the catalogs of almost all subsequent natural food distributors during the 1970s and 1980s.

Note 3. This is the earliest existing Erehwon catalog seen (March 2011), and the earliest document seen (March 2011) concerning Erehwon and soy.

Note 4. This is the earliest document seen (March 2006) that mentions Arrowhead Mills, of Hereford, Texas. Address: 342 Newbury Street, Boston, Massachusetts 02115. Phone: 617-262-3420.

602. **Product Name:** Azuki Beans.

Manufacturer's Name: Erewhon Trading Co., Inc. (Importer). From Japan.

Manufacturer's Address: 342 Newbury St., Boston, MA 02115. Phone: (617) 262-3420.

Date of Introduction: 1970 January.

New Product–Documentation: Erewhon Trading Company Inc. 1970. Jan. 1. Wholesale-retail catalogue. "Azuki beans. Imported from the island of Hokkaido, Japan. Premium quality. Unlike the usual imported Azuki. Price: Due to foreign market fluctuations, prices on request."

603. *Times of India (The) (Bombay)*. 1970. Foreign futures markets. Feb. 24. p. 7.

• **Summary:** The names of each futures market and the crops which are traded are listed for the USA (15 such markets), Japan (20), Brazil (1), Pakistan (1), and the United Kingdom (12). Seven other European countries also have futures markets but only the country names are given—no details.

In the USA, soyabean futures contracts are traded on: (1) Chicago Board of Trade (also oil and meal). (2) Chicago Open Board of Trade. (3) Memphis Board of Trade Clearing Association [Tennessee] (only soyabean meal). (4) Minneapolis Grain Exchange [Minnesota].

Japan: (1) The Hokkaido Grain Exchange (also trades red bean [azuki] futures). (2) The Osaka Grain Exchange (soyabean, red bean, American soyabean). (3) The Tokyo Grain Exchange (soyabean, red bean, American soyabean). (4) The Kobe Grain Exchange (soyabean, red bean, American soyabean). (5) The Nagoya Grain Exchange (soyabean, red bean, American soyabean). (6) The Kammon Commodity Exchange [Shimonoseki] (soyabean, red bean, American soyabean).

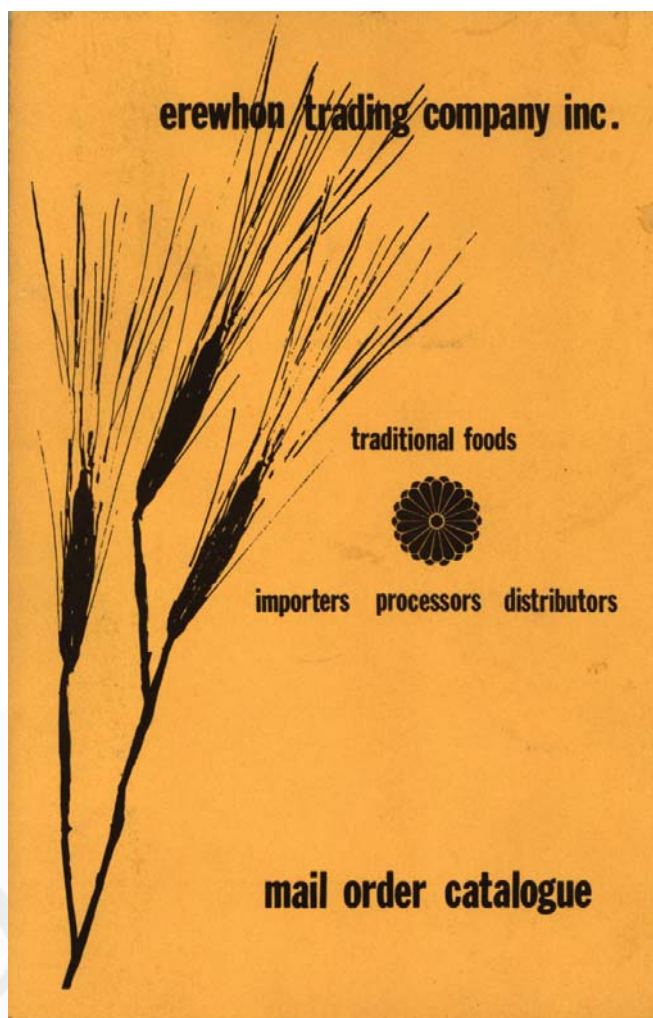
United Kingdom: (1) The London Vegetable Oil Terminal Market Association, London (soyabean oil only).

Source: *Forward Markets Bulletin*, Oct. 1969.

604. Nomura, N.; Asanuma, K. 1970. [The effects of low temperature on the order and speed of flowering in the adzuki bean (*Phaseolus angularis* W.F. Wight)]. *Hokkaido-ritsu Nogyo Shikenjo Shuho (Hokkaido Prefectural Agricultural Experiment Station, Bulletin)* 20:73-79. Feb. [Jap; eng]*

605. Erewhon Trading Co., Inc. 1970. Traditional foods: Importers, processors, distributors. Mail order catalogue. Boston, Massachusetts. 16 p. March 1. [2 ref]

• **Summary:** On the orange cover is the silhouette of three heads of grain on the plant, by a Japanese crest. The company sells the following types of foods: 1. Whole grains: Brown rice (short grain grown by Koda Brothers, in 6 weights from 2 lb. to 100 lb). "Not strictly organic, but the finest available in the U.S. today."



Note: The previous sentence, starting with "Not strictly organic" is deceptive and misleading. According to "Erewhon, A Biography," by Paul Hawken (*East West Journal*, Aug. 1973, p. 13) the short-grain brown rice being sold by Erewhon at this time was grown by the Lundberg brothers (Wehah Farm, Richvale, California) and harvested in the fall of 1969. But this rice was the result of a secret deal, so Koda Brothers is listed in the Catalog as the grower. According to the Koda website, Koda first started to convert some fields to organic in 2004. Moreover, this rice was not "the finest available in the U.S. today." The only organically grown brown rice in the USA in March 1970 was grown by the Lundberg Brothers (Wehah Farms) in Richvale, California. 1969 was the first year they had grown rice organically, and they grew 78 acres under contract with Chico-San, who agreed to buy all the brown rice grown on that acreage in exchange for the exclusive right to sell that rice. Chico-San sold half the rice in advance and had no trouble selling all of it. But they refused to sell any of the rice to Erewhon. In 1970 Lundberg expanded their exclusive organic brown rice acreage to 200 acres; that rice was harvested in the fall of 1971.

Sweet brown rice (also grown by Koda Bros.), buckwheat groats (Kasha, from Pocono Mts. in Pennsylvania), wheat berries (organically grown in the Golden Valley of North Dakota), millet (organically grown), barley, yellow and white corn (organically grown in Deaf Smith County, Texas), oats, rye (organically grown in Deaf Smith County, Texas). Table of prices for different weights. 2. Fresh stone ground flours. 3. Cereals, made from whole grains and milled in a manner to allow quick cooking, incl. Kokoh (which can be used as a milk substitute or prepared as a cereal for children). 3. Noodles (udon, soba, and shonai fu—wheat gluten cakes). 4. Beans: Azuki beans (“The King of Beans... Organically grown on the island of Hokkaido, Japan), black beans (a sweet black soybean imported from Japan. Organically grown), chickpeas, soybeans (“Organically grown in Pennsylvania. A food high in protein, vitamins and minerals. Should be soaked many hours before cooking. Particularly good if cooked with Kombu”), pinto beans, whole green lentils, red split lentils. Table of prices for different weights.

5. Sea vegetables: Nori (dried laver), kombu, wakame, hiziki, agar-agar. 6. Dried fish and vegetables: Bonito [sic, Bonito] flakes, chirimen iriko, daikon pickle, gourd strips (dried), daikon (dried radish). 6. Order form. 7. Beverages: Kukicha, mu herbal beverage, yannoh, lotus root powder, mugicha (barley tea), peppermint tea.

8. Soybean Products (imported from Japan): Soy sauce (“aged for at least 18 months”; 16 oz, 32 oz, ½ gallon, 1 gallon, 4.75 gallon keg). Mugi miso—Soybean puree (“Made by a special enzymatic process, this Miso is aged for 18 months. It is made from soybeans, barley, water and salt. It is ideal for making soups and sauces and blends well with tahini to make a spread for bread.” 1 lb, 2 lb, 4 lb, 44 lb keg). Hacho miso—Soybean puree (“A darker, stronger miso than Mugi Miso...”). Moromi (“A thick sauce removed from the bottom of the Soy Sauce kegs after fermentation. Its uses are unlimited in soups & sauces”; 7 oz.). Seitan (“A concentrated protein source made from wheat and soy sauce. When used in soups or sauteed in vegetables, it has a taste much like beef”; 3½ oz.).

9. Condiments: *Furikake*, kuzu arrowroot, tekka, umeboshi, sesame butter, Erewhon sesame tahini, sesame salt, white sea salt, grey sea salt. 10. Oils: Refined corn oil, corn germ oil, sesame oil. 11. Sundries: Sesame seeds, sunflower seeds, pumpkin seeds, popcorn, raisins (Thompsons), dried apricots, wheat germ (raw), apple butter, whole dried chestnuts. 12. Toilet articles: Dentie (tooth powder made from eggplant and salt), Aditi sesame shampoo, Orgene [Orjene] herbal shampoo, Fu-nori (seaweed shampoo), sesame coconut soap, vege oat soap.

13. Kitchen and tableware: Cookbooks: *Zen Cookery*, *Cooking with Grains and Vegetables*, *Cooking Good Food*, *Zen Macrobiotic Cooking*. Tableware: Rice paddles (bamboo), soy sauce dispenser, oil skimmer, bamboo tea

strainer, vegetable press, vegetable brush, bamboo chopsticks (Japanese), chopsticks (Chinese), MAC knife (vegetable), vegetable knife, fish knife, grater, suribachi (3 sizes), Corona hand grinding flour mill (\$10.95).

On the inside back cover is a United Parcel Service rate chart. Address: 342 Newbury Street, Boston, Massachusetts 02115. Phone: 617-262-3420.

606. Li, Hui-lin. 1970. The origin of cultivated plants in Southeast Asia. *Economic Botany* 24(1):3-19. March. [40 ref]

• **Summary:** “Cultivated plants represent man’s most important heritage, and we cannot afford to lose sight of this fact even in an age of great and rapid technological advancement... The beginning of scientific studies on origins of cultivated plants stems from the work of Alphonso de Candolle, specifically from his *Géographie botanique raisonnée* (1855). The latest botanical methods were employed and correlated with evidence from archaeology, history, and linguistics. The cultivated plants were treated only as a chapter in a work on the distribution of plants as a whole... This chapter was later revised and greatly expanded into his *L’origines des plantes cultivées* (1882), a standard classical treatise on this subject even today...”

“At about the same time, Mendel was using cultivated plants in his experimental studies of the nature of variation. His *Versuche über Pflanzen-Hybriden* (1865) lay unnoticed by the scientific world until 1900, when its rediscovery sparked the science of genetics... It was, however, not until Vavilov that genetics was consistently and systematically applied to the elucidation of problems on the origins of cultivated plants. Vavilov’s *Studies on the Origin of Cultivated Plants* (1926) has exerted a great influence on later workers. He refined and brought up to date the botanical methods of de Candolle, while the newer approaches of genetics and cytogenetics were introduced and correlated with the older methods.” Following continual revision, Vavilov’s final scheme indicates 8 world centers of the origin of cultivated plants (including China) and 3 supplemental centers. But while Vavilov was most familiar with Europe, western Asia, and South America, “he seems to have been relatively unfamiliar with eastern Asia. His ‘Chinese center’ embodies the whole of China from northern cold-temperate regions all the way to the subtropical south.”

The author proposes four horizontal belts of origin of cultivated plants in South-East Asia. The Northern China Belt, which includes the Yellow River Valley and the southern part of northeastern China (Manchuria) is the famous loess region, and the place of birth and early development of Chinese civilization. Though the loess soil is especially suitable for the development of agriculture, the climate of this belt is the most severe, the “precipitation is the least and the most unevenly distributed, and it has the fewest types of plants. However the cultural level of the

people here is developed to a higher degree, and its system of agriculture is also the most complete. This situation seems to agree with Toynbee's theory that civilization develops as a result of a challenge." One of the cereal crops that originated in this belt is millet, *Panicum miliaceum*, the most important cereal in earliest times. Foxtail millet, *Setaria italica*, also appeared in this belt at an early date. Both were widely cultivated in Neolithic times.

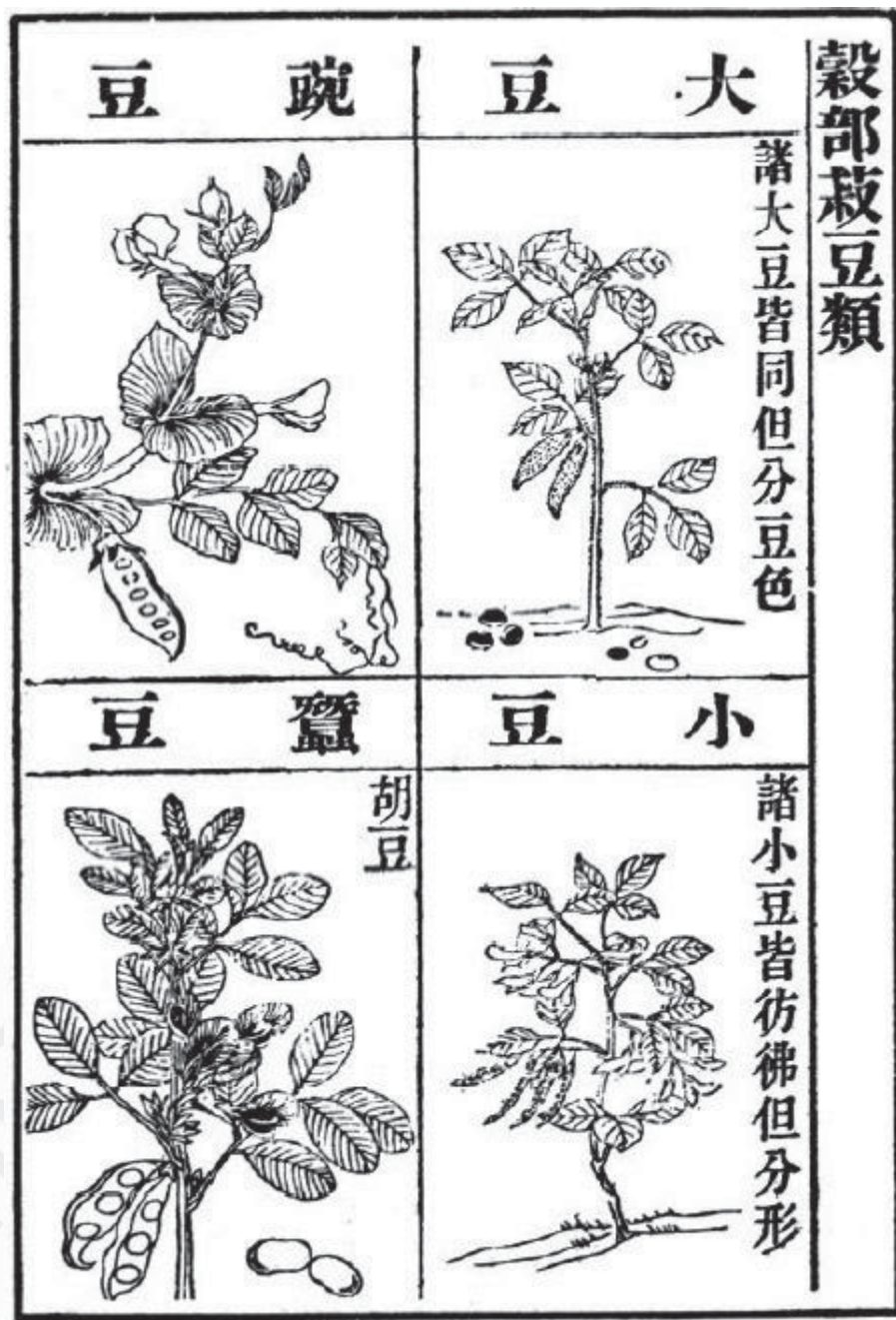
"From ancient to present times, the chief legume crop of northern China has been the soybean, *Glycine max*. It was called in ancient times, *Shu*, and it is now generally called *Ta Tou* (Great Bean)... Today, it is the most wide spread and the most diversely utilized crop in all China...

"The cultivation and utilization of the soybean in ancient China also greatly affected the development of agriculture. The ancient peoples are known to have been at first ignorant of the use of fertilizers, but eventually discovered that the cultivation of soybeans increased the productivity of the soil. Thus the soybean is responsible for the development of crop rotation and the application of fertilizers. Among all the legume crops, the soybean has the most complete protein complex, approaching most nearly that of animal protein. Thus, in human nutrition it can completely replace animal food. The relatively small development of animal husbandry and fishery in northern China could be the effect of the use of soybean...

"The soybean is also the most important edible oil crop in China. The ancient people, because of their limited knowledge and technology, did not know how to extract oil from seeds...

"In ancient times the tender leaves of the soybean, called *Huo*, were also used as a leafy vegetable." Legumes and oil crops are more important in the north than in the south of China. When man domesticates plants and animals, he himself becomes domesticated and civilization begins.

Although the flora of the Japanese Archipelago is fairly rich, no important cultivated crops originated there; all were introduced from outside. Address: Morris Arboretum, Univ. of Pennsylvania, Philadelphia.



607. Wong, Ming. 1970. Contribution à l'Histoire de la Matière médicale végétale chinoise (suite) [Contribution to the history of Chinese vegetable materia medica (Continued)]. *Journal d'agriculture tropicale et de botanique appliquée* 17(1-4):92-140. Jan/April. See p. 139. [1 ref. Fre]
 • **Summary:** See above. This book is about the *Bencao Gangmu* [The great pharmacopoeia], one of the most famous Chinese materia medica, compiled in 1596 by Li Shizhen.

On page 139 of this article is the page from the *Bencao Gangmu* which shows both the soybean plant (*ta-teou*; pinyin: *dadou*, upper right) and the azuki bean plant (*siao-*

teou; pinyin: xiaodou, lower right). A brief description of each plant is given below the illustrations.

The word “Soja” also appears 18 times in this book (from p. 115 on). *Glycine hispida* (a former scientific name of the soybean) appears once (p. 115), *Glycine soja* appears 4 times (p. 115, 139), Li Yu-ying appears twice (both on page 115). The azuki, called *Siao teou*, is mentioned briefly on p. 116; footnote 461 states that an illustration of the plant appears on p. 461 of the P.T.K.M. (*Bencao Gangmu*).

608. Alford, D.K.; Tibbitts, T.W. 1970. Circadian rhythm of leaves of *Phaseolus angularis* plants grown in a controlled carbon dioxide and humidity environment. *Plant Physiology* 46(1):99-102. July. [11 ref]

• **Summary:** “Rhythmic circadian movements and irregular short period movements were evident as the leaves unfolded and persisted during development of the leaves.” Address: 1. Dep. of Horticulture, Univ. of Wisconsin, Madison, Wisconsin 53706.

609. Wenkam, Nao S.; Wolff, Robert J. 1970. A half century of changing food habits among Japanese in Hawaii. *J. of the American Dietetic Association* 57(6):29-32. July. [15 ref]

• **Summary:** In about 1885, a predominantly vegetarian diet was representative of the farming and laboring classes in Japan. “The three great staples were rice, barley, and soybeans.” Those who could not afford rice consumed a less expensive grain such as millet, wheat, barley, buckwheat, or even sweet potatoes. Legumes, which were used universally, included soybean products, peas, mung beans and azuki. The main soybean products were tofu, miso, natto, aburage, and shoyu. Other foods in general use included daikon radish, several types of cabbage, marine algae such as nori, konbu, wakame. etc.

“According to statistics for 1880, total plant food consumption was proportioned as follows: rice, 53 per cent; barley and wheat, 27 per cent; tubers and vegetables, 6 per cent; fruits and algae, less than 1 per cent.

“The chief animal food was fish, much used near the sea, less in the interior. Poultry and eggs were used in small amounts. Beef, mutton, pork, milk, and butter formed a minor part of the diet. The amounts of animal food available per capita per year in 1900 were: meats, 1.3 lb.; fresh fish, 27 lb.; dried fish, 2.5 lb.; and imported meats and fish, 0.3 lb.”

A bar chart shows that the daily intake of protein for Japanese adults in Japan and Hawaii has increased from 62 gm in the late 19th century to 101 gm today—an increase of 63%. During the same period, daily fat intake has increased from 10 gm to 87 gm—an 8.7-fold increase! Calories per day are about the same. Address: Dep. of Food and Nutritional Sciences, and School of Public Health, Univ. of Hawaii, Honolulu.

610. Harmony Foods. 1970. Harmony Foods case prices.

London, England. 1 p. Sept. 30 cm.

• **Summary:** See next page. A table shows: (1) Product name. (2) Contents of each case. (3) Price of each case.

Products: Whole rice [brown rice]. Buckwheat flour. Tamari. Miso. Sesame seeds. Aduki beans. Umeboshi plums. Patchouli [an essential oil from a member of the mint family, *Pogostemon cablin*]. Unleavened bread.

Note 1. This is the earliest known existing price list from Harmony Foods.

Note 2. The word “organic” does not appear on this price list.

Note 3. An inventory taken on 3 Feb. 1971 showed the value of the stock to be £6,607.83. Address: 8a All Saints Rd., London W.11. Phone: (01)-229-5571.

611. *Time*. 1970. The kosher of the counterculture. 96:59-60, 63. Nov. 16.

• **Summary:** “‘Tell me what you eat and I will tell you what you are,’ said Jean Anthelme Brillat-Savarin, the 18th century French gastronome. This aphorism is especially true today.” The youth of Woodstock Nation, with almost religious zeal, “are becoming vegetarians. They are also in the vanguard of the flourishing organic-food movement, insisting on produce grown without chemical fertilizers or pesticides.

“Diet is very central to the revolution,” says the leader of a north California commune. Why the new vegetarian trend? (1) It’s inexpensive; (2) The eco-activists are concerned about the amount of DDT and other chemicals in meat; (3) There is the vegetarian influence of East Asian religions such as Buddhism, Yoga, and Hinduism; (4) The Macrobiotic diet is vegetarian except that it allows fish and seafoods, but it discourages use of dairy products. There is a lengthy, critical discussion of macrobiotics, George Ohsawa (“who wrote dozens of abstruse books on ancient Oriental diet and medicine and was the principal proselytizer for macrobiotics in Europe and the U.S.”), and Beth Ann Simon (“Macrobiotics can be dangerous. The diet became notorious 5 years ago when a 24-year-old Greenwich Village housewife named Beth Ann Simon died after losing 50 lbs.” on Macrobiotic Regimen No. 7); (5) Diet and yoga have become a substitute for drugs for many people. They lead to a more real and spiritual consciousness. “The young are beginning to realize that drugs aren’t real. They thought it was a shortcut to the spiritual.”

“Anthropologist Claude Lévi-Strauss has shown that a society’s cuisine is a language into which it unconsciously translates its structure. Thus frozen foods, packaged foods, TV dinners, fast-food franchises, preservatives and additives all stem from a culture that made pragmatism, step saving and time saving virtues in themselves. Because there are different values and plenty of free time in the new culture, gardening (organically), grinding wheat, baking bread, preparing yogurt and making a quiet ceremony of cooking

HARMONY FOODS
CASE PRICES

list sept. 1970

WHOLE RICE	24 x 2 lb packet	£4. 4. 0
	110 pound sack	£8. 15. 0
BUCKWHEAT FLOUR	18 x 1 lb bag	£2. 9. 6
TAMARI	24 x 10 oz (300cc) bot.	£6. 6. 0
	keg of 18 litres	£7. 10. 0
MISO	24 x 14 oz jar	£6. .0. 0
	keg of 20 kg.	£8. 5. 0
MU TEA	24 x 18 gm. pack	£3. 18. 0
SESAME SEEDS	24 x $\frac{1}{2}$ lb. pack	£4. 10. 0
ADUKI BEANS	24 x 1 lb. bag	£6. 0. 0
UMEBOSHI PLUMS	12 x 4 oz. jar	£2. 8. 0
PATCHOULI	12 x 2 dram vial	£2. 8. 0
UNLEAVENED BREAD	12 loaves	£1. 7. 0
(only available in London area)		

Free delivery in London area on orders over £15

Deliveries outside London invoiced for cost of goods plus BRS charges.

Split cases available only on initial trial orders.

Nett cash 20 days.

Discount 3% on COD.

ORDERS TO: HARMONY FOODS
8a All Saint's Road
London W. 11

Tel: (01)-229-5571

and eating are all parts of the scene... For the more earnest of the cultists, the kitchen has become a holy place, as it is to the Hindus and the Buddhists.”

The new diets are filtering to the suburbs via the teenagers. Rows of unfamiliar foods, such as brown rice, miso, aduki, and gomasio [sesame salt], are appearing in middle-class cupboards.

612. Lansing, Elizabeth. 1970. The move to eat natural: New converts to organic food are sprouting up all over. *Life*. Dec. 11. p. 45-50, 52. Cover story. [2 ref]

• **Summary:** Headline on the cover: “Organic food: New and natural.” A full-page photo shows model Gunilla Knutson, who owns a health food store. The blonde-haired young lady is wearing blue jeans and toting a large knapsack, overflowing with fresh vegetables and ears of wheat.

A growing number of people—most of them young, believe that we eat too much, and mostly of the wrong things. That “our food comes to us not as nature intended, but altered by man during both growth and processing; and this tampering has produced increasingly bad effects on man and the ecology.” Many make every effort to insure that all their food is grown organically—without pesticides or chemical fertilizers—and that it contains no chemical additives. A new industry is growing up in America to meet these demands. Photos: A colorful array of loaves of whole-grain breads, leavened and unleavened, some with sesame, poppy, or sunflower seeds. Most of these come from a commercial bakery in Berkeley, California. (2) Top view of natural food staples in crocks, incl. black beans, millet, azuki beans, soy beans, unsulphured apricots, toasted kasha [buckwheat], sunflower seeds, red lentils. (3) A self-serve cafeteria at U.C. Santa Cruz where students may choose an organic vegetarian menu—including bean curd [tofu].

Other two-page spreads are titled: Filling the gap from earth to table. Photos show: (1) Saturday morning meeting of leaders of the Food Conspiracy in Berkeley, California. (2) Inside of Wholly Foods’ store in Berkeley. Four proprietors under age 30 say success of the store has put them “on a capitalist trip.” (3) Jim Baker’s The Source restaurant in Los Angeles. His wife carries a tray of tall glass of juices. (4) Model Gunilla Knutson on a ladder in the store Nature’s Children, of which she is part owner.

Composting and ladybugs make it work. (1) Aerial view of the Garden Project on a 4-acre plot at the University of California at Santa Cruz. (2) Leaves collected by the city of Allentown, Pennsylvania, on their way to the Rodale Farm compost heap. (3) Organic rice plants in the field (600 acres) at Wehah Farms in Chico, California. A key part of organic gardening and farming is composting. For ages it has been a hit-or-miss process, but in the 1930s, Sir Albert Howard, an Englishman, turned it into a science, which he described in detail in *An Agricultural Testament* and elsewhere. Howard inspired J.I. Rodale and Rodale’s magazine, *Organic*

Gardening and Farming, started the organic movement in the USA. An estimated 5,000 farmers are now growing crops for sale organically, and the number is steadily increasing.

A handful of natural starters: Photos show and recipes tell how to make: (1) Unleavened soaked-wheat bread, and Corn pones. (2) Six beverages without added sugar, incl. Carob milk. (3) Meaty soups for the pot: Vegetable bean soup, and Egg and lemon soup. (4) Organic rice with ‘bite’: Skewered shrimp with rice.

An image to shed, more food to grow. The writer says that “a large part of the public believes” that the natural foods movement “is just wheat germ and molasses all over again, ingested chiefly by body builders and other exotics. Or worse—that natural foods and macrobiotic diets are synonymous. Agricultural colleges may be sympathetic to organic methods but they seldom teach them—probably because so much of their research is subsidized by the chemical industries.

Note: It looks like the natural foods movement has started to go mainstream.

613. *Hartford Courant (Connecticut)*. 1970. Japan marks year’s end at fast pace. Dec. 25. p. 34.

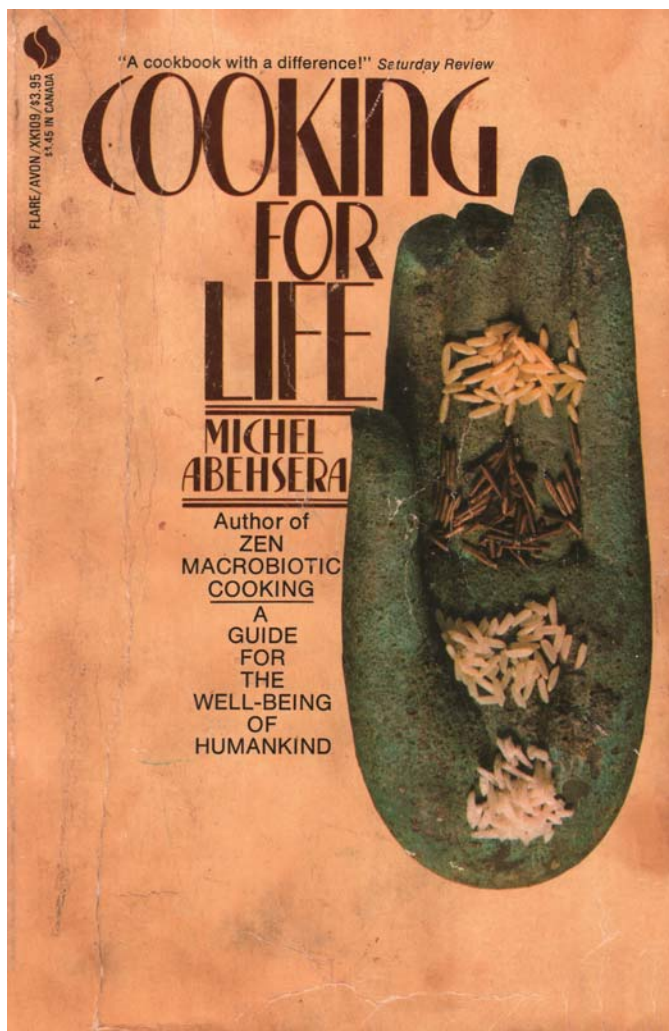
• **Summary:** In Japan, the last week in December is the most hectic week of the year. “It is customary to serve a special sake, rice wine with herbs reputed to ward off illness, and to feast on rice cakes [mochi], sweet bean paste [*an*, made from azuki beans], and other delicacies prepared previously.”

614. Abehsera, Michel. 1970. *Cooking for life*. Swan House, P.O. Box 638, Binghamton, NY 13902. xiv + 364 p. First Avon Flare Books printing, March 1972. Recipe index. 21cm.

• **Summary:** A beautifully-written, sometimes poetic, book. Contains many imaginative and joyous macrobiotic recipes.

Contents: Foreword. Woman in the kitchen (“The kitchen is the heart of the home”). The cook is a philosopher. A cook in the fields. The cerealists’ dictionary. The Yin and yang story. The promised land. Utensils. Cooking brown rice. About salt. Cooking other grains. Nutritionists versus nutrition. Cooking beans, chick-peas and lentils. Doctor M is cooking at my brother’s restaurant tonight. Soups. Vegetables. The first meal. Sea vegetables. Fruits, meat, grains and man. The condiments on your table. Why do we overeat? The companions of grains. Of weak and strong men. Something fresh on your dish (Salads and Pickles). Sauces. Dressings. Spreads. The biochemistry of violence. Special dishes. Baking bread and other things. How about a drink? Tempura. Why do we cook our foods? Flours make wonderful things. The acid and the alkaline (“The well-being of the soul can only be obtained after that of the body has been secured”—Maimonides {Guide of the Perplexed}).

“The balance between acid and alkaline is so important that a failure to maintain it can be extremely harmful to the



body. Biochemists have discovered that death always occurs when there is positive acidity in the organism. We must maintain alkalinity to survive”.

Cooking fish. Don’t call a doctor, I need a cook! What we enjoyed last week. The ceremony. The international chef. Desserts. The traveller’s pack. The Ten Commandments of Health. Epilogue.

Dedication: To Georges Ohsawa—I am infinitely grateful.

Acknowledgments: “This book could never have been completed without the help of my wife, Claude. Most of the recipes are hers; she cooked, tested and wrote them down... Jack Garvy completed the editing of the book and made definite English corrections. My exceptional friend William Dufty gave valuable advice. Finally, my brother Charles was very helpful...”

The author uses the term “black beans” and from his definition on page 18 it seems that he is referring to black soybeans: “Black Beans, twin brothers of the red aduki in size, are sold in Chinese, Japanese and natural-food stores. They are the milk and honey of the bean family, and their flavor and texture impart a delightful sweetness and richness

to any soup or vegetable dish.” No definition is given of soybeans. In the section titled “Condiments” (p. 20-21), the author defines soya sauce, miso, seitan, salted plums, tofu, kuzu, etc. “Tofu is another name for soya-bean curd. In Chinatown, you’ll see it in wooden barrels. It looks like Feta Greek Cheese and some people would swear it tastes like chicken. It is excellent served with sauteed vegetables, sauces, fried or cooked in Miso Soup.

“Seitan: Your guests will almost certainly mistake this for meat. Teeth find it pleasant to chew. A combination of wheat gluten, wheat soya beans [sic], water and salt, it comes in handy when mixed with vegetables, sauces and soups.” Note 1. No recipe for making or using seitan appears in this book.

Soy-related recipes include: Cooking beans in a pressure-cooker (p. 66; “Do not pressure cook black beans. Their skins may come off and clog the pressure cooker spout. It is quite dangerous!”). Cooking beans in a pot (incl. soya beans, p. 67). Black-bean stew (with miso, p. 70). Soja jardiniere (with whole soya beans and miso).

In the chapter titled “Soups,” the author tells the story of how the famous Japanese physician, Dr. Tatsuichiro Akizuki, used miso to strengthen his constitution and to survive the atomic bomb dropped on Nagasaki on 9 Aug. 1945. Under “Minerals” in that chapter he discusses other virtues possessed by miso, then gives a recipe for Miso soup (p. 86).

Radishes sauteed in miso (p. 114). Sandwich au gratin (with miso spread, p. 114). Macrobiotic marbles (with miso, p. 155). Claudia’s pizza (with miso, p. 158). Salade au cresson (with miso, p. 169). Nato [sic, Natto] (Japanese salad with natto, p. 171; Note 2. The author describes “Nato” as “sour soy-beans, bought in a Japanese store”). Miso sauce (p. 178). Miso spread (with tahini, p. 187). Oat-miso spread (p. 188). Scallion spread (with miso, p. 188). Miso pâté (p. 189). Komoku (with tofu, deep-fried and cut into strips, p. 212). O’Sushi (with tofu, p. 217). Kasha à l’Orientale (with tofu, p. 220). Bi-Cuan (Vietnamese recipe with fried tofu, p. 226). Kagetsu ice cream (with fine soya powder [perhaps Jolly Joan from Ener-G foods in Seattle], p. 334; “Kagetsu is a beautiful restaurant in Seattle”). Yellow pompidou (with soya bean powder, p. 336).

The Foreword states (p. 1-2): “Ten years ago I was a sick man, struggling to stay alive and to finish a novel. I suspected I might fail in both matters and the doctors of Paris agreed. They abandoned me as a hopeless case. It was then that I discovered a way of life called Macrobiotics. After a year of eating grains and vegetables, my health restored, I ventured to New York to discover America and finish my novel.”

Note 3. *Webster’s Dictionary* (1985) defines feta, a word first used in English in 1940, as “a white semisoft Greek cheese made from sheep’s or goat’s milk and cured in brine.”

Fax from Jimmy Silver. 1991. Dec. 17. This was the first best-selling macro / natural food cookbook. Michel is

head of a Jewish community in Montreal, Canada. He has 7-9 brothers and 1 sister. “His brother, George, founded the Nature de France clay based body care company—originally called Cattier but changed after they were sued by Cartier. I thought they would have prevailed in the suit but George didn’t want to spend \$500,000 to fight it even if he won.” Address: New York.

615. Bock, Felicia Gressitt. trans. 1970. *Engi-shiki: Procedures of the Engi era*. Books I-V. Tokyo: Sophia University. xi + 216 p. Index. 27 cm. [196* ref. Eng]

• **Summary:** This is volume 1 of a two-volume series. The second volume (ix + 190 p.), published in 1972, contains Books V-IX. These “Procedures of the Engi era (A.D. 901-922) are a great body of regulations designed to supplement the administrative codes which were drawn up in the early eighth century. Because of their wide scope and the minute details included, they are an invaluable source of information about Japan in the Nara and early Heian periods—eighth, ninth, and early tenth centuries.”

“At first glance the *Engi-shiki* appear to be huge aggregate lists, enumerations, specifications, registers, and statistics. Such they are, but in relation to the department of government under which they fall, they provide many essential regulations for carrying out day-to-day details of civil and religious administration” (Preface, p. v).

The contents of the five books translated here are as follows: Book one: Festivals of the four seasons (Part I). Festivals of the second month, festivals of the fourth month, festivals of the sixth month (repeated in the twelfth month). Book two: Festivals of the four seasons (Part II). Festivals of the ninth month, festivals of the eleventh month, festivals of the twelfth month. Book three: Extraordinary festivals. Book four: The Shrine of the Great Deity in Ise. Book five: Bureau of the Consecrated Imperial Princess. The back matter includes: A map (p. 186) showing the Provinces and Circuits at the time of the *Engi-shiki* (circuits—from east to west: Tokai-do, Tosan-do/Tozan-do, Hokuriku-do, Nankai-do, San’yo-do, San’in-do/Sanin-do, Saikai-do), a table of ancient Japanese measurements, eight appendixes, a bibliography, and a glossary and key.

In the many long list of ritual objects, two types of sea vegetables (wakame and arame) appear very frequently (see p. 61, footnote 161). Other common objects are hemp and bark cloth (primeval clothing materials), salt, sake, rice, abalone, sea-bream, bonito, and silk.

In Book Five, included in the list of “Monthly Requirements” (p. 163) are: 2 *kin* 13 *ryô* each of laver and codium, 11 *kin* 4 *ryô* each of wakame and gelidium,... 6 *sho* of fermented soybeans,... 2 *sho* of fermented bean paste, 1 *to* 5 *sho* of barley sugar, 3 *to* each of glutinous rice, soybeans, red beans [azuki], wheat, sorghum, sesame seeds...”

In Book Five, included in the list of things “Required for the Three Occasions in the First Month” after New Year

(p. 163) are “1 *kin* each of laver [nori] and wakame, 3 *shô* of salt, 1 *shô* 5 *gô* each of pickles, bean paste [kuki, miso] and vinegar, 6 *to* of sake, 9 *shô* of glutinous rice, 3 *shô* each of soybeans, red beans [azuki], millet and sorghum, 6 *shô* each of wheat, sesame, and raw chestnuts...”

In Book Five, in the List of Pharmacopoeia required (p. 178+) is included “1 *gô* 1 *shaku* of fermented bean sauce (p. 179) [kuki, the ancestor of miso; see p. 194], and 6 *koku* each of soybeans and red beans [azuki], 1 *koku* of sesame seed... and 3 *koku* of sesame seed oil... and 1 *to* of dried sweet arrowroot [kudzu powder, see footnote 591] (p. 182).

Note: This is the earliest English-language document seen (Nov. 2011) that uses the word “kuki” to refer to early Japanese fermented black soybeans.

616. Chang, Wonona W.; Chang, Irving B.; Kutscher, Helene W.; Kutscher, Austin H. 1970. *An encyclopedia of Chinese food and cooking*. New York, NY: Crown Publishers, Inc. x + 534 p. Edited by Lillian G. Kutscher. Charlotte Adams, Consulting Editor. Illust. Index. 26 cm. International Cookbook Series edition. [52 ref]

• **Summary:** This comprehensive work, the result of at least 25 years of collaboration, contains over 1,000 recipes. The 4th printing (March 1977) proclaims prominently: “The first Completely Safe Chinese cookbook compiled in accordance with latest food research without MSG (monosodium glutamate).” Following introductory chapters titled “Chinese Cuisine: Background,” “Regional Chinese Cooking,” “Utensils for Cooking, Serving, and Eating,” “Cooking Preparations,” and “Cooking Techniques,” there is a detailed “Guide to Ingredients” (p. 22-57), which describes the following soy-related foods and gives Cantonese / Mandarin pronunciations / transliterations (see p. 22): beans, black (wu dow / wu do); beans—black salted fermented beans (dow si / do shih; used as a condiment or flavoring agent [seasoning]. Aroma: fragrant, appetizing); bean cake, fermented (fu yu / fu yu [fermented tofu]); bean curd (dow fu); bean curd, dried (dried bean curd [dried yuba], p. 25, 47—tiem jook or fu jook pei / t’ien ch’u or fu pi chi); bean curd cheese, red (nam yu / nan yu); bean filling, sweet (dow sa / do sa; made from red [azuki] beans or green / [mung] beans); bean sauce, brown or yellow (mien see jiong); bean sprouts (large, from soybeans) (wong dow gna / huang do ya); hoisin sauce (red seasoning sauce) (hoy sin jiong / hai hsien jiang); soy sauce (dark lo tsow / lao tsou; heavy—jiong yow / jiang yu [jiang you]; light—sang tsow / sheng tsou; table soy sauce—sin tsow / shien tsou) “Dark soy sauce has caramel added for coloring. Heavy soy sauce, which has a slightly sweet smell, is also known as black soy. Light soy sauce is the most delicately flavored and is light brown in color. Japanese soy sauce, somewhere between the Chinese light and heavy, is preferable to domestic brands but inferior to Chinese brands.”

Vegetable steak (mien gon / mein jing) “Meat substitute made from wheat gluten. Shape: 3-inch square or round patty

½ inch thick.” Brown, chewy, and firm. Sold in cans.

Photos (black and white, p. 47) show fermented black beans, fresh bean curd, pressed bean curd, bean curd sticks and bean curd sheets [both kinds of yuba, but “bean curd sheets” on p. 47 are called “bean curd, dried”], brown bean sauce, and large fresh bean sprouts.

Note 1. This is the earliest English-language document seen (Oct. 2012) that uses the term “bean curd sheets” or the term “fu jook” or the term “fu jook pei” or the term “fu pi chi” or the term “t’ien ch’u” to refer to yuba or to dried yuba sticks.

Pages 58-60 contain a “Shopping list for Chinese cupboard.” Foods are listed alphabetically in English, with the Cantonese term romanized and Chinese character forms. Next come the 1,000 Chinese recipes divided into chapters. One chapter is titled “Bean Curd” (p. 422-34), which includes Ma Po Dow Fu (p. 433); there are so many recipes for regular tofu (dow fu) in this book that we do not have room to list them all. The many other soy-related recipes are listed in the excellent index.

Recipes for “bean cake, fermented” [fermented tofu] are: Scrambled eggs with fermented bean cake (Fu yu don, Canton, p. 134). Duck with fermented bean cake (Fu yu ta, Adapted, p. 276). Steamed pork with fermented bean cake (Fu yu tsing ju yoke, Canton, p. 292). Stir-fried green beans with fermented bean cake (Fu yu tsang dow, Canton, p. 391). Lettuce and fermented bean cake (Fu yu sang tsoi, Canton, p. 392). Spinach and fermented bean cake (Dow fu bo tsai, General, p. 399). Watercress and fermented bean cake (Fu yu sai yong tsoi, Canton, p. 40).

Recipes for “black beans, salted” [fermented black soybeans] are: Pork with bitter melon and salted black beans (Fu gwa yoke si, Canton, p. 305). Shrimp with bitter melon and salted black beans (Fu gwa dow si har, Canton, p. 306). Steamed spareribs with salted black beans (Dow si pai gwut, Canton, p. 320). Beef with bitter melon and salted black beans (Fu gwa ngo yoke do si jiong, Canton, p. 340). Black bean sauce (Huk dow tsup, Canton, p. 436; with garlic and ginger.

Note 2. This is the earliest separate recipe seen {Nov. 2008} for “Black bean sauce”).

Recipes for “bean curd, dried” [dried yuba] are: Pig’s feet with dried bean curd soup (Ju gyok tiem jook tong, Adapted, p. 113; with “10 sheets dried bean curd.” Soak sheets in hot water for 30 minutes. Drain, cut crosswise into pieces 1 inch wide, then add to soup). Spare ribs with dried bean curd soup (Pai gwut shiu tiem jook, Adapted, p. 321). Dried bean curd strips with soy sauce (Hung shu tiem jook, General, p. 424). Vegetarian ham dried bean curd (Sue ho twei dow fu, Shanghai, p. 429; with “20 sheets dried bean curd”).

Recipes for “bean curd skin” (or bean curd sheets) [yuba sheets, fresh or dried] are: Red-cooked carp with bean curd skin (Fu pi hung sao yu, Shanghai, p. 158; with “bean curd

skin to cover” carp). Red-cooked carp with bean curd skin—Approved ulcer recipe (Hung sao li yu dow fu pi, General, p. 158; with “¼ lb. dried bean curd skin {about 20 pieces, 1½ by 5 inches}. Soak for 30 minutes in hot water. Drain. Cut into 2-inch squares).

Recipes for “frozen bean curd” [frozen tofu]: Frozen bean curd with soybean sprout soup (Dung dow fu dow ya tong, Adapted, p. 90; with “2 cakes frozen bean curd” and “½ lb. soy bean sprouts.” “Defrost frozen bean curd by covering with cold water, letting stand 2 to 4 hours before cooking. Then cut each piece into 10 to 12 thin slices”). Spareribs with frozen bean curd (Pai gwut shiu dung dow fu, Adapted, p. 320; with “4 cakes frozen bean curd”). Stir-fried frozen bean curd (Tsao dung dow fu, Peking, p. 422; with “6 cakes frozen bean curd. * Wrap 2 to 3 pieces fresh bean curd together in waxed paper, freeze until hard”).

Recipes for “pressed bean curd” [pressed tofu]: Pressed bean curd shrimp (Sha tze gahn si, Shanghai, p. 178, with “4 pieces pressed bean curd”). Golden strips with pressed bean curd (La jiao tsao san sih, Hupeh, p. 313). Pressed bean curd and celery with stir-fried beef (Dow fu gahn ching tsai ro si, Shanghai, p. 357). Stir-fried pressed bean curd with pork (Dow fu gahn tsao ro si, Shanghai, p. 427). Stir-fried pressed bean curd with chicken (Dow fu gahn tsao gee si, Shanghai, p. 427).

Recipes for “soybean sprouts”: Spareribs soybean sprout soup (Pai gu dow ya tong, General, p. 112). Beef shank soybean sprout soup (Wu hwa niu ro hwang dow ya tong, General, p. 112). Braised soybean sprouts (Hung sao hwang do ya, Shanghai, p. 376).

Note 3. This is the earliest English-language document seen (Jan. 2013) that uses the term “wong dow gna” or the term “huang do ya” to refer to soybean sprouts. Address: USA.

617. Haw, Kum; Yu, Jong Yull; Lee, K.Y.; Sung, N.E.; Tchai, B.S.; Cha, C.H. 1970. A report of nutrition survey (1969). *Korean J. of Nutrition (Hanguk Yongyang Hakhoe Chi)* 3:1-43. [16 ref]

• **Summary:** The last nation-wide nutrition survey in Korea was conducted in 1947. The authors of the present survey, with financial support from the Ministry of Health and Social Affairs, conducted this nation-wide survey (incl. dietary, clinical, and socio-economic aspects) from 29 July to Aug. 15, 1969.

Table II-6 (p. 7), titled “Average food intake per person per day (gm)” shows various categories of food in five different areas or occupations, plus the average. Soyfoods are listed under “A. Vegetable foods—2. Pulses and their products” as follows: Soybean—City 2.6, agriculture 3.6, fishery 3.7, mountainous -, mining -, average 2.4 gm/day. Soybean paste [jang]—City 7.5, agriculture 12.4, fishery 5.8, mountainous 11.2, mining 8.1, average 10.4 gm/day. In this category, figures for “Small red bean” [azuki] are also given,

with an average of 1.7 gm/day.

Other tables show (with the 1st 3 columns above): II-7. Average nutrient intake per person per day. II-8. Average nutrient intake per adult per day. II-9. Average food and nutrient intake per person per day and % distribution (protein, fat, carbohydrate, energy).

IV-8. Education. IV-9. Roof materials on house. IV-10. Number of rooms in house. IV-11. Wall materials on house. IV-12. Lighting in house. IV-13. Water supply in house. IV-14. Latrine. IV-15. Bath (private, public, well, stream or spring). IV-16. Kitchen (in the house, out, public). IV-17. Fire place (number in house). IV-18. Fuels IV-19. Kitchen equipment (no. of iron pots, bowls, small bowl, spoons or chopsticks). IV-20. Bed clothes (no. of quilts, of mattresses). IV-21. Occupation (90.6% in agriculture). IV-22. Ownership of house IV-23. Monthly income. IV-24. Land. IV-25. Domestic animals (chicken is by far the most popular). Address: 1. College of Pharmacy, Kyung Hee Univ., Seoul, Korea.

618. Verdcourt, B. 1970. Studies in the *Leguminosae-Papilionoideae* for the 'Flora of Tropical East Africa': II. *Kew Bulletin* 24(2):235-307. See p. 256. Continued from *Kew Bulletin* 24:70 (1970). [8 ref]

• **Summary:** Contains a brief history of the changes in the scientific name of the soyabean and the wild soybean, with key citations. "The names of the soya bean and its allies have always given much trouble. There are two Linnaean names which refer to the soya bean, namely *Phaseolus max* and *Dolichos soja*, both dating from 1753. Merrill made a new combination for the first under *Glycine* in 1917 and this name has mostly been followed, e.g. by F.J. Hermann in his monograph of the genus. A few years later, however, when discussing Loureiro's Fl. Cochinch. he refutes his own new combination and uses *Glycine soja* (L.) Sieb. and Zucc. Even if this were correct the name *Glycine max* (L.) Merr.* would still be the valid one since Merrill was the first to choose between two names of equal date; it is not, however, correct since Siebold & Zuccarini's name is not based on *Dolichos soja* L. but is a new name, hence no combination of *Dolichos soja* can be made in *Glycine*. This is clear since Siebold & Zuccarini cite *Dolichos soja* L. in synonymy when dealing with the next species in their account. F.J. Hermann has used the name *G. ussuriensis* Regel & Maack for the plant called *G. soja* by Siebold & Zuccarini but I would agree with Ohwi that there seems to be no bar to the use of their name. In this discussion I willingly agree to the proposal made by Burt about the retention of early authors' names in cases where genera are conserved from a later date with a different type (Taxon 15:307 (1966)).

A footnote reads: * "I definitely do not support Paclt's proposal (1969) to reject this name as a confused name. After Piper & Prain's careful detailed typification (Piper 1914, p. 75-84) whereby a Cliffortian specimen in the Linnaean

Herbarium was chosen as the lectotype, it is a mischievous act to upset it. Incidentally Piper considered *G. max* and *G. soja* to be cultivated and wild forms of one species."

Note: *Webster's Dictionary* defines lectotype (derived from the Greek *lektos* = chosen), a word first used in about 1905, as "a specimen chosen as the type of a species or subspecies if the author of the name fails to designate a type."

The azuki bean is reclassified from the genus *Phaseolus* into the genus *Vigna* in part IV of these studies 24:507-69.

619. Wiener, Joan. 1970. Victory through vegetables: With a section of recipes from the macrobiotic diet by Barbara Thralls. New York, NY, Chicago, Illinois, and San Francisco, California: Holt, Rinehart and Winston. ix + 163 p. Index. 22 cm.

• **Summary:** A vegetarian cookbook. The author, whose name on the title page is handwritten as Bordow, Joan Wiener, was born in 1944. Soy-related recipes include: Soybean milk and soy chaff [okara] (p. 15). Bean curd (from soybean milk) and instant bean curd (homemade, p. 15-16). Cream of rice and soybean soup (with "1 c. soybeans, cooked," p. 31). Soy nut salad (with soy nuts, p. 42). Bean curd sukiyaki (p. 49). Far Eastern dumplings (filled with cooked and mashed soybeans, p. 54). Macao noodles and vegetables (with bean curd and soy sauce, p. 56). Whole wheat role filled with bean curd (p. 59). Soybean tomato mix in stuffed peppers (with "2 c. soy chaff {please see p. 15}" [okara], p. 71-72). Soybean nuts (fried in butter, with salt, p. 93). Tahini miso spread (p. 136).

Azuki beans, hiziki, wakame, nori and kombu are also mentioned.

Note. This is the earliest English-language document seen (June 2013) that uses the term "soy chaff" to refer to okara.

620. Alford, D.K.; Tibbitts, T.W. 1971. Endogenous short period rhythms in the movements of unifoliate leaves of *Phaseolus angularis* Wight. *Plant Physiology* 47(1):68-70. Jan. [14 ref]

• **Summary:** "Rhythmic rotational movements with the midvein as the axis have been observed in the unifoliate leaves of *Phaseolus angularis* Wight grown under controlled environmental conditions with continuous light. The mean period of this movement for all leaves was 53.2 ± 4.3 minutes and remained constant as the leaf matured, except after removal of the apical meristem and emerging trifoliate leaf when the period increased by about 5 minutes." Address: 1. Dep. of Horticulture, Univ. of Wisconsin, Madison, Wisconsin 53706.

621. *Kingston Daily Freeman (The)* (Kingston, New York). 1971. Woodstock's Health Food Center (Ad). March 27. p. 19.

• **Summary:** “‘Ulster County’s First Health Food Supermarket.’”

“Expansion new completed.

“Complete Selection of Health Food Books Courtesy of Upstairs Neighbor.

“Aurora Occult Bookstore.”

Among the many items they sell are: Stone Ground Elam’s flours. Soya Flour. Soy Beans. Kasha. Aduki Beans. Crunchy Granola. Address: 10 Mill Hill Road, Woodstock Village. Phone: 679-9900.

622. Eden Foods, Inc. 1971. Wholesale pricelist. 211 South State St., Ann Arbor, MI 48108. 2 p. July 26.

• **Summary:** See next page. This is the earliest existing Eden Foods catalog seen that is dated. The company was wholesaling the following products: Bulk grains (including some organically grown: Wheat (Deaf Smith), organic [from Texas]; Rye, soft wheat, and open-pollinated corn, organic from Michigan; Brown rice (natural, unsprayed), and sweet brown rice), bulk cereals or packaged cereals (incl. organic cracked wheat, corn flakes, wheat flakes, and rye flakes from Deaf Smith, Texas), bulk flour (all flour is stone ground on order in Ann Arbor, incl. organic soy flour), beans (incl. organic soybeans from Michigan [60 lb], and azuki beans [out of stock until fall]), noodles, oil and nut/seed butters (all unrefined and pressed, incl. soy oil in pint, quart, and 5-gallon sizes), dried fruit.

Soybean products: Tamari soy sauce (pints, quarts, and liters), Hacho Miso (Soy Paste; 1 lb), Mugi Miso (Barley Soy Paste). Note: The Eden logo with 4 sprouts in a circle is shown. Many of these soy products were obtained from Erewhon, and the grains from Arrowhead Mills. The format of the catalog, the product categories, and the product names and spellings are very similar to those used in the Erewhon catalog at this time. Address: Ann Arbor, Michigan. Phone: (313) 769-8444.

623. Bell, Don. 1971. Ohsawa and the yin and yang of health. *Chicago Tribune*. Aug. 1. p. F23.

• **Summary:** The film “Joe” [1970] has a scene shot in an unusual restaurant in New York City’s East Village. The dishes have unusual names like miso soup, hiziki [hijiki], and wakame salad. One man calls it “Jap food,” but the waiter explains that it’s “food in accordance with the order of the universe”—a definition of macrobiotics. We are what we eat. A respected scientist has stated that each year, 98% of the atoms in our bodies are replaced by new atoms that we take in from the food we eat, the water we drink, and the air we breathe.

Popular foods in the macrobiotic diet include seaweed, tahini (made from sesame seeds, a replacement for butter), Japanese azuki beans, and miso and tamari (protein-rich seasonings).

624. Rodale, Robert. 1971. The right way to vegetate: Organic food. *Washington Post, Times Herald*. Aug. 19. p. H4.

• **Summary:** Many young people are turning to vegetarianism. Here are some of the main reasons: 1. Reverence for life. 2. Mystical [and ethical] reasons. 3. Economy. 4. Animal feeds are drugged. 5. A vegetarian diet can be healthful—as shown by studies of Seventh-day Adventists. Rodale then offers a few words in favor of eating meat. His personal preference in diet is a compromise between a vegetarian diet and the standard American meat-heavy diet.

Some vegetarians eat novel foods. “Health food stores catering to vegetarians do a big business in millet, buckwheat groats, unpearled barley, nutritional yeast, and even Japanese Azuki beans.”

Both vegetarians and meat-eaters show a growing interest in such healthy foods as wheat germ, sunflower and pumpkin seeds, brown rice, raw or lightly roasted peanuts, and peanut butter.

625. Shida, S.; Danjo, T. 1971. [On the changes of cotyledons in the seeds of leguminous crop plants during germination. II. plant development and the consumption of cotyledonary stored foods in azuki bean (*Phaseolus angularis* W.F. Wight) at the early stage of growth]. *Miyazaki Daigaku Nogakubu, Kenkyu Hokoku (Bulletin of the Faculty of Agriculture, Miyazaki University)* 18(1):151-60. Sept. [Jap; eng]*

626. Wilcox, Bob. 1971. Zen diet defended after AMA criticism. *Miami News (The) (Miami, Florida)*. Oct. 23. p. 9.

• **Summary:** “The differences between Eastern and Western diets—not philosophies—and possibly some excesses by health zealots, might be behind the American Medical Association’s condemnation of the Zen Macrobiotic Diet.

“An article in the current issue of the AMA journal ‘JAMA,’ the AMA’s council on foods and nutrition says the macrobiotic diet is a health hazard. It says the diet’s ingredients cause disease and malnutrition and the philosophy behind it can kill because it advocates not seeking medical help when ill.”

“According to the Zen Macrobiotic Cookbook [Brown Rice & Love, by Calvin Holt and Patch Caradine], most macrobiotic recipes revolve around rice, carrots, celery, apples, sesame seeds, chestnuts, aduki beans, fish—because it is the meat substance least likely to have been affected by chemicals...” Address: Miami News Religion Editor.

627. Stare, Fredrick J. 1971. The diet that’s killing our kids. *Ladies’ Home Journal* 88(1):70, 72, 76. Oct.

• **Summary:** A harsh criticism of the macrobiotic diet and lifestyle. On the title page is a large photo of: Soy sauce, aduki beans, brown rice, gomashio (sesame salt), and a

EDEN

FOODS, INC.



211 S. STATE ST.
ANN ARBOR, MI. 48108
(313) 769-8444

Wholesale pricelist July 26, 1971

QUANTITY	ITEM	CASE	UNIT	PRICE	PRICE EXTENSION
	<u>Grain--bulk</u>				
	Brown rice, natural, unsprayed	100#	.235	23.50	
	Sweet Brown rice	out of stock until fall			
	Wheat (Deaf Smith) org., hard, red, winter	50#	.101	5.05	
	Wheat (soft, Mich.) org.	50#	.08	4.00	
	Rye, Mich., org.	50#	.10	5.00	
	Corn, Mich. open-pollin- ated, org.	50#	.08	4.00	
	Millet, org.	100#	.25	25.00	
	Barley, pearled	100#	.10	10.00	
	Oats, whole	100#	.10	10.00	
	Buckwheat, brown, kasha	50#	.244	12.20	
	Buckwheat, white groats	50#	.28	11.00	
	<u>Cereals--bulk</u>				
	Bulghur, pilaf	100#	.236	23.60	
	Cracked wheat, Deaf Smith, org.	50#	.16	8.00	
	Rolled oats	50#	.10	5.00	
	Steel cut oats	50#	.10	5.00	
	Corn Flakes, Deaf Smith, org.	25#	.16	4.00	
	Wheat Flakes, Deaf Smith, org.	25#	.16	4.00	
	Rye Flakes, Deaf Smith, org.	25#	.16	4.00	
	Oat Flakes, Deaf Smith,	25#	.16	4.00	
	<u>Cereals--packaged</u>				
	Corn Flakes, Deaf Smith, org.	12/1#	.28	3.36	
	Wheat Flakes, Deaf Smith, org.	12/1#	.28	3.36	
	Rye Flakes, Deaf Smith, org.	12/1#	.28	3.36	
	Oat Flakes, Deaf Smith	12/1#	.28	3.36	
	<u>Flour--bulk</u> All flour is stone ground on order in Ann Arbor				
	Wheat Flour, Deaf Smith, org., hard, red, winter	50#	.14	7.00	
	Wheat Flour, Pastry, org.	50#	.14	7.00	
	Rice Flour, Natural, brown	50#	.275	13.75	
	Corn meal, Mich. org.	50#	.10	5.00	
	Rye Flour, Mich. org.	50#	.12	6.00	
	Soy Flour, org.	50#	.17	8.50	
	<u>Beans</u>				
	Azuki	out of stock until fall			
	Chickpeas, Moroccan	100#	.265	26.50	
	Lentils, green	100#	.167	16.70	
	Lentils, red split	100#	.33	33.00	
	Pinto, Deaf Smith, org.	25#	.205	5.13	
	Green split peas	100#	.124	12.40	
	Soybeans, Mich. org.	60#	.09	5.40	
	<u>Seeds</u>				
	Alfalfa, Deaf Smith, org.	50#	.66	33.00	
	Alfalfa, Deaf Smith, org.	16/24oz.	1.32	21.12	
	Peanuts, raw, shelled, org.	50#	.46	23.00	
	Peanuts, raw, in shell, org.	50#	.40	20.00	
	Sesame, whole, brown	50#			
	Sesame, whole, brown	16/1#	.65	10.23	
	Sunflower	out of stock until fall			

cup of dragon tea. The article begins: "It has nothing to do with Buddhism, inner serenity, or weight loss. All the Zen macrobiotic diet does is destroy the health of its young disciples."

For a rebuttal see: The Macrobiotic. No. 74. March 1972. p. 28-32. "Dr. Stare Revisited" by Matthew Davis. Address: M.D., Chairman, Dep. of Nutrition, Harvard Univ., Cambridge, Massachusetts.

628. Erewhon Trading Co., Inc. 1971. Natural and organic foods. Price list. Boston, Massachusetts. 4 p. Effective Thanksgiving day, Nov. 1971.

• **Summary:** This price list has no cover. Prices are given for each product. Products include: Grains (incl. organically grown brown rice [short, medium, or long grain; Note: The short grain was probably grown by the Lundberg Brothers of Wehah Farms, Richvale, California], Ted Whitmer [in Bloomfield, Montana] organically grown wheat, hard red spring and hard amber durum, and Deaf Smith [Hereford, Texas] organically grown wheat [hard red winter], rye, and corn). Cereals. Stoneground flours (incl. Soybean flour, full fat, organic Deaf Smith; Sweet brown rice flour). Beans (incl. azuki beans, black beans [Japanese, probably black soybeans], soybeans [organic]). Seeds. Tamari & miso: Tamari soy sauce (24 pints x \$0.76 each = \$18.24, 12 quarts x \$1.30 each = \$15.60, 6 half gallons x \$2.40 each = \$14.40, 4 gallons x \$4.50 each = \$18.00, 4.7 gallon can for \$19.00, 4.7 gallon wooden keg for \$22.00). Hacho miso (soy paste, 1 lb or 44 lb keg). Mugi miso (barley-soy paste, 1 lb, 2 lb, 44 lb keg). Kome miso (rice-soy paste, 1 lb, 2 lb, 44 lb keg).

Sea vegetables: agar agar (kanten), dulse, hiziki, kombu, nori (dried laver), wakame, wakame root, wakame (thin sheet). Tea: Lotus root tea. Dandelion herbal coffee. Mu herbal beverage. Kukicha twig tea.

Pasta. Crackers (Chico-San Rice Cakes, organic-salted, unsalted, with buckwheat, or with millet). Snacks (incl. Corn munchies [organic corn chips with soy sauce], Chico-San "Yinnies" organic rice candy [made in Chico, California]).

Note: This is the earliest document seen (July 2012) that mentions "yinnies," a sweet or sweetener made using rice syrup made from koji.

Hopi seeds: Sunflower seeds, pumpkin seeds, almonds, cashews, or soybeans, each dry roasted with tamari. Dried fruits. Virgin oils (incl. Soybean oil, pressed and unrefined in pints, quarts, half gallon, gallon, and 5-gallon can). Nut butters. Condiments (incl. sesame salt, and Tekka [vegetable condiment]). Unusual foods: Umeboshi (plums pickled in brine) and Kuzu arrowroot. For cleanliness [body care products]: Sesame lotion [organic and biodegradable], Sesame shampoo, Orjene shampoo, Peppermint Castile soap, Toothpowder, charred eggplant and sea salt [Dentie in bag or jar], Clearlake all purpose cleaner, biodegradable. For cooking (utensils, incl. 2 sizes of "soy dispenser," suribachi with pestle, Save A Tree canvas shopping bag). Flyers: The

Organic Merchants NOT List. The Sugar Story. The Oil Story. The Macrobiotic Way.

On the last page is a note from Paul Hawken, with his signature, thanking customers for their orders.

Letter (e-mail) from Norio Kushi. 2011. March 31. "Rosemary Traill just reminded me of an interesting story regarding attempting to get rid of the mice at the Erewhon warehouse at 33 Farnsworth St.

"My mother [Aveline] didn't want to use chemical poisons in getting rid of the mice so someone told her about 'sonic' pest repellents that emit a high pitch sound, inaudible to the human ear, to drive the mice away. These sonic devices were placed around the warehouse and interestingly, what occurred is that the mice changed their diet. Instead of eating the grains, they started eating exclusively seaweed. Somehow, the mice, by eating the seaweed had no problem thriving under the condition of the sonic pest repellents. My understanding is that, after that, they had to resort to regular standard ways of getting rid of the rodents." Address: 33 Farnsworth Street, Boston, Massachusetts 02210. Phone: (617) 542-1358.

629. *Chicago Tribune (Chicago, Illinois)*. 1971. Alarming Zen diet story. Nov. 5. p. 46.

• **Summary:** "The following are excerpts from a story by Mick Wheelock in the East West Journal, a macrobiotic newspaper. It is a frightening, authentic account of a young couple's experiences with a zen macrobiotic diet during the wife's pregnancy. Hopefully it will serve as a warning against the diet, particularly for pregnant women."

"Not a day passed when she didn't have miso, adzuki beans, and hiziki."

630. McCook, Sheila. 1971. City chefs putting best spoons forward. *Ottawa Citizen (The) (Ottawa, Ontario, Canada)*. Dec. 23. p. 25.

• **Summary:** "The Day of the Turkey is less than 48 hours away."

"Christmas Eve, for instance, will see Japanese delicacies such as black mushroom ginger soup, hiziki seaweed and carrots, brown rice with adzuki beans served up. For dessert, the offering is apricot chew, to be washed down with boucha [bancha?] oruu tea." Address: Assistant women's editor.

631. Chen, K.F. 1971. [A review of the present status of adzuki bean culture in Taiwan]. *T'ai-wan Nung Yeh Chi K'an (Taiwan Agriculture Quarterly)* 7(4):71-79. Dec. [Chi]*

632. Spiral Foods Inc. 1971. Price list of macrobiotic foods. Chico, California. 2 p. Undated. 35 x 25 cm.

• **Summary:** This single-sheet catalog and price list, printed front and back with reddish-orange ink on green paper, contains 8 panels and is undated. Yet it was sent by Chico-

PRICE LIST OF MACROBIOTIC FOODS

Macro (great), **bio** (life),
biotics (art or technique of rejuvenation)

People are becoming vitally concerned as they learn there are penalties for trying to adjust their environment—particularly their food, its kind and its production—to satisfy their egotistical desires. The disastrous effects of pesticides, preservatives, chemical fertilizers, artificial colorings, etc. are now well known, giving impetus to the demands for uncontaminated air, water and vegetation.

The principles governing the production of Macrobiotic foods were formulated thousands of years before modern commercialism began to process and strip foods of their vital energy giving qualities. Spiral Foods Inc. offers this list of foods fully confident that they are the most pure and natural that can be obtained.

MAKE CHECKS PAYABLE TO:

Spiral Foods, Inc.
 1017 Willow Street
 Chico, California 95926

All orders are subject to acceptance by the office at Chico, where payments are due.

Prices are subject to change without notice. Residents of California must add 5% sales tax on cosmetics and utensils.

All orders are F.O.B. Chico. Orders weighing less than 50 lbs. should be accompanied by a check including:

1. The cost of merchandise.
2. A 2% charge for handling.
3. The cost of shipping which is to be calculated from the Parcel Post rate table appearing on this list. Add approximately 20% in weight to allow for packaging material.
4. Fees for insurance which are charged as follows:

LIABILITY	
\$ 0.01 to \$ 15.00	\$.20
15.01 to 50.00	\$.30
50.01 to 100.00	\$.40
100.01 to 150.00	.50

PARCEL POST RATES

Zone	From Chico	Up to 2 lbs.	Each Add'l. lb.
Local	Local	\$.60	\$.025
1 and 2	Up to 150 miles	.65	.06
3	Up to 300 miles	.70	.075
4	Up to 600 miles	.75	.09
5	Up to 1000 miles	.80	.12
6	Up to 1400 miles	.90	.145
7	Up to 1800 miles	1.00	.195
8	Over 1800 miles	1.05	.23

To first class Post Office there is a 40 lb. limit up to 150 miles, a 30 lb. limit beyond 150 miles and a 70 lb. limit to Hawaii.

If two packages are necessary for your order, please include an insurance fee for each package.

If further information is needed, consult your postmaster.

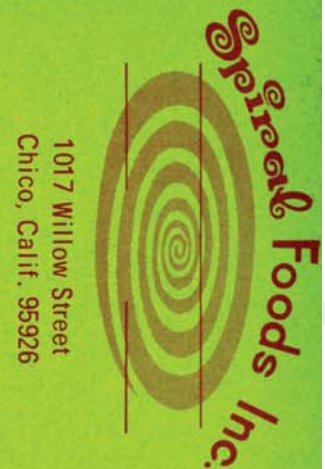
Where United Parcel Service is available, it will be used in preference to Parcel Post.

Spiral Foods, Inc. will return monies not used to pay actual shipping charges and insurance.

Orders exceeding 50 lbs. in weight should be accompanied by a check for the amount of merchandise purchased only. The shipping charges will be collected by the freight company upon delivery.

All items on this list have been endorsed by Mrs. Lima Ohsawa. Products that carry the name LIMA have been manufactured to meet her specific requirements.

**WE CANNOT ACCEPT ORDERS
 LESS THAN \$10.00 IN VALUE**



PRICE			PRICE		
SEA VEGETABLES			LIMA SOY SAUCE		
A source of iron and iodine with minerals and trace minerals found in the sea.			A traditional soy sauce of exceptional quality.		
HIJIKI:	3½ oz.	.72	8 oz.	.64	_____
	8 oz.	1.59	pint	1.11	_____
	1 lb.	2.94	quart	1.97	_____
	11 lb.	28.43	gallon	7.38	_____
			18 liter	26.99	_____
KOMBU:	3½ oz.	1.04	TAMARI		
	8 oz.	2.31	The traditional soysauce, fermented naturally and aged 18 months. Prepared from soybean, wheat, salt and water.		
	1 lb.	4.34	TAMARI SOYSAUCE		
	11 lb.	42.65	8 oz.	.60	_____
WAKAME:	3½ oz.	1.17	pint	1.05	_____
	11 lb.	48.66	quart	1.88	_____
MEKABU (Wakame Root):	3½ oz.	.83	gallon	7.11	_____
NORI – Thin Sheet	1 pkg.	.75	keg - 18 liter	25.92	_____
KANTEN: Agar-agar; sea gelatin.	1.1 oz.	1.02	SOYBEAN PUREE (MISO)		
100% WHOLE GRAIN BROWN RICE			Made from the cultivation of a special enzyme and aged 18 months. This soybean puree is ideal mixed with sesame butter and used as a spread or can be added to soups and sauces.		
Entirely organic,	1 lb.	.42	8 oz.	.63	_____
naturally grown,	2 lb.	.80	16 oz.	1.04	_____
short grain brown rice. Grown specifically to our requirements by Wehah Farms.	5 lb.	1.95	2 lb.	1.83	_____
	10 lb.	3.68	5 lb.	3.98	_____
	25 lb.	8.33	keg 41.36 lb.	28.94	_____
	100 lb.	30.00	UTENSILS		
SWEET RICE - MOCHI GOME:	1 lb.	.42	FOOD GRATER - plain		
Organically grown,	2 lb.	.80	- with well	.48	_____
	5 lb.	1.95		.79	_____
	10 lb.	3.68	KNIFE - fish	5.05	_____
	25 lb.	8.33	- vegetable	5.05	_____
	100 lb.	30.00	VEGETABLE PRESS	4.11	_____
ROASTED RICE:	4 oz.	.23	MORTAR (Suribachi)	6½"	1.57
Made from the same organic rice mentioned above.	8 oz.	.36		9½"	3.69
	1 lb.	.60		10½"	4.68
RICE FLOUR: Our organic short grain brown rice ground.	2 lb.	.86	PESTLE - wooden		.69
	5 lb.	2.10	OIL SKIMMER		.66
	10 lb.	3.98	VEGETABLE SCRUB BRUSH		
We will be happy to give quotations on other organically grown grains and flours upon request.			- small	pc.	.42
RICE CAKES or 12 pkgs. per case	5.40	_____	- large	pc.	.63
BUCKWHEAT CAKES or (Case Lots Sold Only)			TABLE SERVER FOR SOY SAUCE		
MILLET CAKES:			- small	pc.	.70
			- large	pc.	.84
			PADDLE - bamboo	pc.	.19
			CHOP STICKS		
			- lacquered	pr.	.09
			CHOP STICKS		
			- long for cooking	pr.	.12

San in a portfolio of sell sheets with a cover letter dated 8 Dec. 1971—from which we can estimate the date. It is also with larger Spiral Foods catalogs issued after the disastrous 1972 fire that destroyed the company's plant. Under the name of each food is given a brief description. It includes the following foods:

Condiments: Tekka ("A traditional flavoring prepared from carrot, burdock, ginger, lotus root, Soybean Puree {Miso}, and sesame oil"), seitan ("A meat substitute made from vegetable protein of wheat gluten and tamari soy sauce"), salt plums, kuzu arrowroot, sesame salt, sesame butter, sesame oil (from organically grown seeds), Lima sesame oil (imported), crude sea salt ("Unrefined, unprocessed, trace sea minerals retained"), white unrefined sea salt, Mishio (Lima, with kombu), moromi ("Mash of soy sauce before pressing. A pungent flavor"), furikake ("A seasoning made from Miso, sesame seed, nori, bonito [sic, bonito] powder, whole brown rice and kombu" [kelp]), Goma Muso ("A seasoning prepared from traditional Miso and whole sesame seeds"), bainiku ekisu (concentrate of green [ume] plums), sesame seeds. Dried fish. Cosmetics. Beverages: Yano (grain beverage), Whole grain cereals. Whole grain noodles. Beans: Azuki red (Dainagon, or Korean), black [soy] beans. Sea vegetables. 100% whole grain brown rice. Sweet rice—mochi gome. Rice cakes. Lima soy sauce ("A traditional soy sauce of exceptional quality"), tamari ("The traditional soysauce, fermented naturally and aged 18 months. Prepared from soybean, wheat, salt and water"). Soybean puree (Miso) ("Made from the cultivation of a special enzyme and aged 18 months. The soybean puree is ideal mixed with sesame butter and used as a spread or can be added to soups and sauces"). Utensils.

Note 1. This is the earliest document seen (April 2011) concerning Spiral Foods, a company organized in 1970 by Bob Kennedy of Chico-San and Peter Milbury to distribute Chico-San products directly to retail stores in the greater San Francisco Bay Area. When Chico-San was established in 1962 there were no natural foods stores in the Bay Area (or in the USA). However by 1970 there were many. They were not being well served by the old-line health food distributors such as K&L and Landstrom which distributed Chico-San's products, yet they wanted to buy Chico-San's products.

Note 2. This is the earliest English-language document seen (Dec. 2006) that uses the Japanese-language term "bainiku ekisu" (literally "plum flesh extract") to refer to a commercial extract of ume plums. Address: 1017 Willow Street, Chico, California 95926.

633. Aihara, Herman. 1971. *Milk: A myth of civilization. Macroguide* No. 10. 55 p. (Los Angeles: George Ohsawa Macrobiotic Foundation, Inc.). 21 cm. [14 ref]

• **Summary:** Contents: Introduction. My experience of cow's milk. History of the use of animal's milk: in the Western world, in the Eastern world, in the modern world. Human's

milk: blood composition chart for a non-pregnant person, mineral comparison in human's milk and plasma. Cow's milk: comparison of cow's milk to cow's blood. Cow's milk versus human's milk: protein, water, fat, sugar, lactobacilli in milk, pasteurization, vitamins, calcium in milk, iron, allergy to milk, when mother's milk is not enough (gives recipes for alternatives), kokkoh [grain milk] feeding chart, conclusion. Appendix: about milk products and chemical additives. About the author.

Note: Dr. Morishita of Tokyo is mentioned several times. Address: California.

634. Holt, Calvin; Caradine, Patch. 1971. *Brown rice & love: A Zen macrobiotic cookbook*. New York, NY: Pyramid Books. 159 p. Illust. by Loretta Trezzo. *

635. Max, Peter; Proust, Ronwen Vathsala. 1971. *The Peter Max new age organic vegetarian cookbook*. New York, NY: Pyramid Communications. 128 p. Color illust. Index. 14 x 21 cm.

• **Summary:** Peter Max (the first author) was born in 1939. Soy-related recipes include: Miso soup (with aduki beans, p. 39). Soya poppy-seed rolls (with soya flour, p. 87). To sprout seeds, berries and beans (incl. soybeans).

636. Ohsawa, Lima. 1971. *Makurobiotiku ryôri: Shokuyô katei ryôri 700 shu* [Macrobiotic cookery: Food-cure home cookery—700 recipes]. Tokyo: Nippon CI Kyokai. xix + 7 + 200 + 6 p. Illust. (many color plates). Index. 26 cm. [Jap]

• **Summary:** This macrobiotic classic contains many chapters and recipes related to soyfoods and other interesting Japanese foods: Azuki and bean cookery (p. 96-98). Tofu cookery (p. 99-104). Miso cookery (p. 104-08; tofu, miso, and shoyu recipes are also scattered throughout the book). The chapter titled "Other Vegetable Cookery" (p. 110-24) contains many recipes for *kôfû*, a term used to refer to fresh wheat gluten. There are recipes for Kofu cutlets and Kofu croquettes (#419, p. 112). Skewered kofu cutlets. Kofu fukume-ni. Kofu rolls (p. 113). Deep-fried kofu chunks (#423, p. 114; it states that kofu can be purchased at Chinese grocery stores). Interestingly, there is no mention of seitan. The same chapter contains 9 yuba recipes (p. 121-22). Recipes for sea vegetables are scattered throughout the book, especially in the chapter on wild vegetables (p. 135-37). Two recipes using amazake as a sweetener appear on p. 152, and homemade amazake beverage is found on p. 169

Note 1. An extensively revised English-language translation of this book was published in 1974 under the title *The Art of Just Cooking* by Autumn Press.

Note 2. The author's name can also be written "Sakurazawa Rima," where Sakurazawa is her surname. Address: Tokyo.

637. Tsuji, Kaichi. 1971. *Kaiseki: Zen tastes in Japanese*

cooking. Tokyo and Palo Alto: Kodansha International Ltd. 207 p. With 96 color plates. Original woodcuts by Masakazu Kuwata. 29 cm.

• **Summary:** Contents: Foreword by Yasunari Kawabata (winner of the Nobel Prize for literature in 1968). Foreword: The tea ceremony and kaiseki by Sôshitsu Sen (head of the Urasenke School of Tea and the 15th generation descendent of Sen no Rikyu, founder of the school). Utensils and Kaiseki by Seizô Hayashiya (chief curator of the Ceramics Department at the Tokyo National Museum). The twelve months of kaiseki. The kaiseki courses (defines and describes each course, such as Mukôzuke, Misoshiru [pages 168-71 give a fine description of miso and miso soup], Wanmori, Yakimono, Azukebachi, Hassun, etc.). Postscript. Notes on utensils. List of recipes. Glossary: Includes descriptions of miso, natto (incl. *Daitokuji-nattô*, p. 66), shoyu, tofu, and yuba, plus azuki and Dainagon-azuki, many types of wheat gluten (fu), kuzu, mochi, sea vegetables (konbu, nori, wakame), fresh-water algae (Kamogawa-nori, Suizenji-nori [= Kotobuki-nori]), and umeboshi.

This is a magnificent, beautiful book, the finest work available on Japan's highest form of haute cuisine, Tea Ceremony Cuisine, by a great Japanese Kaiseki chef. It was first published in Japanese by Tan-kôsha Inc. of Kyoto. Soyfoods are used throughout the book—especially miso, since one of the fixed courses in a kaiseki meal is miso soup (*misoshiru*). Many recipes use soy sauce, often the light colored type, usukuchi. Most recipes are shown in an accompanying full-color photo. The tea ceremony was developed at the court of the shogun in late Ashikaga times under such men as Soami, and his father and grandfather, Geiami (1431-1485) and Noami, who were painters, landscape gardeners, and poets in Kyoto. The greatest of the tea masters, under whom the tea ceremony (*chanoyu*) took final shape, was Sen no Rikyu (1521-1591). Zen preached the importance of the simple, uncluttered life. As a Zen priest and tea instructor, “Rikyu believed that amid the solitude of calm withdrawal from worldly cares sought by those who practice *chanoyu*, there should exist an element of creativity that leads to the serene enjoyment of beauty. The heart of this creativity, according to Rikyu's Zen aesthetics, lies in the careful avoidance of the trite, the obvious, and the emphatic. Beauty has its most powerful effects when it arises from suggestion and restraint...”

“Centuries ago, it was a rule that Zen priests ate only two regular meals a day—morning and noon. But since the priests engaged in rather strenuous work, by evening they were often hungry, and to assuage this hunger they would eat a light meal, which was called *yakuseki* (‘hot stones’). This term came from the practice of putting heated stones inside their clothing, by which the priests staved off hunger and cold during long sessions of meditation. When the tea masters developed the custom of serving a meal during the tea ceremony, they called it *kaiseki* (‘breast stones’). By

evoking the image used in the Zen term, they seasoned their specialty with religious connotations.”

Soy-related recipes include: Miso soup (with aonorifu, azuki beans, and mustard, p. 29, plate 1, at Opening, the first of the 12 kaiseki months). Miso soup (with sesame custard, ginkgo nuts, and mustard), and Mukôzuke (with yuba and bonito flakes, p. 41, plate 9, at Evening). Miso soup (with wakanafu, kampyo [kanpyo], and mustard), and Azukebachi (hot dish, with sea cucumbers boiled in saké and mirin, boiled yuba, citron peel garnish, p. 53, plate 17 & 22, at New Year's). Miso soup (with Sanshu miso, roasted mome bean curd [grilled tofu], and black [soy] beans), and Hassun (with natto wrapped in sea bream fillets, and miso-pickled chisha stems, p. 65-66, plate 25 & 31, at Spring).

Note. This is the earliest English-language document seen (April 2013) that contain the term “roasted mome bean curd;” it refers grilled tofu.

Miso soup (with icicle radish, temarifu, and mustard), and Azukebachi (hot dish, with octopus boiled in saké, and yuba, garnished with Japanese pepper, p. 77, plate 33 & 36, at Doll Festival). Miso soup (with yuba, warabi fern shoots, and mustard, p. 89, plate 41, at Flower Viewing). Miso soup (with walnut custard, trefoil, and mustard, p. 101, plate 49, at Brazier). Miso soup (with eggplants, bamboo shoots, and mustard) and Wanmori (abalone and bean curd custard, chisa leaves [a variety of lettuce], and grated ginger, p. 113, plate 57 & 59, at Off Season). Miso soup (with Sanshu miso, shiratako, junsai) and Wanmori (with yuba and egg custard, asauri, and wasabi, p. 125, plate 65 & 68, at Morning). Miso soup (with Sendai and Sanshu-miso, koimo, and hojiso), and Yakimono (with deep-fried eggplant slices coated with white miso and broiled), and Hassun (broiled burdock wrapped in yuba, and deep-fried green peppers, p. 137-38, plate 73 & 76, at All Soul's Day). Miso soup (with namaifu, shirouri, and mustard), and Azukebachi (hot dish, with deep-fried dumplings of bean curd and hamo {sea/conger eel}, and broiled eggplants), and Hassun (with abalone cooked in saké and miso, soy beans in the pod [green vegetable soybeans] p. 149-50, plate 81, 85 & 86, at Moon Viewing). Miso soup (with koimo, zuiki, and sesame seeds), and Mukôzuke (with abalone, bean curd, and sesame seeds), and Wanmori (with boiled pine mushrooms and bean curd, nori, citron peel, p. 161, plate 89 & 92, at Closing).

Interesting Glossary entries: (1) *Daitokuji-nattô*, a “variety to which extra salt has been added, from the Daitokuji temple in Kyoto where it was first made as a preserve to be eaten in times of famine.” (2) “*Fu* is the general name for a light cake made of wheat gluten. The two basic types of this cake are uncooked (*namaifu*) and baked (*yakifu*). The names that precede the suffix refer to what has been added to the gluten, the shape of the cake, or the area famous for a certain kind of cake. *Aonorifu* is baked and contains *Aonokiro*. *Chôjifu* is made long (=cho-) and cut to fit the bowl. *Daitokujifu* is fried cake that originated from the

Daitokuji temple in Kyoto. *Temarifu* is a cake in the shape of a child's ball (=temari). *Wakanafu* contains several kinds of young greens (=wakana) that give it a fresh springlike color."

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term *Daitokuji-nattô* (with a diacritical mark above the o -> ô, and hyphenated) to refer to this Japanese type of "fermented black soybeans." Address: Kyoto, Japan.

638. Sato, J. 1972. [Supply and demand of miscellaneous grain crops and beans]. *Nogyo Oyobi Engei (Agriculture and Horticulture)* 47(1):159-63. Jan. [Jap]*

• **Summary:** The main beans discussed are soybeans and adzuki beans.

639. Kon, T.; Kitamura, K.; Shiga, Y. 1972. [Growth analysis of the high yield of adzuki beans in severe cold year]. *Hokuno North Agric* 39(2):40-42. Feb. [Jap]*

640. Nomura, S.; Kitamura, K. 1972. [Growth analysis on adzuki beans cultivated in greenhouse]. *Hokuno North Agric* 39(2):42-45. Feb. [Jap]*

641. Soma, G.; Hirai, G. 1972. [Studies on the relation between physical properties of soil and plant growth. 2. three-phase growth of adzuki beans]. *Hokuno North Agric* 39(2):45-47. Feb. [Jap]*

642. Harmony Foods. 1972. Beyond macrobiotics. *Harmony Newsletter*. March. 1 p. [1 ref]

• **Summary:** "Harmony Foods is almost two years old, making it Britain's youngest distributor of whole natural foods. As a result of Harmony's foods being highly publicized in national newspapers, radio and TV, we have expanded beyond the macrobiotic community to health food stores, wholefood and vegetarian restaurants, communes, health spas, boarding schools, and meditation centres across the British Isles. Harmony has become a primary source for whole, natural foods as well as the traditional foods, teas and table delights of the macrobiotic world. Natural foods go wherever people want to live naturally. It's the way of life for the 70's.

"Remcon Show '72: Harmony will be at Booth 22 at the Remcon Show this year. We hope our many friends in the trade will come by and visit with us. We will be displaying our new additions to the Harmony line; you will be in for some surprises in this display, for we have at last secured a source for an item you have been begging for.

"Discount Flash: A 5% discount for cash with all orders at the Remcon show. Come with your lists and stock up for the brisk spring trade.

"New Mini-Bulk Offering: We are offering mini-bulk sizes on popular items from the Harmony Line. Organic

rice and most Harmony grains, Miso, Tahini, Tamari, Soya and Aduki beans. The grains are packed in a 20 lb attractive hessian bag with the Harmony name, logo, and the name of the grain. The Miso, Tahini and Tamari come in plastic non-breakable containers for safe shipment. Mini-bulk grains lend an appealing natural food image to any store displaying them. Price advantages will attract regular users of these items. Try an order today.

"Media Flash: Harmony has taken on the distribution of an important newspaper, *Seed: The Journal of Organic Living*, to help you sell more wholefoods. It is a newspaper that will cover the complete wholefood, organic scene, presenting a fresh lively viewpoint on all aspects of natural living. It is the only health food publication that will have a sense of humour, and amusing touches throughout its 12 full pages. The current issue contains a leading American doctor's comments on milk and dairy products, organic gardening tip [sic] for allotment users, lively interviews about diets with famous people, and a British doctor's look at the diet of the American Medical Association. We will take the liberty of sending all our customers 10 copies of it on a sale or return basis. We hope you will display *Seed: The Journal of Organic Living* because it will help you sell whole natural foods and keep your customers informed of all that is happening in that world. It will sell for 10p per copy and 6½p wholesale.

"Please throw away all previous price lists and make sure your records are up to date. There has been no price increase but additional items are listed." Address: 191 Latimer Rd., London W.10, England. Phone: 01-969-1644.

643. Amabe, S.; Kanzaki, H. 1972. [A simple method of footpath planting of soybeans and adzuki beans for crop rotation in warm regions]. *Nogyo Oyobi Engei (Agriculture and Horticulture)* 47(4):588-90. April. [Jap]*

644. Farmilant, Eunice. 1972. Macrobiotic cooking. New York, NY: New American Library. 224 p. Foreword by Herman Aihara. May. Index. 18 cm. [31 ref]

• **Summary:** This pocketbook has a color (beige) photo on the cover of ears of wheat, one wooden spoon filled with soybeans and one filled with unpolished rice. It is "A basic introductory guide to cooking and eating the macrobiotic way." The author's interest in macrobiotics began in April 1968. Basic information on soyfoods (especially miso, tamari, and tofu) is given on pages 29, 33-38, 213-14. Soy-related recipes include: Wheat berries and black beans (i.e. black soybeans, p. 78). Sprouts (incl. soy sprouts, p. 82-83). Miso pickles (p. 124-25). Miso soup (p. 128-29). Cream of miso soup (p. 135). Black beans and wheat berries (p. 139).

There is an entire chapter on miso and tofu (p. 142-46) including: What makes miso so beneficial? Barley miso (nutritional analysis). Miso-vegetable stew. Miso-rice. Miso stew with vegetables. Miso-vegetable spoon bread.

Homemade tofu (curded with fresh lemon juice).

Pizza–Macrobiotic style (with miso, p. 149). Chop suey (with tofu and miso, p. 151-52). Miso bechamel sauce (p. 159). Miso gravy. Simple tahini and tamari sauces (p. 160). Tempura dip (with tamari). Simple miso spreads (p. 161). Miso-vegetable spread. Miso-watercress spread.

There is a directory of macrobiotic stores and restaurants in the U.S. (p. 191-203, subdivided alphabetically by state, and within each state alphabetically by city). The following states have the following number of stores and restaurants: Alaska 1, Arizona 4, Arkansas 1, California 32, Colorado 4, Connecticut 18, District of Columbia 3, Florida 14, Georgia 7, Hawaii 2, Illinois 7, Indiana 2, Iowa 5, Louisiana 4, Maine 14, Maryland 7, Massachusetts 51, Michigan 12, Minnesota 3, Mississippi 2, Missouri 3, Nevada 1, New Hampshire 20, New Jersey 9, New Mexico 3, New York 61, North Carolina 5, Ohio 14, Oklahoma 3, Oregon 2, Pennsylvania 8, Rhode Island 5, South Carolina 1, Texas 4, Utah 1, Vermont 26, Virginia 4, Washington 3, Wisconsin 2.

There is also a directory of stores, restaurants, and centers outside the U.S. (p. 204-07, subdivided by country). The following countries have the following number of stores, restaurants, or centers: Australia 1, Belgium 2, Brazil 2, Canada 15, Denmark 4, France 29, Germany 1, Holland (Netherlands) 2, India 1, Italy 1, Japan 3, Portugal 1, Puerto Rico 1, Spain 1, Sweden 1, Switzerland 2, United Kingdom: England 13, Scotland 1, Vietnam 2.

A list of wholesale distributors in the U.S. (p. 208-09) includes Shiloh Farms (Route 59, Sulfur Springs, Arkansas; [Warren Clough]), Erewhon Trading Co. (8003 W. Beverly Blvd., Los Angeles, California 90048), Chico San Foods (1262 Humboldt Ave., Chico, California 95926), Erewhon Trading Co. (33 Farnsworth St., Boston, Massachusetts 02210), Deer Valley Farms (Guilford, New York 13780), Infinity Food Co. (171 Duane, New York, NY 10013), Mottel Foods (451 Washington, New York, NY 10013), Juniper Farms (Box 100, Sugar Loaf, NY 10981), Pioneer Specialty Foods (Fargo, North Dakota 58100), Merit Food Co. (Pill Hill Lane, Box 177, Bally, Pennsylvania 19503), Essene (58th & Grays Ave., Philadelphia, PA 19143).

Note 1. This is the earliest document seen (March 2020) that contains a directory of macrobiotic food stores in the United States and worldwide.

Note 2. Also contains recipes for aduki [azuki] beans.

645. *Lowell Sun (The) (Lowell, Massachusetts)*. 1972. The Bernstein parties. June 29. p. 12.

• **Summary:** “The Young People, associates of the Paradox restaurant, which catered the supper, were long haired, in some instances eyebrowless or cheeks daubed a pale blue, and clothed in jeans or overalls and boots or long trailing dresses with thick, clunky cork sandals. The menu was just as interesting.

“For starters, bits of whole wheat bread were spread

with soybean puree [probably miso] and studded with fresh vegetables. Platters were loaded down with wheat noodles (which the Philistines mistook for spaghetti) mixed with more vegetables, squash baked with chestnut puree and aduki beans from Japan, deep fried vegetable croquettes and masses of fresh fruit and cheese.

“For the coffee, which only the cognoscenti recognized as barley, chicory and red beans [azuki?], there was sorghum molasses instead of sugar, and goat’s milk.”

646. Shibaoka, Hiroh. 1972. Gibberellin-colchicine interaction in elongation of azuki bean epicotyl sections. *Plant and Cell Physiology (Tokyo)* 13(3):461-69. June. [39 ref]*

• **Summary:** “In azuki bean (*Azuki angularis* = *Vigna angularis*) epicotyl sections, gibberellin A3 (GA3) enhanced the growth promoting effect of indoleacetic acid (IAA), but showed no growth effect when applied alone. Sections showed practically no cell division. The promoting effect of GA3 on section growth seems to be due to its promoting effect on cell elongation.” Address: Dep. of Botany, Faculty of Science, Univ. of Tokyo, Hongo, Tokyo, Japan.

647. Maddocks, Melvin. 1972. The seeds of idealism. *Christian Science Monitor*. Aug. 31. p. 7.

• **Summary:** Discusses natural and organic health foods. There are now “over 2,000 ‘health food’ stores across the United States, doing an estimated \$500 million business in azuki soybeans [sic], green lentils, buckwheat, and the like.”

“Erewhon Trading Company of Boston [Massachusetts]—one of the best in the new industry has listed fair ‘organic’ food prices so that the buyer may beware.” Short grain brown rice, says Erewhon, should retail for about 35 cents a pound; yet it has been known to sell for as much as 50 cents.

648. *Vermont Freeman (Starksboro, Vermont)*. 1972. Co-op notes. Sept. 1. p. 20.

• **Summary:** “Plainfield–Price changes:
“Granola \$3.00 for 5 lbs; Aduki beans \$2.59 for 5 lbs;...”

649. Harmony Foods. 1972. Harmony Foods case prices. London, England. 1 p. Sept. 18. 30 cm.

• **Summary:** A table shows: (1) Product name. (2) Contents of each case. (3) Cost [Price] of each case. (4) S.R.P. [Suggested retail price].

Product categories: 1. Cereal Foods: 11 products incl. Organic whole rice [brown rice]. Roasted buckwheat. Whole wheat grain (organic). Organic rice flour.

2. Pulses: 3 products incl. Soya beans (special quality). Aduki beans. Chinese lentils.

3. Sesame and soybean foods: Tamari soya sauce. Miso soya puree (dark [Hatcho]). Miso soya puree (lighter “mugi” type miso). Dark tahini. Light tahini. Sesame seeds.

Note 2. This is the 2nd earliest known existing price list from Harmony Foods. Address: London.

650. Hansen, Barbara. 1972. Language of cookery: Moon cakes for Chinese festival. *Los Angeles Times*. Sept. 21. p. H6.

• **Summary:** “The brightest moon of the year shines on the 15th day of the 8th month of the Chinese lunar calendar.” It is honored with the Moon Festival, an ancient celebration.

Note 1. Translating the date to our Western calendar puts it between mid-September and early October.

At this time moon cakes appear in Chinese bakeries and markets. These cakes, which are round like the moon, come with various fillings. One popular filling is a whole [duck] egg yolk. Others include “winter melon, black bean paste, ground lotus seeds, and soy beans. When you cut the cake filled with black bean paste in half, it looks like a representation of the moon (egg yolk) in a midnight sky.”

Note 2. This is the earliest document seen (March 2010) that uses the term “black bean paste” to refer to a sweet paste. What kind of beans are used to make it? Probably black soybeans, but perhaps black azuki beans?

Talk with Nina Simonds. 2008. Sept. 19. People rarely make moon cakes at home or in restaurants; they are typically made by a Chinese bakery or confectionery. Therefore the recipe and ingredients are not well known. Just as sweet red bean paste is made using azuki beans as the main ingredient, Nina would guess that this sweet black bean paste is made using either azuki beans or soybeans—but she is not certain.

Norma Chang, in her book *My Students' Favorite Recipes*, states in her glossary of ingredients (p. 173) that adzuki beans (which have been cooked, pureed and sweetened) are used to make “red bean paste or black bean paste” used as the filling in black bean cake, moon cake, and other pastries.

Talk with owner of Eastern Bakery (a leading maker of moon cakes) in Chinatown, San Francisco. Both red bean paste and black bean paste are made with red beans (azuki beans); they are never made with soybeans.

651. Cheng, Chien-pan. 1972. Current situation of food legume crops production in Taiwan, The Republic of China. *Tropical Agriculture Research Series* No. 6. p. 11-22. Sept. Symposium on Food Legumes. [6 ref]

• **Summary:** Discusses the soybean, peanut, mungbean, and red bean (*Phaseolus angularis*; adzuki in Japanese). “Currently, peanut and soybean are the two leading legumes produced in Taiwan. They were introduced from the China mainland by Chinese immigrants at the end of the fifteenth century. However, full attention to their production was only given during the last two decades...”

“In Taiwan, the most distinctive feature for the production of soybean, peanuts and other field crops is the

practice of a specific of a specific rotational pattern—the multiple cropping system—which will be discussed in this text for each of the concerned crops.”

“Prior to 1945, soybean production in Taiwan was very limited and its cultivation was largely for use as a green manure.” During that period, soybean for human consumption depended mainly on imports. In 1953 both varietal and cultural improvements were started in order to make Taiwan more self-sufficient in soybeans. Table 1 shows the growth of soybean production in China each year from 1946 to 1971, including area (hectares), production (metric tons), and yield (kg/ha). Production peaked in 1967 at 75,226 metric tons. Yield peaked in 1970 at 1,525 kg/ha.

Taiwan is favored with three soybean planting seasons—spring, summer, and fall. Planting is usually greatest in the fall.

Note: This document contains the earliest date seen for soybeans in Taiwan (late 1400s). The source of these soybeans was Chinese immigrants from the China mainland. Unfortunately no citations is given for the source of this information. Address: Joint Commission on Rural Construction.

652. Motomiya, Giichi; Ito, Ryuji. 1972. Domestic production, importation and utilization of food legumes and research organization in Japan. *Tropical Agriculture Research Series* No. 6. p. 23-32. Sept. Symposium on Food Legumes.

• **Summary:** “The history of soybean cultivation in Japan seems to be fairly old, because some descriptions on ‘Daizu’ (soybean) can be seen in the ancient chronicles of Japan (Kojiki and Nihonshoki, written at the beginning of 8th century) and the carbonized ‘Daizu’ was found in the vestige of ancient civilization of the strawrope pottery in the period of B.C. But the statistical data of soybean production was not yet established completely before 1878... But the production of soybean in Japan was gradually decreased by the cause of sudden increase of importation from China since 1930, and this decrease was accelerated furthermore by the cheap American soybean imported abundantly since 1961 under the free trade system, and consequently the cultivation areas of soybean decreased to 100,000 hectares in 1971...”

Research and experiment on food legumes in Japan. Soybean: The agricultural experiment stations were established one after another in every prefecture in Japan since the establishment of the National Agricultural Experiment Station in 1893. And about 80 years have passed since the breedings of rice, wheat, barley and soybean were started in these experiment stations...

“Breeding objectives are as follows: High yielding (more than 4 tons per ha.), good qualities (yellow hilum, large seed, protein contents over 50% or oil contents over 25%), resistance against disease and insects,... resistance against cold weather and adaptability for mechanized

cultivation...

“The whole country has been divided into five breeding regions according to the ecological types of cultivated soybean to accomplish the above described breeding objectives.”

Soybean production / imports in Japan in tonnes (metric tons): 507,100 / 808,177 in 1955; 417,600 / 1,128,290 in 1960; 229,700 / 1,847,469 in 1965; 126,000 / 3,243,790 in 1970; 122,400 / 3,211,568 in 1971.

Page 32 discusses peanuts, kidney beans, and azuki beans. Address: Ministry of Agriculture & Forestry, Kasumigaseki, Chiyoda-ku, Tokyo, Japan.

653. Narikawa, Tomoaki. 1972. Kidney bean and azuki bean in Japan with reference to breeding in Hokkaido. *Tropical Agriculture Research Series* No. 16. p. 179-88. Sept. Symposium on Food Legumes.

• **Summary:** “The kidney bean and azuki bean were brought into Japan from China many centuries ago and now these are important crops in upland farming.” In 1970, the cultivated area of azuki bean in Japan was 90,000 ha, with 48.7% in Hokkaido (far north), 5.0% in Kumamoto prefecture (south, in central Kyushu), and 4.5% in Aomori prefecture (northern tip of Honshu). Production in Japan in 1970 was 109,000 tons, with 62.1% in Hokkaido, 4.0% in Aomori, and 3.9% in Kumamoto.

“Azuki bean in Hokkaido: The scientific name of azuki bean is *Phaseolus radiatus*, L., var. *aurea*, Prain, and the synonym is *Phaseolus angularis* (Willd.), W.F. Wight but in Japan the latter is familiar.

“Seed of azuki beans is used mostly for Japanese cakes [confections], in other words, azuki bean is used always with sugar. Therefore, when we had few sugar in our country, consumption of azuki bean was few and now we have much sugar so that we need a large amount of azuki bean.

“The brands of azuki bean are very simple compared with that of kidney bean and they are ‘common azuki bean’ and ‘large seeded azuki bean’ (‘Dainagon’ in Japanese). The seed weight of common beans is about 13-15 g/100 seeds and Dainagon 18-20 g/100 seeds. Dainagon is always more expensive than common bean but in Hokkaido acreage of Dainagon is only 4,300 ha (9.8%) and in the other hand common azuki bean 39,500 ha (90.2%). The reason of this situations is that varieties of Dainagon cultivated now are low yielding and the income from unit area of Dainagon is lower than that of common azuki bean.” Address: Chief, Lab. of Kidney and Azuki Bean Breeding, Hokkaido Prefectural Tokachi Agric. Exp. Station, Memuro-cho, Kasai-gun, Hokkaido, Japan.

654. Tada, M. 1972. [Studies on legume starches. II. observation of the surface structure of starch granules]. *Denpun Kagaku (Starch Science)* 19(2):57-63. Sept. [Jap; eng]*

• **Summary:** Starch granules from adzuki beans and peas were investigated.

655. Tada, M. 1972. [Studies on legume starches. III. the surface structure of legume starch granules observed by a scanning electron microscope]. *Denpun Kagaku (Starch Science)* 19(2):64-69. Sept. [Jap; eng]*

• **Summary:** Starch granules from adzuki beans, peas and potatoes were investigated.

656. *Tropical Agriculture Research Series*. 1972. Symposium on food legumes. No. 6. 253 p. Sept. No index. Proceedings of a Symposium on Tropical Agriculture Researches, 12-14 Sept. 1972. (Tropical Agriculture Research Center, Ministry of Agric. and Forestry, Nishigahara 2-2-1, Kita-ku, Tokyo 114, Japan). [150+ ref]

• **Summary:** Soybeans, azuki (adzuki) beans, and peanuts are among the main legumes discussed. Chairman: N. Matsumi (Upland Farming Div., Central Agricultural Experiment Station, Kitamoto, Saitama, Japan). Address: Tropical Agriculture Research Center, Ministry of Agriculture and Forestry, Nishigahara 2-2-1, Kita-ku, Tokyo 114, Japan.

657. White, David. 1972. Adzuki bean potential being assessed. *New Zealand J. of Agriculture* 125(3):43, 45. Sept.

• **Summary:** In 1969 the adzuki bean (*Phaseolus angularis*) was first planted at the DSIR crop research substation at Otara at the instigation of the officer in charge, Mr. J.A. Palmer. It was regarded as an experimental crop. Address: Auckland, New Zealand.

658. Eden Foods. 1972. [Catalog and pricelist]. 211 South State St., Ann Arbor, MI 48108. 2 p. Oct. 5.

• **Summary:** This is the second earliest existing Eden Foods seen that is dated. Soy-related products include: Hopi Roasted Soybeans (1.3 oz snack). Soybeans (1 lb, 2 lb, and 50 lb bags). Soy flour (25 lb or 50 lb). Tamari soy sauce (pints, quarts, gallons).

Other interesting products include: Azuki beans (25 lb, 50 lb, and 100 lb bags). Sweet rice flour (25 lb). Celestial Seasonings herb teas (incl. The Red Zinger). Mu herbal tea #9, #16. Wild ginseng tea. Wild ginseng root. Wild goldenseal powder. Whole wheat noodles. Dr. Bronner’s Castile Soap. Corona Hand Mill. Honey (blueberry blossom or raw clover; “This honey is strained only once and heated only to 115 degrees and not above in order to preserve the natural nutrients and enzymes in the honey”).

Note: This is the earliest document seen (Jan. 2002) containing the term “Sweet rice” or “Sweet rice flour.” The new term is used in place of the traditional term “glutinous rice” which is inaccurate since this type of rice contains no gluten. People with celiac disease, celiac sprue, or Duhring’s disease must strictly avoid foods that contain gluten; they can eat “sweet rice.” Address: Ann Arbor, Michigan.

659. **Product Name:** Azuki Beans.

Manufacturer's Name: Eden Foods, Inc.

Manufacturer's Address: 211 South State St., Ann Arbor, MI 48108. Phone: 313-769-8444.

Date of Introduction: 1972 October.

Ingredients: Azuki beans.

Wt/Vol., Packaging, Price: 25 lb, 50 lb, or 100 lb bag.

How Stored: Shelf stable.

New Product–Documentation: Eden Foods Inc. 1971. July 26. Wholesale pricelist. “Beans: Azuki.”

660. Midwest Natural Foods Distributors, Inc. 1972. Catalog and price list 11/1/72. Offering the best in natural foods. Ann Arbor, Michigan. 58 p. Nov. 1. Index. Illust. 22 cm.

• **Summary:** This is a very early natural foods catalog, typewritten and mimeographed on pink paper; it contains a few logos of manufacturers but no ads. On the front cover is a stylized illustration of a rayed sun, with each ray represented as a fruit or vegetable. Contents: Hi! Who, where, phone, why. General information: Service, terms, freight, notes, contact (Henry Bednarz and Larry Kociela, p. 1-2). Special case lot discount–5%. Lines on which case lot discounts are not allowed (7). “Computerized billing by January 1, 1973 including Quantity, Unit, Description, Size, Sugg. [Suggested] Retail, Unit cost, extension, 10 day 2% discount, 10 day case lot discount” (p. 4).

The body of the catalog is an alphabetical listing of suppliers / manufacturers, with major brands or product categories a cross references (e.g. Bakon Yeast, see Sovex). Within each, products are listed alphabetically (shown below in parentheses). These include: Acme juicer Co. Appliances & utensils. Barth's Nutra Foods (Barth Soya Date Cereal). Books (Nutri-Books Corp., Denver, Colorado). Chico San (Rice Cakes, Lima Tamari Soy Sauce, Miso Soybean Puree, Sesame Salt, Sesame Butter, Salt Plums, Kuzu {wild arrowroot}, azuki beans, Mu Tea, kombu, soysauce tableserver–glass, chopsticks), Celestial Seasonings teas, Continental Culture Specialists (acidophilus culture, kefir grains, royal yogurt), Dr. Bronner & Assoc. (dulse sea lettuce, lecithin protein cereal, Do It Twice Soy Vege Base, pure peppermint oil soap), El Molino (7 Grain Cereal, soy beans–whole, soya flour, soya grits, soya meal, Graham flour), Fearn Soya Foods (Pancake S.F. [Soya Flour] Mix, liquid lecithin, High Protein (carob, chocolate, vanilla), soya protein 96%, Protein 600 Tablets (vanilla, chocolate), Muscle Protein, Soya Powder–Natural, Soya Powder–Low Fat, Soya Granules, cooking soybeans, Wheat Cereal Soya Mix, Corn Bread Soya Mix, Salted Plain SoyoSnax, Soybean–sprouting, lecithin granules, Soy O Snaks–Natural, barley–hulled organic, triticale flour–organic), Flavor Tree (Pernola, Pernuts {unsalted, sea salted, mild garlic, onion, carosel [carousel] carob covered}), Gides, Inc. (Nu-Life {vitamins & minerals–has the most products of any supplier}; A

Soyadophilus, vitamin E natural mixed tocopherols), Lassen Foods (granola), Malt-O-Meal (Soytown) (salted soy beans [roasted], unsalted, barbecue flavor, garlic, soy spread, soy honey bar, soy nut bar), Miracle Juicer Co., Modern Products (Gayelord Hauser), Norganic (vegetable oils, incl. peanut oil, soy oil, safflower oil, sesame oil, sunflower oil, Gold Soya Mayonnaise), Richter Bros. (Familia cereals {Swissy Cereal, Fritini Mix}, Morga vegetable bouillon, Pero coffee substitute, Herbmare seasoning salt), A. Sahadi Co. (sesame tahini), Sourdough Jack's Country Kitchen (sourdough starter), Sovex (granola, Bakon Yeast), Seelect Dietary Products: Herb teas (incl. Bladderwrack, dulse leaves, saw palmetto, Irish moss), St. Laurant Peanut Butter, Sunshine Valley, Viobin (lists 16 products, incl. wheat germ oil), Mineral Waters (incl. Apollinaris, Vichy, Perrier, Mountain Valley), Grist Mill (granola, Wunder Bars, Honey Graham Cracker, Super Protein Concentrate), Norwalk Juicer Co., Parkelp (Ocean Labs, Inc.; lists 4 kelp products), Nuvita Foods (Langes; Soya Carob Macaroni). Organic Sun Valley Dried Fruits (incl. Calimyrna figs, Monukka raisins, Black Mission figs, Zahadi dates). Honey Preserves–No sugar added. Index by products and suppliers.

Note 1. This is the earliest document seen (March 2020) concerning Midwest Natural Foods.

Note 2. This is the earliest English-language document seen (July 2021) that mentions the “Acme Juicer” or the “Acme Juicer Co.” Address: 310 W. Ann St. (P.O. Box 100), Ann Arbor, Michigan 48107. Phone: 313-761-2997.

661. Chico-San Inc. 1972. Products (Document part). In: Midwest Natural Foods Distributors, Inc. 1972. Catalog and price list. Nov. 1. Ann Arbor, Michigan. 58 p. See p. 7-8.

• **Summary:** Rice cakes, Buckwheat cakes, or Millet cakes (salted or nonsalted, 3½ oz). Yinnies rice candy (3½ oz). Rice chips or Corn chips (5 oz). Lima Tamari soy sauce (8 oz, pint, or quart). Miso soybean puree (8 or 16 oz). Sesame salt (2, 4 or 8 oz). Sesame salt (4, 8, or 16 oz). Sea salt, white unrefined (1 lb). Salt plums (4 or 8 oz). Kuzu (wild arrowroot) (2 oz or 4 oz). Wholewheat spaghetti (OG [=organically grown], 8½ oz). Buckwheat spaghetti (8½ oz). Wholewheat macaroni (OG, 12 oz). Buckwheat macaroni (12 oz). Azuki beans (8 oz, 1 lb). Wild ginseng root (½ oz). Wild ginseng powder (25/6-pkts). Ohsawa twig tea (4 or 8 oz). Mu tea–Lima, more ginseng (24/2 or 24/8 pkts). Mu tea–Osaka [Japan] (24/2 pkts [also called “16 Herb Tea.” Label shows ingredients: Ginseng, Ligusticum, Paonia root, cypress, orange peel, ginger, Rehmannia, cinnamon, cloves, peach kernels, Coptis, liquorice root, Cnicus, Atractylis, Moutan, Hoelen]), Green tea, natural leaf (6 oz). Lotus root tea (1 3/4 oz). Rice cream (OG, 1 or 2 lb). Kombu, kelp size (3½ oz). Tooth powder jar (½ jar).

Appliances: Food grater (with or without well). Vegetable knife–square end. Fish knife–pointed end. Mortar (suribachi, small or large). Pestle–wooden. Vegetable press.

Oil skimmer for tempura. Vegetable scrub brush (small or large). Soysauce tableserver—glass. Rice paddle—bamboo. Chopsticks—lacquered. Chopsticks—long cooking.

At the bottom is the Chico-San spiral logo.

Note: Many of these products are imported from Japan. Address: [Chico, California].

662. Erewon Inc. 1972. Distributor price list. Boston, Massachusetts. 4 p. Effective December 8, 1972.

• **Summary:** See next page. Includes: Three varieties of Wehah Farms organically grown rice in 50 lb bags (“Colusa” and Golden Rose” are both short grain; the third is sweet brown rice). Azuki beans (100 lb bags). Tamari & miso: Tamari soy sauce (8 oz, pints, quarts, half gallon, gallon, 4.7 gallon can). Hacho miso (30 x 1 lb or 44 lb keg). Mugi miso (24 x 1 lb or 44 lb keg). Kome miso (20 x 1 lb or 44 lb keg). Granola. Rice cream (toasted). Cereals: Infant cereal (Koko). Tsampa Tibetan barley cereal. Stone ground flours (incl. Soybean flour, full fat, organic; brown rice flour, organic). Grains & beans (incl. soybeans, organic’ Barley, pearled).

At the bottom of the last page: “Thank you very much for your order. We try to get our distributor orders out as quickly as possible, but you should allow seven to ten days to be on the safe side... When placing orders please call Bill Garrison or Paul Hawken and when checking on shipping dates and rates, please check with Doug Bray. Thank you.”

An illustration at the top left corner of the front page is clip-art of a man cutting barley. Address: 33 Farnsworth Street, Boston, Massachusetts 02210. Phone: (617) 542-1358.

663. Koyama, Y.; Nomura, N.; Mori, Y.; Asahikawa, S. 1972. [The new adzuki bean variety “Kotsubu-shozu”]. *Hokkaido-ritsu Nogyo Shikenjo Shuho (Hokkaido Prefectural Agricultural Experiment Station, Bulletin)* 25:81-91. Dec. [Jap; eng]*

• **Summary:** The Japanese word “Kotsubu” means “small-seeded.”

664. Leung, W-T.W.; Butrum, R.R.; Chang, F.H. 1972. Food composition table for use in East Asia. Atlanta, Georgia: Center for Disease Control, U.S. Dept. of Health, Education, and Welfare. xiii + 334 p. Dec. No index. 30 cm.

• **Summary:** Part I. Proximate composition, mineral and vitamin contents of East Asian foods, by Woot-Tsuen Wu Leung, Ph.D. (Nutrition Program, Center for Disease Control, Dep. of Health, Education and Welfare), and Ritva Rauanheimo Butrum, M.S., and Flora Huang Chang, B.S. (Federation of American Societies for Experimental Biology).

Part II. Amino acid, fatty acid, certain B-vitamin and trace mineral content of some Asian foods, by M. Narayana Rao, Ph.D., and W. Polacchi (Food Policy and Nutrition Division, Food and Agriculture Organization of the United

Nations).

In Part I, Food Group 3 titled “Grain legumes and legume products” (p. 16-22) gives the composition of the following (100 grams edible portion and as purchased): Adzuki beans (*Phaseolus angularis*; incl. “Azuki-an,” and boiled sweetened). Asparagus bean: See Cowpea, yardlong. Asparagus pea: See Goabean. Bambara groundnut or jugo bean (*Voandzeia subterranea*). Bengal gram: See Chickpea. Blackeyed pea: See Cowpea, catjang. Blackgram: See Mung bean. Broad bean or horse bean (*Vicia faba*; incl. “Fuki-mame” and “Otafuku mame”). Burma bean: See Lima bean. Butter bean: See Lima bean. Catjang pea: See Pigeonpea. Chickpea or Bengal gram (*Cicer arietinum*). Cowpea, all varieties (*Vigna species*). Cowpea, yardlong: See Cowpea, all varieties. Dhal: See Lentil. Dolichos, Australia pea (*Dolichos lignosus*). French bean: See Kidney bean. Goabean [goa bean], asparagus pea, or winged bean (*Psophocarpus tetragonolobus*). Golden gram: See Mung bean. Green gram: See Mung bean. Haricot bean: See Kidney bean. Hindu cowpea: See Cowpeas, all varieties. Horse grain or horse gram or Madras gram (*Dolichos uniflorus*; *D. biflorus*). Horsebean: See Broadbean. Note 1. This is the earliest English-language document seen (Jan. 2005) that uses the word “horsebean” or the word “broadbean” to refer to *Vicia faba*.

Horsegram: See Horse grain. Hyacinth bean or Indian butterbean (*Lablab niger*; *Dolichos lablab*). Indian bean: See Mung bean. Indian butterbean: See Hyacinth bean. Jackbean, common (*Canavalia ensiformis*). Jugo bean: See Bambara groundnut. Kidney bean, French bean, navy bean, pinto bean, snap bean, or string bean (*Phaseolus vulgaris*; incl. “Usura-mame”). Lentil or dhal (*Lens culinaris*; *Lens esculenta*; *Ervum lens*). Lima bean, butter bean, or Burma bean (*Phaseolus lunatus*; *Phaseolus limensis*).

Note 2. This is the earliest English-language document seen (May 2003) that uses the scientific name *Lens culinaris* to refer to lentils.

Note 3. This is the earliest English-language document seen (Jan. 2009) that uses the name “Burma bean” to refer to the lima bean.

Madras gram: See Horse grain. Mung bean, Indian bean, red bean, green gram, golden gram, or blackgram / black gram (*Phaseolus aureus*; *Vigna radiata*; incl. vermicelli, dried starch, starch jelly, instant powdered green or red products with sugar and flour added). Mung bean, black gram or urd (*Phaseolus mungo*; *Vigna mungo*). Navy bean: See Kidney bean. Peanut or groundnut (*Arachis hypogaea*; incl. raw, roasted, with or without shell, salted, parched, seasoned, fried, peanut flour, peanut butter, peanut milk, peanut cake—defatted, peanut cake—defatted and fermented [onchom]). Peas, garden or field (*Pisum species*; incl. parched—salted, “Uguisu-mame”). Pigeonpea, or catjang pea (*Cajanus cajan*; *Cajanus indicus*). Pinto bean: See Kidney. Red bean: See Mung bean. Rice bean (*Phaseolus*



erewhon

33 farnsworth street, boston, mass. 02210 (617) 542-1358

DISTRIBUTOR PRICE LIST EFFECTIVE DECEMBER 8, 1972

QTY	ITEM	CASE	PRICE	WEIGHT
WEHAH FARMS ORGANICALLY GROWN RICE, 50 lb. bags				
Terms: Cash				
FOB Richvale, California				
—	More than 40,000 lb.		\$17.00/cwt	
—	20,050 to 40,000 lb.		17.50/cwt	
—	10,000 to 20,000 lb.		18.00/cwt	
FOB Boston				
—	More than 40,000 lb.		19.00/cwt	
—	20,050 to 40,000 lb.		19.50/cwt	
—	10,050 to 20,000 lb.		20.00/cwt	
—	5,000 to 10,000 lb.		20.50/cwt	
for all three varieties grown by the Lundberg brothers:				
"Colusa" short grain brown rice,				
"Golden Rose" short grain brown rice, and				
Sweet brown rice.				
—	AZUKI BEANS, 100 lb. bags	1-25 bags	40.50/bag	
—		26-50 bags	37.90/bag	
—		51-100 bags	35.70/bag	
—		over 100 bags	34.70/bag	
TAMARI & MISO				
—	Tamari soy sauce	24/8 oz.	10.20	23 lb.
—		12/pts.	8.16	23 lb.
—		12/qts.	15.30	43 lb.
—		6 1/2 gal.	14.94	42 lb.
—		4/gal.	17.95	53 lb.
—		4.7/gal.	16.83	53 lb.
—	Hacho miso	30/1 lb. pkg.	16.00	35 lb.
—		44 lb. keg	22.50	48 lb.
—	Mugi miso	24/1 lb. pkg.	16.00	30 lb.
—		44 lb. keg	19.50	48 lb.
—	Kome miso	20/1 lb. pkg.	10.00	23 lb.
—		44 lb. keg	18.50	48 lb.
TEA				
—	Mu herbal beverage No. 9	20/8 pkt.	12.00	3 lb.
—		200/8 pkt.	119.00	30 lb.
—		No. 9	110.00	30 lb.
—		10/1 kg. pkt.	13.50	3 lb.
—	Mu herbal beverage No. 16	20/8 pkt.	134.00	30 lb.
—		200/8 pkt.	130.00	30 lb.
—		No. 16		
—		10/1 kg. pkt.		
PASTA				
—	Wholewheat Spaghetti	20/1 lb. (available soon)		20 lb.
—		20 lb. case, 1-25	6.40/case	20 lb.
—		26-100	6.00/case	20 lb.
—		100 or more	5.60/case	20 lb.
—	Wholewheat Elbows	20/1 lb. (available soon)		20 lb.
—		20 lb. case, 1-25	6.40/case	20 lb.
—		26-100	6.00/case	20 lb.
—		100 or more	5.60/case	20 lb.
—	Wholewheat Flat Noodles	10 lb. case (available soon)		10 lb.
GRANOLA				
—	Maple Granola	12/1 lb. (limited supply)	5.64	15 lb.
—		6/3 lb.	7.68	20 lb.
—		50 lb. bag	20.00	50 lb.

calcaratus; *Vigna calcarata*). Soybean and soy products (*Glycine max*; *G. hispida*; *G. soja*; p. 19-21), incl: Whole mature seeds—dried (yellow, black), whole immature seeds dried, whole seeds—salted (black, green, green soaked, fried, fermented {natto}, pickled, roasted), flour made from roasted soybeans, defatted soybeans—whole seeds. Soybean products: Curd—unpressed, curd—tofu—raw (plain, kinugoshi, fukuroiri), curd—tofu—fried (moist type, dried type—regular size, dried type—small size, canned, abura age), curd—roasted [grilled], curd—tofu—fermented (home-prepared, jarred), curd—tofu (dried—spongy square, preserved, dried—rope-like, commercial {fermented with chili pepper}—jarred), curd cheese, curd sheet (milk clot sheet {yuba}) (moist type, dried type, pickled in soysauce), curd—pressed—raw (plain, fermented, spiced, strips—semi-dry), miso (Japan) (plain, sweet {5.3% salt added}, salty—light {10.4% salt added}, salty—dark {11.7% salt added}, mame-miso {9.7% salt added}, powdered {18.5% salt added}), paste [jiang] (plain, fermented, red pepper added, sweet, malt), soybean milk (unenriched—unsweetened, “Kaset” {Thailand; canned—concentrated, fluid}, Saridele {a mixture of soybeans, sesame seeds or peanuts, with vitamins and calcium added—Indonesia}), soybean sauce (dark—thick, light—thin, unspecified), tempeh (fermented soybean product, Indonesia), “Budo-mame” (cooked [whole soybeans]—Japan), Soybean residue [okara] (liquid, powder). Urd: See Mungo bean. Velvetbean (*Mucuna utilis*; *Stizolobium utilis*; incl. dried or mold-treated {tempeh}). Winged bean: See Goabean, Indes.

Food Group 4 titled “Nuts and seeds (p. 23-29) includes: Almonds, hemp seeds—whole, perilla—common (*Perilla frutescens*), safflower seeds, sesame seeds, sunflower seeds (*Helianthus annuus*), watermelon seeds.

Food Group 5, titled “Vegetables and vegetable products” (p. 30-75) includes: Amaranth, mungbean sprouts, seaweeds (many types), soybeans—immature seeds [green vegetable soybeans], soybean sprouts (raw, cooked).

Note 4. This is the earliest English-language document seen (April 2013) that mentions silken tofu, which it calls (in a table): “Curd, tofu, raw: ‘Kinugoshi,’ Japanese preparation.”

Note 5. This is the earliest English-language document seen (Sept. 2021) that contains the term “flour of roasted soybeans.”

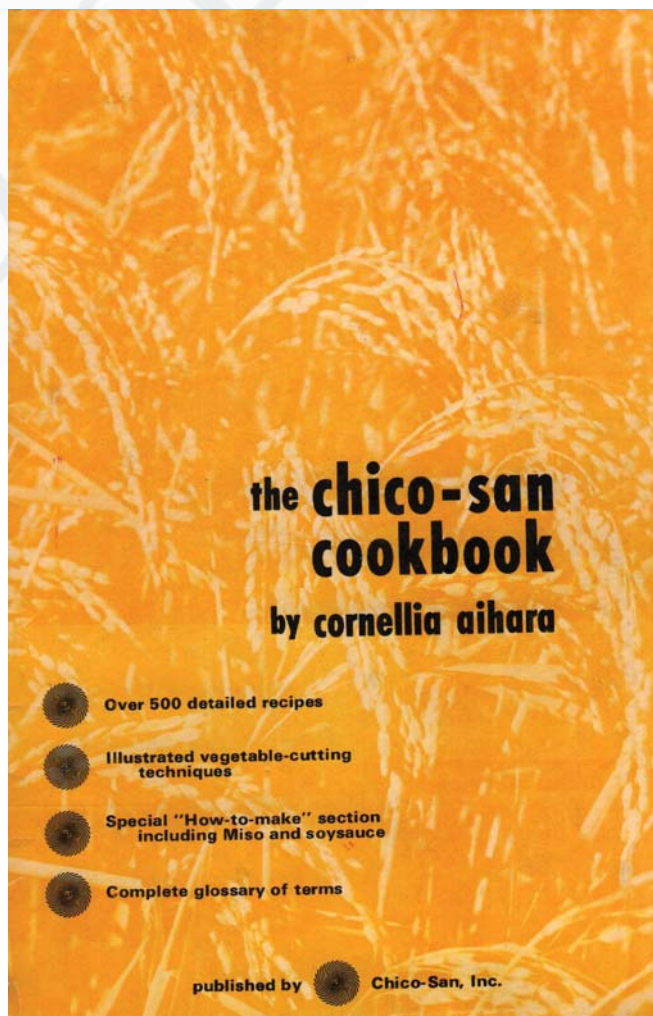
Note 6. This is the earliest English-language document seen (Oct. 2006) that uses the term “Blackeyed pea” to refer to the cow pea. Address: Dep. Health Education and Welfare.

665. Ushirogi, T.; Satoh, H.; Nomura, N. 1972. [The new adzuki bean variety “Akatsuki-dainagon”]. *Hokkaido-ritsu Nogyo Shikenjo Shuho* (Hokkaido Prefectural Agricultural Experiment Station, Bulletin) 25:70-80. Dec. [Jap; eng]*

666. Aihara, Cornelia. 1972. The Chico-San cookbook.

Chico, California: Chico-san, Inc. 126 p. Illust. 22cm. by Nan Schleiger. Reissued in revised form as Macrobiotic Kitchen by Japan Publications in 1982.

• **Summary:** All recipes are numbered and pages are unnumbered. Soy-related recipes include: 6. Brown rice in soy sauce. 16. Black [soy] beans and brown rice. 23. Inari-sushi (with agé). 24. Ohagi of 3 colors (with roasted soybean flour and miso). 32. Ojiya (with miso or soysauce). 37. Roasted rice (with black soybeans). 38. Musubi (with miso). 55. Kinako mochi. 76. Soy bean stock. 87. Oden (with agé and soy sauce). 90. Kenchin soup (with agé). 95. Cream of onion soup (with miso). 96. Hacho miso soup. 97. Mugi miso soup. 98. Kome miso. 99. Oil miso. 100. Sesame miso. 101. Walnut miso. 102. Miso salad dressing. 103. Shiguri [sic, shigure] miso (with scallops). 104. Tokiwa miso (with shiitake mushrooms, citron, and walnuts). 105. Oyster miso. 106. Tai miso. 108. Nuka miso zuke (vegetables pickled in rice bran and miso). 121. Miso pickles. 137. Daikon with agé. 138. Daikon with miso. 143. Turnip with sesame-miso. 159. Burdock-miso soup. 162. Burdock with miso. 180. Onion-miso sauce. 182. Scallion-miso. 191. Carrots with miso. 192. Carrots with soy sauce. 200. Dengaku (with



miso). 220. Roasted soybeans. 221. Soybean soup. 222. Soybeans with vegetables. 223. Soybeans with miso. 224. Soybean tempura. 225. Mashed soybeans with tarako (cod fish roe). 226. Soybean croquettes. 227. Soybean potage. 228. Soybean muffins. 229. Kidney beans with miso. 237. Shigiyaki (small eggplants with miso). 241. Eggplant miso pickle. 267. Rolled shiso leaves with miso. 291. Tofu kuzu sauce. 292. Tofu chili-nabe. 293. Tofu with vegetables. 294. Tofu salad. 295. Okara rice. 296. Torimotsu okara (with chicken giblets). 297. Okara soup. 298. Okara croquettes. 299. Egg tofu. 308. Koi-koku (carp soup with miso). 311. Loach soup (with miso). 312. River fish with miso sauce. 320. Mackerel with miso. 335. Coltsfoot with miso. 341. Dandelion miso-ai [miso-ae]. 345. Horsetail with miso-ai. 359. Watercress miso-ai. 361. Nobiru goma miso (with wild onions). 369. Shiromiso shiru [sweet white miso soup]. 371. Nimame (black soybeans). 400. Shoyu bancha (twig tea). 408. Black bean tea. 409. Amasake (homemade from koji rice and sweet brown rice). 456. Amasake manju. 461. Soba with miso-ame. 515. Tekka (with Hacho and/or mugi miso). 516. Seitan (homemade). 517. Soy sauce (homemade). 518. Miso (homemade). 519. Tofu (homemade using nigari). 520. Nigari (homemade). 521. Amasake (homemade from koji rice and sweet brown rice flour).

Cornellia Aihara was born with a heart valve defect. She was told by doctors that she could never bear children and would probably not live past her nineteenth year. She proved them wrong on both counts. In 1955 she came to America from Japan at the invitation of Herman Aihara, a man she knew only through correspondence, and they were married. Within several years their two children were born.

Cornellia has applied herself to the teaching of macrobiotic cooking, childcare, home remedies, and philosophy since 1960. Address: Chico, California.

667. Aihara, Cornellia. 1972. *The dô of cooking (Ryorido)*. Spring, Oroville, California: George Ohsawa Macrobiotic Foundation. 125 p. Illust. by Carl Campbell. Index. 21 cm.

• **Summary:** This macrobiotic book is divided into two parts: Eleven chapters followed by 14 sections of recipes. In part one, miso is mentioned on pages 15, 35, and 51 (Condiments and spices). Recipe section IV, titled “Wheat gluten” (p. 79-82) contains recipes for: Wheat gluten. Seitan. Fresh wheat fu. Boiled fu. Fried fu—gluten cutlet. Shish kebab (using 3 strips of cooked fu). French bread (made with gluten water, p. 115).

Recipe section V, titled “Tofu” (p. 83-90) contains recipes for: Tofu making (using 3 cups green soybeans and nigari coagulant; with 11 excellent illustrations). Nigari (from gray sea salt). Quantity tofu preparation (using 10 lb soybeans). Okara or unohana (using “3 cups soybean puree leftover from tofu making”). Tofu with kuzu sauce. Fried tofu. Shinano-agé (Fried tofu with buckwheat). Kaminari tofu (Thunder tofu). Nori-maki (Tofu rolled in nori; with

illustration). Age-tofu (Stuffed tofu; with illustration).

Soy-related recipes include: Onion miso (p. 70). Rolled cabbage with tofu (p. 71). Bean sprout miso salad (p. 100; miso is called “mixed soybean puree {half mugi and half kome}.” The sprouts are probably from mung beans). Ganmodoki (Mock goose; p. 109). Gyoza filled with seitan, dipped in a mixture of soy sauce and lemon juice (p. 111-12). Address: George Ohsawa Macrobiotic Foundation, Oroville, California.

668. Claiborne, Craig; Lee, Virginia. 1972. *The Chinese cookbook*. Philadelphia and New York, NY: J.B. Lippincott Co. xxi + 451 p. Color photos by Bill Adler. Drawings by Barbra and Roderick Wells. Illust. Index. 24 cm.

• **Summary:** Soy related recipes: Coriander and bean curd with sesame sauce (with dried brown bean curd [soy-sauce pressed tofu] and light soy sauce, p. 34). Cold chrysanthemum leaves with sesame oil (with dried brown bean curd and light soy sauce, p. 35). Chicken with black beans and shallots (with fermented, salted black beans, light soy sauce and dark soy sauce, p. 58-59). Note 1. This is the earliest English-language document seen (Nov. 2011) that uses the term “fermented, salted black beans” to refer to Chinese-style fermented black soybeans. The headnote to this recipe states: “Fermented, salted black beans have an almost winy flavor, and they give an intriguing flavor to almost any dish in which they are cooked.” Yet nowhere in this book do the authors state that these black beans are actually black soybeans.

Soy sauce chicken (with light soy sauce and dark soy sauce, p. 59-60). Hoi sin sauce is mentioned (or a photo shown) as an ingredient on pages 65-66, 147, between pages 282 and 283, and on 4 other pages. Spicy pork and bean curd (with “6 pads fresh white bean curd,” p. 136). Note 2. This is the earliest English-language document seen (April 2013) that uses the term “fresh white bean curd” to refer to fresh tofu, or that uses the word “pads” as the counter for pieces or cakes of tofu. The headnote states: “Bean curd has as many uses in China as cottage cheese does in the Western world. It is one of those neutral dishes [ingredients] like potatoes and snails which adapt well to assertive flavors.”

Cantonese roast pork (with “2 tablespoons red bean curd sauce” [nam yue?] and “2 tablespoons bean sauce”). Chinese barbecued spareribs (with “2 tablespoons red bean curd sauce,” “2 tablespoons ground bean sauce,” and “3 tablespoons hoi sin sauce,” p. 147-48). Ginger beef and bean curd with hot pepper (with “5 pads fresh white bean curd,” p. 188). Steamed fish with bean sauce (with “¼ cup bean sauce,” p. 208). Stir-fry shrimps with bean curd (with “5 pads fresh white bean curd,” p. 231). Shrimps in black bean sauce with ginger and scallions (with “2 tablespoons fermented salted black beans and 2 tablespoons dry sherry or shao hsing wine.” “Combine the black beans with 1 tablespoon of the wine and crush lightly with a spoon.” Thus,

“black bean sauce” can be easily and quickly made in the kitchen from fermented, salted black beans, p. 234-35).

Clams in black bean and oyster sauce (with fermented salted black beans that are quickly made into black bean sauce as above, p. 243-44). Frogs legs with black beans (with fermented salted black beans, p. 257). Mock Peking duck (with “6 sheets dried bean curd,” p. 302-03. “Bean curd comes in large, semicircular thin sheets [yuba] as well as squares [probably yuba; see below]. Because the sheets are notably fragile, they are frequently broken.” The headnote states: “This dish uses dried bean curd to produce an eminently edible creation that tastes remarkably like roast duck”).

Bean curd and beef ball soup (with “1 pad fresh white bean curd,” p. 318). Whiting and bean curd soup (p. 327-28; a whiting is a type of fish). Flowery bean curd soup (p. 328-29). Bean curd casserole soup (p. 330-31). Tsa chiang mien (Noodles with minced pork and bean sauce, incl. “½ cup bean sauce,” p. 365-66).

One glossy color photo (between pages 282 and 283) and a numbered key shows many ingredients used in Chinese cooking, incl.: 5. Dark soy sauce. 6. Hoi sin sauce. 7. Bean sauce. 8. Light soy sauce (both in tall-neck bottles). 16. Fresh white bean curd. 28. Dried brown bean curd [soy sauce pressed tofu]. 31. Dried bean curd sheets [clearly yuba, since light yellowish brown, semi-transparent, subtly wrinkled surface, and very thin]. 32. Fermented salted black beans (small pile).

Chapter 11, titled “Chinese ingredients...” (p. 419-40) contains many interesting terms and definitions, with Chinese characters accompanying each. Soy related are: Dried bean curd sheets [yuba] (“These paper-thin, light brown half circles are very fragile and are often broken; they can be repaired by wetting and overlapping the broken edges. They are sold in packages of 10 and will keep for 3 to 4 months without refrigeration.” Eventually they will turn rancid, since they have a high oil content”). Dried brown bean curd (3 Cc = Chinese characters given) [doufugan; soy sauce pressed tofu]. Dried red beans [azuki].

Fermented salted black beans (2 Cc) [douchi, dow see]: “An ingredient of Cantonese cooking but virtually unknown elsewhere in China, these black [soy] beans, sometimes simply called ‘Salted Black Bean’ are sold in 1-pound cans or in 8- and 16-ounce plastic bags. They will keep for months if stored in the refrigerator in a covered jar.” Fresh white bean curd (2 Cc) (doufu). Ground bean sauce (3 Cc): Contains “the same ingredients as Bean Sauce, except the whole beans have been ground to a paste. It is sold in oblong 1-pound cans.” Hoi Sin Sauce (3 Cc): “Made from pumpkin.”

Red bean curd sauce (4 Cc): “A thick sauce made from soy beans, red rice, and salt water, this is available in 11-ounce oblong cans and also in 12-ounce round cans labeled ‘bean curd.’”

Note 3. This is the earliest English-language document seen (March 2011) that uses the term “Red bean curd sauce” to refer to a commercial product made with red fermented tofu.

Sesame oil. Sesame paste. Sesame seeds. Shao Hsing Wine (made from rice). Soy sauce (2 Cc) [jiangyou]: Color ranges from light to very dark. The “difference lies more in the color than in the flavor.” Sold in tall-neck bottles ranging for 12-21 ounces. “The soy sauce generally sold in American supermarkets is light soy sauce—it is most suitable used as a dip or in some stir-fry dishes but in general is too light to lend an appetizing color to a dish. Dark soy sauce, usually found only in Chinese markets, is sometimes labeled ‘Black Soy.’ Soy sauce will keep for months and sometimes years without refrigeration.”

There follows a nationwide directory of sources for Chinese ingredients.

Also mentions: Eight precious jewel pudding (with “1 cup dried red [azuki] beans,” p. 406-07). Red sand rice roll (with “1½ cups dried red [azuki] beans,” p. 408-09).

“Craig Claiborne was food editor of *The New York Times* from 1957 to 1971. During this period he was credited by the Chinese-American Restaurant Association of Greater New York with significantly raising the level of public interest in Chinese food, and thus the standard of Chinese restaurant fare.” A large, excellent color photo on the rear dust jacket shows Craig Claiborne and Virginia Lee preparing a meal together in a kitchen. Address: East Hampton, Suffolk Co., New York (on the eastern tip of Long Island).

669. Food and Agriculture Organization of the United Nations (FAO). 1972. A selected bibliography of East-Asian foods and nutrition arranged according to subject matter and area. [Washington, DC]: Food and Agriculture Organization of the United Nations; U.S. Dept. of Health, Education, and Welfare. vii + 296 p. Dec. 27 cm. [1500* ref]

• **Summary:** This book has two title pages and can be cited in two ways. See Leung (1972). Address: Dep. of Health Education and Welfare.

670. Nihongi: Chronicles of Japan from the earliest times to A.D. 697. Translated from the original Chinese and Japanese by W.G. Aston. 1972. Rutland, Vermont and Tokyo, Japan: Charles E. Tuttle Co. 443 p. Two volumes in one. See p. 32-33. With an introduction to the new edition by Terence Barrow.

• **Summary:** This book is also called the Nihon Shoki. The text and pagination are identical to those found in the 1924 edition of the Nihongi, by Aston. Address: England.

671. Sams, Craig. 1972. About macrobiotics: The way of eating. Wellingborough, Northamptonshire, England: Thorsons Publishers Ltd. 61 p. No index. 18 cm. [7* ref]

• **Summary:** Chapter 5, titled “Other Important Foods,”

introduces miso and tamari, and gives recipes for: Miso soup. Miso spread (with tahini). Miso gravy. Tamari broth. Tamari spread. Black soybeans are discussed on page 35, and a recipe for their use is given. The tenth printing appeared in 1985. A Spanish-language edition was published in 1983 in Madrid. Address: (London).

672. Eden Foods, Inc. 1973. Catalog. 211 South State St., Ann Arbor, Michigan. Undated. Probably published about Jan. 1973.

• **Summary:** Eden Foods is now carrying Organic Soybean Flakes from Arrowhead Mills (34% protein), and a line named “Hopi Seeds” which includes soybeans, sunflower seeds, pumpkin seeds, almonds, and cashews—each dry roasted with tamari, each in a consumer snack-sized pack weighing 1.3 to 1.5 oz. Note: This “Hopi Snacks” line was developed by Eden.

Other interesting products include “Michigan Grain” (soybeans, corn, rye, and wheat grown organically in Michigan, mostly by Tom Vreeland in Ypsilanti), umeboshi plums in salt brine, and kuzu arrowroot. Address: Ann Arbor, Michigan.

673. Harmony Foods. 1973. Harmony Foods case prices. London, England. 3 p. Jan. 30 cm.

• **Summary:** A table shows: (1) Product name. (2) Contents of each case. (3) Cost [Price] of each case. (4) S.R.P. [Suggested retail price].

Product categories: 1. Cereal Foods: 10 products incl. Organic whole rice [brown rice]. Roasted buckwheat. Whole wheat grain (organic). Organic rice flour.

2. Pulses: 2 products incl. Soya beans (special quality). Aduki beans.

3. Sesame and soybean foods: Tamari soya sauce. Miso soya puree (dark [Hatcho]). Miso soya puree (lighter “mugi” type miso). Dark tahini. Light tahini. Sesame seeds.

4. Drinks: Mu tea (with Ginseng). Twig tea (3-year old tea).

5. Sea vegetables: Wakame. Hiziki [hijiki]. Dulse. Kombu.

6. Specialties. Honey (from non-sugar fed bees). Wild ginseng root. Wild ginseng powder (for teas). Umeboshi plums. Kuzu arrowroot. Dentie toothpaste.

7. Literature: Seed: The Journal of Organic Living. Macrobiotics: An Invitation to Health and Happiness. Zen Macrobiotic Cooking, by Michelle Abehsera. Macrobiotic Cooking, by E. Farmilant. Tassajara Bread Book, by Edward Brown. Address: 191 Freston Rd., London W.10.

674. Spiral Foods Inc. 1973. Mail order price list. Chico, California. 2 p. Jan. 35 cm.

• **Summary:** This single-sheet catalog and price list, photocopied front and back with black ink on tan paper, contains numerous background illustrations and the includes

the following foods: Snacks: Rice cakes, corn chips, Yinnies—brown rice candy sugarless. Condiments: Lima tamari soy sauce—aged naturally over two years, Miso—soybean puree, entirely natural, rice malt vinegar, sesame butter, sesame oil—cold pressed, sesame salt, sea salt white unrefined, salt plums, kuzu—wild arrowroot starch. Grains, flours, seeds and beans: Brown rice / sweet brown rice—short grain, organically grown. Black [soy] beans—Japan import. Azuki beans—Japan import, dainagon. Whole grain noodles. Sea vegetables. Beverages. Hygienic goods. Utensils.

Talk with Robert J. Kennedy, founder of Chico-San. 1991. Oct. 3. By about 1966–1967 rice cakes and rice chips (senbei) were beginning to cut a wedge into the mass market nationwide, so Chico-San created the Spiral Foods brand for these mainstream products, keeping the Chico-San brand for the health food market. Address: 1144 West 1st Street, Chico, California 95926.

675. Hansen, Barbara. 1973. Yue Sang—Fishy salad in the raw. *Los Angeles Times*. Feb. 1. p. K11.

• **Summary:** Yue Sang is a Cantonese raw fish salad. At a meeting of the Los Angeles Chinese Women’s Club, Mrs. F. Chow Chan brought jai, a meatless dish, that ordinarily contains 18 ingredients including dried oysters, dried black and grass mushrooms, dried bean curd stick [dried yuba sticks], white lily petals, golden needles, cloud fungus and hair seaweed.”

“To symbolize gold, there were tangerines and jin duey, a deep-fried Chinese pastry stuffed with sweet black bean paste.” Recipes are given for Yue Sang, Lion’s head, and Rock salt chicken. A photo shows five Chinese women, each nicely dressed, gathered around a wok, from which they pick morsels with long chopsticks.

Note: This is the earliest English-language document seen (April 2014) that contains the term “sweet black bean paste.” It can be made with either black soybeans or azuki beans.

676. Erewhon. 1973. Supplying natural food stores, co-ops, schools and communities (Catalog). Boston, Massachusetts. 12 p. Effective April 6, 1973.

• **Summary:** The number of products in Erewhon’s catalog has increased dramatically during the past year. An illustration at the lower center of the cover is clip-art showing a man cutting barley. A message on the inside front cover is signed “Thank you all, Paul Hawken.” Below his message is a smaller reproduction of the man cutting barley and below it: “Good morning.”

Contents: Grains: Incl. brown rice (short grain, “Colusa,” OG {organically grown}, California; medium grain, “Golden Rose,” OG {organically grown}, California; medium grain, OG, Louisiana; long grain, OG, Texas; glutenous [sic, glutinous] sweet, OG, California). Wheat (Deaf Smith, hard red winter, or hard amber durum, OG,

erewhon

SUPPLYING NATURAL FOOD STORES,
CO-OPS, SCHOOLS AND COMMUNITIES

33 FARNSWORTH STREET,
BOSTON, MASSACHUSETTS 02210

(617) 542-1358

APRIL 6, 1973



Texas; Ted Whitmer, hard red spring, OG, Montana; soft white pastry, OG, Washington [state]). Barley, pearl. Buckwheat groats. Corn. Millet. Oats. Popcorn. Rye. Cereals: Incl. Rice cream. Soybean flakes (Deaf Smith, OG). Stoneground flours: Incl. soybean flour, full fat, OG, Texas. Sweet brown rice flour, OG. Beans: Incl. Azuki beans (100, 50, or 25 lb). Soybeans (OG, Texas, 60 lb). Seeds and nuts: Incl. Almonds. Peanuts (spanish, split). Sesame seeds. Tamari & miso: Tamari soy sauce (8 oz, pints, quarts, half gallon, gallon, 4.7 gallon can). Hacho miso soy paste (1 lb or 44 lb keg). Mugi miso barley-soy paste (1 lb or 44 lb keg). Kome miso rice-soy paste (1 lb or 44 lb keg). Sea vegetables: Agar-agar, dulce, hiziki, kombu, nori, wakame, wakame root. Tea: Incl. Mu herbal beverage No. 9 and No. 16. Kukicha twig tea. Celestial Seasonings herb teas (39 flavors). Pasta: Wholewheat spaghetti, elbows, flat macaroni, and shells. Granola: Five flavors. Snacks: Incl. Corn munchies (organic corn chips with soy sauce). Chico-San corn chips and rice chips. Soybean oil (5 gallon tin). Olive oil. Peanut oil (organic, pint, quart, or 5 gallon tin). Butters: Almond Butter (Golden Farms, OG). Peanut Butter (Erewhon, old fashioned). Sesame butter. Sesame tahini. Honey (Paradise Valley, unheated, unfiltered, clover or orange). Condiments: Sea salt. Sesame salt. Tekka (vegetable-miso condiment). Unusual foods: Ame (rice and barley malt-glucose syrup). McHenry's sorghum molasses. Kuzu arrowroot. Sauerkraut. Umeboshi (plums pickled in brine). For cleanliness: Dr Bronner peppermint castille soap. Infinity herbal products (shampoo and soap). Natural Living Company (sesame cream shampoo, sesame lotion). Orjene (herbal shampoo). Tom's coco-orange all-purpose soap. For cooking: Knives (vegetable, utility, paring), chopsticks, rice paddle, tea strainer, "soy [sauce] dispenser" (4½ inch), oil skimmer, vegetable brush, suribachi, Chinese wok, Quaker City hand grinding mill. Austria Email iron-enamel pressure cookers. Save-a-Tree canvas shopping bags, shoulder bags, and bike bags. Flyers: Organic Merchants N.O.T. list. The Sugar Story. The Oil Story. The Macrobiotic Way. Macro-Ecology. Packaged in cellophane bags with recipes (1 lb, 1½ lb, and 2 lb): Incl. brown rice, wheat kernels, pearl barley, alfalfa seeds (OG), sesame seeds, pumpkin seeds, sunflower seeds, mung beans (sprouting), soybeans (sprouting or cooking, OG), pinto beans, chickpeas, green lentils, green split peas, split red lentils, morning cereal (6-grain cereal blend), infant cereal (koko), tsampa Tibetan barley cereal, rice cream, soybean flour (full fat, OG, 24 oz), soybeans (OG, 2 lb).

A long note at the top of this list states: "In our retail store we like to sell 'bulk' whenever possible. But we have found that to many new customers coming into our store everyday, pre-packaged foods such as we are presenting here offer a better introduction to the world of whole-grain cookery. Each package has an appealing 'kitchen-tested' recipe on the front so that new friends unfamiliar with these foods can give them a try. Furthermore, some

people prefer to buy packaged foods because they feel for various reasons that food sold exposed is not as clean or pure. There is some truth to that, of course, depending on the store, but in any case we are happy to offer a complete line of Erewhon grains, cereals and flours in attractive, biodegradable cellophane packages. We will be expanding this line of cereals and grains and welcome your comments and suggestions. Please let us know how we can serve you better."

This catalog cover was reprinted with permission from the Michio and Aveline Kushi Macrobiotics Collection, Archives Center, National Museum of American History, Smithsonian Institution, Washington, DC. Address: 33 Farnsworth Street, Boston, Massachusetts 02210. Phone: (617) 542-1358.

677. Sawa, M. 1973. [On the interspecific hybridization between the adsuki bean *Phaseolus angularis* (Willd.) W.F. Wight and the green gram *Phaseolus radiatus* L. I. Crossing between a cultivar of the green gram and a semi-wild relative of the adsuki bean, in endemic name "Bakaso"]. *Ikushugaku Zasshi (Japanese J. of Breeding)* 23(2):61-66. April. [Jap; eng]*

678. Tibbitts, T.W.; Nutter, G.D.; Hoshizaki, T.; Badeau, R.R. 1973. Modified photoelectric device for recording leaf movements. *Plant Physiology* 51(4):812-14. April. [5 ref] • **Summary:** "The movements of primary leaves of two *Phaseolus angularis* plants over a 48-hr period are shown in Figure 4." Address: 1. Dep. of Horticulture, Univ. of Wisconsin, Madison, Wisconsin 53706.

679. Ewald, Ellen Buchman. 1973. Recipes for a small planet: The art and science of high protein vegetarian cookery. New York, NY: Ballantine Books. xi + 366 p. May. Foreword by Frances Moore Lappé (Hastings-on-Hudson, New York). Illust. by Diane Coleman. 18 cm.

• **Summary:** Lacto-ovo-vegetarian recipes based on *Diet for a Small Planet* by Frances Moore Lappe. The protein content is given for each recipe. Also contains information on complementary proteins. The author was born in 1946.

The chapter on protein complementarity discusses combinations of rice, wheat, peanuts or cornmeal with soy (in the form of whole beans, grits, flour, or tofu). A chart on protein / calorie comparisons gives the number of calories per gram of usable protein including the following: Defatted soybean flour 11, soybean sprouts 12, low fat soybean flour 12, tofu 15, full fat soybean flour 18, soybeans 20, gluten flour 23; Note that all these are relatively low in calories per gram of usable protein. By comparison: Hamburger 15, brown rice 69, cornmeal (whole, ground) 80.

Many recipes in this book contain small amounts of soy flour or grits, or soy sauce. Recipes containing significant amounts of soy include: All-protein crunchy granola (with

soy grits, p. 48-49). New granola (with soy flour, p. 52-53). Orange pancakes with orange sauce (with soy flour, p. 58-59). Soy-sesame peanut spread (with roasted soy flour, p. 67). Peanut paté (with whole soybean and soy sauce, p. 70-71). Hot and sour soup (with tofu, p. 83-84). Soybean stew (p. 85). Peanut, tofu and sesame soup (p. 86-87). Exotic barley stew (with miso, p. 87-88). Cabbage soup for a meal (with soybeans, p. 91-92). Curried rice salad (with soybeans, p. 98-99). Gado gado (with tofu, p. 102-03). Soy-peanut marinade (p. 106). Dairy rich sauce (with tofu, p. 115). Chiles rellenos en casserole (with soybeans, p. 126-27). Herbed soybean bulgur casserole (p. 128-29). Garbanzo and cheese loaf (with miso, p. 133-34). Fesenjon-spiced ground beans (with soybeans, p. 135-36). Bean stroganov (p. 140-41). Crusted cauliflower (with soy flour, p. 143-44).

Breads and other baked goods (each with soy flour or grits, p. 195-274): Whole wheat soy bread. Wheat grits bread. Triple rich bread. Unusual pickle or olive juice bread. Cornmeal wheat bread. High rising bread. Spicy rye bread. Limpa bread. Oat rye soy bread. Caraway rye bread. Sourdough whole wheat bread. Egg and yogurt bread (SD = sourdough). Sun seedy oatmeal bread (SD). Four grain bread (SD). Nut and seed bread (SD). Mixed grain bread (SD). Crunchy nut muffins. Spiced pear muffins. Basic complementary muffins. Oatmeal muffins. Sour orange muffins. Pancake, waffle, or camping bread mix. Sourdough corn bread. Quick wheat soy bread. Quick molasses bread. Quick coconut bread. Cheese-filled coffee cakes. Walnut-and-raisin filled coffee cake. Orange coffee cake. Chocolate coconut cookies. Pumpkin cookies or bars. Fruit bar crunch. Honey almond bars. Banana spice bars. Gingerbread.

Cooking beans (p. 309-10, including soy and azuki/aduki). Putting more protein in your family's diet (Appendix F, p. 326-31).

Glossary (p. 339-44) discusses miso, soy flour, soy grits, tofu ("Tofu is soybean cheese, also known as bean curd... Some supermarkets carry tofu, and you can also get it in health food stores and oriental groceries and restaurants..."). Address: Berkeley, California.

680. Robson, J.R.K.; Konlande, J.E.; Larkin, F.A.; O'Connor, P.A.; Liu, Hsi-Yen; Horner, J.M. 1973. Zen macrobiotic diets. *Lancet* i(7815):1237. June 9. [4 ref]

• **Summary:** An evaluation of Kokoh, a Zen macrobiotic vegetarian infant feeding mixture, which contains brown rice, glutinous rice, aduki beans, soybeans, oats, sesame seeds, and wheat. Two infants, ages 7 and 14 months, had been feed Kokoh in varying proportions before being admitted to the hospital. Both infants were very small and both had an energy intake of only 40% of the RDA. "The apprehension expressed by the American Medical Association (1971) concerning Zen macrobiotic diets appears to be well founded..." Address: School of Public Health, Univ. of Michigan, and Dep. of Pediatrics and

Communicable Diseases, Medical Center, Univ. of Michigan, Ann Arbor, MI 48104.

681. Erewhon. 1973. Supplying natural food stores, co-ops, schools and communities (Catalog). Boston, Massachusetts. 12 p. Effective Aug. 20, 1973.

• **Summary:** The structure and design of this catalog is quite similar to the previous one of April 6, however some new products and sizes have been added. The illustration and note from Paul Hawken are similar. OG = Organically grown. products: Cereals: Soybean flakes (Deaf Smith, OG, 25 lb). Stoneground flours: Soybean flour, full fat, OG, Texas, 50 lb. Beans: Azuki beans (100, 50, or 25 lb). Soybeans (OG, Texas, 50 lb). Tamari & miso: Tamari soy sauce (8 oz, pints, quarts, half gallon, gallon, 4.7 gallon can). Hacho miso soy paste (1 lb or 44 lb keg). Mugi miso barley-soy paste (1 lb or 44 lb keg). Kome miso rice-soy paste (1 lb or 44 lb keg). Pasta: Wholewheat shells (with rice and soy flour, 15 lb). Snacks: Corn munchies (organic corn chips with soy sauce). Hopi Seeds (all dry-roasted with tamari, 1.38 oz or 25 lb): Almonds, cashews, pumpkin seeds, soybeans, sunflower seeds. Vegetable oil, pressed and unrefined: Soybean oil (pint, quart, 5 gallon tin). Condiments: Tekka (vegetable-miso condiment, 3 oz). For cooking: Soy [sauce] dispenser (4½ inch). Packaged in cellophane bags with recipes (1 lb, 1½ lb, and 2 lb): Soybeans (sprouting or cooking, OG, 1 lb or 2 lb) stoneground soybean flour (full fat, OG, 24 oz), soybeans (OG, 2 lb). Address: 33 Farnsworth Street, Boston, Massachusetts 02210. Phone: (617) 542-1358.

682. Hawken, Paul. 1973. Erewhon: A biography. The view within. *East West Journal* 3(8):11-16. Aug.

• **Summary:** An early, critical history of Erewhon, written without any capital letters [all lowercase], expressing the viewpoint of one of its early, important, and very innovative presidents. "Arrogant" is a term often used to describe the attitude of the people running the company. A store by the name of "Erewhon" opened in May 1966 on Newbury St. in Boston, first manned by Evan Root, then Paul Hawken.

Paul "generally worked alone for first year [at Erewhon in Boston] with the exception of occasional help from members of the community—Elaine Sutton, Connie Frank, Peggy Taylor, and even Michio would help bag and clean.

"At that time I was much more interested in lectures, books, ideas, and more invisible things than food. I had no intention of doing Erewhon for very long, but that was before the remarkable and compelling visitations upon my brain that were precipitated by a five week fast augmented by only [brown] rice and water." Paul then describes the profound spiritual experience he had in 1966—one of great light and energy reaching down to the cellular level. "I could fully experience in that one moment the indivisibility of consciousness and body."

"Since nothing could really change until cells changed,

it seemed the most logical thing was to provide the resource for that change to those who were ready for it. Soil and land would have to be found that was rich and uncontaminated... food should contain the life force inherent in natural growth. The problems posed were complex and many but all these questions gave me the answer as to the purpose of Erewhon... for those seeking the unveiling of the spirit, Erewhon would attempt to provide the renewing and cleansing power of the earth.

“This ‘visceral mysticism’ was a turning point for me and my relation to Erewhon. No revelation can arise unless ignorance precedes it, and the greatest lesson from this vision was the realization of how little I really knew or understood. My ignorance in the matters of spirit and consciousness were so great that I felt more at home with more plain and simple matters. Raising the quality of food seemed an area that was neglected, yet vital, in the path to higher consciousness.”

In 1966 “On Thanksgiving day 1968 we opened a new store down the street [at 342 Newbury St.] which still exists today. At that time we were doing about \$250 a day and the rent on the new store, with utilities, totalled over \$1,000. It was a chance we took, a big chance, and seemed to set the pattern for many to come. The decision to place our economic life on the line was based on growth. By then Erewhon had grown to be six people, and all of us felt in our bones that we had a tiger by the tail. A sort of giddy optimism pervaded the new store, abetted by all of us working 12 to 20 hours a day—Bruce Macdonald, Jim Docker, Jean Allison, Bill Tara (later to leave for Chicago, Illinois), and Roger Hillyard. The intensity was so thick you could scoop it up and bag it. All of us felt like passengers on a very fast vehicle bound for unknown places. Business was increasing very rapidly and it seemed we could do no wrong. Time moved very quickly and I was soon to leave for Japan to establish a source of imported foods. My position as to coming back was ambivalent, so Roger Hillyard was appointed head in my absence. Bill Tara, who had set up Food for Life in Chicago on the tenth floor of a downtown office building, left for Los Angeles with Aveline [Kushi] and set up another Erewhon due to Aveline’s prodding. It was later to prove to be our worst mistake and almost led us to bankruptcy.

“While I was away, roaming around Japan looking for pure foods and wise men, Roger [Hillyard] and others were busy establishing a wholesale business based primarily on the products that were being sent back from Japan. In retrospect, those times were chaotic, and I do not think the chaos let up until four years later, the spring of 1973. The chaos was (as I think back upon it) caused by thinly veiled ambition clothed in a stylishly cut suit of concern for our biosphere and guts. Perhaps this was a reflection of our urgent need to make up for years of bad living, bad ideas, and trash foods. In any case our actions were hasty, well-intentioned, very salty, and somewhat crude, but like a

moldboard plow, we just kept coming.

“Chico-San saw us coming and promptly freaked out. They were very dismayed by their loss of New York business as our wholesale market developed. Chico-San had given us the impression in a number of personal conversations that they encouraged our self-reliance and particularly the importance of Japanese foods. Bob Kennedy, the head of Chico-San, candidly admitted that they lost money on imported items and they were able to stay in business only because they sold rice cakes. So it came as quite a surprise to us when they reversed their attitude. They began to express doubts about our motives and ability to procure good foods. Their attitude seemed to change into one where they were the ‘official’ food company, and that was that—appointed by the crown as it were. I can certainly see now how our brashness and youth did nothing to allay their doubts. In retrospect I have much sympathy, while realizing also that they did little to establish a real dialogue.

“Chico-San was formed by middle-aged people who split from New York City after Ohsawa walked into one of their meetings one night stoned on Scotch [whiskey] and announced the bomb was going to drop. This was during the Cuban [missile] crisis and there were many who shared that fear. They formed a well-organized caravan of families and trekked across the United States in a trip that got national coverage. Their purpose was to find the one place in America that was safest from radioactive fallout and also ideal for growing rice. Eureka! Chico, California. No one was more surprised than the local residents. The rift that opened between Erewhon and Chico-San has never closed. The rift could best be described as an ocean now. Peaceful coexistence. They mainly felt that their maturity and experience uniquely qualified them to be the best judge of what foods people should or should not eat. They thought that there should be only one ‘label’ and that we did not know enough about food to promote it... Herman Aihara who worked there then and Bob Kennedy felt that most young people had been ‘ruined’ by drugs and that their ‘judgment’ could never be completely restored,...” Continued. Address: [President, Erewhon].

683. Hawken, Paul. 1973. Erewhon: A biography. The view within (Continued—Part III). *East West Journal* 3(8):11-16. Aug.

• **Summary:** Continued: Hawken returned to Boston in Dec. 1969, then was fired by Aveline Kushi. He left and worked in San Francisco with Fred Rohe at New Age Natural Foods. Hawken returned to Erewhon in Boston in the summer of 1970.

In 1970 the “natural foods boom” started and swept Erewhon along with it. “If there is one person who is ‘most’ responsible for Erewhon being here today and not bankrupt, it is John Deming, who brought a sense of joy and happiness wherever he went in the company. He assumed the

manager's position at the retail store and made it the finest part of the company. His positive attitude was in contrast to the apprehension that all of us shared about the future. He gave Erewhon some money without which we would surely have failed. On his twenty-fifth birthday John came into a trust which sort of blew his mind. He had known nothing about it. He wanted to just give it to Erewhon, but it is on the books as a loan. It came just in time to pay back overdue creditors and panting bank officers."

A table (p. 16) shows Erewhon, Inc.'s sales and sources of supply in 1966 and then in 1973. In 1966 Erewhon had about 200 retail customers. The company bought Koda rice from Sam Rabinowitz; imports from Chico-San, Infinity Co., Japan Foods Corp., and Wing-Wing; Lima (Belgium) products from Merit; grains and flours from Better Foods; and flour from Walnut Acres [founded by Paul Keene].

In 1973 in Boston the warehouse served about 200,000 customers (incl. 200 retail natural food stores, 43 Star Markets, 50 co-ops, 25 schools, 9 distributors, 10 restaurants, and 5 bakeries), and the store about 10,000 customers. In Los Angeles, the warehouse served about 75,000 customers (incl. 150 retail stores, 20 co-ops, 3 bakeries, and 10 distributors) and the store about 5,000 customers. A produce company in Los Angeles was supplied by about 40 organic farmers, and sold to 20 retail stores. Concerning soy products, Erewhon bought organically grown soybeans from Lone Pine in Arkansas [Carl Garrich of the Lone Pine Rice and Bean Farm], and soy oil from California. From Muso Syokuhin [Muso Shokuhin] in Japan they imported tamari, and kome and hacho miso [plus azuki and black beans]. From Mitoku, Inc. they imported tamari and mugi miso.

Suppliers of organically grown grains included: Short, medium, and sweet rice (Wehah Farms, California). Medium rice (Willow Farms, Louisiana). Spring and durum wheat; flax (Ted Whitmer, Montana). Long rice (Jerry Ladds?, Texas). Winter wheat (Frank Ford, Arrowhead Mills, Texas). White wheat (Lewis Cox & Bill Ingram, Washington state). Buckwheat (Penn Argyl, Pennsylvania). Corn (Bill Stockett, Texas). Millet (Chuck Moses, North Dakota). Oats (Fruen, Minnesota). Rye (Mike Skinner, Colorado). Peanuts (Chas. Warnken, Texas).

Note: This is the earliest document seen (March 2020) that mentions Mitoku, or Muso Shokuhin. Address: [President, Erewhon].

684. Hess, John L. 1973. Chinatown dining: Whole community deserves ***** [four stars]. *New York Times*. Nov. 9. p. 36.

• **Summary:** This is a collection of brief reviews of many Chinese restaurants in New York City. Chinatown (which gets a four-star rating) stretches "from Bowery to Baxter Street, and from Canal Street to Chatham Square, and environs."

The "Wah Sun Coffee Shop [No. 56 Mott Street]

specializes in sweet pastries; there are 'moon cakes' with duck yolk, an egg-shaped one with black bean paste, and a winter-melon one called 'old wife's cake.'"

685. MacKenzie, D.R.; Shanmugasundaram, S. 1973. The AVRDC grain legume improvement programs. In: International Inst. of Tropical Agriculture. 1973. Proceedings of the First IITA Grain Legume Improvement Workshop. 325 p. See p. 102-04.

• **Summary:** Includes a discussion of the soybean improvement program at AVRDC. "Genetic diversity for a soybean improvement program has been one of our primary concerns. In the eight months that this program has been established we have assembled more than 2500 soybean accessions. We are now searching for the genetic traits that we feel will be necessary for improved soybean varieties for tropical Asia..."

"Commercial plantings of soybeans on Taiwan consistently yield around 2 tons per hectare. Yields of up to 4 tons per hectare have been obtained with a present day popular variety in Taiwan when grown at triple the commercial plant density..."

"When considering the average yield levels of most Asian countries (i.e. less than one ton per hectare) and the demonstrated yield potential of the crop in the temperate region (i.e. up to five tons per hectare) it is apparent to us that this crop deserves the emphasis which AVRDC has committed to soybean improvement."

Also mentions: Adzuki bean (*Phaseolus angularis*, Wight).

Note: This is the earliest document seen (June 2014) concerning the work of AVRDC with soybeans. Address: The Asian Vegetable Research and Development Center, Shanhua, Tainan, Taiwan.

686. Haenszel, William; Berg, J.W.; Segi, M.; Kurihara, M.; Locke, F.B. 1973. Large-bowel cancer in Hawaiian Japanese. *J. of the National Cancer Institute* 51(6):1765-79. Dec. [54* ref]

• **Summary:** The authors reported a significant increased risk of colon cancer among Japanese-born Issei (first generation immigrants) residing in Hawaii who consumed fermented soybeans (Relative Risk = 1.6), or red [azuki] beans (RR = 1.6). They did not find an increased risk among Nisei (second generation immigrants) or Hawaiian Japanese. Address: 1. Biometry Branch, National Cancer Inst., National Institutes of Health, Public Health Center, U.S. Dep. of Health, Education, and Welfare, Bethesda, Maryland 20014.

687. *Organic Gardening and Farming*. 1973. Adzuki (spelled like that) is mentioned. 20(4):Somewhere in No. 4. *

• **Summary:** This is the earliest "adzuki" in OGF.

688. Aihara, Cornelia. 1973. The *dô* of cooking (Ryorido).

Vol. 3. Autumn cooking. San Francisco, California: George Ohsawa Macrobiotic Foundation. 100 p. Illust. by Carl Campbell. 21 cm. Revised ed. 1977.

• **Summary:** Interesting recipes include: Buckwheat noodle gratin (with tofu, p. 29). Udon with adzuki (p. 32). Endive rolled with agé (deep fried tofu, p. 33). Fu vegetable cream cooked (with wheat gluten cakes, p. 34). Carrots and onions miso (p. 37). Vegetable miso (p. 38). Sliced kombu nitsuke (with koya tofu [dried-frozen tofu], p. 38-39). Vegetable stew—Chinese style (with agé and frozen tofu, p. 41). Adzuki bean soup (p. 46). Creamed miso soup (p. 46). Kenchin soup (with vegetables and tofu, p. 47). Stuffed agé with sauce (p. 49). Thick tamari soy sauce (p. 50). Tahini-tamari sauce (p. 50). Mock meat sauce (with miso, p. 51). Chrysanthemum leaves with tofu (p. 63). Unagi-modoki (mock eel, with tofu, p. 64). Chick pea vegetable nitsuke (with koya tofu, p. 71). Wheat gluten and seitan (p. 71-74, incl. homemade wheat gluten, fresh wheat fu, boiled fu, fried fu—gluten cutlet, shish kebab with fu). Autumn dish (with adzuki beans and tamari, p. 72). Address: 1471–10th Ave., San Francisco, California 94122.

689. Andersen, Lynn. 1973. *Rainbow Farm cookbook*. New York, NY: Harper & Row. 222 p. Illust. Index. 24 cm. Preface by Allen Gordon.

• **Summary:** This vegetarian cookbook, which has a macrobiotic flavor, is from Rainbow Farm, located on over 300 acres of mountain land in Phonecia, New York. Soy-related recipes include: Basic miso broth (p. 34). Miso vegetable soup #1. Miso soup #2 (p. 35). Soy butter dressing (made with 2 cups each oil and water, 3 tablespoons soy flour, and the juice of 2 lemons, p. 57). Miso vegetables (p. 67). Carrots and onions with tekka (miso, p. 67). Miso-onion spread (p. 76). Miso rice (p. 85). Tahini-miso spread (p. 108). Tahini-miso spread with vegetables (p. 108). Tahini-miso spread with seeds (p. 108). Tahini-tamari spread (p. 108). Miso balls (p. 111). Soy butter (“This is exactly the same as the whipped soy cream recipe” [which does not appear in this book], made with “soy powder,” p. 111). Soy milk (with a blender, from soy beans, p. 118). Soy milk (without a blender, from soy flour, p. 118). Soy burgers (from okara, p. 119). Soy loaf (with cooked soy beans, p. 120). Tofu (“Chinese Soy Bean Cakes”) (curded with Epsom salt, p. 120). Miso sauce #1 and #2 (p. 126). Hiziki and tofu ([hijiki], p. 132). Egg noodles (with wheat and soy flours, p. 144). Soy milk with whole beans (p. 205). Soy milk with soy flour (p. 205).

A glossary of “New or Unfamiliar Foods” (p. 212-14) includes good descriptions of tamari, miso soy bean paste, kuzu, and tekka. Address: Phonecia, New York.

690. Carroll, Anstice; Vona, Embree De Persiis. 1973. *The health food dictionary with recipes*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. vii + 200 p. Illust. by Vincenzo de

Persiis Vona. Index. 24 cm.

• **Summary:** The foods, listed alphabetically, include: Adzuki (p. 1-2). Beans, dried (incl. soy beans, p. 17). Gluten flour (p. 74-75, incl. Gluten soy bread). Miso and Miso butter (p. 101). Morromi [sic, Moromi] (p. 102). Mu Tea (p. 102). Nori (p. 106). Oil, vegetable (p. 113-14, incl. lecithin, peanut oil, olive oil, always refrigerate vegetable oil after opening; “Vegetable oils can (and should) be substituted for hydrogenated fats such as margarine, shortening, and lard in many recipes”). Peanut (p. 119-21). Peanut butter (p. 121-22). Soy grits (p. 156). Soy milk powder. Soy oil. Soy sauce (p. 156-57). Soybean (p. 159, incl. Soybean salad). Soybean, roasted (p. 160, incl. recipe for making at home). Tofu (p. 174-75, incl. recipe for Tofu-vegetable soup). Umeboshi (p. 175).

691. DeFrancis, John; Lincoln, V.R. 1973. *Things Japanese in Hawaii*. Honolulu, Hawaii: University Press of Hawaii. xiv + 210 p. Illust. Index. 19 x 23 cm. [Eng]

• **Summary:** The goal of this book is to preserve Japanese culture in Hawaii. In 1868, the first Japanese came to Hawaii. Between 1886 and 1924 the trickle became a flood, which resulted in a total immigration of some 180,000 persons. More than half of this number eventually returned to Japan.

Setsubun is mentioned on pages 11, 25, 26. Setsubun generally takes place on about Feb. 3. The word “Setsubun” means literally “division of the seasons. This festival is kept alive in Hawaii largely due to the efforts of students from Japan at the East-West Center, which is funded by the U.S. federal government and is affiliated with the University of Hawaii. Its formal name is “Center for Cultural and Technical Interchange between East and West.” Setsubun, a thousand-year-old festival, marks the time of year when the old year and its accumulation of evils are left behind, and a new year full of good fortune and hope begins. In bygone years, men dressed as devils were chased out of houses so that a happy new year could be ushered in.

Today the symbolic casting out of evil spirits is found in the bean-throwing ceremony. “This consists of throwing roasted [soy] beans (one for each year of one’s age) while shouting ‘Good luck in, devils out!’” This ceremony brings throngs of revelers to Buddhist temples and Shinto shrines throughout Japan. In private homes, the master of the house walks from room to room, scattering beans at the entrance of each, while shouting the magic incantation. “Then, each member of the household eats as many beans as there are years in his age, plus one for the new year, so as to ensure himself a good year to come.”

In Hawaii, Setsubun used to be more widely observed than it is today—when it is celebrated in only a few places, including the Shingon Mission [Buddhist] and at some Shinto shrines. Also, a special program is organized by students at the East-West Center. Other Setsubun celebrations are also discussed. A photo shows one such celebration.

Soy is mentioned throughout the chapter on “Food and dining places.” In Sukiyaki, bean-curd and soy sauce are basic ingredients (p. 165). Soy sauce is also used to season tempura, sushi, sashimi, tsukemono (also miso), and sashimi (p. 166-67). One these two pages are nice sections on tōfu [tofu], kamaboko, shoyu, miso, sweets (with azuki), mochi, and saké.

Glossary (p. 201-06): “Azuki: A red bean frequently made into a sweetened paste used as a filling in various confections, especially for ceremonial occasions. Symbol of joy and happiness.”

“Chimaki: A cake of rice, soybeans, flour, sugar and salt.”

“Hibachi: Japanese charcoal grill.”

“Miso: Bean paste made of soybeans, wheat [sic, barley] or rice, and salt.”

“Sekihan: Rice cooked with azuki beans.”

“Setsubun: Late winter festival marking the beginning of spring.”

“Shōyu: Soy sauce.”

Sukiyaki. Teriyaki. “Tōfu: Beancurd made from soybeans.”

“Umeboshi: Very sour pickled plum.” Address: Oahu, Hawaii.

692. Dubawsky, Rebecca. 1973. *Cooking with grains and vegetables*. Los Angeles, California, and Boston, Massachusetts: Order of the Universe Publications. Distributed by Tao Books. 29 p. Undated. Illust. No index. 28 cm.

• **Summary:** This 1973 edition differs from the original 1967 edition as follows: (1) On the cover, in the upper left corner, is an illustration of a man bent over working in a rice field. The title is written in the lower right corner rather than in the upper left. The subtitle “Booklet one—A beginning” and the name and address of the publisher (in the lower left corner) have been omitted. (2) On the inside front cover, near the bottom, is written: “Distributed by Tao Books, 8454 Steller Dr., Los Angeles, Ca. [California] 90230. Tel.: (213) 837-2739 and 303B Newbury Street, Boston, Massachusetts 02115.” (3) On the next page are two illustrations apparently taken from early sources (clip art): A full head of wheat with a long awn extending upward from the husk enclosing each grain. Two pumpkins on the vine with leaves above them. Below that: Library of Congress No. 73-127918. (4) Next comes a second title page, with silhouettes of rice plants at the left. (5) Next is a page stating: “The teaching of Aveline Kushi has made the information that follows possible.” Below that: “Rebecca Dubawsky.” To the left is another silhouette of grasses. (6) Next is a full-page of clip art showing a German chalet in the background, with three farmers working in a field in front of it, and a cart pulled by two oxen in the foreground. (7) Table of contents (p. 5). (8) Two stalks of grain. (9) The preface (p. 7) by Michio Kushi,

October 20, 1967. (10) Three full heads of different types of grain. (11) Meals (p. 9).

(12) The last numbered page is 29, which has illustrations of a rice plant standing in water and a head of rice. (13) After that is “The Order of the Universe Publications” which contains descriptions of one periodical (*The Order of the Universe*) and five books and booklets (*Cooking Good Food*; *Cooking with Grains and Vegetables*; *Food for Spiritual Development*, by Michio Kushi; *Spirals*; and *Book of Do-In Guide Pratique*, by Jacques de Langre [DeLangre]). (14) At the bottom of the last page: “Printed in U.S.A. by Jacques de Langre, 7557 Sunset Blvd., Hollywood, Calif. 90046.” Address: Boston, Massachusetts.

693. Eno, David. 1973. *The little brown rice book*. 2nd ed. Launceston, England: Juniper Press. 31 p. Illust. by David Eno. Calligraphy by Jenny Ivermee. No index. 15 cm.

• **Summary:** A vegetarian cookbook entirely hand-lettered in calligraphy. A list of basic items for the stove cupboard (p. 8-9) includes “Soya beans—important source of protein. Tamari—the real soy sauce from fermented soya beans... Red beans [azuki].” Cooked soya beans and red beans are recommended as salad ingredients (p. 20).

694. Hunan Sheng po-wu-kuan. 1973. *Ch’ang-sha Ma-wang-tui i-hao Han-mu* [The Han Tomb No. 1 at Ma-wang-tui]. Peking, China: Wen Wu Press. Vol. 1. See p. 35-36. [Chi]*

• **Summary:** The name of the tomb is pronounced “ma-wang-DUI.” Gives a list of the foods buried in this remarkable Han dynasty tomb in Changsha, Hunan province, China. They were buried in about 165 B.C. and unearthed in 1972. A complete listing in English is given by Ying-shih Yü (1977, p. 56). The seasonings included “soy sauce (*chiang*), *shih* (‘salted darkened beans’), and leaven (*ch’ü*) [qu].” Also includes azuki beans. Address: China.

695. Ito, Kazuo. 1973. *Issei: A history of Japanese immigrants in North America*. Translated by Shinichiro Nakamura and Jean S. Gerard. Seattle, Washington: Executive Committee for Publication of Issei, c/o Japanese Community Service, 1414 S. Weller St., Seattle, WA 98144. xxviii + 1016 p. Illust. Index of personal names only. 24 cm. Translation of *Hyakunen Sakura*. [100* ref. Eng]

• **Summary:** This massive book is basically a history of first-generation Japanese immigrants to Pacific Northwest (especially Washington, Oregon, and British Columbia), focusing on the great struggles and hardships they met, written from the viewpoint of individual Japanese who tell their stories (often in the first person), and compiled by a Japanese journalist. The book was first published in Japanese. Access to the wealth of information it contains is crippled by the lack of a subject index. So if one were looking for information about tofu, miso, or soyfoods, one would have to read the entire book. The index of personal

names is well done.

At the very front of this book are very interesting maps of the old Japanese districts of the following cities: Seattle, Tacoma, and Spokane, Washington; Portland, Oregon; Vancouver, British Columbia, Canada. Unfortunately, none of the maps are dated. The name and location of each Japanese organization or business is shown clearly in English. In the part on “Japanese exclusion,” the section titled “The smell of race” [very interesting] (p. 227-28) states: “Exclusionists especially point out that Japanese favorite foods and condiments, such as *miso*, soy sauce, radishes and pickles, are intolerable [in smell]... The neighboring whites complained loudly that they just could not stand the smell of cooking soy sauce... A Japanese smells like miso, and whites in general exude faint waves of the odor of butter and cheese. The smell of their underarm perspiration is really strong.”

In the part on “Railroads,” the section titled “Life of Yoshiichi Tanaka” notes that he worked with a gang of young Japanese bachelors who were all trying to save money. For breakfast they had miso soup, which was delicious, so everyone ate more, which caused food expenses to rise. “So we skimmed on miso and merely added salt for flavor.” For lunch they sometimes had “fish cooked in soy sauce, or a half cake of *tofu* (bean curd cheese), or radish, carrots and beef boiled hard with soy,...” “In the Japanese restaurant in Seattle we could fill up on miso soup, rice and pickles for only 10¢...”

Note. This is the earliest English-language document seen (April 1913) that uses the term “bean curd cheese” to refer to regular (non-fermented) *tofu*.

The part on “Alaska” (p. 355) is mostly about work in the canneries: “We shipped Japanese foods such as rice, soy sauce, miso, dried kelp [*kombu*] for soup base, dried sea slugs,... *fu* (a light cake made of wheat gluten), dried seaweed,...” Page 359 mentions soy sauce and miso soup with salmon.

The part on “Sawmills” states (p. 402): “The food was Japanese—first class rice imported from Japan,... and *koyadofu* (a dish made from bean curd). For breakfast they served miso soup with vermicelli in it. Lunch was rice, and fish and vegetables boiled hard with soy sauce.” On Sundays they had red bean soup with *mochi* (rice cake).

Under “Supplementary food” (p. 408-09): The meals were mostly Japanese. Breakfast: miso soup... Dinner: *Sukiyaki*. “Some people bought things from Seattle stores like bottles of pickled bean curd (*funyu*), salted sea urchin, fermented soy beans [*natto*], salted plums, or seaweed preserved by boiling in soy sauce (*nori no tsukudani*),...”

In 1907 we spent \$5 to \$6 per month for food, and it was poor. For breakfast we ate miso soup and rice;... for lunch rice cooked together with *aburage* (fried bean curd)... I bought canned salmon and poured soy sauce and sugar on it for dinner. For Saturday dinner we had *sukiyaki*.

Page 410: Breakfast was *tofu* in miso soup with pickles and rice. Page 411: Deer meat *sukiyaki*.

In the part on “Agriculture,” we read that Japanese immigrants to America sometimes enjoyed Japanese soyfoods. In about 1910, in Fife, a farming community near Seattle, in about 1910, Gunji Fujimoto “had miso soup and pickles for breakfast” (p. 440). In about 1916, in Hood River (northern Oregon), Henry Nakamura wrote that Japanese people could get foods from Japan, including “fried bean curd” (p. 499-500). There they also enjoyed miso soup for breakfast, cooked red beans [*azuki*] spread on bread for lunch, and rice, pickles, and dried radish strips cooked with soy sauce for dinner (p. 503). In the early 1920s in Oregon, breakfast typically consisted of rice, miso soup, and pickled cucumbers (Shoemon Nakamura, p. 512).

The part on “Mines” in 1917 (p. 557): “Dinner was Japanese style with stews, beef and *tofu* cooked together with soy, fish, miso soup, rice and so on.”

Page 568: “The meals at Endo camp were notorious. Breakfast was miso soup and pickles with rice. When the population increased, the amount of soup was increased by adding water, not miso. The contents of the soup was always *wakame* (seaweed)” all year long “changelessly *wakame*. Mr. Endo laid in a huge stock of left-over seaweed and fried dried bean curd, and miso, soy sauce and pickles.”

Part 20, “On the Streets,” states that “The old Japanese towns in Seattle, Tacoma, Portland, and Vancouver (Canada) can hardly be traced today.” The author has tried to reconstruct maps of these towns “in roughly the period of the 1920s, but not in any specific year” (p. 779-80). In Nov. 1908 Masanao Hanihara, Secretary of the Japanese Embassy, issued a report on his investigations of living conditions of Japanese in the western USA (p. 791). He found the Japanese still lived “at the level of immigrant laborers;” the conditions in their communities were “extremely low and chaotic.” “The Japanese in these areas hardly mix with white residents, while sometimes they approach or mix with Chinese. There are many ill effects from clique-ishness.” “The majority of Japanese workers lack knowledge of English, so whenever they make contracts they sign papers blindly” (p. 795-96). Hanihara estimated the Japanese population of various states as follows: Washington 9,000 to 10,000, Oregon 3,500 to 4,500, Wyoming 1,000 to 1,500, Idaho 1,000 to 1,500, Montana 1,000, and Alaska 1,000. The largest Japanese community in the region was in Seattle (about 4,000 Japanese). “Shinzaburo Ban of Portland is almost the top among successful Japanese on the Pacific Coast.” His business, S. Ban Co., headquartered in Portland (where he arrived in 1891), acts mainly as a contract agency for Japanese laborers—a sort of employment agency, “and his store supplies sake, miso, soy sauce and other such Japanese foods and small items to the laborers” (p. 789-93; see portrait photo p. 792). A sidebar (p. 793, by Raisuke Tamura, Seattle) notes that “However long they lived in the United

States, Japanese had to have Japanese food... Around 1906 I imported from Japan vegetables such as lotus root, Japanese radish [*daikon*], *gobo* (burdock), *zenmai* (fern), *abura-age* [deep-fried tofu pouches], *nigari* (bittern, a tofu coagulant), *tsukuneimo*, *yamaimo*, and so on, in hundred-pound baskets, and sold them to sawmills and railroad camps" (p. 793).

The 1 January 1916 edition the *Hokubei Nenkan* listed all businesses operating in various Japanese towns. These included two "tofu-makers" in Seattle, Washington (p. 800), at least one tofu maker in Tacoma, Washington (p. 804. Tacoma had a Japanese population of 931 in 1915—721 males and 210 females). Spokane didn't have a Japanese town as in Seattle and Tacoma, but in 1915 it did have a Japanese population of 536 (462 males and 74 females).

The map of old-town Portland, Oregon, probably from about 1935, shows 90 Japanese businesses located between 1st Ave. and 7th Ave. (running north-south) and between W. Burnside and N.W. Glisan (running east-west). Among these are two tofu manufacturing companies. "Ota Tofu Mfg." is located on 5th Ave. between Everett and Flanders. [Note: The actual address was 86½ 5th N]. "Fuhei Tofu Mfg." is located is on N.W. Davis between 3rd Ave. and 4th Ave.

Contents: The book is divided into 21 parts, with each part containing several chapters (the number is shown in parentheses): 1. Sailing (6). 2. Secret passage and ship-jumping (5). 3. Japanese exclusion (15). 4. Japanese women (2). 5. Railroads (5). 6. Alaska (4). 7. Sawmills (2). 8. Agriculture (7). 9. Hotels (2). 10. Restaurants (2). 11. Mines (2). 12. Oysters (2). 13 Japanese language schools (2). 14. Studying English (3). 15. Pro-Japanese (8). 16. Furuya Company (4). 17. Lese majesty affairs (2). 18. Gambling (3). 19. Girls (2). 20. On the streets (9). 21. In Memorium [Memoriam—to the many who died]. (2). Appendixes: (1) Partial list of Japan-U.S. and Japan-Canada sister cities. (2) Japanese consulates. (3) Chronological table: Japan and America (side by side), 1868-Sept. 1972. Bibliography (p. 967-72, mostly Japanese-language books). Epilogues: To English and to Japanese editions. Index of personal names (p. 988-1016). Address: Tokyo and Seattle, Washington.

696. Li, Shih-Chen. comp. 1973. Chinese medicinal herbs. Translated and researched by F. Porter Smith, M.D. and G.A. Stuart. San Francisco, California: Georgetown Press. 467 + [41] p. See p. 189-96, 411. Index. 24 cm. [1 ref. Eng]

• **Summary:** This paperback book, which has an orange and yellow cover, is a reprint, published without proper explanation or credit. It is a facsimile copy of Rev. G.A. Stuart's fine book, titled *Chinese Materia Medica* (1911), which is based on the famous *Pen-ts'ao kang-mu* and (as the title page of Stuart's work states) "Extensively revised from Dr. F. Porter Smith's Work" titled *Contributions towards the materia medica & natural history of China. For the use of medical missionaries & native medical students* (1871).

The preface to this 1973 reprint is by Beatrice Bliss,

in whose name the book is copyrighted. On the back cover, Bliss notes: "For over 4500 years Chinese scholars have been compiling medical treatises. The greatest and most complete of all was published in 1578, after 26 years of labor, by Li Shih-chên. American physicians in China, long impressed with the efficacy of organic medicine, translated, researched, and updated his herbal *Pên Ts'ao*, now published for the first time in the United States." The preface continues: "Unlike the Western world, China has been flooded since time immemorial with medical treatises. While the first English-language pharmacopoeia was published in London in 1618, the earliest Chinese treatise still in existence is attributed to the Yellow Emperor who, according to legendary history ascended the throne of China in the year 2698 B.C... The complete *Pên Ts'ao* comprises 1,892 species of drugs, animal, vegetable and mineral, and includes 8,160 prescriptions."

The plants discussed are listed alphabetically by scientific name. The sections on soybeans, which have many uses as medicinal herbs, are identical to those found in Stuart (1911).

Also discussed are: Kudzu vine, *ko*, or *pueraria* (*Pachyrhizus thunbergianus*; p. 299). Azuki bean or *Ch'ih-hsiao-tou* (*Phaseolus radiatus*; p. 316. "It is considered to be good food for donkeys, but is too heavy and heating for mankind. Medicinally, it drives away dropsy and scatters carcinomatous and purulent swellings.").

Wheat Gluten (*Mien-chin*; p. 445-46). "This is prepared by washing out the starch, and when a small quantity is wanted for catching birds, it is only necessary to masticate the wheat until nothing else is left. It is used as a nutritious article of diet, and is also considered to be antifebrile."

697. Muramoto, Noboru; Abehsera, Michel. 1973. Healing ourselves. New York, NY: Avon/Swan House. 150 p. Illust. Index. 28 cm.

• **Summary:** Contents: How This Book Was Born. The Human Medicine. Yin & Yang. The Theory of the Five Elements. The Diagnosis. The Blood. The Organs. On Understanding Disease. Getting Rid of Waste. Keeping Ourselves Healthy With Food. The Preparation of Medicine. Food Is Best Medicine. Using Herbs and Teas. External Treatments. The Cure: Healing ourselves on our own. The Daily Bread. Foodstore Directory.

The author's first name is misspelled throughout: Noboru is correct; Naboro is wrong. The book is based on 4 weeks of lectures given by Mr. Muramoto in Binghamton, New York. Michel Abehsera complied and supplemented these teachings.

Note: This is the earliest document seen (Sept. 2016) concerning Noboru Muramoto in connection with macrobiotics.

698. Huang, Su-Huei. ed. 1974. Chinese snacks: Wei-Chuan

AVON/24349/\$4.95
IN CANADA/24356/\$5.45



HEALING OURSELVES

NABORU MURAMOTO

Compiled and supplemented by Michel Abehsra
A guide for learning how to prevent, diagnose and treat disease
according to the teachings of Oriental Medicine

cooking book. Taipei, Taiwan: Dept. of Home Economics, Wei-Chuan Foods Corp. 184 p. Illust. No index. 25 cm. [Eng]

• **Summary:** Almost every page contains a large color photo of a finished dish. Recipes include: Seaweed-bean curd broth (p. 7). Bean curd-rice noodle soup (p. 8-9). Egg flower soup with tofu (p. 10). Steamed spareribs with black beans over rice (with “fermented black beans,” p. 14). Bean curd and vegetable soup (p. 14). Bean curd and oyster broth (p. 24). Chicken in black bean sauce over rice (p. 25). Red-cooked beef noodles (with black bean paste {pronounced “he do ban jiang”} and hot bean paste {“la do ban jiang”}, p. 47). Saucy noodles—“Ja jiang mien” (with pressed bean curd and sweet bean paste {“tien mien jiang”}, p. 59). Sweet almond-beancurd soup (p. 143). Sweet soybean milk (“Do jiang,” p. 156). Salty [soy] bean milk (p. 156). Crispy Chinese crullers (“You tiau,” p. 157; serve with sweet or salty soybean milk).

Also: Cantonese moon cakes (with red bean paste [azuki] filling, p. 133, with color photo). Crunchy sesame cakes (with red bean paste filling, p. 135). Tasty fried bean cakes (with red bean paste filling, p. 137). Sesame-bean paste puffs (with red bean paste filling, p. 141). Sweet almond-beancurd soup (“beancurd” made with agar and evaporated milk—no soy, p. 143). Address: 19 West Nanking Road, Taipei, Taiwan. Phone: 551-13564.

699. Chiang, Cecilia Sun Yun; Carr, Allan. 1974. *The Mandarin way*. Boston, Massachusetts: Little, Brown and Co. xiv + 274 p. Index. 23 cm.

• **Summary:** This charming, interesting book (“as told to Allan Carr” by Cecilia) is combination biography and Chinese cookbook organized by months (moons)—so that it flows with the seasons and seasonal foods. For each of the twelve moons of the old lunar calendar, there is one chapter (e.g., First Moon) of Cecilia’s memories of growing up in China, as one of 13 children in a family of great wealth, followed by an “Interlude” chapter on a particular theme (e.g., “Of shopping and its pleasures”) with her favorite recipes for that time of year.

Soyfoods (including “soy” or “soy sauce,” “fresh bean curd,” and “preserved bean curd”) are mentioned throughout the book—for example: Freshwater “dancing shrimp” were “eaten raw after being dipped in a tangy sauce of preserved bean curd [fermented tofu], pepper, soy sauce, coriander and wine” (p. 8). The pork shoulder was “‘red-cooked’ in soy [sauce] and wine...”

Note: This is the earliest English-language document seen (Oct. 2010) that uses the term “preserved bean curd” to refer to a type of fermented tofu.

Some measure of success in reproducing authentic meals outside of China “can be achieved if the basic supplies are obtained either by purchasing them in Chinese shops or ordering them by mail (several sources, with addresses, are given...)” These include: “fresh ginger root, dried bean curd,

dried bean curd [pressed tofu; doufu-gan], sheets [yuba], sesame seed paste, sesame seed oil,... soy sauce,... red bean paste [azuki, also called “1 can sweet red-bean paste” (p. 164)], hot bean sauce” (p. 21)).

Fish with hot spicy bean curd sauce (*Tou-pan la-yü*, with “1 tablespoon Szechwan hot bean curd paste,” p. 50). Five-spiced spareribs, Peking style (with “2 tablespoons pale soy sauce,” p. 71). Peking duck (with “hoisin (duck) sauce,” p. 96). Red-cooked chicken with chestnuts (with “4 tablespoons dark soy sauce, Japanese Kikkoman or imported,” p. 116). Chopped spinach with shredded bean curd (*Po-ts’ai pan tou-fu kan*, with “dry pressed bean curd,” p. 138). Szechwan four season beans (with “1 heaping tablespoon hot soy bean paste,” p. 162).

In San Francisco’s Chinatown, where the shops are predominantly Cantonese, the “dry goods store provides me with pressed bean curd and bean curd sheets [yuba, doufu pi],...”

Note: This is the earliest English-language document seen (Oct. 2021) that uses the term “sweet red-bean paste” (p. 164) to refer to sweet azuki bean paste (*an*).

Talk with Cecilia Chiang. 2008. Nov. 15. She says that “bean curd sheets” refers to doufu pi or yuba; pressed bean curd to doufu-gan. “Hot bean sauce” is *la douban jiang*, which is *douban jiang* with hot chili peppers; both are made with soybeans. Red bean paste is the same as “sweet red bean paste,” made with azuki beans (*xiao hong dou*), and the same as Japanese *an*. Address: 1. Founder and owner, The Mandarin restaurant, Ghirardelli Square, San Francisco, California.

700. Satoh, H. 1974. [Responses of adsuki bean varieties to cultivating conditions]. *Hokkaido-ritsu Nogyo Shikenjo Shuho (Hokkaido Prefectural Agricultural Experiment Station, Bulletin)* 29:61-71. March. [Jap; eng]*

701. Thomas, T.A.; Patel, D.P.; Bhagat, N.R. 1974. Adzuki bean: a new promising pulse for the hills. *Indian Farming* 23(12):29-30. March. *

702. Oritani, Takayuki; Yamashita, K. 1974. Synthesis and biological activities of analogs of abscisic acid. *Agricultural and Biological Chemistry* 38(4):808-08. April. [9 ref]

• **Summary:** “The growth and germination-inhibitory activity of compounds related to abscisic acid on Azuki bean seedlings and some species of seeds were examined.” Address: Dep. of Agricultural Chemistry, Faculty of Agriculture, Tohoku Univ., Sendai [Japan].

703. Erehwon. 1974. *Natural and organic foods: Supplying natural food stores, co-ops, schools and communities* (Catalog). Boston, Massachusetts. 16 p. Effective June 1974. • **Summary:** The structure and design of this catalog is quite similar to the previous one of April 6, however four pages



SUPPLYING NATURAL FOOD STORES,
CO-OPS, SCHOOLS and COMMUNITIES

33 Farnsworth Street
Boston, Massachusetts 02210
(617) 542-1358

JUNE 1974

of new products and sizes have been added. The background of the illustration has been changed but the foreground is the same; it is now copyrighted by Erewhon. The note from Paul Hawken has been replaced by a similar one signed “the erewhonians.” OG = Organically grown.

New additions to the catalog: Flyers: (1) Organic Merchants: The flour story. The salt story. (2) Issues of *East West Journal*. From Vol. IV, No. 6, July 1974, “Energy” to Vol. IV, No. 9, Oct. 1974, “Healing.” (3) Natural Recipes: Three by five inch tear-off pads, each pad containing 100 of the same natural-food recipe. Four assortments (A-D), eight different pads in each assortment. There is one soy-related recipe pad in each assortment: (A) Soybeans au gratin. (B) Miso soup. (C) Soybean casserole. (D) Soyburgers.

This catalog cover (blue on white) was reprinted with permission from the Michio and Aveline Kushi Macrobiotics Collection, Archives Center, National Museum of American History, Smithsonian Institution, Washington, DC. Address: 33 Farnsworth Street, Boston, Massachusetts 02210. Phone: (617) 542-1358.

704. Harmony Foods. 1974. Trade price list / Order form. London, England. 2 p. Sept. 30 cm.



• **Summary:** VAT [Value Added Tax] Reg: 240/2679/77.

A table shows: (1) Product name. (2) Contents of each case. (3) Cost [Price] of each case. (4) S.R.P. [Suggested retail price].

Product categories: 1. Grains & cereal products: 12 products incl. Brown rice, superb quality. Brown rice, Short grain, new. Better quality. Millet. Roasted buckwheat. Wheat grain, whole organic. Brown rice flour. Note: Only wheat is listed as organic

2. Beans, seeds, & nut products: 13 products incl. Tahini sesame cream. Crunchy peanut butter. Creamy peanut butter. Tamari soya sauce. Soya beans, yellow. Adzuki beans. Miso, light Mugi type. Miso, dark Hatcho type.

3. Special lines: 9 products incl. Ginseng chips. Ginseng roots. Mu tea (retail pack). Apple juice, concentrate. Sunflower seed oil, cold-pressed and refined. Sesame oil, virgin cold-pressed. Corn germ oil, unrefined. Red wine vinegar, natural. Umeboshi pickled plums.

4. Seaweeds & specialties: Wakame. Hiziki [hijiki]. Kombu. Irish dulse. 3-year tea [Bancha]. Kuzu arrowroot. Dentargile toothpaste—Anise.

5. Books: 7 books. Address: 1, Earl Cottages, Earl Road,

London, S.E.1. Phone: 01-237-8396/7.

705. Nomura, N. 1974. [Effect of the low temperature on adzuki bean plants. II. Relations between the low temperature, treated before and after flowering, and the thickening growth of grains]. *Hokkaido Nogyo Shikenjo Jiho (Hokkaido Agric. Exp. Station, Bulletin)* 30:9-15. Oct. [Jap; eng]*

706. Shikata, S. 1974. [Descriptions of the new varieties of sweet potatoes, adzuki beans and peanuts]. *Nogyo Gijutsu (Agricultural Technology)* 29(11):507-11. Nov. [Jap]*

707. Hughes Markets. 1974. Happy New Year '75 (Ad). *Los Angeles Times*. Dec. 26. p. K20.

• **Summary:** The section titled “Foods of the Orient” includes: Kikkoman soy sauce, one gallon can \$3.29. “JFC Kinako 7 oz. pkg. Soy bean flour—35¢. Misuzu Koya Dofu 3.5 oz. box. Dried Soybean Cake [Dried frozen tofu]—69¢... Age [Deep fried tofu pouches, sold in the fresh produce dept.] 59¢ package.”

Also includes Tempura batter mix, New crop botan rice, Motohiko Sapporo maki—Rolled Tangle [konbu]. Azuma yokan—Bean jelly [azuki]. JFC or Hime Shitake—Shitake dried mushrooms. Hime kampyo [kanpyo]—Dried gourd strips. Take waribashi—Bamboo chopsticks. Kamaboko. Blue chip stamps.

708. Palmer, J. 1974. The growth habits and flowering of azuki beans in New Zealand. *New Zealand J. of*

Experimental Agriculture 2(4):371-76. Dec. [9 ref]

• **Summary:** “Introduced azuki bean cultivars are short, more or less branched, and carry some pods close to the ground. Outcrossing is rare and has not been detected in New Zealand, but many cultivars have been found to consist of a number of homozygous types.

“Selections have been made only in cultivars from the north sector of the natural range (principally China, Japan, and Korea); the best have come from the early-maturing types of North Japan.” Address: Crop Research Division, DSIR, Box 61060, Otara, New Zealand.

709. Sakuratani, T. 1974. [Temperature environment in the air layer over adzuki bean and pasture fields] *Nogyo Kisho (J. of Agricultural Meteorology)* 30(3):141-49. Dec. [Jap; eng]*

710. Bryant, Clare. 1974. Everyday vegetarian and food reform cooking. Shaldon, England: Keith Reid Ltd. 143 p. Illust. by Graham Searle. 23 cm. Recipe index.

• **Summary:** Soy-related recipes include: Miso soup (p. 19).

Soy bean cake (made with whole soy beans, p. 45). Miso wakame soup (p. 90).

Page 137 lists “Meat Substitutes” including “Protovég: Texturised vegetable protein made to look and taste like meat in several flavours.” “Soyapro: A tinned [canned] texturised vegetable protein. Many other brands of TVP will appear on the market in the years to come.”

711. Hannaford, Kathryn. 1974. *Cosmic cookery*. Berkeley, California: Starmast Publications. xixd + 264 p. Illust. by Lorena Laforest. 21 cm.

• **Summary:** This vegetarian cookbook contains 190 recipes created and tested at the communal One World Family Natural Foods Restaurant. Page 35 lists uses and seasonings of beans, including adzuki beans and soy beans. Favorite seasonings for the latter are thyme, oregano, basil, green pepper, tomato, cheese, soy sauce, onion, or garlic. Soy-related recipes include: Soy grits (p. 75). Macroburger mix (with cooked soybeans, p. 83). Soy mayonnaise (with soy milk powder, p. 111). Chunky soy spread (p. 130). Miso tahini spread. Creamy soy spread (p. 131). Miso soup (p. 144). Miso-scallion broth (p. 145). Macro-sausage (with Soy Spread, p. 163). Spaghetti with miso sauce (p. 176). Super soybean casserole (p. 182). Miso sauce (p. 200). Soya carob nut brownies (with soy milk powder, p. 227). Address: Berkeley, California.

712. Masuda, Koh. editor in chief 1974. *Kenkyusha's new Japanese-English dictionary*. 4th edition. Tokyo: Kenkyusha. xiii + 2111 p. 27 cm. [Eng; jap]

• **Summary:** The first edition of this superb dictionary was published in 1918, the second in 1931, and the third in 1954. The words are listed in alphabetical order. Some of the definitions of soy-related terms are quite poor. Examples:

Daitokuji natto: not listed.

edamame: “green soybeans.” [Better: Green vegetable soybeans, or Edamamé].

Hamananatto: not listed.

Hamanatto: not listed.

hiryôzu: not listed.

kinugoshi [tofu]: fine-grained *tofu*.

kogori-dôfu = kôya-dôfu.

Note. This is the earliest English-language document seen (April 2013) that uses the term *kogori-dôfu* or the term *kôya-dôfu* to refer to dried-frozen tofu.

koikuchi shoyu: not listed.

kôji: “*kôji*.” Good.

miso: “*miso*.” Good. Also defines: [ama-miso]: slightly-salted miso.

[miso-koshi]: a miso strainer.

[miso mame]: a soybean; a soya (bean).

[miso-shiru]: miso soup. And many more.

nattô: “fermented soybeans.” [Better: Whole soybeans fermented with *Bacillus subtilis*]. Nattô-jiru: “Miso soup

with minced fermented soybeans.” Good.

nomame: not listed.

okara: bean-curd (*tofu*) refuse; lees of bean curd.

omiotsuke [Jap: Misoshiru] See miso [Miso soup; word used by women only].

otsuke [Jap: Misoshiru] Miso potage (soup).

saishikomi shoyu: not listed.

shitaji: soy. See shôyu.

shôyu: “soy (sauce).” Better: Soy sauce.

tamari: “(a kind of) soy; soy sauce; sauce from refined soy.”

tôfu: “bean curd [cheese]; *tofu*.

[yaki-dofu]: “roasted bean curd.”

[tofu itcho]: a piece (cake) of bean curd.

[tofu-ya]: “a tofu dealer (seller, maker).”

tônyû: “soybean (soya) milk.” [Better: Soymilk, soya milk, or soybean milk].

tsurumame: not listed.

usukuchi shoyu: not listed.

yuba: “dried bean curds” [sic. Better: The protein-lipid film formed atop soymilk when it is heated].

713. Masuda, Koh. editor in chief 1974. *Kenkyusha's new Japanese-English dictionary*. 4th edition. Tokyo: Kenkyusha. xiii + 2111 p. 27 cm. [Eng; jap]

• **Summary:** Food words that are not related to soy:

ame: thick malt syrup.

azuki (characters small + bean): “an adzuki [adsuki] bean.” azuki aisu: “adzuki-bean sherbet.” azuki-kayu:

“adzuki-bean gruel.” azuki-han: “rice boiled with adzuki beans.” azuki-iro no: “reddish-brown or russet” in color.

kintoki-azuki: “a large kind of adzuki bean.” kintoki-mame: “adzuki beans cooked with sugar.”

mochi: “rice cake.”

yôkan: “sweet jelly of beans; a fine sweet paste.”

mizu-yôkan: “soft adzuki-bean jelly.”

mushi-yôkan: “steamed adzuki-bean jelly.”

yôkan-iro: “a liver [rusty] color; a faded color (as of clothes).” Note: The character *yô* in *yôkan* means “sheep” and can also be pronounced *hitsuji*.

zenzai: “thick bean-meal soup (with sugar and rice cake [mochi]).”

714. Ohsawa, Lima. 1974. *The art of just cooking*. With Nahum Stiskin. Hayama, Japan and Brookline, Massachusetts: Autumn Press. 216 p. Illust. by Maurice Owen. Index. 19 x 23 cm. Reissued in 1984 as *Macrobiotic Cuisine* by Japan Publications, NY. 175 p. [26 ref]

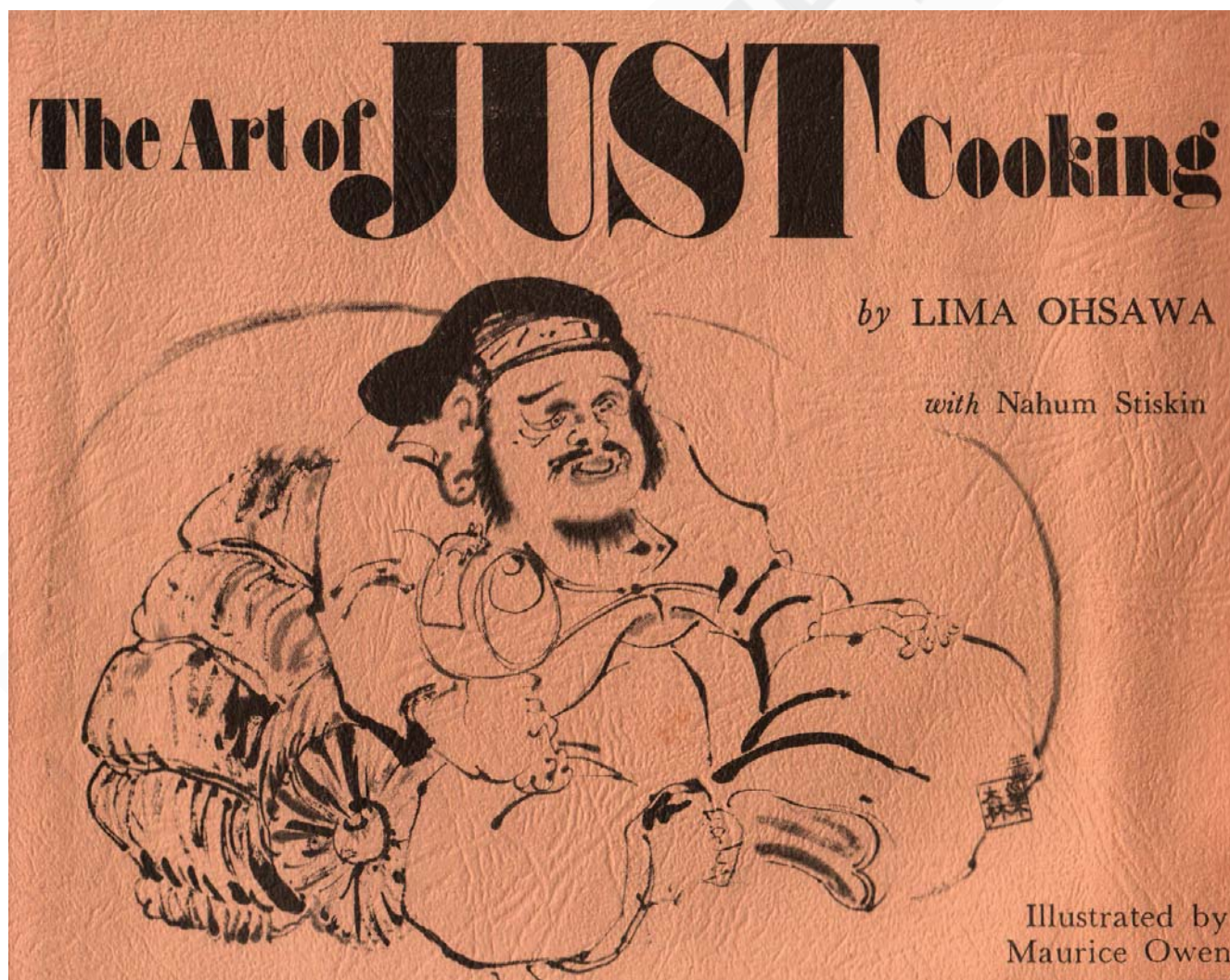
• **Summary:** This work is based on Lima's Japanese-language book titled *Macrobiotic Cookery* (1971; in Japanese *Makurobiotiku ryôri*: *Shokuyô katei ryôri 700 shu*). The Preface to this book is a 3-page autobiography by Lima starting in 1953, when she was about age 54. In 1953, at age 54, Lima Ohsawa first ventured beyond the shores of her



native Japan. She and her 2nd husband, Georges Ohsawa, left on their first world tour. In 1955-56 they spent time

with Dr. Albert Schweitzer in Lambarene, Gabon. "Being vegetarian Dr. Schweitzer was always very interested in the nutritional assets of the soybean and asked me to show him different ways to prepare it" (p. 10). During this and many subsequent travels, Lima learned many traditional, natural recipes from around the world.

Contains numerous Japanese macrobiotic style recipes. Page 32 gives good definitions of miso and shoyu. Soy-related recipes include: Brown rice with soybeans (p. 53). Inarizushi (p. 55). Brown rice porridge with vegetables and miso (p. 58). Soya omochi (mochi with soya flour). Burdock with miso and lemon peel (p. 90). Broccoli and radish with miso dip (p. 92). Carrot with green beans and tofu (p. 95). Ninjin shiro-ae (with "½ cake of *tofu*, drained and mashed {p. 173}," p. 95). Cucumber with wakame and walnut miso (p. 96). Cucumbers with miso and sesame (p. 97). Onion nitsuke with miso (p. 100). Onion goma-miso-ae (onion with sesame miso, p. 100). Eggplant nabeshigi-yaki (with miso, p. 101). Scallion and aburage nitsuke (p. 101). Scallion dengaku (with miso, p. 102). Renkon ikada age with kuzu-lemon sauce (p. 103). Kabocha miso ni (p. 106). Kabu miso-



ae (turnips with sesame miso, p. 109). Daikon age rolls (with aburage, p. 114). Vegetable skewers with koya-dofu (dried-frozen tofu, p. 114). Kombu with shoyu (p. 117). Renkon miso inro (lotus root tempura with miso, p. 123). Coltsfoot buds with miso (p. 126). Wakame miso soup (p. 137). Mugi-miso soup (p. 137). Sake-no-kasu jiru (miso soup with sake lees, p. 137). Go jiru (soybean potage with aburage, p. 141). Oden with ninjin and gobo kombu maki (with aburage, p. 146).

Condiments and pickles (p. 154-57): Gomashio (sesame-salt). Tekka miso (sauteed vegetables with miso). Shigure miso (moist tekka). Miso sauté. Soybeans with miso and burdock. Soybeans with miso. Miso pickles (fall and winter). Sauces, spreads and salad dressings (p. 161-63): Lemon shoyu. Ginger shoyu. Orange shoyu. Tsuje-jiru dipping sauce (with shoyu). Goma joyu sauce (with shoyu). Scallion miso. Walnut miso. Citron miso. Goma miso (sesame).

Beans (p. 165-78). Black bean ni (the black beans are actually black soybeans. Soak 1 cup soybeans overnight in 3 cups water. “Drain the beans through a strainer reserving any soaking water.” Add enough fresh water to equal 4 cups then pour this liquid into a heavy saucepan. Add the soaked beans, bring to a boil over high heat. Reduce heat to low, cover and simmer for 2+ hours, or until tender. Add water during cooking if liquid completely evaporates. Toss pan to stir. When done, season with a dash of salt and/or shoyu. “In Japan this exquisitely sweet dish [nimame] is a must on New Year’s Day. It gets even sweeter after standing for a day or two.” Cooking soybeans with a small strip of *kombu* helps to soften them). Gomoku-mame (soybean nitsuke).

Tofu ryori (p. 173-78; “Tofu or bean curd is rich in vegetable protein. Although it is rather *yin* in our classification of foods, the recipes I have included here balance its *yin* characteristics with *yang* so don’t hesitate to use it occasionally. It’s delicious in miso soup, stews and *nabe*, and as a dish by itself. It is available at Oriental food shops and can also be made at home.”). Homemade tofu (p. 174; 3 cups soybeans plus nigari make 1 lb. tofu; also describes how to make nigari {sea brine} by dampening 5 lb. sea salt). Variation: Homemade grilled tofu. Unohana pouches (with okara and aburage). Gammodoki. Tofu with kuzu sauce. Tofu roll. Koya-dofu sandwich. Tofu nitsuke. Chinese dow-foo oroshi-ae. Tofu mold (with kuzu). Tofu tempura. Goma dofu (sesame tofu).

Note 1. This is the earliest English-language document seen (April 2013) that contains the term “grilled tofu.”

Squid and scallion miso-ae (p. 183). Salmon head soup (with soybeans, p. 183). Surimi shinoda (with aburage, p. 184). Red snapper in miso. Koi koku (with miso, p. 184). Egg tofu (p. 185). Amazake manju (sweet sake dumplings, p. 198). Amazake (homemade, using glutinous “sweet” brown rice, p. 207).

The section titled “*Kofu*: Wheat Gluten” (p. 85-86) includes recipes for Homemade kofu (wheat gluten,

including Kofu loaf and Seitan), and Kofu cutlet. “First introduced to Japan from China by Buddhist monks, *kofu* became a very popular food in Zen temples. It is delicious in soups and stews and mixed with sautéed vegetables. *Kofu* cutlet looks, feels, and tastes like meat.” Seitan is made by simmering 5 cups cold wheat gluten, separated into small pieces, for 3 hours in shoyu, sesame oil, and minced gingerroot.

Dandelion coffee (made from minced and dry roasted, ground dandelion root) and Yannoh (prepackaged grain coffee, made from 5 different grains) are described on p. 206-07.

The book, which contains many fish recipes, begins with a nice photo of Lima at age 75—she looks 20 years younger—and ends with a good glossary. Lovely illustrations, a wealth of original information on Japanese foods.

Note 2. This is the earliest document seen (July 2000) that mentions “Tekka miso” (spelled that way).

Note 3. This is the earliest English-language document seen (Feb. 2005) that used the word “kofu” to refer to wheat gluten. Address: Tokyo, Japan.

715. Sandler, Sandra Takako. 1974. *The American book of Japanese cooking*. Harrisburg, Pennsylvania: Stackpole Books. 192 p. Illust. Index. 24 cm.

• **Summary:** The author, a third generation Japanese-American, reveals the secrets of successful Japanese-style cooking—specifically for the American cook. The three introductory chapters discuss tofu (p. 16, 23, 29, 36), shoyu (p. 20), and miso (p. 27, 35). Soy-related recipes include: Seafood in miso sauce (p. 54). Shellfish in soy-mirin sauce (p. 55). Miso soups (p. 57-59). Tofu & scallions soup (p. 60-61). Instructions for sprouting beans (incl. mung- and soybeans, p. 72-74). Vegetables with tofu & sesame dressing (with white miso, and “white sesame seeds, toasted and ground,” p. 77-78). Eggplant and green peppers with miso dressing (p. 78-79). Fried okara (p. 79-80). Sweet cooked soybeans (p. 82). Inari-zushi (p. 89-90). Fish misoyaki (p. 111). Miso abalone (p. 112-13). Beef misoyaki (119-20). Sukiyaki (with tofu and soy sauce, p. 121-22). Pork and tofu (p. 135-36). Stuffed tofu (p. 138-39). Chicken teriyaki (with soy sauce, p. 145). Fresh tofu (p. 154-55). Homemade tofu (p. 155-57). Deep-fried tofu (p. 157). Batter-fried tofu (p. 158). Yakidofu (p. 158-59). Aburage (p. 23, 159). Fox noodles (p. 167-68). Udon in miso shiru (p. 168). Tempura and udon (p. 168-69). San bai zuke (p. 175).

Also discusses azuki beans (p. 23, 178), sweet azuki bean paste (*koshi-an*), sesame seeds, sesame oil (p. 28), sea vegetables, and mochi.

716. Andrade-Arias, E. 1975. Estudio de fechas de siembra del frijol rojo japonés [Study of planting dates for adzuki beans]. *Agricultura Técnica en México* 3(10):393-96. Jan. [Spa; eng]*

717. Hewitt, Jean. 1975. A health food store with a flair. *New York Times*. April 5. p. 22.

• **Summary:** This store is the Olde Grain Mill at 1494 Third Avenue, between 84th and 85th Streets, in New York City. It opened about 5 months ago. The prices are lower than those of most health food stores because of the store's buying methods, says Anthony Rotondo, one of the partners. "Mr. Rotondo said the younger customers buy mung beans, alfalfa and flax seeds to sprout, azuki beans for Zen macrobiotic diets, and lots of steel cut oats, wheat and rye flakes and Monnuka raisins for making granola. The store also carried Good Shepherd and a non-name brand of ready-to-eat granola..." It also offers various breads, including gluten and Cornell breads.

718. Tojo, M.; Okamura, T.; Ishibashi, K. 1975. [Freezing of fresh adzuki bean jam by cold air]. *Obihiro University of Agricultural and Veterinary Medicine, Research Medicine* 9(2):357-64. June. [Jap]*

719. Razowski, Józef; Yasuda, Tosihiro. 1975. On the Laspeyresini genus *Matsumuraeses* Issiki (Lepidoptera, Tortricidae). *Acta Zoologica Cracoviensia (Krakow, Poland)* 20(2):89-106. July 31. [17* ref. Eng]

• **Summary:** The known species of the genus *Matsumuraeses* are reviewed. A key for the identification of the males based on the genitalia is included. One new species is described and redescription or notes are given of others. The genus was originally established as monotypic by Issiki in 1957. The host plants are mainly *Papilionaceae*. Only *Matsumuraeses phaseoli* (Matsumura; originally named *Semasia phaseoli* Matsumura in 1900) and *M. falcana* (Walsingham; originally named *Eucelis falcana* Walsingham in 1900) are pests of the soybean.

M. phaseoli uses as its host plants: Azuki beans and soybeans (*Glycine max* and *Glycine hispida*). Distribution: Japan (Hokkaido, Honshu, Shikoku), North Korea (Phiongyang-si district), and USSR (Amur district).

M. falcana uses *Glycine max* as one of its hosts. Distribution: Japan (Hokkaido, Honshu, Shikoku, Kyushu), China (Zi-kawu), Taiwan, Nepal.

M. capax is a new species, which uses as its host the leaves of *Astragalus membranaceus* Bunge in March and April. Its distribution includes Mongolia. It is not clear in which countries the insects were found growing on soybeans. Address: 1. Inst. of Systematic and Experimental Zoology, Polish Academy of Sciences, Krakow, Slawkowska 17 [Poland]; 2. Entomological Lab., College of Agriculture, Univ. of Osaka Prefecture 7491: Mozuumemachi, Sakaim Osaka, Japan.

720. Bulisani, E.A.; Leitao-Filho, H. de F. 1975. Contribuicao ao conhecimento botanico do feijao-adzuki e

especies afins [Contribution to the botanical knowledge of the adzuki bean and similar species]. *Circ. Inst. Agron.* No. 47. 17 p. Aug. [Por; eng]*

721. Shurtleff, William. 1975. The story of kuzu. *Macrobiotic (The) (Oroville, California)*. Aug. p. 42-51. [79* ref]

• **Summary:** "Kuzu now grows abundantly in many parts of the southern and southeastern United States. The meeting of a southern American accent with a new Japanese word produced the improbable but now commonly accepted spelling and pronunciation *kudzu* (cud-zoo). Introduced into America from Japan in 1876, it was intended primarily to check soil erosion and improve the poor clay soil in the South. Gradually it also became used for hay and forage and a fiber called *ko-hemp* was produced from the stems.

"To the surprise of its hosts, not only did kuzu grow well on steep, barren embankments of hard, red clay, it actually thrived, even in areas of sparse rainfall. And eventually it began to spread like wildfire or even start to get out of control. Instead of asking how to grow it, farmers began to ask how to get rid of it. In some areas it climbed pine trees and virtually suffocated them with its hardy, dense foliage. How unfortunate that farmers did not realize that they were being blessed by an abundance of one of Japan's most honored edible wild plants which was,—and still is—asking to be harvested, made into fine kuzu, and allowed to find its new home in the world of American cuisine.

"Kuzu is an ancient genie which for 400 years has been delighting in the play of transformation and selfless service. This wild vine, with its large prolific roots that yield a naturally pure white, unique starch, has been a friend and servant to the Japanese people in many aspects of their daily life, and it continues to belong to several traditions which bring a sense of delicacy and harmony to the culture and cuisine.

"For the gourmet, kuzu appears in the world of *shojin ryori* (Buddhist vegetarian cookery) and prefers a guise of elegant refinement, a sense of the aristocratic and the traditional. At Japan's finest temple restaurants, kuzu is likely to appear as sesame tofu, which is served at the beginning of the meal in a handmade pottery bowl and topped with a dab of fresh, green Japanese horseradish (*wasabi*). Whether served at a low table set on raised tatami mats next to a pond in the shade of pines or in a room adjoining a Japanese garden of raked white sand and a few carefully placed rugged stones, the setting is bound to be exquisite. The beauty and serenity create a timeless world where the heart and the mind can become still and the natural flavors of the shojin ryori can be wholly enjoyed and appreciated.

"For the tea master and his guest, kuzu appears in *kaiseki ryori*, a light meal which precedes the formal tea ceremony and is considered to be the haute cuisine of Japan. In a clear soup, it is used inconspicuously to lend its delicate

flavor and to give subtle body to the hot beverage while holding the few slices of fresh, carefully cut vegetables in a simple pattern within the bowl. And it may be found in a single cube of walnut tofu or served as a light sauce on tofu or wild vegetables in season.

“For the hot and weary traveler, in the late spring or early summer, kuzu appears as a refreshing dessert called *kuzu-kiri*. At ‘Kagi-zen,’ a traditional restaurant in Kyoto, tall, elegant layered containers are brought to the thick wooden tables by women in traditional dress. Remove the monogrammed lid and in the first bowl is a fragrant, cool sauce. Lift away this bowl and deep in the second black, lacquerware hollow are opalescent strips of jelled kuzu, long and flat like hand-cut noodles, intertwined with large chunks of ice beneath a faint, chilled mist. Pluck them out with hardwood chopsticks, dip them in the sweet sauce and—the heat of summer is soon forgotten.

“For the devotee of traditional Japanese confectionery (*o-kashi*), kuzu appears during the summer in many forms and may be served in tea shops, temples or wayside inns with new spring tea or ceremonial, whisked green tea. *Kuzu-manju* or *kuzu-zakura*, is a small lump of deep-red, sweet azuki bean paste enfolded with a soft, translucent coating of jelled kuzu. This is served on a single cherry leaf which has been prepared in a separate shop by a special method that brings out its delectable fragrance. Harmonizing with the flavors in the treat, this fragrance reminds the guest that kuzu comes from Yoshino, the mountain famous for its one thousand cherry trees. Another popular confection is *kuzu-mochi*, made of bite-size lumps of jelled kuzu sprinkled with a layer of roasted soy bean flour (*kinako*) which has been mixed with a little natural sugar.

“For the priest in his mountain hermitage or temple, the family who enjoys searching the mountains for edible, wild plants, or the poor farmer who has to live off the land from time to time in order to make ends meet, the kuzu vine offers its leaves for use in a variety of dishes such as tempura, pressed salads, sauteed vegetables, or rice bran and salt pickles.

“The root of the kuzu plant has traditionally been used in two different forms as a medicine in Japan. In its unrefined form as *kakkon*, it is used to prepare an herbal infusion called *kakkonto*, and in its mild, white refined form as kuzu starch, it is used to prepare *kuzu-yu*, *kuzu-mizu*, or *kuzu-gayu*. The Chinese character, usually read in the Japanese way as *kuzu* can also be read in the Chinese way as *kakkon*. The word *kakkon* is composed of the character for kuzu and the character for *root*. From ancient times in Japan, the kuzu root in its unprocessed form has been used as a part of the traditional art of *kanpoyaku*, the herbal pharmacy transmitted from China. *Kakkon* (kuzu root) is first prepared by cutting a piece of the fresh root of the kuzu plant into 1/8 inch cubes and then drying them indoors until they become hard and tan.

“The three characters which make up the word *kakkonto*—literally mean kuzu-root-hot water. *Kakkonto* is actually an infusion made from a mixture of about 80 percent *kakkon* and 20 percent other herbs, including ginger, cinnamon, licorice and peony. A very fragrant combination, smelling somewhat like Mu Tea, *kakkonto* is sold at *kanpoyaku* shops throughout Japan in large tea bags. One bag is simmered for about 30 minutes in 3 to 4 cups of water and served unflavored as a hot, medicinal beverage. Like most herbal teas, the mixture may be used once more to prepare another weaker infusion before being discarded. *Kakkonto* is said to be effective for fever, colds or flu, hangover and even stiff shoulders. In olden times it was used as a laxative and as a diaphoretic to induce sweating. Of the three medicinal preparations made from refined kuzu, the hot drink called *kuzu-yu**, with its thick cream-like consistency, is by far the most well-known and widely used in Japan. It is considered to be a quick and gentle remedy for diarrhea and is effective in the early stages of a cold or flu. In the case of a hangover from sake (Japanese rice wine), it relieves headaches and overall bad feeling, soothes the stomach and intestines while gradually restoring the appetite. It also provides relief from temporary stomach and intestinal disorders, and some Japanese people drink a cup of warm *kuzu-yu* each morning to help restore a weak intestinal tract or for relief from chronic digestive disorders. Sometimes it is used as a nourishing health food for infants and elderly people, or simply to refresh and renovate the body...”

Footnote: * See the chapter “Cooking with Kuzu” for *Kuzu-yu* and *Kuzu-mizu* recipes. Address: New-Age Foods Study Center, P.O. Box 234, Lafayette, California 94549.

722. Matson, Marie. 1975. San Francisco: A budget tour of the bay city on \$25 a day. *Chicago Tribune*. Oct. 12. p. C6.
• **Summary:** Includes a brief review of the Cantonese Chinese restaurant Asia Garden (772 Pacific Ave.), which serves “buns stuffed with black bean paste;...”

723. Erewhon Trading Co., Inc. 1975. Erewhon harvest ‘75. Boston, Massachusetts. 48 p. Oct. Catalog and price list.
• **Summary:** On the front cover, a brown and white photo shows a rustic farmer, holding a pitchfork, standing by his horse and hay wagon with wife and child. On the back cover, Erewhon’s president, Tyler Smith, writes a poetic passage about the beauty of wheat. Products include: Grains: Lone Pine in Arkansas grows organic short grain and long grain brown rice. Wehah Farms in California grows organic short grain brown rice and non-organic sweet brown rice [glutinous rice]. Baker in Louisiana grows organic medium grain brown rice. Organic hard red winter wheat is grown in Nebraska and in Deaf Smith, Texas. Organic hard red spring wheat is grown by Ted Whitmer in Montana and Ricke in Minnesota. Organic hard amber durum wheat is grown by Whitmer in Montana. Organic soft white pastry wheat is



grown by Wild Winds in New York. Other organically grown grains are pearled barley (Idaho), whole unhulled buckwheat for sprouting, hybrid yellow or white corn (Deaf Smith), open-pollinated yellow corn (Minnesota), blue corn, whole oats, and rye. Cereals include organic soy flakes from Deaf Smith (25 lb). Flours include organic soybean flour (25 lb, steelground, full-fat). Pasta (packaged or bulk) includes Japanese soba, Soy Rice Shells.

Snacks from “Erewhon L.A.” include Chico-San Yinnies, and Date-Nut Delight. Nik’s Snaks (p. 8): This full page lists about 30 products. Of these, eleven are “tamari-roasted” whole-food snacks. The 30 products are sold in 5 sizes: 2.5 oz, 3.5 oz, or 6 oz. pick-up packages, or 25 lb bulk. The soybeans (dry roasted with tamari, no salt) are sold only in 25 lb packs. Other tamari-roasted seeds include: Spanish peanuts, sunflower seeds, roasted almonds (all 2.5 oz or 25 lb), cashews or pumpkin seeds (25 lb). Non tamari-roasted products include: Raisin walnut mix. Roasted mixed nuts. Raw mixed nuts. Raisin nut mix. Peanut raisin mix. Trail mix (Honey almond granola, roasted peanuts, raw sunflower

seeds, date pieces, raisins, and sea salt). Honey almond granola. Chia seeds. Bee pollen. Alfalfa seeds. Date sugar. etc. Erewhon Aztec organic corn chips. Baked goods from Cable Springs Bakery in Cambridge, Massachusetts. Fruit juices from Erewhon, Heinke’s, Knudsen, Lehr’s (natural grape juice from Germany), and Biotta (Swiss Vegetable juices).

Dairy Products: Cheeses from Alta Dena (also kefir and yogurt) in California, Superior Cheese Co. in Massachusetts, Redwood Natural Cheese Co. in California. Also Favorite Foods yogurt.

Dried fruit, including organically grown Monukka and Thompson raisins, prunes, dates, apricots, apples, Bing cherries, black mission figs, and Calimyrna figs. Peanut-, apple-, sunflower-, and sesame butters. Sesame tahini. Pure & Simple “fruit butters sweetened with honey only; terrific old-fashioned jams (apple, apricot, peach, plum, raspberry, strawberry, grape, cherry). Erewhon apple sauce. “Pumpkin Sour” apple sauce and apple butter made in Plainfield, Vermont. Tree of Life fresh fruit preserves from Florida (8

varieties).

Seeds & nuts, incl. Erewhon organic soybeans in 1-lb packs, and Erewhon organic stoneground soybean flour in 24-oz packs. Arrowhead Mills packaged products, incl. Bulgur-soy grits (24 oz), Soy flakes (16 oz, organic), Roasted soy flour (24 oz, organic). Beans, incl. Aduki (25 lb, from Japan or Mainland China), yellow soybeans (50 lb, organic, New York), black soybeans (25 lb, non-organic from Japan, or organic from New York), green soybeans [dry] (25 lb, organic). Erewhon granola (17 products, including various sizes), Arrowhead Mills granola, Back to Nature granola (unsalted).

Oils, incl. Arrowhead Mills soybean oil (pints, quarts, or 5-gallon jug). Honey. Baking, incl. Premose barley malt, and Yinnies grain syrup from Chico-San. Tea, incl. 2 pages from Celestial Seasonings, and Erewhon Mu tea (9 or 16 herbs), Lotus root tea, Kukicha-branch twig tea. Springwater.

Tamari & Miso: 4 pages of descriptions and prices for Hacho miso (all misos are sold in 1 lb or 44 lb keg), Mugi miso, Kome miso, Tamari soy sauce [actually shoyu] (8 oz, pints, quarts, ½ gallons, gallons, or 4.7 gallon tin), Barley koji (1 lb). Specialties, incl. Unrefined sun-dried sea salt with natural trace minerals from the north coast of Brittany in France, Tekka, kuzu, umeboshi, sesame salt, Herbamare salt, nigari, brown rice vinegar, non-alcoholic beer (Birell, Kingsbury), Bambu instant coffee substitute.

Fearn Soya Foods: Soya granules, Soy-O wheat cereal, Soy-O corn bread & muffin mix, Soy-O bran muffin mix, Soy-O pancake mix–buckwheat, Soy-O pancake mix–wholewheat, Sesame burger mix, Natural soya powder.

Sea vegies: Agar-agar, dulce, hiziki, kombu, wakame, nori seaweeds (a description of each is given).

Erewhon certified organic produce, incl. Daikon grown in California. Soaps, incl. Cattier clay products and Dr. Bronner's Peppermint castile soap, Orjene, Nature's Gate, Tom's Natural Soap.

Cookware, mostly imported from Japan, incl. Soy [sauce] dispenser, 4½ inch. Growing [sprouts and sprouters]. Cast iron. Flyers, incl. Talking Food series, Natural recipes (3 by 5 inch tear-off pads. Soy-related recipes include: Soy au gratin, Soy casserole, Miso soup, Soyburgers, and Soy loaf).

A map shows Erewhon's delivery region (Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey) and schedule. The company also has an office near New York City at 303 Howe Ave., Passaic, New Jersey 07055. Phone 212-594-6455.

Note 1. This is the earliest document seen that uses the word "vegies" (spelled as such, one of two documents) to refer to vegetables, or "Sea vegies" to refer to sea vegetables (edible seaweeds).

Note 2. This is the earliest document seen (May 2006) that uses the term "trail mix" to refer to a non-perishable mixture of dried fruits, seeds, nuts, roasted soybeans,

granola, etc. to be eaten as a snack, as when hiking or walking. Nik Amartseff coined the term "trail mix" and launched the first commercial trail mix product through Erewhon Trading Co. in 1974. At the time, Nik was studying and practicing macrobiotics in Boston, Massachusetts. By the late 1970s several brands of trail mix were on the market in both natural food stores and supermarkets; by the 1980s there were many, as it became a mainstream American snack.

This catalog cover was reprinted with permission from the Michio and Aveline Kushi Macrobiotics Collection, Archives Center, National Museum of American History, Smithsonian Institution, Washington, DC. Address: 33 Farnsworth Street, Boston, Massachusetts 02210. Phone: 617-542-1358.

724. Erewhon [Los Angeles, California]. 1975. Erewhon. November/December 1975. Culver City, California. 22 p. Catalog and price list.

• **Summary:** On the front cover is an illustration (line drawing) of Benjamin Franklin, wearing a fur hat and glasses. Below is a quote from his *Poor Richard's Almanac* (1739): "Keep thy shop and thy shop will keep thee." Other quotes are scattered throughout the catalog.

Products include: Pasta (packaged and bulk). incl. Soya-Rice Shells (organic) "Eat to live, Live not to eat." Bulk staples—Grains (including Sweet Rice from California), flours (freshly milled whole grain), cereals, beans (incl. organic soybeans and soybean flakes from Texas), seeds. "Knowledge like a rich Soil, feeds if not a world of Corn, a world of weeds." Erewhon packaged staples—Grains, flours, cereals, beans (incl. organic soybeans), seeds. "A long life may not be good Enough, but a good Life is long Enough."

Granola. More packages—Arrowhead grains, cereals, and beans, Fearn Soya Foods (from Fearn Soya Products, incl. Soy-O-Pancake Mix {Wholewheat or Buckwheat}, Soya Powder {Natural or Low Fat}), Earthwonder meals-in-a-bag, Arrowhead Mills The Simpler Life food storage program (nitrogen packed in #10 metal cans; incl. soybeans and soy flakes). Juice. "They that cannot Obey, cannot Command." Spreads (nut butters {peanut butter, sunflower butter, sesame butter, sesame tahini} and fruit butters {Pure and Simple, sweetened only with honey}). Rocky Hollow Herb Farm's line of organic and natural herbs, spices, and essential oils. "Time is an Herb that cures all Diseases." Goodies: Nik's Snaks, chewies (incl. pemmican), chips (incl. Mother Earth Tamari Chips, Corn Munchies—Pure & Simple). "To lengthen thy Life, lessen thy Meals." Rennetless cheese from Redwood Natural Foods. Dried fruit (bulk or packaged, incl. calymyrna figs, medjool dates, monukka raisins). Tamari & miso (Tamari soy sauce—4 sizes aged 2 years, Hacho miso—3 sizes aged 2 years, Mugi miso—3 sizes aged 18 months, Kome miso—3 sizes age not given). Vegetable oils (incl. Arrowhead Soy Oil in 3 sizes). Garden fresh produce. Sea vegetables. Herb teas (incl. Celestial Seasonings). "Make

erev¹hon



Keep Thy Shop, and Thy Shop Will Keep To Thee.

November/December 1735
Here are Scraps from the Fable of
Wisdom, that will if well digested, yield
strong Nourishment to thy Mind.

From B. Franklin's Poor Richard's Almanac, 1739

Haste slowly.” Body care (incl. Tom’s soap and shampoos, Dr. Bronner’s soaps, Cattier products), “When the well’s dry, We know the worth of Water.” Potpourri: Condiments (incl. “kuzu arrowroot, umeboshi (plums pickled in brine),” cookware (Quaker City grain mill, Corona stone mill, Mac steel utility knife, Soy sauce dispenser), publications). “Hunger is the best Pickle.” Important stuff (Ordering information). “Drive thy Business, let it not Drive Thee.”

On the last page, John Fountain extends “grateful appreciation to all those whose positive accomplishments have created Erewhon: Lima and George Ohsawa, Aveline and Michio Kushi, Cornelia and Herman Aihara, Michel Abehsera, Yvette & Jacques DeLangre, William Dufty, Frank Ford, Paul Hawken, Carolyn Heidenry, Roger Hillyard, Bob Kennedy, Bruce McDonald, Tommy Nakayama, Shane and Lou Olds [sic, Shayne Oles], Fred Rohe, Dr. Pietro Rotundi, Evan Root, Tyler Smith, Bill Tara, our customers, staff, suppliers, and growers, Susan and Lou Remy and all.” Address: 8454 Steller Dr., Culver City, California 90230. Phone: (213) 836-7569.

725. Midwest Natural Foods Distributors, Inc. 1975. Catalog #7. Nov. ‘75. Ann Arbor, Michigan. [vii] + 93 + 8 p. Index. Illust. 28 cm.

• **Summary:** This catalog, largely printed by a computer, contains many ads on unnumbered pages. Contents: Hi! Ordering and service information. Bulk: Whole grains, beans, seeds and nuts, dried fruit, nut butters, etc. Refrigerated and frozen (“Frozen meats {beef}—No DES, steroids, female hormones, antibiotics, or stimulants used in feeding; Chickens—No hormones & antibiotics. Ask for turkeys and hens during Thanksgiving.” “Frozen soy products: soy milk and tofu soybean curd”). Books. Packaged (by company and product category). Index by product. Index by manufacturer.

“We are happy to announce that Midwest and Mountain High are now one entity... We go into the fall and winter seasons with a fall and winter catalog, delivery schedule, and computer system.” For new developments, watch the monthly newsletter and sale sheets. “Your Friends at Midwest.”

Includes the following ads (the number is that of the facing page). Wheat Stalk Soya Burger (Cotati, California, p. 17). Arrowhead Mills (p. 27). Dr. Bronner’s Magic Soap (p. 32). Chico-San (p. 35). Erewhon (p. 41, incl. “Trail Mix, Niks”). Fearn Soya Foods (p. 42; shows a package of Fearn Soy/o Buckwheat Pancake Mix). Flavor Tree—Pernut soy beans (p. 42). Hain (p. 49, “Cold pressed safflower oil,” mayonnaise, and margarine). Health Main (p. 54; soy is not mentioned—only natural potato chips and yogurt dressing & dip). Infinity Herbal Products Ltd. (p. 56). Malt-O-Meal—Soy Town (dry roasted soy beans, p. 60). NF Factors (Lafayette, Calif., p. 67. A photo shows a can of Protesoy). Pure & Simple (p. 72, 795 West Hedding St., San Jose, California

95126; mainly fruits, fruit juices, fruit butters, vinegars). Sovex (p. 83-84. “The fastest selling natural cereal line on the market... Here’s the one that started it all, the original Crunchy Granola”). Viobin (wheat germ oil, p. 85F, 89). Tiger’s Milk Products (p. 86).

Companies whose products are listed with ads include: Back to Nature (granola, p. 28). Country Natural (granola, p. 36). El Molino (p. 38-39; incl. Cara Coa Crunch Bar, Carob Fruit & Nut Bar, Carob Mint Candy, Chia Seeds, Flaxseed—Whole, Pumpkin seeds, Soybeans—whole, Soya flour, Soya grits, Carob Coated Soybeans). Ener-G-Foods—Jolly Joan (incl. Instant Soy Milk Powder, Wheat & Soy P&W [Pancake & Waffle] Mix {regular and low salt}, p. 39). Flavor Tree (Pernola cereal, Pernut soy beans—salted, cinnamon, salt free, garlic, Pernut toasted soybeans—salted, salt free, garlic, onion). Wok sets in gift box, Quaker City grain grinder, Corona hand mill (p. 58). Lassen Foods (granola, p. 60, 60F). Mac Knives (p. 60). Orjene (p. 70-71). Parkelp—Ocean Labs (p. 71, incl. Sea Zun).

The Chico-San Inc. ½-page ad (facing p. 35) features four products; a photo of each is given and each is K-Parve: Rice Cake San-Wich (filled with sesame seeds and Yinnies Rice Syrup). Yinnies Rice Syrup (natural sweetener, made from rice and barley). Yinnies (traditional oriental confection, wrapped like individual candies). Rice Cakes in 4 varieties: Salted or Unsalted, Rice Cakes with Millet—Salted. Rice Cakes with Buckwheat—Salted. “Other Chico-San Products: Organically grown brown rice. Lima soy sauce, miso (soybean puree), rice malt vinegar, sesame butter, sesame oil, nigari, barley koji, tekka, sesame salt, sea salt, salt plums, kuzu, organic rice cream, organic rice flour, black soybeans, azuki beans, sea vegetables, mu tea, lotus root tea, twig tea, toothpowder, seaweed shampoo.” Address: Ann Arbor, Michigan 48107. Phone: 313-769-8444 or in Area 313 1-800-552-6297.

726. **Product Name:** Azuki Beans.

Manufacturer’s Name: Midwest Natural Foods Distributors, Inc.

Manufacturer’s Address: Ann Arbor, Michigan. Phone: 313-769-8444 or in Area 313 1-800-552-6297.

Date of Introduction: 1975 November.

Ingredients: Azuki beans.

Wt/Vol., Packaging, Price: 25 lb bulk.

How Stored: Shelf stable.

New Product—Documentation: Midwest Natural Foods Distributors, Inc. 1975. Catalog #7. Nov. Ann Arbor, Michigan. 108 p. See p. 3. Bulk. “Azuki beans.” 25 lb.

727. Satoh, H.; Matsukawa, I.; Narikawa, T.; Ushirogi, T. 1975. [The new adzuki bean variety “Akane-dainagon”]. *Hokkaido Nogyo Shikenjo Jiho (Hokkaido Agric. Exp. Station, Bulletin)* 7(4):54-57. Nov. [Jap; eng]*

728. Satoh, H.; Matsukawa, I.; Narikawa, T.; Ushirogi, T. 1975. [The new adzuki bean variety “Sakae-shozu”]. *Hokkaido Nogyo Shikenjo Jiho (Hokkaido Agric. Exp. Station, Bulletin)* 7(4):58-67. Nov. [Jap; eng]*

729. Yoshida, C.; Yoshikawa, M. 1975. Purification and characterization of proteinase inhibitors from adzuki beans (*Phaseolus angularis*). *J. of Biochemistry (Tokyo)* 78(5):935-45. Nov. [Eng]*
Address: Japan.

730. Shurtleff, William; Aoyagi, Akiko. 1975. Kinako (Roasted full-fat soy flour) (Document part). In: W. Shurtleff and A. Aoyagi. 1975. *The Book of Tofu*. Hayama-shi, Kanagawa-ken, Japan: Autumn Press. 336 p. See p. 64-66.
• **Summary:** This section begins: “Kinako is a tan or beige flour made by grinding whole roasted soybeans. It has a nutty flavor and fragrance and contains over 38 percent protein. Many of Japan’s most popular confections are dusted with a light coating of sweetened kinako. These confections usually consist of a grain such as mochi (pounded glutinous rice), or steamed, pounded millet filled with an (sweetened adzuki bean paste). In the Kyoto area alone more than twelve popular confections are prepared with a covering of sweetened kinako. In a number of Japanese health-food treats (such as *kinako amé*, *gokabo*, *kokusen*, and *kankanbo*) kinako serves as the main ingredient; it is mixed with mizuame to give a chewy taffy-like texture and rich sweetness. We feel that kinako itself and a number of the following preparations—especially Kinako Butter, Kinako Candy, and Kinako Coffee—could be produced in cottage industries and sold commercially with excellent results. A delicious and inexpensive source of high-quality protein, kinako is generally sold in ¼-pound bags and used in small quantities.”

Recipes include: Homemade kinako. Kinako butter [homemade soynut butter]. Creamy kinako butter. Kinako-peanut-sesame spread (with peanut butter and sesame butter). Kinako in brown sauces and roux. Kinako in breads and muffins. Sweetened kinako. Abekawa mochi (This is the most popular way of using kinako in Japan). Chinese-style kinako & peanut butter balls (“These sweet, almost crumbly delicacies are a favorite in China where they are sold commercially). Kinako candy (*Kinako amé* or *Genkotsu amé*; variations: *Kokusen* or *Kankanbo*, *Gokabo*). Kinako high-protein bars. Kinako coffee.

Kinako is also called for in a recipe for Abekawa-dofu (Frozen tofu rolled in sweetened kinako) (p. 237). Address: Lafayette, California.

731. Shurtleff, William; Aoyagi, Akiko. 1975. Glossary (Document part). In: W. Shurtleff and A. Aoyagi. 1975. *The Book of Tofu*. Hayama-shi, Kanagawa-ken, Japan: Autumn Press. 336 p. See p. 319-29.

• **Summary:** Aburae. Agar: see sea vegetables. Akame: see beni-tade. Amazake. Aojiso: see beefsteak. Aonoriko: see sea vegetables. Asanomi: see hemp seeds. Asatsuki: see chives. Azuki beans. Bamboo shoots (*Takenoko*). Bean sprouts (*Moyashi*). Beefsteak plant (*Shiso*): Beefsteak buds and blossoms (*Mejiso* and *hojiso*), Beefsteak seeds (*Shisonomi*), Green beefsteak leaves (*Aojiso*), Red beefsteak leaves (*Shisonoha*). Beni-shoga: see gingerroot. Beni-tade. Biifun: see noodles. Bonito flakes (*Hana katsuo*). Bracken fern (*Warabi*). Bread crumb flakes (*Panko*). Burdock root (*Gobo*). Butterbur (*Fuki*). Chinese cabbage (*Hakusai*). Chives. Chrysanthemum leaves (*Shungiku*). Cloud-ear mushroom: see mushrooms. Daikon. Eggplant (*Nasu*). Enokidake: see mushrooms. Fish sausage (*Neri-seihin* or *surumi* [*surimi*]). Flax seeds: see hemp seeds. Fuki: see butterbur. Gingerroot (*Shoga*): Gingerroot shoots (*Shin shoga* or *yanaka shoga*), Red pickled gingerroot (*Beni-shoga*). Ginkgo nuts (*Ginnan*). Glutinous yam (*Tororo imo*). Gobo: see burdock root. Gyoza. Hakusai: see Chinese cabbage. Hana katsuo: see bonito flakes. Harusame: see transparent noodles. Hasu: see lotus root. Hemp seeds (*Asanomi*). Hijiki: see sea vegetables. Hokkaido pumpkin: see kabocha. Horenso: see spinach. Ito konnyaku: see konnyaku. Jinenjo: see glutinous yam. Junsai. Kabocha. Kabu: see turnip. Kampyo. Kanten: see sea vegetables. Karashi: see mustard. Katakuriko. Katsuoibushi: see bonito flakes. Kikurage: see mushrooms. Kinako (roasted whole soy flour): see p. 64. Kinome. Kombu: see sea vegetables. Konnyaku: Konnyaku threads (*Ito konnyaku*), Konnyaku noodles (*Shirataki*). Kuzu. Leek (*Negi* or *naganegi*). Lily bulb (*Yurine*). Lotus root (*Renkon* or *hasu*). Mandarin orange (*Mikan*). Matcha. Mejiso: see beefsteak plant. Mikan: see mandarin orange. Mirin. Miso: see p. 31. Miso pickles: see pickles. Mizuame. Mochi (*Cakes of pounded glutinous rice*). Moyashi: see bean sprouts. Mushrooms (*Kinoko*): Cloud-ear mushroom (*Kikurage*), Enokidake, Matsutake, Nameko, Shiitake, Shimeji. Mustard (*Karashi*). Myoga. Nagaimo: see glutinous yam. Nameko: see mushrooms. Natto: see p. 67. Negi: see leek. Niboshi. Nigari. Nira: see chives. Noodles (*Menrui*): Soba, Udon, Rice-flour noodles (*Biifun*), Somen, Ramen. Osmund fern (*Zenmai*). Panko: see bread crumb flakes. Pickles (*Tsukemono*), Cha-ts’ai, Narazuké, Takuan. Powdered green nori: see sea vegetables. Renkon: see lotus root. Rice flour (*Joshinko*). Sake (*Rice wine*). Sansho pepper (*Kona-zansho*). Sato imo: see taro. Satsuma imo: see sweet potato. Scallions. Sea vegetables (*Kaiso*): Agar (*Kanten*), Hijiki, Wakame. Sesame seeds (*Goma*). Seven-spice red pepper (*Shichimi togarashi*). Shiitake: see mushrooms. Shinachiku: see bamboo shoots. Shiso: see beefsteak plant. Shoga: see gingerroot. Shungiku: see chrysanthemum leaves. Snow peas (*Saya endo*). Soba: see noodles. Spinach (*Horenso*). Sweet potato (*Satsuma imo*). Takenoko: see bamboo shoots. Taro. Teimo: see glutinous yam. Togarashi pepper. Transparent noodles (*Harusame*). Kombu (*Kobu* or *konbu*).

Nori: Powdered green nori (*Aonoriko* or *aonori*). Trefoil (*Mitsuba*). Tsukune imo: see glutinous yams. Turnip (*Kabu*). Udo. Udon: see noodles. Umeboshi. Uri melon. Wakegi: see leek. Warabi: see bracken fern. Wasabi. Wheat gluten (*Fu*). Wild onion (*Nobiru*). Wonton skin. Yama imo: see glutinous yam. Yamato imo: see glutinous yam. Yatsugashira: see taro. Yurine: see lily bulb. Yuzu. Zenmai: see Osmund fern. Address: Lafayette, California.

732. Goulart, Frances Sheridan. 1975. Bum steers: How and why to make your own delicious high protein mock meats, fake fish & dairyless desserts, and avoid useless calories, cholesterol, sodium nitrate, salmonella, trichinosis & high prices. Old Greenwich, Connecticut: Chatham Press. 205 p. Illust. Recipe index. 21 x 19 cm.

• **Summary:** This vegetarian cookbook, interspersed with many well-selected anti-meat quotations, describes how to make meatless meats and non-dairy products at home. Contents: Introduction. On the block: Major mock-meat-making supplies. Vegebutchery: Master mock-meat recipe file. Bogus beef. Pseudo pork. Unreal veal. Sham lamb. Con game. Phony poultry. Fake fish. Un-innards. The vegedeli. Mocking up: General dishes. The mock crock. On the side. Dairyless desserts. Steerage (sources of unfamiliar ingredients).

Chapter 1 begins with an introduction to and nutritional composition of tofu, followed by the soybeans, gluten flour, other legumes, etc. Under "Flavors enhancers" are listed soy lecithin granules or flakes, miso, yeast extract (marmite), soy sauce and tamari, and Worcestershire sauce. Chapter 2 contains recipes for making gluten, tofu, grainola (with soy grits), a stock with miso for non-meat dishes (p. 32), mock milk I (made with soy flour), mock milk II (made with raw cashews or almonds), mock (soy) butter (made with soy flour), and mock cream (with soy flour and soy cream), and mock yogurt (with cashew nuts and soy yogurt culture).

Note: This is the earliest document seen (Sept. 2012) that mentions a non-soy, non-dairy yogurt—in this case one made with cashew nuts. A sampling of the many other soy-related recipes include: Moo-less ragout (with tofu, soy sauce, and soy butter, p. 43). Vegetarian rolladen (with cooked ground soybeans, p. 52). Good red meat (with gluten or tofu, p. 53). Greenbutcher's meatballs (with tofu, p. 57). Mock Mac I (burger with soybeans, p. 64-65). Pineapple pig (with tofu, p. 72). Half-calf (with tofu, p. 79). Surrogate salami (with "bean pulp (residue from making Tofu)" [okara], p. 125). Bumsteads: Two burgers for meat-totalers (with tofu, p. 131). Meatless mincemeat (p. 142). Soybean mustard (with soy sprouts, p. 165). Cow tow: Cowless milk candy (with soy milk powder). Jersey bounce: A moo-juice-less junket (with soy milk, p. 184). Bum bombe: Egg-less, cream free (with soy cream, p. 184). Two 100% vegetarian ice creams: Eggless, milkless (with soy powder, p. 186).

Many recipes also contain wheat gluten: Charisma:

Char-broiled bum steers (p. 48). Pig-less pork sausage (p. 70-71). Roast loin of veal (p. 80). Fake steaks: Two sham schnitzels (p. 80-81). Vegetarian cutlets (p. 82). Mocking birds I (p. 83). Fruit stew (p. 86). Sham lamb (p. 89). Sham lamb curry (p. 91). Bum bunny (p. 97). Sweet breads (p. 121).

Azuki beans are used in Moo-less rice pudding (p. 183). Sources of ingredients include: Walnut Acres, Penns Creek, Pennsylvania 17862 (herbs, spices, oils, whole grains, flours, seaweeds, etc.). Erewhon Trading Co., 342 Newbury St., Boston, Massachusetts 02115 (seaweeds and general goods, grains, beans, vegetables, seeds, etc.). Shiloh Farms, Route 59, Box 97, Sulphur Springs, Arkansas 72768. Arrowhead Mills, Box 866, Hereford, Texas 79045. Dynamic Nutritional Products, P.O. Box 528, North Hollywood, California 91603 (Milk-free yogurt culture. Trade names: Soyadophilus and Theradophilus).

Sample quotation: "... traditional American reliance on meat, particularly beef, is perhaps the single largest inefficiency in world dietary patterns..."—*New York Times* Oct. 25, 1974. Address: Wilton, Connecticut.

733. Harlan, Jack R. 1975. Crops & man. Madison, Wisconsin: American Society of Agronomy. xi + 295 p. Illust. 24 cm. Foundations of Modern Crop Science Series.

• **Summary:** Table 2-1 (p. 57) lists "The world's 30 leading food crops in terms of estimated edible dry matter" in descending order of annual production. For each is given: Annual production in million metric tons, annual or perennial, ecological origins (Mediterranean, savanna, woodlands, tropical forest, highlands, coastal, or prairie), self- or cross-fertilizing, ploidy level. The top ten crops are: Wheat (468), maize (429), rice (330), barley (160), soybean (88), cane sugar (67), sorghum (60), potato (54), oats (43), and cassava (41). The soybean (No. 5) originated in northeastern China; it is an annual which originated in the woodlands, is self-fertilizing, with a ploidy level of 4. A large proportion of the maize, barley, soybean, sorghum, oats, and rye are fed to animals in the "developed" countries, but serve as human food elsewhere (p. 80).

Fig. 5-1 (p. 108) shows a schematic diagram of primary, secondary, and tertiary gene pools. Since a hybrid has been made by crossing the soybean with its wild perennial relative, and since "embryo rescue was used, the relationship seems to be at the GP-3 level."

Pages 152-53 show major gene banks in the international system. The two major soybean collections are in the USA (USDA), and Japan (NIAS, Tsukuba).

Page 198 discusses "Recorded history." "The soybean is first mentioned in 664 BC in connection with tribute paid to the Chou by the Shan-Jung (Mountain Jung) tribe." Hemp (*Cannabis*) is mentioned seven times in the *Book of Odes* (*Shih Ching*). "The agriculture that evolved on the north China uplands was based on the millets, soybean, and a suite

of fruits and vegetables” (p. 199).

The section titled “Soybean” (p. 206) contains details on the cultivated plant and its wild ancestor—which is a “small, slender creeping vine bearing a few small pods with small, black seeds. The plant is widely distributed from southern Siberia, through Manchuria, throughout the eastern coastal plain of China, and westward to Szechuan. It is rather weedy, and is often found in city parks under the shade of trees. Presumably, it was once a woodland or temperate forest plant before the natural vegetation was removed for agriculture. The changes under domestication have been enormous.

“Evolution of bush types from vines is common under domestication... The viny ancestral types are usually retained as well, and trailing forms of soybean are still grown for fodder.”

The following plants are also discussed: adzuki (*Vigna angularis*, p. 73), amaranth (p. 17-18, 76-77, 80, 95, 221), Bambara groundnut (Voandzeia, 71, 182), Cannabis (hemp, p. 55, 70, 74, 147, 198, 200), peanut (p. 57, 59, 77, 153, 187, 225, 227-28, 232), *Pueraria lobata* (p. 67, 75, 200; see also Yam-bean), quinoa (p. 77, 233), sesame (15, 72, 75, 198, 213), and winged bean (p. 75). Address: Prof. of Plant Genetics, emeritus, Crop Evolution Lab., Dep. of Agronomy, Univ. of Illinois, Urbana, Illinois.

734. Pak, Ki-Hyuk; Gamble, Sidney D. 1975. The changing Korean village. Seoul, Korea: Published for the Royal Asiatic Society, Korea Branch by Shin-hung Press. 222 p. Plus 4 unnumbered leaves of plates. Illust. Map. Index. 24 cm. [35* ref]

• **Summary:** Preface: “Most of the field research for this study was conducted during 1961 and 1962. Dr. Sidney D. Gamble, who had published several books on Chinese villages, suggested I undertake similar research on villages in Korea and made a generous grant for that purpose.” A map (at front of book) shows the location of the three villages studied.

The soybean is not mentioned in the index of this book. However in Chapter 4, “Park village” (located in southwest Korea, not far north of Korea’s largest port, Pusan), the section on crops and land (table 9, p. 104-05) shows that rice, barley and wheat are the three major crops and cash crops. Besides these, “the farmers grew other grains such as rye, hulled barley, millet, sorghum and corn. Other crops are pulses, soybean, red bean, green bean...” Address: 1. Korean scholar of agricultural economics, Seoul, Korea.

735. Harmony Foods. 1976. The bulk price list. London, England. 8 p. Sept. 16 by 20 cm. Stapled.

• **Summary:** Printed with black ink on light yellow paper. On the bottom half of the cover is a photo of two people and a horse walking along a trail in some woods.

A running table shows: (1) Product name. (2) Contents of each case. (3) Cost [Price] of each case. (4) Unit.

Newstime (page 2 & 7). Product categories: 1. Whole cereals: 11 products. 2. Cereal products: 9 products. 3. Seeds and pulses: 10 products, incl. Adzuki beans. Soybeans, No. 10. Soybeans, yellow No. 1. Roasted peanuts, Bombay or Natal. 4. Sauces and spreads: 6 products incl. Peanut butter, crunchy. Tahini sesame cream, dark. Tamari soy sauce. Miso soy puree, mugi. Miso soy puree, Hatcho.

5. Seaweeds: Wakame. Hiziki [hijiki]. Kombu. 6. Ginseng and teas. 7. The rest. 8. Cases and books: Incl. “Seed” magazine (monthly).

On the back cover: “The History of Harmony: We actually began in 1967 deep in a sprawling basement in Paddington with a restaurant called Seed. It was here that natural foods were first offered to a select group of the British public, the flower power followers of 1967. A typical daily menu (‘Tomorrow’s You’) featured the Special of bean salad, whole oat groats, rice fritters, and carrot sesame, followed by apple cake and a cup of bancha—all at 7/6 (that’s 37p).

“By 1970 we’d also opened a small shop in All Saint’s Road called Ceres which was the first place to carry under one roof all the cooking elements of a wholefood diet. What we couldn’t get from local ethnic food merchants we had to import ourselves—things such as good Tamari and Miso, organic brown rice, and patchouli oil.

“Of course, buying in shipments from *Muso Shokuhin* (Osaka, Japan) and importing five tons of rice for one little shop proved unwieldy and expensive, The answer seemed to be to share what we brought in with other shops and this is how, in 1971, Harmony Foods was born; Our first ever list had ten products: whole rice, buckwheat flour, tamari, miso, mu tea, sesame seeds, adzuki beans, umeboshi plums, patchouli, and unleavened bread. As there weren’t any natural food-shops besides Ceres we sent it out by BRS to health shops, As this side of things got under way a few more pioneers opened up shops like Infinity, Harvest, Acorn, Community, On the 8th Day, and Arjuna. These shops buy in bulk and sell at low prices. Since you’re getting this list you’re probably one of the hundreds of others who have opened up across the country in the last five years.

“At Harmony we’ve been flat out for these five years trying to keep up with this growth. We’ve had to become stone millers, bakers and peanut butter makers. Others have opened up wholesale outlets to help fill this demand and many shops have organized into local groups to share information on buying and availability of quality foods,

“We’re here because of you and our major priority will always be to service your needs with the finest foods at the best prices we can manage. Because of this we always value your comments and advice on the products we carry and we should be carrying.

“Keep in touch,...” Address: 1-19 Earl Cottages, Earl Road, London, S.E.1. Phone: 01-237-8396/7.

736. Erewhon, Inc. 1976. Erewhon. Autumn 1976. Boston, Massachusetts. 17 p. Catalog and price list.

• **Summary:** See next page. On the front cover is a photo of five adults and three children standing atop the Erewhon warehouse building at 33 Farnsworth Street in Boston. In the background are skyscrapers and the Boston skyline. The people are: Front row (left to right): Maureen Trail Young (sister of Rosemary Trail), Richard Young, Holly Young (youngest child), Tansy Young, Lori Young. Back row (left to right): David Simon, Jeanne Bleiweiss, Tom Herzig.

On the first page, Tyler Smith, writes about this catalog and upcoming events. “To help stimulate our customers, in the late Fall, Erewhon will present a lecture and demonstration day in both the New York and Boston areas which will feature as the main teacher, Mr. Bill Shurtleff, author of *The Book of Tofu* and *The Book of Miso*. He will be coming to this area on a lecture tour from Japan.”

Contents: Grains. Cereals. Flour. Pasta. Juices. Beverages. Spring water. Natural sodas. Nik’s snacks. Barbara’s bakery. Bliss pastries (whole-grain, sweetened with unfiltered honey, made at Cable Springs Bakery). Donna’s butter cookies, Butterchews, Lind’s candy bars. Chico-San candies (Yinnies, Yinnies San-Wich). Crackers & Chips (incl. tamari corn chips or corn tortilla chips). Rice cakes & bread. Cheese. Butter. Yogurt. Kefir. Produce. Dried fruit. Seeds & nuts (incl. alfalfa seeds unsprayed, almonds, Brazils, cashews, peanuts, pecan halves, pistachios, pumpkin seeds, sesame–brown, sunflower seeds, walnuts). Granola. Beans (incl. aduki [azuki], organic black soybeans or yellow soybeans from New York, and black soybeans from Japan). Seed & nut butter (almond butter, cashew butter, peanut butter {Erewhon or Deaf Smith–crunchy, or unsalted}, sesame butter, sesame-peanut butter, sesame tahini, sunflower butter). Fruit butters. Oils: Erewhon oils, Arrowhead oils (incl. Soy oil). Condiments–sauces: Erewhon sauces (incl. 4 sizes of tamari soy sauce), Erewhon miso (kome {rice & soy}, Hacho {soy only}, or mugi {barley & soy}—each in 3 sizes), Erewhon Japanese imports (incl. shiitake mushrooms, barley kogi [sic, koji] to make mugi [miso], kuzu arrowroot powder, tekka seasoning, nigari (to make tofu), umeboshi), salt (incl. Herbamare salt, unrefined sea salt from France), olives, pickles, sauerkraut, brown rice vinegar (from Japan), Pure and Simple vinegar (Honey, red wine, apple cider natural), mulled cider spices. Baking (incl. barley malt syrup). Niblack’s. Fearn’s [sic, Fearn’s] (incl. Rich Earth wholewheat & soy pancake mix, Soya powder natural). Honey-syrup. Erewhon packages: Beans, grains & seeds (incl. soybeans yellow organic), hot cereals, flours (incl. soybean full-fat organic), baking. Arrowhead packages. Sea vegetables (agar-agar, hiziki [hijiki], kombu, nori, flavored nori with tamari, wakame, dulce). Fmali ginseng. Teas: Erewhon, Celestial Seasonings. Body care: Cattier clay, Dr. Bronner’s, Natural Living, Nature’s Gate, Orjene, Tom’s, luffas. Cookware (incl. soy dispenser glass).

Readables: Magazines, books, posters, flyers–recipes.

Apparel. Discontinued–sale. New products (Bob Swanson was the former owner and creator of Llama, Toucan and Crow, a New England distributor; Chico-San’s organic rice cakes).

Erewhon’s New York / New Jersey office is located at 303 Howe Ave., Passaic, NJ 07055. Address: 33 Farnsworth Street, Boston, Massachusetts 02210. Phone: 617-542-1358.

737. Kobayashi, Takashi. 1976. Pod borers and the seed pest complex in Asian soybeans. *INTSOY Series* No. 10. p. 171-73. R.M. Goodman, ed. Expanding the Use of Soybeans (College of Agric., Univ. of Illinois at Urbana-Champaign). [7 ref]

• **Summary:** “The major pod borers found in Japan include the soybean pod borer, *Etiella zinckenella* (Treitschke); the Azuki pod worm, *Matsumuraeses phaseoli* Matsumura; and *M. falcana* (Walsingham).” Also discusses: Factors that influence damage by seed pests: Regional variation in damage by seed pests, prediction of damage caused by insects, control of seed pests by insecticides, cultural control of insect pests of seed. Address: Tohoku National Agric. Exp. Station, 4 Akahira, Shimokuriyagawa, Morioka, 020-01, Japan.

738. Hughes Markets. 1976. Happy New Year ‘77 (Ad). *Los Angeles Times*. Dec. 27. p. H16.

• **Summary:** The section titled “Foods of the Orient” includes: “Misuzu Koya Dofu 3.5 oz. Dried Soy Bean Cake [Dried frozen tofu]–85¢... Age [Deep fried tofu pouches] 6 piece pkg. 59¢.”

Also includes Hime Mix tempura batter, Cal-Rose botan rice, mochi, Hime Honpara Maki seasoned rolled kelp (kombu), Wel Pac Yude Azuki 7 oz. can Red beans 49¢, Wel Pac panko bread meal 35¢, Nihonbashi Asakusa Nori 10 sheets Dried seaweed, Oban Makizushi dried seaweed.

739. **Product Name:** Adzuki Beans (Dry).

Manufacturer’s Name: Eden Foods, Inc. (Importer).

Grown in China (PRC), then in Japan, then in Michigan.

Manufacturer’s Address: 4601 Platt Rd., Ann Arbor, MI 48104.

Date of Introduction: 1976.

Wt/Vol., Packaging, Price: 15 oz (425 gm) can.

How Stored: Shelf stable; refrigerate after opening.

New Product–Documentation: Talk with Ron Roller, CEO of American Soy Products in Saline, Michigan. 1991. Nov. 27. Starting in about 1969, Eden Foods bought azuki beans from Erewhon and sold them at the Eden retail store in Ann Arbor. Eden Foods originally imported these azuki beans (the Tientsin small red beans—along with black soybeans) in 1975 or 1976 from China. They dealt directly with the Chinese government. Then both types of beans were imported from Japan (from the Muso Co.). The beans were sold as



uncooked dry beans. After that, Ron had the black soybeans grown in Michigan. He also distributed the azuki beans to farmers, but they did not do very well. The azuki beans from Japan grew well in Michigan, and Ron believes that many of the azuki beans now being grown in America (in Michigan, Ohio, Indiana) are from that Japanese stock.

Ad in *Vegetarian Times*. 1992. Jan. p. 31. “Bean Cuisine” Shows a color photo of canned organic adzuki, black, garbanzo, pinto, navy, and kidney beans.

740. Chiang, Jung-feng; Schrecker, Ellen. 1976. Mrs. Chiang’s Szechwan cookbook. New York, Hagerstown, San Francisco, London: Harper & Row, Publishers. xxi + 359 p. Illust. Index. 24 cm.

• **Summary:** The Preface begins: “I met Chiang Jung-feng in 1969 in Taipei, Taiwan, where my husband, John, and I had gone to pursue John’s Chinese language studies and our love of Chinese food. She began as our cook and housekeeper; she soon became a friend and teacher and eventually co-author of this cookbook. Jung-feng was born and raised on a farm on the outskirts of Chengtu, the culinary heart of the province of Szechwan.”

The romanization is in pinyin. Chapter 12, titled “Bean curd” (p. 218-32) is exceptional; the introduction is one of the best seen to date. The chapter contains four tofu recipes, including Pock-marked ma’s bean curd (*mapo doufu*). The chapter begins: “Every culture has its children’s food—things that everybody eats but children dote on. In this country [USA] it might be hot dogs or pizza; in Szechwan it was bean curd. Older people loved rich meat dishes, but children had less developed palates and adored the clear, fresh taste and soft texture of bean curd. Mrs. Chiang’s own favorite food when she was a child, the bean curd she ate was particularly delicious because it was homemade...”

“My mother would grind fresh soybeans very fine, then combine them with water to make a kind of soybean ‘milk,’ When she added a certain chemical (probably gypsum) to this, it coagulated instantly. Then she hung the mixture to drain in a cloth bag for several days; at the end there was a mild, creamy bean curd with a texture as smooth as silk. We ate it several times a week...”

“There are many types of bean curd. Fresh bean curd is the commonest. It comes in soft, white cakes about 1 inch thick and 3 to 4 inches square. It has the consistency of hard custard, and, though fragile and perishable, it can be kept for a week in the refrigerator if you store it in an uncovered bowl of water and change the water every other day.”

“Bean curd comes in many other, less common forms. Dry bean curd, or *doufugan*, isn’t dry at all. It is just regular bean curd that has been aged [sic] and pressed until it becomes brown on the outside. It is especially delicious boiled with soy sauce and spices and then sliced and served cold.”

Note 1. This is the earliest English-language document

seen (April 2013) that uses the word “*doufugan*” to refer to Chinese-style pressed tofu.

“Fried bean curd balls, or *youdoufu* are really dry—light, porous balls that, when soaked, become spongy. Their strange texture and mild taste make them greatly prized in vegetarian *haute cuisine*.

“Bean curd skin [yuba], another form, comes in thin, shiny brittle sheets.”

“There is also [in Taiwan] ‘stinking bean curd’ [stinky tofu], which the process of fermentation has transformed into a substance strikingly similar to some of the stronger cheeses.

“Finally, there is pickled bean curd [fermented tofu], or *doufu lu*. It was popular in Szechwan and was what Mrs. Chiang’s family often ate with rice for breakfast. Chinese groceries occasionally carry jars of the highly spiced Szechwanese version of the stuff. Eaten on top of some plain white rice, it is an amazing gastronomic experience, though not one recommended for the weak in palate. Mrs. Chiang claims that the pickled bean curd her mother made was both hotter and more fragrant.” One other bean curd recipe is given on pages 98-103.

One yuba recipe is: Bean curd skin soup (*fuzhu tang*, with “4 sheets dried bean curd skin,” p. 267-68).

Note 2. This is the earliest English-language document seen (June 2012) that uses the word *fuzhu* to refer to dried yuba sticks.

One recipe using fermented black soybeans is: Black beans, green peppers, and pork shreds (*heidouchi qingjiao chao rousi*, with “3/4 cup dried salted black beans,” p. 108-10. “Dried, salted black beans entered Szechwan from the outside, probably either from Canton or Hunan. Because they were not indigenous, Mrs. Chiang’s mother rarely cooked with them, though when she did the results were always delicious. She used them mainly in simple stir-fried dishes, for the black beans have such a strong and complicated flavor that they [can] dominate any dish to which they are added”).

Chapter 16, “Pickles, appetizers, and garnishes” contains a recipe titled simply “Soybeans” (*tangcu douz*, with “1½ cups dried soybeans,” p. 338-40. “Whenever Mr. Chiang’s father invited a group of cronies or relatives over, her mother would make up a large batch of soybeans to serve with the wine. These crunchy, spicy beans are the traditional accompaniment of a Szechwanese drinking session, just as salted peanuts are in America.” After being rinsed, the soybeans are dry roasted in a wok for about 10 minutes, or until slightly brown).

Note 3. The author is given as Chiang Jung-feng, with Ellen Schrecker and John Schrecker. The section on “Ingredients” includes: Bean curd (*doufu*). Chinese red beans (*dousha*).

“Dried, salted black beans (*douchi*): These dried, salted black beans impart such a delightfully pungent, sour,

and salty taste to dishes that, even though they are not Szechwanese in origin, Mrs. Chiang likes to cook with them. They are small, about the size of a pea, black, and partially dried. They come in plastic bags or tins and are available at Chinese markets.”

Dried seaweed (*zicai*). Hoisin sauce (*haixian jiang*): Very similar to *tianmian jiang*. Monosodium glutamate (*and why we don't use it*). Soy sauce (*jiangyou*). “Soy sauce was such an important condiment in the large and busy peasant household where Mrs. Chiang grew up that the family made it own.” It “was aged in huge earthenware vats.” “Both light and dark soy sauces were produced, as well as a rather unusual sweet variety.” Mrs. Chiang “finds Kikkoman soy sauce particularly good.” The difference between light and dark soy sauces is “a question of color,” not of taste or texture. “Mrs. Chiang, then, uses Kikkoman soy sauce in all her cooking.”

Page 203: John “found that the word ‘ketchup’ originally came into English from a Chinese word in the Fukienese dialect, *ke-tsiap*, which could well mean ‘tomato paste.’”

741. Leung, Mai. 1976. *The classic Chinese cook book*. New York, NY: Harper's Magazine Press. xv + 363 p. Illust. (line drawings by Claude Martinot). Map. Index. 24 cm.

• **Summary:** A remarkable book by a excellent cook and writer with much experience in China (where she was born and raised), Hong Kong (with outstanding chefs), and New York (with more fine chefs). An interesting map of China shows the major culinary regions. The illustrations contribute greatly to the book.

Each recipe is accompanied by its Chinese characters but with no romanization / transliteration. MSG is an optional ingredient in many recipes. Soy related recipes: Chicken with walnuts in hot bean sauce (the sauce mixture includes “6 teaspoons ground bean sauce, 4 teaspoons hoisin sauce, 4 teaspoons black soy sauce,” p. 56-57). Soy sauce chicken (with “½ cup black soy sauce,” p. 66). Chicken in hoisin sauce (the sauce mixture includes “6 tablespoons hoisin sauce, 2 tablespoons black soy sauce,” p. 67). Egg yolk fish cakes with soy vinegar dip (p. 87-88).

The chapter titled “Duck” (p. 91-93) describes how Peking ducks are a different breed from other ducks, how they are raised and force-fed in Hong Kong before being killed. The recipe for Peking duck (p. 109-11) describes the origin of Peking duck in about 1855 in Peking. “Pen Yee Inn, a restaurant specializing in chicken and duck dishes, created the method that made Peking duck a star. The dish was purely for the very rich, and the primary interest was the crisp skin.” Traditionally it required “three months of training just to learn to kill and dress the duck correctly.” This recipe calls for either Hoisin sauce dip or Bean sauce dip. The next recipe is Red-cooked duckling with lettuce in soy sauce (p. 111-12).

The recipe titled “Childbirth ginger” explains: “In

Kwantung [Guangdong] Province, after a woman gave birth to a child, it was the duty of the mother-in-law to prepare a big pot of this ginger for her daughter-in-law to regain her strength.” Rich in calcium, the supply had to last for a month.

More soy related recipes: Beef with baby corn and Chinese mushrooms in black bean sauce (with “2 tablespoons salted black beans: rinse in hot water, drain, and mash into paste,” p. 158-59). Fish slices in garlic and black bean sauce (p. 183-84). Fried mock plums (“For this dish, shrimp paste is rolled up in bean curd skin to form a long cylinder.” With “2 pieces dried bean curd skin, each 5 by 10 inches,” p. 184-85). Soft shell crabs in black bean and chili sauce (p. 202-03).

The chapter titled “Vegetables and bean curd (p. 205-31) begins: “I do not understand why so many Westerners cook their vegetables as if they were cooking potatoes.” They are “cooked so much that they all taste the same, like cooked potatoes—dull, mushy, and lifeless.” “Fresh bean curd is made of soybeans... [sold in] cakes 1 inch thick and 2 to 4 inches square. Smooth, fragile, custardlike, and ivory colored, bean curd itself is bland in taste, but it quickly absorbs flavor from other ingredients with which it is cooked. As it is inexpensive and high in protein, bean curd serves the purpose of meat and milk for many Chinese in addition to being used as a vegetable. Bean curd is a nutritious and well-loved food. My grandmother used to say, ‘Eat bean curd every day and your eyes will shine like the autumn moon, your skin will be smooth, and your hair soft and black.’ Generally available in Oriental grocery stores, bean curd is carried in relatively few supermarkets. The canned variety is not acceptable as a substitute for fresh bean curd. Store in a jar, cover with water, and change water daily. It will keep for a week or more.” In recipes that call for bean sprouts, Chinese prefer mung bean sprouts that are fresh, white, firm, and dry—not brownish, limp and watery. Never, never used canned bean sprouts.

Buddhist delight (vegetarian, with “4 fried bean curd puffs: cut each into 4 pieces,” p. 225-26).

Note: This is the earliest English-language document seen (April 2013) that contains the term “fried bean curd puffs.” Pockmarked woman's spiced bean curd [Mapo doufu] (“It is said that the wife of a cook named Chan, who lived in Szechwan [Sichuan] more than a century ago, created this bean curd recipe. Mrs. Chan's face was pockmarked.” With “1 pound fresh bean curd: rinse in cold water, cut into ½-inch cubes,” p. 228-29). Hakka stuffed bean curd (“Hakka cooking is well known for its bean curd dishes. This stuffed bean curd is one of the most popular and well-loved among Chinese.” With “3 pieces fresh bean curd, each about 3 inches square: pat dry with paper towels, cut each square into 4 triangles, slice some bean curd out of the middle of one side of triangle to make pocket for stuffing,” p. 229-30). Stir-fried bean curd with pork shreds (p. 231).

The chapter titled “Sauces and dips” includes: Bean sauce dip (with “4 tablespoons Szechwan sweet bean sauce or ground bean sauce,” p. 305). Fresh chili-soy dip (with “6 tablespoons black soy sauce,” p. 308). Hoisin sauce dip (p. 309). Soy-chili dip. Soy-sesame dip. Oil-oyster sauce dip (with “6 tablespoons oyster-flavored sauce,” p. 310). Soy-vinegar dip (with “4 tablespoons thin soy sauce,” p. 311).

The chapter titled “Chinese cooking ingredients with information on storing” is an expanded glossary. Each entry is accompanied by its Chinese characters but no romanization. It includes: Bean curd (fresh). Bean curd cheese (red) (“Labeled as red bean cheese, 2 inches square and about 1 inch thick”). Bean curd puffs (fried) (“Golden color, fluffy and spongy, cushionlike square cakes”). Bean curd skins [yuba] (plain, dried) (“Shiny, light yellow, approximately 6 by 10 inch paper-thin skin, dried and brittle. It is the rich cream that floats atop the” soybean milk made from yellow soybeans). Bean paste (sweet red) [azuki an] (“Made from puréeing Chinese red beans, sugar and shortening”).

Bean sauces: (1) Ground bean sauce “Also known as brown bean sauce or brown bean paste. Brown, thick, puréed sauce made from yellow soybeans, flour, salt, and water; salty and pungent. Sold in cans.” (2) Szechwan chili bean sauce. (3) Szechwan sweet bean sauce. “Labeled as sweet bean paste sometimes. Not sweet, but salty and pungent.”

Black beans (salted) (“Black [soy] beans preserved in ginger, garlic, salt, and spices; used as seasoning”). Hoisin sauce (“Means ‘seafood sauce’ in Chinese. Made from soybeans, water, garlic, chili, flour, and spices”). MSG (“Monosodium glutamate, which the Chinese call ‘taste powder.’ The Chinese extracted it from soybean protein and have been using it for at least a century... It should be used sparingly. Sold under the brand name Accent”). Oil (Chinese prefer to use peanut oil. “But I find corn oil equally good in the United States”). Oyster-flavored sauce (No mention of soy as an ingredient). Sesame seed oil (“Savory, aromatic, topaz-colored [brown] oil made from roasted white sesame seeds”). Sesame seed paste (Since most imported products have lost their taste, “it is much better to use peanut butter. In China, peanut butter and sesame seed paste are used interchangeably in cooking”). Soy sauces (“The most important seasoning in Chinese cooking. Varieties and grades are many... Knowing their differences and using the right kind is the key to good-tasting dishes.” The following two types are most frequently used): (1) Black soy sauce (“Also known as dark soy sauce; extract from fermented soybeans, caramel, flour, salt and water; darker and heavier than thin soy sauce, salty but with a slightly sweet taste. Do not buy one labeled ‘double dark soy sauce.’ It is too salty”). Thin soy sauce (“Also known as light soy sauce; liquid extract from soybeans, flour, salt, and water after slow fermentation under the sun. The first extraction, which is commonly sold in the States, is the best”).

The “Shopping list” chapter (p. 343-48) contains an expanded alphabetical list of the English names of Chinese ingredients followed by the name in Chinese characters. Address: Madison, New Jersey.

742. Liu, Christine Y.C. 1976. Nutrition and diet with Chinese cooking. [Ann Arbor, Michigan?]. [ix] + 319 p. Illust. (by Jacqueline Sharp). Recipe index. General index. 23 x 19 cm. Reprinted in 1977. [26 ref]

• **Summary:** Contents: Acknowledgment. 1. Introduction. 2. Is Chinese food nutritious?: The protein facts, other advantages. 3. About monosodium glutamate (MSG) (many recipes contain 1/8 teaspoon MSG—optional). 4. Custom, chopsticks and tea. 5. Method of preparation and cooking. 6. Cooking utensils. 7. Menu planning. 8. Recipes: Soup, meat, poultry, seafood, vegetables, bean curd (to fu), rice, noodles and Chinese steamed bread, eggs, desserts and snacks.

9. Chinese ingredients and seasonings. 10. Tables and charts: Measurements and abbreviations. sources of important nutrients, desirable weight for selected heights (for men and women, small, medium or large frame. Source: Metropolitan Life Insurance Co.), minimum daily requirement of calories, certain vitamins and minerals, calories, protein, fat and carbohydrate value of foods used.

11. Recipe index. 12. References. General index. Order forms.

The chapter on “Bean curd “(to fu)” (p. 191-217) contains 22 recipes, each with the English name in bold characters, and the Chinese name both romanized in pinyin and written in Chinese characters. The first of these is a recipe for homemade tofu made from 1 cup soy beans and a choice of five different coagulants. The 2nd recipe in this chapter is “Fried bean curd (to fu), plain fried (*You dou fu*).

Note: This is the earliest English-language document seen (April 2013) that contains the term *You dou fu* (regardless of hyphenation).

For each recipe, the calories, protein, carbohydrates, and fat are calculated. Most recipes call for either “fresh bean curd” or “dry bean curd” (*dou fu gan*). A typical ingredient listing would be “1 lb bean curd, diced.”

Other recipes include: Those calling for soy bean sprouts (p. 40, 73, 185 {home grown}). Steamed fish with black beans (*Dou chi zheng yu*, with “3 T black beans {about one ounce}, p. 141). Lobster Cantonese style (with “1½ T black beans, minced,” p. 154). Wheat gluten (vegetable steaks) (*mian jing*, p. 186). Vegetarian’s delight (*Su shi jin*, with “2 oz. dried bean curd sticks [dried yuba sticks], soaked and cooked.” “Soak the dried bean curd sticks with 1 t [teaspoon] soda in hot water for 1 hour; drain. Add fresh cold water and bring to a boil. Drain and cut into 1 inch long pieces”) (p. 189-90). Red bean paste (*dou sha*) (p. 269). Many recipes are seasoned with soy sauce.

The section on “Chinese ingredients and seasonings” [glossary] includes: Bean curd or to fu, bean sprouts

(the sprouts of mung beans or soy beans), black beans (“Fermented and highly seasoned black soy beans”), calcium sulfate, ginger root, hoisin sauce, monosodium glutamate, mushroom soy sauce (“A newly imported soy sauce from the People’s Republic of China... The flavor is excellent...”), oyster sauce (can be used like soy sauce but oyster sauce is saltier), sea weeds, sesame oil, soy sauce.

“About the author: Born and raised in Shanghai, Mainland China, Mrs. Liu completed her education at the National Taiwan University. It was there she met and married her husband, Stephen Liu, presently professor of Microbiology at Eastern Michigan University.

“After the birth of their eldest son, the Lius lived awhile in the United States, then moved to San Paulo, Brazil, where they remained for some years. The Chinese community in Sao Paulo was sizeable and affluent and their cuisine was quite popular. It was during this time that Mrs. Liu kindled her latent interest in cooking which ultimately led to the writing of this book.

“In 1965 the Lius returned to the United States and settled in the Ypsilanti-Ann Arbor area. Mrs. Liu further developed an interest in and took up the study of nutrition at the University of Michigan. She received her Masters degree of Nutrition in the School of Public Health in 1971.

“For some eight years Christine Liu has contributed her cooking and teaching talent to the Ann Arbor community by teaching Creative Chinese Cooking and Nutrition & Diet at the Continuing Education Department of Ann Arbor Public Schools...” The Lius have four children: Ted, Paul, Becky, and Peter. A photo shows Christine Liu. Address: M.P.H., P.O. Box 1332, Ann Arbor, Michigan 48104.

743. Ortiz, Elisabeth Lambert; Endo, Mitsuko. 1976. The complete book of Japanese cooking. Philadelphia, Pennsylvania: M. Evans and Co., Inc.; Dist. by Lippincott. viii + 250 p. Illust. by Marion Krupp. Index. 24 cm.

• **Summary:** A very interesting, well researched, and accurate Japanese cookbook. The illustrations are excellent. Each recipe has its Japanese name in large bold letters and a translation directly below in smaller letters. A hallmark of her writing is that she prefers to use the native language words and terms (e.g., *shōyu*) rather than giving her translation of them (e.g., soy sauce). This is helpful, since many of her translations have not withstood the test of time. In some cases, however, she fails to catch nuances or chooses to ignore them; e.g., *momen tōfu* should actually be *momen-dōfu*, and *kinugoshi tōfu* should actually be *kinugoshi-dōfu*. Unfortunately, she uses the term “bean paste” to refer to two very different foods: miso and *azuki-an* (see p. 214, 242). A large number of recipes call for various types of *tōfu* (“bean curd”) or *miso* (“bean paste”).

Seaweeds (p. 4): “The one single thing that distinguishes Japanese cooking is the use of seaweeds.” Kombu is used to make dashi. Nori and wakame are used in many ways.

“The soy bean plays a dominant role in the Japanese kitchen. It comes in the form of *shōyu* (soy sauce), *usukuchi shōyu* (light soy sauce), *momen tōfu* (bean curd), *kinugoshi tōfu* (silky bean curd), *yakidōfu* (broiled bean curd), *koyadōfu* (freeze-dried bean curd), red and white *miso* (bean paste), and so on. Despite their common origin, the products of this versatile bean manage to be very different.

Note 1. This is the earliest document seen (April 2013) that uses the word “silky” or the term “silky bean curd” to refer to *kinugoshi tōfu*.

Note 2. This is the earliest English-language document seen (April 2013) that uses the term *koyadōfu* or the term “freeze-dried bean curd” to refer to dried-frozen tofu.

Soy-related recipes include: Asparagus with malted bean paste (with “moromi miso” and “usukuchi shoyu,” p. 27). Dengaku (Bean curd with bean paste, p. 28). Stuffed lotus root (with white miso and mustard, p. 30). Noppeijiru (vegetable and fried bean curd soup, with “1 *namaage* {type of fried bean curd}” or “2 pieces *aburaage* {fried bean curd}, p. 35). Kenchin-jiru (vegetable soup, with “1 *momen tōfu* {bean curd} weighing about 8 ounces,” and “4 tablespoons *miso* {bean paste}, p. 36). Clear soup (*suimono*) with okra and bean curd (p. 38). Clear soup with bean curd and wakame (p. 38). Satsuma-jiru (Miso soup with mixed vegetables, incl. red and white miso, p. 45). Miso soup with tofu and shungiku (p. 46). Miso soup with wakame (incl. red and white miso, p. 46). Miso soup with oysters and bean curd (p. 47). Sekihan (pink rice with azuki beans, p. 57). Miso udon (p. 63). Kitsune udon (noodles with *aburaage*, p. 67). Inari-zushi (fried bean curd stuffed with vinegared rice, p. 79). Sole with bean curd and mushrooms (p. 88). Salmon steamed with bean curd (p. 90-91). Mackerel with red miso (p. 95). Fish marinated in miso (p. 102). Clams in miso, mustard, and vinegar sauce (p. 105). Oysters in vinegared miso sauce (p. 106). Satsuma-agé (with mackerel and bean curd cakes, p. 116-17). Oden (with “4 *ganmodoki* {fried bean curd balls}” and “1 *yakidōfu* {broiled bean curd}, about 7 ounces drained weight,” p. 120-21). Kaki no dotenabe (oysters with bean paste, p. 124-25). Yudofu (simmered bean curd, p. 130). Sukiyaki (Sautéed beef and vegetables, with “2 *yakidōfu* {broiled bean curd}, 134-35). Grilled beef with bean paste (p. 146). Nikumiso (chicken and vegetables pickled in bean paste, p. 159). Eggplant with bean paste (p. 163). Green beans with bean paste (p. 168). Daikon with fried tofu (p. 171). Turnips with bean paste (p. 173). Cucumber and soy bean sprouts with sesame seeds (p. 183). Spinach salad with tofu (p. 186).

A short section titled “Bean curd dishes” (p. 187) notes that “the soy bean is the youngest of the bean family, going back only to about 3500 B.C.” Beans in the Middle East go back to 7000 B.C. and in Mexico they go back to 5000 B.C. But the soy bean “makes up in versatility what it lacks in age.”

Recipes Fried bean curd with hijiki (with “2 pieces

aburaage {fried bean curd},” p. 187). Sole with bean curd (188-89). Deep-fried bean curd with bonito flakes (p. 190). Dried bean curd with vegetables (with “4 *kôyadôfu* {dried bean curd}” and “2 teaspoons *usukuchi shôyu* {light soy sauce}, p. 191). *Kûya-mushi* (bean curd, chicken, and vegetable custard, p. 192-93). Simmered bean curd and chicken (p. 193). Takara bukuro (treasure bags with *aburaage*, p. 194). Tofu no shirô-ae (p. 195). *Hiya-yakko* (garnished cold bean curd, p. 196; *Kinugoshi tôfu* {silky bean curd} may be used). Chrysanthemum flower bean curd (p. 197). Nabeyaki Denraku [Dengaku?] (bean curd with white and red bean paste, p. 198). Pork with bean curd (p. 198-99). Ni-yakko (bean curd with dried bonito flakes, p. 199). Sokuseki misozuke (instant pickled vegetables with bean paste, p. 210). Koshi-an (red bean paste, with “1½ red *azuki* {adzuki} beans,” p. 213-15). New year dishes: Kuromame (black soy beans simmered in soy sauce and sugar, p. 220).

Glossary (excellent, p. 228-36)—Soy-related terms: *Aburaage*, *azuki* bean, *fu* (wheat gluten cake), *ganmodoki*, *kinako*, *kinugoshi tôfu*, *kôji*, *koshi-an* (powdered *azuki* paste), *kôyadôfu*, *kôridôfu*, *kuzuko*, *mirin*, *miso*, *misozuke*, *mochi*, *momen tôfu*, *moromi miso*, *namaage*, *nattô*, *shôyu*, *teriyaki* (“a technique of glazing foods in a soy sauce and *mirin* mixture either in a skillet or on a grill”), *tôfu* (“soy bean curd, usually refers to *momen tôfu*”), *umeboshi*, *usukuchi shôyu*, *yakidôfu*, *yuba*. Address: Both: New York.

744. Shepard, Sigrid M. 1976. The Thursday night feast and good plain meals cookbook: Natural foods of the Eastern Hemisphere: China, Japan, Indonesia, India, the Middle East. Spokane, Washington: New Age Printing. vii + 442 p. Illust. by Margaret V. Putman. Index. 28 cm.

• **Summary:** This is a natural foods cookbook (not vegetarian), with strong influence from East Asia. The author’s great aunt, Myra, was a missionary in China. Pages 5-7 describe how to make a “bean curd box” for making tofu, and then how to make tofu at home. Among the many soy-related recipes are about 55 for tofu, 7 for miso, 2 for whole soybeans, and many for soy sauce.

Pages 431-34 contain a directory of natural foods provisioners and a directory of Oriental foods provisioners.

Published in 1979 under title: *Natural Food Feasts from the Eastern World...*

745. Urano, Chikako. 1976. *Azuki to kinako* [Azuki and kinako]. Tokyo: Margaret / Shueisha. 188 p. 18 cm. [Jap]

• **Summary:** This is a work of juvenile fiction. Chikako (born in 1946) is a pioneering manga artist.

746. Nomura, N.; Satoh, H. 1977. [Varietal differences of Adzuki beans in percentage of number of pods at heights lower than 10 centimeters above ground]. *Hokkaido Nogyo Shikenjo Jiho (Hokkaido Agric. Exp. Station, Bulletin)* 36:1-8. March. [Jap; eng]*

747. Sacks, Frank M. 1977. A literature review of *Phaseolus angularis*—The adzuki bean. *Economic Botany* 31(1):9-15. Jan/March. [71 ref]

• **Summary:** An early, excellent review. Contents: Introduction. Description. Origin and distribution. Taxonomy (incl. taxonomic history). Production and growing methods. Composition. Uses. Oriental cosmology and the medicinal value of *P. angularis*. Acknowledgments.

“Uses: The Japanese use the adzuki bean as a second grain. Although Kaempfer in 1712 stated that adzuki beans are not eaten raw because of their rank smell, present-day adsukis do not have such an odor. He reported that the beans were ground into flour or meal, every day, for use in pancakes and pasties (21). The adzuki is often boiled or pressure-cooked alone or with onions and carrots for 45-60 minutes, and eaten as a side dish or in soups. *P. angularis* need not be soaked before boiling. Since its cooking time coincides with that of brown rice, it can be cooked with the grain, coloring the dish a dark red. “Sweet rice,” a glutinous variety of *Oryza sativa* L., is used in this way with adsukis as a traditional holiday dish in Japan known as ‘azuki-mochi’: the cooked rice and beans are pounded together into a batter, little patties then being shaped and baked or deep fried in oil. Cooked and pureed adsukis can be mixed with chestnut and whole wheat flours and then baked to yield “brownies” (10). Chinese and Japanese cooks candy the beans by boiling in sugar to make a filling for pasties, or a gelatin confection with the addition of agar-agar (*Kanten*). The adzuki bean can be popped like corn or used as a coffee substitute. In the United States, the adzuki is becoming increasingly popular among natural food devotees, who often use the spelling ‘aduki.’

“*P. angularis* is not suitable for forage in the United States, since it compares poorly with the cowpea (*Vigna sinensis* (L.) Savi) and the soybean (*Glycine max* (L.) Merr.) in terms of growth rate and total yield of herbage (30, 40). Burkhart considers *P. angularis* a good undeveloped forage crop for South America and as green manure, particularly useful in citrus farms in the Argentine province of Sante Fe (5). In western Georgia, Russia, *P. angularis* and *P. calcaratus* (rice bean) are used together for green manure, and for farming in subtropic acidic soil (71).” Address: 217 Haven Ave., Apt. 5F, New York, New York.

748. Kushi, Michio. 1977. The book of macrobiotics: The universal way of health and happiness. Tokyo, Japan: Japan Publications, Inc. x + 182 p. June. Illust. Index. 26 cm.

• **Summary:** Many followers of macrobiotics consider this to be the author’s most important book on the subject; by 1985 several hundred thousand copies of the original English-language edition had been sold, and it had been translated into German, French, Dutch, Danish, Portuguese, Spanish, Italian, and Japanese.

The preface tells briefly how Mr. Kushi got involved with macrobiotics and came to America. He began to lecture in New York in 1955. His teachings began to spread, especially after 1963. By Feb. 1977 he has conducted 5,000 lectures and seminars in America and Europe.

One Appendix is titled "A Historical Review of the Macrobiotic Movement in North America" (p. 168-71).

Concerning foods made from soybeans, the book discusses miso (p. 51-52), protein (p. 69), tamari (p. 51-52, 131-33), tekka (52, 133), and tofu plaster (130; "more effective than an ice pack to draw out fever"). Concerning smoking, the author believes that it "does not contribute to produce lung cancer" if the smoker eats a proper traditional (macrobiotic) diet (p. 115).

Page 169: "In 1949, Michio Kushi, during his postgraduate studies at Tokyo University, was inspired by the teaching of George Ohsawa. He came to the United States in connection with the World Federalist movement. Besides him, Aveline Tomoko Yokoyama in 1951, Herman Aihara in 1953, Cornelia Chiko Yokota, Romain Noboru Sato and his brothers Junsei Yamazaki, Shizuko Yamamoto, Noboru Muramoto and others came to the United States during the following years. After experience with various enterprises they respectively began to teach macrobiotics, mainly in New York. George and Lima Ohsawa also visited America from Europe to conduct seminars. Macrobiotic summer camps, restaurants, and food stores began to operate on a small scale with many American people. Educational activity was organized as the Ohsawa Foundation at that time. However, on the occasion of the Berlin Crisis in 1961, the major active people related to the macrobiotic movement made an 'exodus' to Chico, California. Robert Kennedy, Lou Oles, Herman Aihara and others began Chico San, Inc., as a food manufacturing and distributing company, and established the Ohsawa Foundation in California. Later, the Foundation moved to Los Angeles, its main activity being publishing George Ohsawa's works. The San Francisco center was established. At a later date, Jacques and Yvette de Langre [DeLangre], Joe and Mimi Arseguel and many others shared educational activities in California and other areas of the West Coast.

"In the meantime, after educational activity in New York, besides several seminars on Martha's Vineyard and various local colleges, Michio and Aveline Kushi moved to Boston in order to concentrate on education for the younger generations. They organized the East West Institute in Cambridge which later moved to Wellesley and then transferred to Boston. To meet the increasing demand for good food, a small basement food store, Erewhon, was opened. Erewhon was managed and developed over the years by the Kushis, Evan Root, William Tara, Roger Hillyard and Paul Hawken. Erewhon was followed by a small restaurant, Sanae, managed at different times by Evan Root, Tyler Smith, and Richard Sandler. Lectures by Michio Kushi

continued for five years in Arlington Street Church, Boston, with repeated visits to many major U.S. cities. Erewhon developed into a larger store, on Newbury Street in Boston, and added its wholesale operation from a warehouse on the South Shore, Boston Wharf, distributing constantly to an increasing number of natural food stores. The warehouse facility has been managed by Paul Hawken, William Garrison, Tyler Smith, and currently Jeff Flasher and other associates as well as the Kushis. Erewhon further established a Los Angeles store which also developed into a wholesale operation—managed over the years by the Kushis, William Tara, Bruce Macdonald, and currently by John Fountain and Thomas DeSilva...

"The *East West Journal*, a monthly newspaper, established in 1970—managed over the years by Ronald Dobrin, Jack Garvey, Robert Hargrove, and currently Sherman Goldman, Lenny Jacobs and other associates—is continuing to introduce to the wider society, the new vision for the present and future world. Educational activities directly concerned with teaching and other educational projects have been administered since 1973 by the East West Foundation, a nonprofit educational organization managed by the Kushis, Edward Esko, Stephen Uprichard, and other associates." Address: Boston, Massachusetts.

749. Ilag, Lina L. 1977. Studies on the biology of the soybean rust fungus in the Philippines. *INTSOY Series No. 12*. p. 16-17. R.E. Ford and J.B. Sinclair, eds. *Rust of the Soybean*. [3 ref]

• **Summary:** "Rust is the nemesis of soybean in this part of the world. It occurs not only in Southeast Asia but also in Australia, China, India, Indochina, Japan and Korea (95). The rust pathogen was recently reported in the Caribbean and in Eastern Africa (unconfirmed) (12).

"Its occurrence in the Philippines was first noted by Baker in 1914 (14). However, the disease was literally forgotten for the next 50 years. It was not until the mid-1960's that rust once again caught the attention of Filipino scientists. This long delay is unfortunate because the disease reduces bean yield in the country by 30 to 80 percent (7). The disease is most severe during the dry, cool months of October through March.

"Studies on soybean rust in the Philippines have centered on cultivar screening for resistance and on chemical control. Documented biological studies on the disease and its causal organism in the Philippines are practically nil.

"This paper will summarize the results of our studies on soybean rust at the University of the Philippines at Los Banos during 1976-77. I also will mention some research areas that deserve investigation.

"We studied the effect of temperature and photoperiod on germination and germ tube elongation of *P. pachyrhizi* uredospores. Freshly harvested spores from diseased leaves were plated on 1.5 percent water agar and stored at 0, 5,

10, 15, 20, 25, 30 and 35°C. The plates at 20 and 30°C were incubated under four different light periods: continuous light for 24 to 48 hours, continuous darkness, 15-hour light followed by 9-hour darkness, and 15-hour darkness followed by 9-hour light. Plates at the other temperatures were kept in continuous darkness. Some spores on water agar were kept under room conditions 13-hour darkness, 11-hour light at 23 to 30°C.

“Germination percentages and germ tube lengths under each of the above conditions were determined after 24 to 48 hours. No germination occurred at 0°C. Normal germination was observed from 10 to 30°C. Short germ tubes emerged from uredospores incubated between 5 and 35°C but these did not attain normal length even after 48 hours. High germination rates and long germ tubes were noted in uredospores kept at temperatures between 15 to 30°C. The various light periods did not appreciably affect the percentage germination of uredospores kept at 20 to 30°C. However, after 48 hours incubation, germ tubes were shortest (380 microns) under continuous light or continuous darkness at 30°C, and were longest (950 microns) when exposed to 15-hour darkness and 9-hour light at 20°C.

“The problem of pathogen survival also intrigued us. Although various rust fungi have been grown in axenic [free from other living organisms] culture during the last decade, *P. pachyrhizi*, is still known as an obligate parasite. Thus, when soybean plants are not present in the field the fungus is viable presumably only when transferred to another living host. Indeed, various plants can be infected by this pathogen, among which are Adzuki bean, asparagus bean, blue lupine, common bean, common purple nutsche, green gram, kidney bean, Kudzu, wild soybean and yam bean (11, 76, 88, 91).

“We were curious to know whether the uredospores survived (in resting or dormant state) in dried or decayed tissues or in the soil. Thus, in preliminary studies we determined how long uredospores may remain viable in diseased leaves or in soil under various conditions. Diseased leaves were collected from the field. Some leaves were dried between newspaper folds and kept in the laboratory while others were placed in a desiccator over calcium chloride. Uredospores also were dislodged from diseased leaves by tapping the leaves and these uredospores were mixed with soil. Some portions of the uredospore soil mixture were kept dry in the laboratory, some were watered once a day in the laboratory and still others were exposed to natural outdoor conditions. The viability of the uredospores was tested by periodically plating spore samples from the various storage conditions on 1.5 percent water agar and determining the percentage germination after 24 hours. Spores that did not germinate within 24 hours were kept longer to observe for possible delay in germination.

“Uredospores did not germinate after 8 days in any of the above storage conditions. The shortest period of viability, less than 2 days, was observed in uredospores mixed with

soil and watered daily. This was followed by soil exposed under natural outdoor conditions where the soil was rained on on the fourth day, after which time the uredospores ceased to germinate. Thus, there appeared to be a relationship between exposure to water and uredospore germination. These results suggest that the pathogen does not persist for any appreciable period in diseased leaves and in the soil.

“The importance of alternative hosts in the survival of the fungus in the field is the next logical question. It would be very useful to know whether or not the rust fungus also infects the weeds that abound in the field in addition to various other crop plants.”

Note: Literature cited is at the end of the book.

Address: Assoc. Prof., Dep. of Plant Pathology, Univ. of the Philippines at Los Baños, College, Laguna.

750. Yoshikawa, Mitsuyoshi; Ogura, S.; Tatsumi, M. 1977. Some properties of the proteinase inhibitors from adzuki beans (*Phaseolus angularis*). *Agricultural and Biological Chemistry* 41(11):2235-39. Nov. [20 ref]

• **Summary:** “Proteinase inhibitors I and II from adzuki beans were very stable even at 100°C in acidic pH range. Inhibitor I was a polypeptide chain having aspartic acid as a carboxyterminal residue and inhibitor II was that having asparagine.” Address: All: Laboratory of Biochemistry, Faculty of Agriculture, Kobe Univ. [Japan].

751. Murata, K.; Satoh, H.; Narikawa, T. 1977. [New adzuki bean variety “Hayate-shozu”]. *Hokkaido Nogyo Shikenjo Jiho (Hokkaido Agric. Exp. Station, Bulletin)* 30(299):73-72. Dec. [Jap; eng]*

752. Hokkaido Agricultural Experiment Station. 1977. Azuki [Azuki]. *Cultivation Methods for Main Crops in Hokkaido, Agronomy Series No. 2*. p. 67-98. [Jap]*

753. Chang, K.C. ed. 1977. Food in Chinese culture: Anthropological and historical perspectives. New Haven, Connecticut, and London: Yale University Press. 429 p. Illust. Index. 24 cm. [200+ ref]

• **Summary:** One of the finest scholarly overviews of food in Chinese culture ever written, with each chapter, arranged chronologically by dynasty, written by an expert in the field. Contents: Introduction, by K.C. Chang. 1. Ancient China, by K.C. Chang. 2. Han, by Ying-shih Yü. 3. T'ang, by Edward H. Schafer. 4. Sung, by Michael Friedman. 5. Yüan and Ming, by Frederick W. Mote. 6. Ch'ing, by Jonathan Spence. 7. Modern China: North, by Vera Y.N. Hsu and Francis L.K. Hsu. 8. Modern China: South, by E.N. Anderson, Jr. and Marja L. Anderson. Glossary of Chinese characters. Bibliography. Address: Prof. of Anthropology, Harvard Univ., Cambridge, Massachusetts.

754. Chang, Kwang-chih. 1977. Ancient China. In: K.C.

Chang, ed. 1977. *Food in Chinese Culture*. New Haven, CT, and London: Yale Univ. Press. 429 p. See p. 23-52.

• **Summary:** “Our study of food in ancient China begins with the Yangshao culture, approximately 5000–3200 B.C. and ends with the Chou dynasty, just before 200 B.C. This is the period of Chinese civilization in which much of its later styles, including its style of cooking and eating, were formed and crystallized... Peking Man lived on game meat, mostly that of a deer with thick antlers (*Sinomegaceros pachyosteus*), and wild plants such as hackberry (*Celtis bairdii*)...”

“In north China we begin with the Yangshao culture, characterized by farming villages and painted pottery, and dated from the fourth to the fifth millennia B.C. In the third and early second millennia B.C., the Lungshan culture, known by its black and gray pottery, filled the northern Chinese area. The Shang civilization followed, beginning around 1850 B.C. From about 1100 to about 200 B.C. was the period of the Chou civilization. For central and south China, the cultural sequence is slightly different.”

Grains: The principal grains in the north, throughout the ancient period, were millets of various kinds. These included foxtail millet (*su* or *liang* = *Setaria italica*) and Panicum millet (*shu* = *Panicum miliaceum*). Other cereals planted in the north during this period included wheat (*mai*), hemp (*ma* = *Cannabis sativa*), barley (*mou*), and rice (*tao*).

“Soybeans, known as *shu* in Chou texts, are generally considered to have been first cultivated somewhere in China (Hymowitz 1970; Leppik 1971). However, their history cannot yet be traced farther back than the western Chou period, on the basis of palaeography (T.C. Hu 1963), and the first known archaeological finds date only from the Spring-Autumn period (S.C. Chang 1960, p. 11).”

“Many other beans are regarded by botanists as having had long cultivation histories in China—the velvet bean (*Stizolobium hasjoo*) and the red bean (*Phaseolus angularis* [azuki]) among them—but as yet they have not been identified in the ancient period. The broad bean (*Vicia faba*), usually regarded as of Mediterranean origin, is represented by an archaeological find at the Lungshanoid site at Ch’ien-shang-yang...”

“Plums were often mentioned with salt (*yen mei*) as the chief seasoning agents. In addition, meat sauce (*hai*) was also so used. and in all likelihood soy sauce was known toward the end of the Chou period (see *Shih shi*, “Huo Ch’ih Lieh Chuan”)...”

“Unlike English, there is a word in Chinese (both ancient and modern) for food and drink combined—*yin-shih*. This is, of course, a compound word made up of *yin* (drink) and *shih* (food)... Within *shih* itself there is a clear and strong dichotomy between *shih* in the narrow sense meaning fan or grain food, and dishes of meat and vegetables (*ts’ai* in modern parlance).” Address: Prof. of Anthropology, Harvard Univ., Massachusetts.

755. Igata, Sadaaki. 1977. *Nihon kodai kokumotsu-shi no kenkyū* [Research on the ancient history of cereal crops in Japan]. Tokyo: Yoshikawa Kobunkan (Koshikawa Bunkan). See p. 130-49, 170. [3 ref. Jap; eng+]

• **Summary:** Introduction: Soybeans seem to have originated in East- or Southeast Asia. Origin of cultivation: (1) Literature” Soybeans are mentioned in the *Kojiki*. Norinaga Motoari accepted the myth of the Five Grains and thought that soybeans and the other four grains had been cultivated since the age of the Gods. Soybeans and adzuki beans are grouped together and mentioned as “beans” in the *Nihonshoki*.

(2) Archaeological study: According to a report in the journal *Toro* (Japan Archaeology Society, p. 358), wild soybeans (*tsurumame*) were excavated from the ruins of Toro.

On pages 148-49 is a section on *Edamame* (Green vegetable soybeans), which notes that the *Engishiki* (A.D. 927) describes the offering of fresh, podded soybeans at Buddhist temples. According to Taichi Fukazawa’s report, soybeans were found in a pit in Komoriyama, Senya Village, Senhoku-gun, Akita prefecture, Japan. See “The pit from which grains were excavated,” by R. Moriimoto (1933).

According to Dr. Nobuo Ito of Tohoku University, the naturally carbonized layer of soybeans dates back to the 1st or second century.

According to *Nara-cho shokuseikatsu no kenkyū* [Research on the eating habits of the Nara period (A.D. 710-784) in Japan], by S. Sekine (1969, p. 30), soybeans were excavated not only from the Komoriyama ruins, but also from the Yasuda Okayama ruins in Mioka Village, Kumage-gun, Yamaguchi prefecture, Japan, and from the Iba ruins in Hamamatsu city, Shizuoka prefecture, Japan.

Mr. Yoshinori Segawa mentioned that soybeans were found in the ruins of Taguchiyama, Maikata city, Osaka (*Sankei Shinbun Morning News*, 29 Sept. 1974). In summary, archaeological evidence from the Komoriyama ruins suggests that soybeans were grown in Japan by the 1st or second century A.D.

Comparison of Korea and Japan: Soybeans were cultivated in the southern Korean peninsula along with several kinds of grains, and these were found in the ruins of an army storage house in [illegible place name], Korea. These grains and beans date back to the middle of the 7th century A.D., but the earliest known mention of soybeans in Korean literature dates from the middle of the third century A.D. The author concludes that soybean cultivation seems to have started in Japan before it began in Korea, indicating that soybeans were not imported but were probably domesticated from wild soybeans.

Soybeans also appear in the *Sankoku-shiki* (Vol. 1, No. 1; Vol. 2, No. 2., Vol. 4, No. 4, and Vol. 23, No. 1).

Mr. Matsumoto wrote *Shina ni okeru Giso oyobi Shaso*,

Shimin seikatsu, kochi seido, kokumotsu no meisho no kenkyu (A study of the Giso and Shaso storage houses, and the life of the Shimin people, the cultivated field system, and the names of grains). Page 148 states that “shu” includes both soybeans and azuki beans, and page 166 states that before the 6th century, both soybeans and azuki beans were cultivated. The “Five Grains” always includes “shu.”

Process of cultivation: Soybeans and azuki beans are mentioned as emergency foods used to relieve shortages in A.D. 840. (See the *Zoku Nihon Koki*, vol. 9, and the *Reishūkai*, vol. 13). Therefore soybeans must have been grown widely, since they were offered to the government in place of millet when farmers could not afford millet in difficult situations.

According to the *Nihon Sandai Jitsuroku*, vol. 14, in March of A.D. 867 Japanese farmers burned the holly mountain to grow soybeans. This seems to indicate these farmers’ active attitude toward growing soybeans.

In the 8th and 9th centuries, soybeans were grown in the Omi, Tanba (or Tamba), [two areas whose characters are not recognized], Bizen, Bitchu, Bingo, Kii, Awa, Sanuki, and Iyo areas. These are mainly centered around the Inland Sea area (*Seto-naikai*) of southern Honshu (Japan’s main island).

The *Engishiki* (vol. 24) states that a certain island [characters not recognized] offered 24 *to* (1 *to* = 18 liters or 4.76 gallons) of soybeans.

Note: Concerning areas mentioned above in Japan in the 8th and 9th centuries: According to a map titled “The provinces of Japan” in *A history of Japan to 1334*, by George Sansome (1958, p. 2). Omi was located by today’s Lake Biwa (Japan’s largest lake), northeast of Kyoto. Tanba is located in the Kyoto area. Bizen, Bitchu, and Bingo are located adjacent to and directly north of the Inland Sea. Kii occupied what is today Wakayama prefecture and part of Mie prefecture. Awa, Sanuki, and Iyo were provinces on the northern side of Shikoku island.

756. Japan Bean Fund Association. 1977. [Legume varieties in Hokkaido]. Tokyo: Japan Bean Fund Association. See p. 130-43. [Jap]*

757. Kraft, Ken; Kraft, Pat. 1977. *Exotic vegetables*. New York, NY: Walker and Company. *

758. Saianova, V.V.; Reva, V.A. 1977. [Isolation of globulins from seeds of the adzuki bean]. *Izv-Akad-Mold-SSR-Ser-Biol-Khim-Nauk* 1:11-17. [Rus]*

759. White, Beverly. 1977. *Bean cuisine. A culinary guide for the ecogourmet*. Boston, Massachusetts: Beacon Press. xv + 142 p. Illust. by Julie Maas. Index. 21 cm.

• **Summary:** Contents: Introduction. 1. Becoming a bean cook. 2. Bean soups. 3. Bean salads. 4. Bean sandwiches, spreads, and such. 5. Stovetop beanpots. 6. Oven beanpots. 7.

Feasts for special occasions. Dried legume glossary.

Contains good information about pressure cookers and pressure cooking beans (p. 6-10, including soybeans). Soy-related recipes include: Soy sprouts (p. 13). Basic tofu (p. 14). Bean on bean soup (p. 18). Tofu mayonnaise (p. 27). Apple bean sprout salad (with tofu dressing, p. 39). Carrot salad with tofu (p. 40). Soy joy salad (p. 48). Amarillo taco (with cooked soybeans, p. 50). Soy sandwiches (p. 57-58). Soyburgers supreme (p. 58-59). USA paté (p. 60). Soybeans creole (p. 85). Hearthside baked soybeans (p. 99). Vegetable medley (with soybeans, p. 110). Miso shiru soup (p. 126). Soy cucumber salad–sunomono (with soy sauce, p. 126). Vegetable sukiyaki (with tofu and soy sauce, p. 127). Basics (p. 136).

Soybean sprouts should be ½ to 1 inch long; they need to be parboiled for 10 minutes before use in salads. Freshen old tofu by parboiling for 2-3 minutes in a pot of boiling water.

760. Wong, Irene. 1977. *Great Asia steambook*. Brisbane, California: Taylor & Ng; New York: Distributed by Random House. [viii] + 97 p. Illust. (photos). Index of recipes. 22 x 22 cm.

• **Summary:** Includes recipes (all steamed) and ingredients from throughout Asia, but with emphasis on China.

The “Glossary of ingredients” (p. 80-95, with a large photo of each) includes:

“Bean curd, fresh.” Bean curd, red (Nam yue).

Bean sauce: “Sold as ‘Yellow bean sauce’ and ‘Ground bean sauce’; also known as brown bean sauce or *mien see* (Cantonese Chinese).

“Black beans, fermented and salted (*Dow See*): A Chinese spice. Small raisin-size black beans sold in plastic or cellophane packages. May be rinsed and mashed with minced garlic and ginger for steaming, stir-frying, and braising...”

Fu: pressed, dry wheat gluten cakes. Hoisin sauce. Miso. Nam yue. Nori. Oyster sauce: Made from oysters and soy sauce. Red bean curd. Red bean paste [azuki an] (*Dow sah*). Sweetened to make a filling for steamed bread (bao). Soy sauce. Sweet rice (see glutinous rice). Teriyaki sauce. Tofu: See bean curd, fresh.

About the author: She was born in Fresno, California and grew up in a spacious Victorian frame house in the thriving Chinatown section. Her father and uncle had immigrated from Sun Doh, a village in Kwantung [Guangdong] province of mainland China, when the Japanese army invaded the region in 1938. She graduated from the University of California, Berkeley, then taught English as a second language in the Chinatown of nearby Oakland. In 1974 she married Alan Gribben, now an assistant professor at the University of Texas in Austin. Currently Irene is an instructor of Chinese cooking at Taylor & Ng, San Francisco importers and designers. Address: San Francisco

Bay Area, California.

761. Yü, Ying-shih. 1977. Han China. In: K.C. Chang, ed. 1977. *Food in Chinese Culture*. New Haven, CT, and London: Yale Univ. Press. 429 p. See p. 53-83.

• **Summary:** The Han dynasty lasted from 206 B.C. to A.D. 220. In 1972 China made a spectacular archaeological discovery on the eastern outskirts of Ch'ang-sha, Hunan, uncovering what is known as "Han Tomb No. 1 at Ma-wang-tui." The discovery achieved worldwide renown since the body of its owner was so remarkably preserved that her skin, muscles, and internal organs still had a certain elasticity when the coffin was opened after some 21 centuries. She was most likely the wife of Li-tsang, the first Marquis of Tai (reigned 193-186 B.C.) and died a few years after 168 B.C. at about the age of 50 (Hunan Sheng 1974, p. 46-48) (p. 55).

Her husband was buried nearby in Tomb No. 2. Among the rich burial remains unearthed from Tomb No. 1 are 48 bamboo cases and 51 pottery vessels of various types. Most of them contained foodstuffs (figs. 17-18, p. 183). All of these food remains have been identified (Hunan Sheng 1973, 1:35-36). Grains and beans found in the tomb included soybeans, rice, wheat, barley, two kinds of millet (*Panicum* = glutinous millet, and *Setaria*), and red lentil (*Phaseolus angularis* Wight [azuki]). Apart from food remains, there were also 312 inscribed bamboo slips which gave additional information on both food and cooking. They tell us a lot about seasonings and methods used in Han-period cooking. "The seasonings included salt, sugar, honey, soy sauce (*chiang*), *shih* ("salted darkened beans"), and leaven (*ch'ü*) [*qu, koji*]."

"What makes the Ma-wang-tui discovery doubly interesting is the amazing degree to which the food list from Tomb No. 1 agrees with the list given in the 'Nei tse ('Internal [Family] Regulations') chapter of *Li chi*. Virtually all the foodstuffs and prepared dishes listed above can be found in that chapter (*Li chi*, 8:19a-21b; Legge 1967, 1:493-63)."

Ying Shao of the 2nd century A.D. reported that *shih* ("salted darkened beans") [fermented black soybeans] were used to season dried meat and fish served after the main meal.

At Shao-ku (northwestern outskirts of Lo-yang), a total of 983 earthenware grain containers were unearthed in 1953 from 145 tombs datable from middle Earlier Han to late Later Han [about 100 B.C. to 200 A.D.]. Found in many of the containers are grain remains of the following: millets of various kinds, hemp, soybean, rice, and Job's tears (*Coix lacryma-jobi*). Moreover, most of the containers bear inscribed labels indicating the food content of each. "Based on these archaeological finds, we can now say with confidence that the major categories of grains accessible to the Chinese in Han times included millets of various kinds, rice, wheat, barley, soybeans, lesser beans, and hemp. It is

particularly noteworthy that this archaeological list matches very closely the "nine grains" recorded in the agriculturist book by Fan Sheng-chih of the first century B.C.... Fan was a professional agriculturist and had actually taught people in the vicinity of Ch'ang-an the art of farming (S.H. Shih 1959, p. 8-11, 42-44)."

Millet was generally more common than rice as the main food in Han China, then came wheat, barley, soybeans, and hemp. Hemp fiber provided the basic material for manufacturing cloth in traditional China. The seed also proved edible and was classified by the ancients as a "grain."

"To the existence of the very poor, soybeans and wheat could be even more vital than millet... There was always a pressing demand for soybeans and wheat as substitutes. As Pan Ku points out, the poor had only soybeans to chew and water to drink (Swann 1950, p. 419)."

The section titled "Toward a culinary revolution" states (p. 80-81): "Earlier as we have seen both soybeans and wheat were primarily foods for the common people. But it was due to soybeans and wheat that a quiet culinary revolution began in Han China. By this I refer to the manufacturing of *shih* (salted, darkened beans) and the making of wheat flour.

"*Shih* is very popular in a vast area of China; especially among the rustic population leading a very simple life. It was almost the only relish they could afford to enjoy." Ssu-Ma Ch'ien mentioned *shih* as one of the products in the cities, so it must have been made in large quantities in his time. The *Ch'i Min Yao Shu* [pinyin: *Qimin Yaoshu*] gives the earliest known instructions for its preparation [S.H. Shih 1962, p. 861].

"In the learned opinions of K'ung Ying-ta of the T'ang and Chou Mi of the Sung, however, *shih* was invented sometime around 200 B.C. (*Tso chuan*, 49:542; Chou 1959 ed., 2:215). It had already become a basic condiment in the early Han, and it was on a very short list of food supplies that Prince Liu Ch'ang received from the government after his plot of revolution had been discovered (*Shih chi* 1, 2:364). The name *shih* even found its way into an elementary Han textbook, the *Chi-chiu p'ien*—an indication of its great popularity (K.W. Wang 1929 ed., 10 b; Y. Shen 1962, p. 66). Now with the excavation of the Ma-wang-tui Tomb No. 1, *shih* remains become a concrete archaeological fact for the first time (Hunan Sheng 1973, pp. 127, 138).

"The earliest bean curd is reported to have been made in the Han, but the textual evidence is too weak to support such a claim (C.P. Li 1955, p. 200)." Address: Prof. of History, Yale Univ., New Haven, Connecticut.

762. Ahn, C.S.; Hartmann, R.W. 1978. Interspecific hybridization between mung bean (*Vigna radiata* (L.) Wilczek) and adzuki bean (*Phaseolus angularis* (Willd.) Ohwi & Ohashi). *J. of the American Society of Horticultural Science* 103(1):3-6. Jan. *

763. Westbrae Natural Foods. 1978. Price list [Catalog]: February 1978. Emeryville, California: Westbrae. 20 p. 26 cm.

• **Summary:** On the cover are a black plum blossom logo and a large, bold double “W” in calligraphy near the bottom against a gray background.

Interesting products: Natural fruit butters and unsweetened fruit spreads. Four types of granola and two trail mixes. Panda snacks: Tamari almonds, Tamari cashews, Tamari nut roaster’s mix, Tamari sunflower seeds, White water trail mix (tamari roasted). Westbrae roasted nuts (25 lb boxes): Tamari almond, Tamari cashew pieces, Tamari valencia peanuts, Tamari nut roaster’s mix, Tamari sunflower seeds, Tamari pepitas (pumpkin seeds), Tamari filberts. Tamari nut butters (12, incl. almond, 6 peanut, and sesame tahini). Whole wheat soy pasta.

Asian foods & sea vegetables: Miso (red miso, brown rice miso, barley miso, Hatcho miso, soybean miso, light yellow miso, natto miso). Miso made in the United States: Light yellow, mellow white, red, mixed case. Sea vegetables: Agar, dulse (whole or flakes / powder), sea palm, nori, arame, hijiki, kombu, wakame. Shoyu and shoyu products: Josen shoyu, Sendai shoyu, White Tiger Tofu Sauce. Nigari. Kudzu. Umeboshi. Toasted sesame oil. Helpful tools: Wok (11 inch), vegetable brush, glass shoyu dispenser, Tofu kit, Tempeh kit, rice koji (Cold Mountain brand made by Miyako Oriental Foods). Beans: Azuki (10 lb or 25 lb bag), soybeans (60 lb or 25 lb), soy grits raw. Publications: Includes four books and 3 pamphlets by Shurtleff and Aoyagi.

Note: The products in this catalog do not require refrigeration; they contain no refined sugar / white sugar, no meat, and no dairy products—just like the catalogs of almost all other natural food distributors during the 1970s and 1980s. Address: 4240 Hollis St., Emeryville, California 94608. Phone: (415) 658-7518 (order) or 7521 (office).

764. Hernandez, J.E.; Carpena, A.L.; Lantican, R.M.; Navarro, R.S. 1978. Yield performance and other agronomic characters of twenty-three varieties of Adzuki bean (*Vigna angularis* (Willd.) Ohwi and Ohashi) under Philippine conditions. *Philippine J. of Crop Science* 3(1):13-18. March 15. *

• **Summary:** Note: This is the earliest document seen in which the scientific Name of the azuki bean is given as *Vigna angularis*, instead of the earlier *Phaseolus angularis*.

765. Hase, S.; Yasui, T. 1978. [Studies on the determination of starch in agricultural products. [Determination of starch in pulse and its processed products: Soybeans, peanuts, adzuki beans]. *Shokuhin Sogo Kenkyujo Kenkyu Hokoku (Report of the National Food Research Institute)* No. 36. p. 104-09. March. [3 ref. Jap; eng]*
Address: National Food Research Inst., MAFF, Tokyo, Japan.

766. Hizukuri, S.; Nakamura, N. 1978. Studies on plant starch granule degrading enzyme. I. Activation of adzuki seed (*Phaseolus angularis* W.F. Wright) enzyme by inorganic phosphate. *Kagoshima Daigaku Nogakubu Gakujutsu Hokoku (Bulletin of the Faculty of Agriculture, Kagoshima University)* No. 28. p. 131-37. March. [20 ref. Jap; eng]*

767. Ozawa, Yuriko. 1978. [On the viability of stored adzuki beans (*Phaseolus angularis*) and their hardness after cooking]. *Shokuhin Sogo Kenkyujo Kenkyu Hokoku (Report of the National Food Research Institute)* No. 33. p. 37-40. March. [7 ref. Jap; eng]
Address: National Food Research Inst., MAFF, Tokyo, Japan.

768. Bellicchi, Kathy. 1978. Cook it with seaweed! *East West Journal*. May. p. 68-72.

• **Summary:** Contents: Introduction. Nori. Hiziki [Hijiki]. Arame. Wakame. Kombu. Dulse. Irish moss. Agar agar kanten. Variations on the basic hiziki recipe call for tofu, whole soybeans, and tamari. Wakame is used in miso soup, and in Ojea stew with miso and aduki [azuki] beans. Kombu is used in a broth with tamari, and in Oden with natto miso and tofu.

769. Mitsuhashi-Kato, M.; Shibaoka, H.; Shimokoriyama, M. 1978. Anatomical and physiological aspects of developmental processes of adventitious root formation in Azukia [adsuki bean] cuttings. *Plant and Cell Physiology (Tokyo)* 19(3):393-400. May. *

770. Ahn, C.S.; Hartmann, R.W. 1978. Interspecific hybridization between rice bean (*Vigna umbellata* (Thunb.) Ohwi & Ohashi) and adzuki bean (*Phaseolus angularis* (Willd.) Ohwi & Ohashi). *J. of the American Society of Horticultural Science* 103(4):435-48. July. *

771. Yoshikawa, Mitsuyoshi; Ogura, S. 1978. Reactive sites of a trypsin and a chymotrypsin inhibitor, protease inhibitor II, from adzuki beans (*Phaseolus angularis*). *Agricultural and Biological Chemistry* 42(9):1753-59. Sept. [20 ref]
• **Summary:** “Reactive sites of adzuki bean proteinase inhibitor II were determined by limited hydrolyses with catalytic amounts of trypsin [EC 3.4.21.4] and chymotrypsin [EC 3.4.21.1] at pH 3.0.” Address: Both: Laboratory of Biochemistry, Faculty of Agriculture, Kobe Univ., Noda-ku, Kobe, Hyogo 657 [Japan].

772. Cox, Meg. 1978. Minnesota farmers may have found lucrative new crop: Adjuki [sic] beans, sought by Japanese, are seen as potential for high return. *Wall Street Journal*. Oct. 5. p. 38, col. 4.
• **Summary:** “Although University of Minnesota agronomists

have been experimenting with adzuki for about 15 years, producers didn't consider them a potential cash crop until Japanese importers began making inquiries in the Midwest several years ago. Among those who have become most deeply involved in studying them is James Sutherland, an agricultural engineer at the Staples Irrigation Center, Staples, Minnesota." Address: Staff reporter.

773. Huang, W.C. 1978. [Comparative studies of the costs and returns of soybeans and adzuki beans in Taiwan]. *T'ai-wan Nung Yeh Chi K'an (Taiwan Agriculture Quarterly)* 14(4):170-98. Dec. [12 ref. Chi]*

774. Mitsuhashi-Kato, Mieko; Shibaoka, H.; Shimokoriyama, M. 1978. The nature of the dual effect of auxin on root formation of Azukia [adzuki bean] cuttings. *Plant and Cell Physiology (Tokyo)* 19(8):1535-42. Dec. [11 ref]

• **Summary:** "In disbudded Azukia stem cuttings, auxin exerted a dual effect on root formation. The first phase of auxin action is identified with the acceleration of cell division, especially longitudinal division. In cuttings treated with auxin during the first 24 hr, longitudinally divided cells were observed in all 12 root primordia, while in water-treated cuttings, such cells were observed only in 8 root primordia. The second phase is the promotion of the reaction in which root primordia unable to develop further without auxin supply develop into roots." Address: Dep. of Botany, Faculty of Science, Univ. of Tokyo and Dep. of Biology, Tokyo Metropolitan Univ., Hongo, Bunkyo-ku, Tokyo 113, Japan.

775. Abehsera, Michel. 1978. *Cooking with care & purpose: menus for strength and peace of mind*. Brooklyn, New York: Swan House Publishing Co. [x] + 271 p. Index. 21 cm.

• **Summary:** A macrobiotic cookbook. From the front cover: "Toward the prevention and elimination of disease." "Amazing cures from the kitchen."

The chapter on "Legumes" (p. 39-45) includes: Cooking beans in a pressure cooker (chickpeas, lentils, aduki beans). Sweet beans casserole (with aduki beans). Soft adukis. Chickpea stew. Soja jardiniere (with "1 cup cooked soya beans" and "2 tablespoons soy bean paste (miso)"). Bean sprouts (mung beans or lentils). Vegetarian cheese [tofu] (made with 2 cups soybeans, ½ cup lemon juice, salt, and cold water). Soya milk from soybeans. Soya milk from soya flour. Vegetarian cheese from soya flour [tofu].

Miso: The chapter on "Soups" begins with a long quotation by Dr. Tatsuichiro Akizuki, M.D. (no source is cited) about the use of miso to changes one's constitution and prevent radiation sickness (p. 49-52). Miso soup (p. 52). Miso sauce (p. 137). Miso spread (with tahini, p. 145). Miso pate (with aduki beans, p. 147).

A common seasoning in this book is "soya sauce." There

are also many recipes for "seaweed" (p. 91-95).

Michel Abehsera arrived in the USA (New York City) from North Africa in 1964, and "was startled to find an entire generation of rootless youth." In the late 1960s he left the East Village [a largely residential neighborhood to the east of Greenwich Village on the west side of lower Manhattan in New York City] for Binghamton, New York, intending to slow the pace at which he had been living and to write a few books. His first book was *Cooking for Life* (1970, Swan House). Address: Brooklyn, New York.

776. Aramaki, Nancy. 1978. Acceptance evaluation of tempeh made from soybeans, bulgar, millet and aduki beans. BS thesis in dietetics and food administration, California Polytechnic State University, San Luis Obispo, California. 24 p. 28 cm. [13 ref]

• **Summary:** The four types of tempeh were sliced and fried in oil before being served to members of a taste panel. The four categories of sensory evaluation were taste, smell, appearance, and texture. "The computer, which analyzed the results, showed acceptance of the four samples in all categories, except for the category of appearance of aduki bean tempeh." Millet tempeh was rated best in all 4 categories. Soybean tempeh was rated worst in taste. Aduki bean tempeh was rated worst in smell and appearance. Bulgar tempeh was rated worst in texture. Address: California Polytechnic State Univ., San Luis Obispo.

777. Calkins, Peter H.; Huang, Kuang-Rong. 1978. Soybean production in Taiwan: A farm survey. *AVRDC Technical Bulletin* No. 11 (78-89). 27 p. (Shanhua, Taiwan). [15 ref. Eng]

• **Summary:** Describes profitability and yield from soybean, the motivations and problems of farmers, and the reaction of farmers in the past to measures such as the extension of improved varieties. Since 1973 scientists at the Asian Vegetable Research and Development Center (AVRDC) have been working to improve soybean's contribution to consumer diets and farmer incomes in Asia. In Taiwan soybean is used as a source of cooking oil, "milk, beancurd, sprouts, fresh seed, dried seed, flour and a green vegetable (the stems and leaves are fried)." It is also used to make textured vegetable protein products such as artificial chicken and fish; when cooked with miso, soysauce, and various spices, these "are practically indistinguishable from the real versions. Entire banquets of rice and little else but soybean are routinely served in the vegetarian restaurants and Buddhist monasteries of Taiwan."

"In 1976, the government of Taiwan started guaranteeing a price of US\$277/tonne to encourage farmers to plant more soybeans. The response has been modest, largely because soybeans have not been as profitable as competing winter crops, such as adzuki beans." Table 1 (p. 2) shows that between 1967 and 1976, the area planted to

soybeans in Taiwan decreased from 52,000 ha to 36,000 ha, the farm price increased from US\$188/tonne to \$256/tonne, production decreased from 75,000 tonnes to 53,000 tonnes, but imports increased dramatically from 347,000 to 780,000 tonnes (more than doubling). Thus the total supply/consumption of soybeans in Taiwan (domestic production + imports) increased from 422,000 tonnes to 833,000 tonnes, while domestic production as a percentage of total consumption decreased from 18% to 6%.

“Before 1945 most soybean cultivars in Taiwan were of local origin, with an average yield of only 500-600 kg/ha. However, the government introduced Japanese cultivars such as ‘Shih-shih’ and Palmetto’ in 1952. Since the early 1960s, scientists in Taiwan have also worked to develop improved cultivars by crossing cultivars introduced from abroad (in this report, the former will be termed ‘improved’ and the latter ‘introduced’ cultivars). As a result, the percentage of farmers planting introduced and improved cultivars has increased steadily, from about 53% in 1963 to 92% in 1976 and yield has risen to 1.5 tonnes/ha.” Address: 1. Assoc. Agricultural Economist; 2. Research Assistant. Both: AVRDC, Shanhua, Taiwan.

778. Harrington, Geri. 1978. *Grow your own Chinese vegetables*. New York, NY: Macmillan; London: Collier Macmillan Publishers. xvi + 268 p. Illust. by Michael R. Brennecke. Index. 24 cm.

• **Summary:** In Chapter 5, titled “The Chinese beans” is a section on “Soybeans (*Glycine max*)” (p. 82-85) used as a green vegetable, served either in the pods or shelled. Contents: Introduction. Culinary and other uses. Appearance. When to plant. How to plant. Culture. Harvest. Plant the seed 1½ to 2 inches deep, with 2-5 inches between plants each row, and rows 24-30 inches apart. Plant in the spring. Days to maturity: 75 to 115. Harvest twice: once for “green shelling,” once for dried beans.

Varieties and sources mentioned are: Kuromame or Oriental Black Soy Bean from Nichols Garden Nursery (Albany, Oregon). Panther from Johnny’s Selected Seeds (Albion, Maine). Fiskeby V from Thompson & Morgan (Somerdale, New Jersey). Note: The author is a woman.

Also discusses: Adzuki bean (*Phaseolus angularis*), amaranth (*Amaranthus gangeticus*), and sesame (*Sesamum orientale*). Address: Author [USA].

779. Konno, S.; Narikawa, T. 1978. Recent studies and problems on breeding and cultivation of adzuki bean in Japan. In: *International Mungbean Symposium—1st*. 1977. [Eng]*

780. Null, Gary; Null, Steve. 1978. *The new vegetarian: Building your health through natural eating*. New York, NY: William Morrow and Company, Inc. 350 p. Index. 22 cm. [63 ref]

• **Summary:** In the chapter titled “Incomplete Protein Foods,” soybeans are discussed on pages 183-86. A brief introduction is given to soy protein concentrates, isolates, spun protein fibers, and textured vegetable proteins. Full-fat soy flour, soy granules, soy flakes, and defatted soy flour and grits are available in natural-food stores.

“In striking contrast to these highly refined products of the West are the traditional East Asian products, tamari soy sauce, miso (fermented paste), and tofu... Tofu (soy curd or soy cheese) is a truly remarkable food. It is very inexpensive when purchased at Oriental markets or natural food shops and even more so if made at home.” A description of how to make tofu and a summary of its nutritional benefits are given.

The soybean is “delicious when served a fresh green summer vegetable, simmered or steamed in the pod.” Or as roasted soybeans [soynuts, dry-roasted or oil-roasted], cooked whole dry soybeans, tempeh, or soy sprouts. The same chapter also discusses miso and tamari in detail (p. 197-99), wheat gluten (p. 178-79), and azuki beans (p. 180). Address: Director, Nutrition Inst. of America, New York. Host of the daily radio program “Natural Living.”

781. Perkins, David W. ed. 1978. *Hong Kong and China Gas Chinese cookbook*. Hong Kong: Published for the Hong Kong & China Gas Co. by Pat Printer Associates Ltd. (Hong Kong). 319 p. Illust. (mainly color). Index to recipes. 31 cm.

• **Summary:** A treasure for anyone who admires Chinese cookery, this large, oversized, visually spectacular and beautifully designed book is also rich in culture and history. Comprehensive, with many insights, it contains numerous two-page color spreads. One of the best books seen to date (1978) on Chinese cookery, except for its poor index.

Hong Kong is located on the Pearl River Delta in China, bordering the province of Guangdong to the north and facing the South China Sea to the east, west and south. Its cuisine resembles that of Canton.

A full-page color map of China shows (with different colors) China’s four main regional cuisines: Northern (incl. Beijing), Eastern (incl. Shanghai and Nanking), Southern (incl. Canton, Kwantung {Guangdong} and Kwangsi), and Western (incl. Hupei, Hunan, Szechwan, Kweichow, and Yunnan).

Peking is only 40 miles away from the nearest point of the Great Wall of China, which started to be built during the Ch’in / Qin Dynasty (225 BC to 207 BC) as protection against invasion by Tartar Hordes. Genghis Khan (1162-1227) is said to have been the first to penetrate it (p. 21).

The last period of Imperial rule in China was the long-lasting Ch’ing / Qing Dynasty (1644-1911) (p. 22).

Since ancient times, when the feet become swollen, the Chinese have eaten peanuts and soya beans (p. 38).

Buddhist vegetarian cookery has existed in China since the 10th century AD (p. 60).

The section titled “Soya beans” (p. 62-63) mentions bean curd or *tou fu* (“the most versatile of foods in the hands of any cook with any degree of imagination”), soy sauce, soya bean ‘milk,’ dried bean curd, frozen bean curd, and *mao tou* [green vegetable soybeans] (which “make a delicious hors d’oeuvre when prepared Shanghainese-style”).

The “mysterious MSG (Monosodium glutamate) is a ubiquitous ‘instant flavouring’; but more dishes have been spoiled by the addition of too much MSG rather than by the addition of too little” (p. 76).

A large colored photo and accompanying numbered outlined diagram (p. 77-78) shows many different seasonings, incl. Hoisin sauce, hot bean paste, dark soy sauce, light soy sauce, and Worcestershire sauce. “Soy sauce rules the kitchen as undisputed emperor. Basically a fermented extract of the soya bean with salt added, it is available in three main types: heavy or ‘black’; dark, containing caramel as colouring and light (both in colour and flavour).” The finest, most expensive, and most concentrated is the first extraction. Specialty soy sauces flavoured with mushrooms or shrimp roe are also available.

“Black bean sauce is a near relative of soy sauce, being made from salted, fermented black soya beans. Again, mention must be made of the three main types of soya bean pastes: hot (with chillies), sweet (with flour, sugar and spices [t’ien mien chiang]) and yellow, which is very salty indeed... *Hai Hsien* [Hoisin] sauce combines garlic, chilli, beans and ginger with other elements.”

A color photo shows most recipes. Soy related recipes include: Shredded pork with dry beancurd saute (p. 112). Chopped soya bean sprouts with pork (p. 113). Stewed lamb with dried beancurd (p. 127). Stir fried chicken with [soya] bean paste (p. 135). Roast Peking duck (with 4 tablespoons “sweet bean paste,” p. 153). Braised duck with lo han vegetables (and 60 gm “fried beancurd cubes,” p. 156). ‘Lu Shui’ goose (p. 157; the Lu Shui sauce is made with 250 gm sugar, 250 gm salt, 2 five-spice bouquets, 250 ml light soy sauce, 10 slices ginger). Braised fish with beancurd and vegetables (p. 161). Eight treasure beancurd soup (with “4 squares soft beancurd,” p. 193). Vermicelli and fried beancurd soup (p. 199). Beancurd with shredded pork in soup (p. 201). Fried beancurd (p. 204-05). Spicy beancurd with ground pork (Ma P’o tou fu, p. 208). Braised beancurd with mushrooms (p. 212).

Beancurd stuffed with shrimp paste (p. 215). Steamed fish and beancurd cake (p. 221). Vegetarian goose (Su ngo, with “20 dried beancurd skins [yuba], about 41 cm = 16 inches in diameter,” p. 227). A full-page photo shows a quern = hand turned stone mill (p. 243). Sweet bean paste dip (*tien tou chiang*, with “4 tablespoons sweet bean paste,” p. 278).

Note 1. This is the earliest document seen (Oct. 2012) that uses the term “Su ngo” in connection with yuba.

Also: Sweet red bean paste (*hung tou sha hsien*, with small red beans [azuki], p. 278).

Glossary (p. 302-11; all Chinese words are given only in Chinese characters, which we have romanized in pinyin) incl.: Beancurd (*doufu*). Beancurd, dry (*toufu gan*). Bean curd cubes, fried (*zha doufu*). Beancurd cubes, preserved (*la furu*, spicy fermented tofu); also known as preserved beancurd and Chinese cheese. Beancurd skins, dried (*fupi*) [*doufu pi*, yuba]. Beancurd sticks, dried (*fuzhu*; [dried yuba sticks]) used frequently in vegetarian cooking. Bean pastes (*gan shi jiang*). Sauces produced from soya beans and other ingredients: Hot bean paste (*xiang shi la jiang*), soya bean paste (*mo shi jiang*), “sweet bean paste (*tian shi jiang*; produced from fermented black soya beans, flour, sugar and spices. Substitute: Hoisin sauce.” Note 2. This is the earliest document seen (Feb. 2009) that uses the term “sweet bean paste” to refer to a Chinese paste made with soybeans. Yellow bean paste (*dou ban jiang*).

Bean sprouts: Shoots of the mung bean or the soya bean (*da dou ya cai*), the latter being much larger and stronger flavoured.

Note 3. This is the earliest English-language document seen (Jan. 2013) that uses the term *dou ya* or the term *da dou ya* to refer to soy sprouts.

“Black beans (*dou shi*): Salted, fermented black soya beans, Lightly salty in flavour. Used as seasoning. Will keep indefinitely in dry conditions. Chinese cheese (see beancurd cubes, preserved). Dry beancurd (see beancurd, dry). Flour—”High gluten flour (*gao jin fen*): A special kind of ‘strong’ flour, which gives extreme elasticity, making it possible to roll out the dough to very fine layers. Used for wonton wrappers.” Fried beancurd cubes (see beancurd cubes, fried). “Hoisin sauce (*hai xian jiang*): A seasoning sauce or condiment made from red beans (*hong dou*) [azuki], soya beans, sugar and spices. Sweet-spicy and tangy in flavour. Sold in cans or jars... Also known as Seafood Sauce and Barbecue Sauce.” Hot bean paste (see bean paste). ‘Lu Shui’ sauce (*lu shui zhi*, in Cantonese ‘Lu Soy’). A ‘master sauce’ or more accurately, a stock made with soy sauce, sugar, five spices and ginger. Used for simmering foods, particularly poultry. It gives a rich flavour and deep brown colour. For recipe see p. 157. Note 4. Widely used in Shanghai, and in Jiangsu and Zhejiang provinces). “Mao tou green peas (*mao dou*): Small beans, grown in the north, with dark-green, slightly hairy pods, which should be removed. Substitute: lima beans.” Monosodium glutamate. Oyster sauce (*hou you*): A viscous dark-brown sauce made from oysters and soy sauce through a process of fermentation. Used as a flavouring and/or colouring agent and as a condiment. Sold in bottles.” Preserved beancurd (see beancurd cubes, preserved). Red beans (*hong dou*), [azuki]. Soya bean paste (see bean paste). Sweet bean paste (see bean paste). Yellow bean paste (see bean paste).

Talk with Cecilia Chiang, founder of The Mandarin restaurant in San Francisco. 2009. Feb. 16. She has this book. The authors of this book are not well known in China;

they are mostly amateurs. The best Chinese cookbooks are written by Fu Peimei, a lady who was a real authority on all the different styles of Chinese cooking; she is no longer living. Many of her cookbooks are in both English and Chinese. Concerning “Bean paste,” some of these are no longer available in the USA. Cecilia says Sweet bean paste may be something like *t’ien mien chiang*. Hoisin sauce is not used in Beijing, Shanghai, or anywhere in northern China; it is used mainly in Canton and south China. Cecilia thinks “Sweet bean paste” (*t’ien shih chiang*, p. 303) may be used only in Hong Kong. Most Chinese have never heard of this kind of sweet bean paste. True Cantonese food is quite different from that of Hong Kong. Cecilia knows Cantonese cooking very well; she goes there several times every year. Cantonese make the best soups, the best steamed fish and steamed chicken, and also their famous pork sausage (*la chong?*). Beijing cookery uses hard tofu, but most soft and silky tofu is imported from Japan.

782. Markoutsas, Elaine. 1979. Hidden pleasures of a Chinatown bakery. *Chicago Tribune*. Jan. 22. p. F1.

• **Summary:** The Happy Garden Bakery is located in the heart of Chicago’s Chinatown at 2358 S. Wentworth Ave. “Sesame bean paste fry cake (*gin doy*), 40 cents. In China this is usually made from lotus flower paste, but here red bean paste or black bean paste are more common. The dough is filled with the paste then rolled into a ball.” Sesame seeds are sprinkled on while the dough is still sticky; then it is deep fried. “On the sweet side; pasty.”

783. Wang, H.L.; Mustakas, G.C.; Wolf, W.J.; Wang, L.C.; Hesseltine, C.W.; Bagley, E.B. 1979. Soybeans as human food: Unprocessed and simply processed. *USDA Utilization Research Report* No. 5. iv + 54 p. Jan. Slightly revised, July 1979. Jan. No index. 28 cm. Compiled for USAID. [50+ ref]

• **Summary:** Contents: Introduction. 1. Soybean food uses in Asia. China: Soaking dry soybeans, *tou chiang* (soybean milk), *tou fu* (soybean curd), processed *tou fu* products, *tou fu pi* (protein-lipid films), *huang tou ya* (soybean sprouts), whole soybeans, fermented soybean foods, production and consumption.

Japan: Tofu (soybean curd), *kinugoshi* tofu, processed tofu products, *yuba* (protein-lipid film), soybean milk, *gô* (ground soybean mash), *daizu no moyashi* (soybean sprouts), whole soybeans (*edamame* {fresh green soybeans}, whole dry soybeans, *kinako*), fermented soybean foods: Production and consumption.

Korea: *Tubu* (soybean curd), processed *tubu* product, soybean sprouts, whole soybeans (green soybeans, parched or roasted soybeans, boiled soybeans), soybean flour (“Soybeans are first roasted and then ground into flour. The flour is used extensively as an ingredient in food preparations.” Note: The name of the roasted soy flour is not given), fermented soybean foods (Soy sauce and [soy] bean

paste are commonly used in Korea as flavoring agents. Natto is also enjoyed), production and consumption [of soybeans in Korea].

Indonesia: *Tahu* or *tahoo* (soybean curd), *bubuk kedele* (soybean powder. “Soybeans of the white variety are roasted until no beany flavor can be detected. They are ground into a powder and mixed with such spices as garlic and chili”), *tempe kedele*, *tempe gembus* [the name in Central and East Java for *okara tempeh*], *oncom tahu* [the name in West Java for *okara onchom*], other soybean products (soybean sprouts, green soybeans, roasted and boiled soybeans, *kecap* {soy sauce}, *tauco* {soybean paste}), food mixtures, production and consumption.

Thailand: Tofu (*tauhu*), soy sauce, green soybeans in the pods (*tourae*).

Philippines: Soybean sprouts, soybean coffee, soybean cake, soybean milk, *tou fu* and processed *tou fu* products, production and consumption.

Burma. India. Malaysia. Nepal. Singapore. Sri Lanka (Ceylon). Vietnam. Middle East. References—Soybean food uses in Asia.

2. Soybean food uses in Africa. Ethiopia: *Injera*, *wots* and *allichas*, *kitta*, *dabbo*, *dabokolo*, porridge. Kenya. Morocco. Nigeria: Whole soybeans, soybean paste, corn-soy mixtures (soy-ogi). Tanzania. Uganda. Production. References—Soybean food uses in Africa.

3. Soybean food uses in Europe and U.S.S.R.

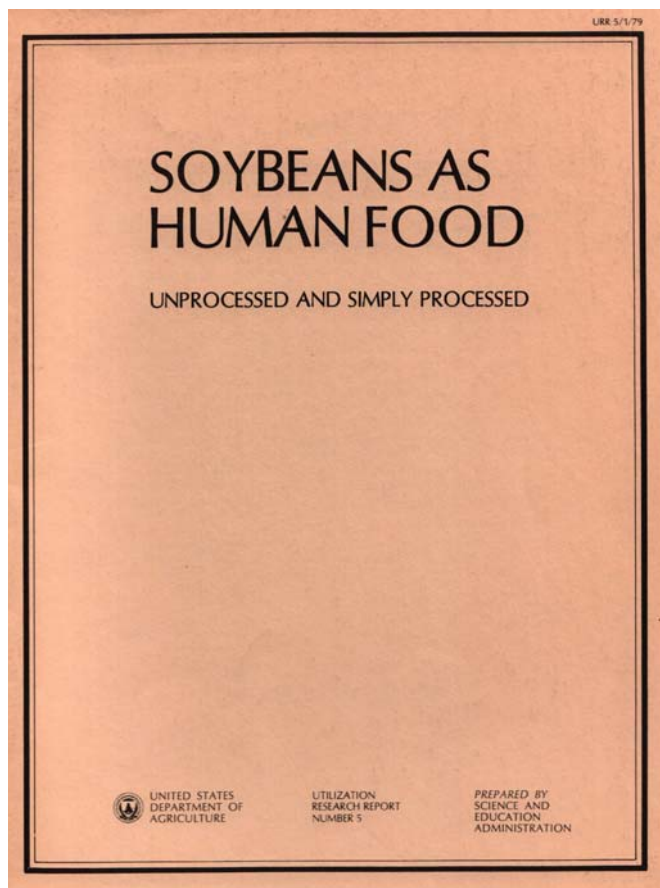
4. Soybean food uses in Latin America. Argentina. Bolivia. Brazil. Chile. Colombia. Ecuador. Guyana. Paraguay. Peru. Uruguay. Venezuela. Mexico: New village process, commercial developments. Honduras. Costa Rica. Panama. Dominican Republic. Jamaica. Haiti. Trinidad. References—Soybean food uses in Latin America.

5. Soybean food uses in North America. United States. Canada. References—Soybean food uses in North America.

6. Soybean food uses in Australia. 7. Summary of soybean food uses. Traditional soybean foods: Soybean milk, soybean curd and processed soybean curd products, protein-lipid film, soybean sprouts, *tempe* (*tempeh*), green soybeans, boiled soybeans, roasted soybeans, soybean flour, soy sauce, fermented soybean paste, fermented whole soybeans, *natto*, fermented soybean curd. Experimental soybean foods: Whole soybean foods, soybean paste, soy flour, soy beverage. Production and consumption.

8. Simple village process for processing whole soybeans: Equipment, process, sanitation requirements, quality of product, evaluation of product in formulas and procedures for family and institutional use in developing countries. NRRC village process. 9. Industrial production and selling prices of edible soybean protein products.

10. Barriers to accepting and using soybeans in food: Availability. Cultural and social factors. Texture. Flavor. Nutrition and food safety. Technology development. Technology transfer.



Tables: (1) Soybean production, imports, and total supply in Taiwan, 1962-1975. (2) Consumption of soybean foods in Taiwan, 1964-1974 (incl. tofu, which increased from 18.75 kg per person per year in 1964 to 32.04 kg per person per year in 1974). (3) Supply and disposition of soybeans in Japan, 1971-1974. (4) Whole soybeans (metric tons) used in the production of traditional foods (miso, shoyu, tofu and others) in Japan, 1970-1974. (5) Defatted soybeans meal (metric tons) used in the production of traditional foods (miso, shoyu, tofu and others) in Japan, 1970-1974.

(6) Production (metric tons) of traditional soybean foods in Japan (miso, shoyu, tofu and others). (7) Production and food use of beans and consumption of some soybean products in Korea, 1964-67. Note: The beans consisted of 85% soybeans, 8.5% red beans [azuki], 1.6% green beans, 1.3% peanuts, and 3.4% other beans. (8) Soybean production (metric tons) in Indonesia, 1960-74 (Winarno 1976). (9) Consumption in kilograms per capita per year of soybeans in various parts of Indonesia in 1970 (Winarno 1976). (10) Production (metric tons) of 3 soybean foods in Central Java, 1968-1972 (Winarno 1976).

(11) Area planted to soybeans and total soybean production (metric tons) in Thailand, 1964-1974. Page 27: Sales (metric tons) of falfa and soy-wheat-flour in Ethiopia, 1973-75. Page 29: Soybean area and production in 6 leading African countries, 1976. Page 30: Soybean area and

production in 6 leading European countries, 1976. Page 36: Consumption of soy as human food in Mexico (in metric tons per capita per day).

(12) Supply and disposition of soybeans in the United States, 1967-76 (in million bushels). (13) Soybean supply and distribution in Canada, 1964-74 (in 1,000 bushels). (14) Soybeans: area and production in specified countries of the world, annual 1970-76. (15) Use of soybeans by soybean-consuming countries, 1964-66 (metric tons) (FAO 1971). (16) Amounts of cereal-soy blends distributed under Title II, Public Law 480 in fiscal year 1974 to various countries worldwide. (15) Use of soybeans by soybean-consuming countries, 1964-66 (Production, imports, domestic use, per capita consumption as food per year—of which the leaders are: China 6.7 kg. Japan 5.1 kg. Korea 5.0 kg).

(17) U.S. exports of full-fat soy flour, 1974-75 (in 1,000 lb). Mostly to Canada and Mexico. (18) Equipment and cost information on making soy flour by hand process (Mustakas' process). (19) Nutritional analysis of full-fat soy flour. (21) U.S. production and price estimates for soy proteins, 1976 (in million kg; soy flours, concentrates, isolates, textured soy flours, textured soy protein concentrates). (20) Yield and analysis of basic products (milk, atole, pasta; from 1 kg soybeans, adding about 9 liters water in the boiling process) (NRRC village method). (21) U.S. production estimates for soy proteins, 1976 (flours, concentrates, isolates, textured flours, textured isolates) (Personal communication, N.R. Lockmiller, 1976). Address: Northern Regional Research Center, Peoria, Illinois.

784. Nishitani, Kazuhiko; Masuda, Y. 1979. Growth and cell wall changes in azuki bean epicotyls. I. Changes in wall polysaccharides during intact growth. *Plant and Cell Physiology (Tokyo)* 20(1):63-74. Feb. [27 ref]*
Address: 1-2. Dep. of Biology, Faculty of Science, Osaka City Univ., Sumiyoshi-ku, Osaka 558, Japan.

785. Tazaki, K. 1979. Biosynthesis of alicyclic acids from ¹⁴C carbon isotope-labeled glucose and erythrose by isolated cells from *Vigna angularis* adzuki bean leaves. *Plant and Cell Physiology (Tokyo)* 20(1):225-31. Feb. [17 ref]*

786. Ishikawa, C.; Nakamura, S.; Watanabe, K.; Takahashi, K. 1979. The amino acid sequence of adzuki bean proteinase inhibitor I. *FEBS Letters (Federation of European Biochemical Societies)* 99(1):97-100. March 1. [15 ref]*

787. Nakaseko, K.; Gotoh, K.; Asanuma, K. 1979. [Comparative studies on dry matter production, plant type and productivity in soybean, adzuki bean and kidney bean varieties. I. Differences in dry matter accumulation patterns under the low population density]. *Nippon Sakumotsu Gakkai Kiji (Proceedings of the Crop Science Society of Japan)* 48(1):82-91. March. [13 ref. Jap; eng]*

788. Nakaseko, K.; Gotoh, K.; Asanuma, K. 1979. [Comparative studies on dry matter production, plant type and productivity in soybean, azuki bean and kidney bean. II. Relationships between vertical distribution of leaf area and some morphological characteristics]. *Nippon Sakumotsu Gakkai Kiji (Proceedings of the Crop Science Society of Japan)* 48(1):92-98. March. [11 ref. Jap; eng]*

789. Satoh, H. 1979. [On the flowering and ripening of adzuki bean (*Phaseolus angularis* W.F. Wright) the influence of atmospheric temperature and plant density]. *Hokkaido Nogyo Shikenjo Jiho (Hokkaido Agric. Exp. Station, Bulletin)* 41:10-20. March. [25 ref. Jap; eng]*

790. Dwan, Lois. 1979. Where the 'Mandarin' is master. *Los Angeles Times*. April 8. p. N98.

• **Summary:** This is a restaurant review of Lotus West, 10974 W. Pico Blvd., West Los Angeles—one of an estimated 1,000 Chinese restaurants in Los Angeles County. For dessert the writer enjoyed “squares of beancurd [tofu] and litchis in cold almond syrup and... a small, flaky delicate pastry filled with sweet bean paste” [probably *an*, made with azuki beans].

In another dish, “Beancurd was steamed and flattened, rolled like a jelly roll around back mushrooms.”

“Dinner was climaxed with eight-precious duck... It had been wrapped in cabbage leaves, in beancurd skin [yuba], in foil and then in clay, baked for 7 hours.”

791. Nishitani, K.; Shibaoka, H.; Masuda, Y. 1979. Growth and cell wall changes in adsuki bean epicotyls. II. Changes in wall polysaccharides during auxin-induced growth of excised segments. *Plant and Cell Physiology (Tokyo)* 20(2):463-72. April. [29 ref]*

792. Yoshikawa, M.; Kiyohara, T.; Iwasaki, T.; Ishii, Y.; Kimura, N. 1979. Amino acid sequences of proteinase inhibitors II and II' and from adzuki beans. *Agricultural and Biological Chemistry* 43(4):787-96. April. [24 ref]
Address: Dep. of Agricultural Chemistry, Faculty of Agriculture, Tohoku Univ., Sendai [Japan].

793. Ishibashi, Ken'ichi. 1979. [Storage drying of beans. II. Moisture content measurement for beans]. *Gakujutsu Kenkyu Hokoku (Research Bulletin of Obihiro Zootechnical University. Series I)* 11(2):311-22. May. *

• **Summary:** Discusses soybeans, kidney beans and azuki beans.

794. Wang, E. Margaret. 1979. Bring on the phoenixes and dragon boats. *Christian Science Monitor*. June 14. p. 20.

• **Summary:** Margaret feels reluctant to let beautiful old customs and festivals die—things like kite-flying, the Lantern Festival and the Dragon Boat festival.

On the fifth day of the 5th moon the people got into a Dragon Boat to commemorate Chu Yuan's noble death, and in his memory threw rice cakes into the river. Chinese still eat these special rice cakes, called *jungze*, at this time of year. “They are made of glutinous rice wrapped tightly in long green leaves to make a triangular prism shape. Sometimes we put some beans in among the rice, sometimes some pork, sometimes some very sweet black bean paste.” Thus, *jungze* can be either savory or sweet.

Note: It is not clear what kind of beans are used to make this “sweet black bean paste.” Could it be black azuki beans? Soybeans? Fermented black [soy] beans (fermented black soybeans)?

795. Omura, H.; Takata, M.; Ishida, H.; Matsumoto, M. 1979. [Examination of some staple processed foods in the market of Fukuoka Prefecture. XIV. Sweet bread [with adsuki jam]]. *Scientific Bulletin, Faculty of Agriculture, Kyushu Univ. (Fukuoka)* 33(4):183-88. June. [4 ref. Jap; eng]*

• **Summary:** The Japanese word *an* is often translated as “adsuki bean jam.” It is widely used as a filling for confections—such as sweet bread.

796. Esko, Wendy. 1979. Introducing macrobiotic cooking. Tokyo: Japan Publications. 144 p. Foreword by Aveline Kushi. Preface by Edward Esko (both written June 1978). Illust. by Bonnie Harris. Index. 26 cm. Reprinted in 2006 by Square One Publishers (Long Island, NY, 240 p.).

• **Summary:** The author was introduced to macrobiotics in upstate New York in about 1971. This is her first book on macrobiotics. It was originally published under the title of *An Introduction to Macrobiotic Cooking* by the East West Foundation, 17 Station Street, Brookline, Massachusetts 02146. Though copyrighted in 1978, the first edition appeared in Sept. 1979. The fourth printing was May 1981.

The chapter titled “Beans including tofu and natto” gives descriptions of and recipes for making: Japanese black beans (black soybeans, p. 54; “These beans are therapeutic for the sexual organs and will relieve an overly yang condition caused by too much animal food or fish.”) Soybeans (p. 54. “These beans are the most yin of the bean family... It is recommended that soybeans be eaten only occasionally as a separate side dish. Because they are very yin, they should be cooked with yang vegetables such as lotus root or burdock, for balance. The best way to eat soybeans is in the form of *tofu*, *okara*, *natto*, *tempeh*, and, of course, miso and tamari.”) Tofu, and Homemade tofu (curded with nigari, p. 54-55). Okara (p. 55-56). Tofu and corn. Tofu, onions and water cress. Dried tofu (dried-frozen, p. 57). Yuba (dried soy milk; how to make at home). Vegetables and dried soy milk (p. 57). Ganmodoki (Tofu and jinenjo patties, p. 57-58). Natto (description and how to make at home, p. 58-59).

Other soy-related recipes include: Tofu soup (p. 68).

Miso soup (p. 69-70, basic, or quick). Watercress miso soup (p. 71). Daikon and sweet rice dumpling soup (with miso). Chinese cabbage and tofu miso soup (p. 71). Aveline Kushi's miso stuffed lotus root (p. 86). Tofu dressing (p. 91). Miso-tahini spread (p. 92). Miso-sesame spread (p. 92). Miso-lemon sauce (p. 93). Tofu dip (p. 93). Miso with scallions (p. 95). Tamari (description, p. 95). Tekka (made with Hatcho miso, p. 96). Miso pickles (p. 100-01). Tamari pickles (p. 101). Tofu plaster (p. 130). Ume-Sho-Kuzu drink (with umeboshi, tamari and kuzu, p. 131). Ume-sho-bancha (with tamari, p. 131). Use of tamari, miso, and tekka (p. 132).

Also includes instructions for making amasake at home (p. 116; it is a natural sweetener made from fermented sweet rice), and a recipe for Amasake bread (p. 107), instructions for making seitan at home (p. 46-47, using 3½ lb of hard spring or hard winter whole wheat flour; spring wheat flour produces a much softer texture of seitan than the winter variety), and recipes for seitan stew, seitan-barley soup, sauteed vegetables and seitan, stuffed cabbage with seitan, and seitan croquettes (p. 47-49), plus recipes for leftover seitan (p. 125). Address: East West Foundation, near Boston/Cambridge, Massachusetts.

797. Sakakibara, Masaki; Aoki, T.; Noguchi, H. 1979. Isolation and characterization of 7S protein-I of *Phaseolus angularis* (Adzuki bean). *Agricultural and Biological Chemistry* 43(9):1951-57. Sept. [34 ref]

• **Summary:** "The major storage protein of *Phaseolus angularis*, 7S protein-I, was purified by gel filtration on Sephadex G-200 and ion exchange chromatography on DEAE-cellulose. The purified 7S protein-I was homogeneous on disc electrophoresis, isoelectric focusing and ultracentrifugation." Address: All: Dep. of Food Science and Technology, Faculty of Agriculture, Nagoya Univ., Nagoya, Japan.

798. Yoshikawa, Mitsuyoshi; Kiyohara, T. Iwasaki, T.; Yoshida, I. 1979. Modification of proteinase inhibitor II in adzuki beans during germination. *Agricultural and Biological Chemistry* 43(9):1989-90. Sept. [10 ref]

• **Summary:** "Leguminous seeds are rich sources of proteinase inhibitors, and the inhibitors acting on trypsin [EC 3.4.21.4] and chymotrypsin [EC 3.4.21.1] have been extensively studied (1-4). However the role of these inhibitors in the physiology of plants is scarcely understood." Address: 1-3. Lab. of Biochemistry, Faculty of Agriculture, Kobe Univ., Nada-ku, Kobe, Hyogo 657.

799. Saint (W.W.) Co. 1979. Top quality mung & azuki beans. Sprouting alfalfa seed (Ad). *Whole Foods (Berkeley, California)*. Oct. p. 78.

• **Summary:** This 1/6 page (2.25 by 4.75 inch) black-and-white ad states: "Serving wholesalers, distributors, sprouters. Prompt shipments from S.F. warehouse stock. Minimum

1000# [pounds]. F.O.B. warehouse. We welcome your inquiries. Phone or write to:... Circle No. 72 on Reader Service Card." Address: P.O. Box 77501, San Francisco, California 94107. Phone: (415) 626-7110.

800. Scarbnick, Cori. 1979. Adzuki: Minnesota's new crop. *Minnesota Science (Minnesota Agric. Exp Station)* 34(4):6-7. Fall.

• **Summary:** Discusses adzuki cookery, marketing and promotion. "Adzuki, a bean that's been grown for food in the Orient for more than 700 years, may soon be the basis of an export market for Minnesota farmers and food processors.

"Research on the legume has been under way at the Agricultural Experiment Station since 1962, when agronomist Robert Robinson first planted seed. "I thought some quantities could be sold for human consumption, but realized it would take mass advertising to change American food habits, not really the role of the experiment station," Robinson says. 'I believed there was a better market for the adzuki as a protein supplement for livestock. What we didn't know then was that yields would not be high enough to make this type of production feasible."

Today Robin's research is focused "on growing the small, red bean as a human food crop."

"A turning point came in 1977, when a Japanese trading company contacted the Red River Valley Edible Bean Growers Association about the possibility of growing adzukis in Minnesota, which is on the same parallel as the adzuki growing islands of Japan.

"The association turned to Lee Hardman, an extension agronomist, and Jim Sutherland, a market development specialist at the Staples Irrigation Center. The first field trials at Staples were promising; yields ranged from 2,220 to 3,300 pounds per acre—high enough to be profitable if farmers were to grow the bean as a food crop.

"Once research funds were received from the Governor's Rural Development Commission, a team concept evolved, with Hardman taking care of field production; Sutherland, the marketing aspects; and food scientist William Breene, the processing end."

"Breene says the results were more than encouraging: 'They told us the Minnesota product was far superior.'

"Since then, a group of Japanese businessmen has come to Minnesota to discuss possible jointly funded ventures. The researchers have also traveled to Japan to continue negotiations, gather information, and acquire superior varieties of the bean.

"Hardman says the adzuki appears to be well adapted to Minnesota. Some of the 200,000 pounds of adzukis grown on 250 acres by farmers in 16 Minnesota counties last summer were shipped to Japan. And, Hardman feels that current market demand could utilize 5,000 to 7,000 acres of Minnesota production by 1980."

Large photos show: (1) "Food scientist William Breene

watches as Yusuke Asano ladles cooked, Minnesota-grown adzukis into cheese hoops held by graduate students Andres Diaz (far left) and Carmen Tjahjadi. The beans will be pressed to extract the liquor, then they will be mixed with sugar to make *neri-an*.

(2) “The Japanese consume about 440,000 tons of adzukis yearly in such products (clockwise from top) shiruko, a soft drink; tsubu-an, sugar-infused whole adzukis; and two types of yokan, a confection containing agar-agar.”

801. Tajiri, Takashi. 1979. [Effect of packaging materials and storage temperatures on keeping quality of bean sprouts (Soybean, mung bean, adzuki bean). *Nippon Shokuhin Kogyo Gakkaishi* (*J. of the Japanese Society for Food Science and Technology*) 26(12):542-46. Dec. [6 ref. Jap; eng]*

• **Summary:** The following beans were investigated: Soybeans, mung beans, and adzuki beans.

802. Tajiri, Takashi. 1979. Mamerui moyashi no seizô to sendo hojisei ni kansuru kenkyû. II. Mamerui moyashi no sendo hoji ni oyobosu chozô ondo to hôsô shizai [Studies on production and keeping quality of bean sprouts. II. Effect of packaging materials and storage temperatures on the keeping quality of bean sprouts]. *Nippon Shokuhin Kogyo Gakkaishi* (*J. of the Japanese Society for Food Science and Technology*) 26(12):542-46. [6 ref. Jap; eng]

• **Summary:** The shelf life of soy sprouts, mung bean sprouts, and adzuki bean sprouts was studied in 6 packaging materials. PVDC (Saran Wrap) and PVDC laminated with cellophane were found to be suitable packaging materials. Shelf life at 0-5°C was 14-15 days for soy sprouts, versus 10-11 days for the other two types of sprouts. Address: Lab. of Food Process, Faculty of Agriculture, Kinki Univ., Kowakae, Higahsi-Osaka, Osaka-fu.

803. Clapp, T.W.; Johnson, V.L. 1979. Photoperiodicity in adzuki beans: a preliminary report. *J. of the Minnesota Academy of Sciences* 45(3):16-17. [10 ref]*
Address: Minnesota.

804. Aihara, Cornelia. 1979. The calendar cookbook. George Ohsawa Macrobiotic Foundation, 1544 Oak St., Oroville, CA 95965. 253 p. [unnumbered]. Illust. by Nan Schleiger. Index. 17 x 24 cm.

• **Summary:** This macrobiotic cookbook is designed for cooking with the seasons. Breakfast and dinner menus are given for every day of the year. A glossary gives brief descriptions of the Japanese foods listed in the recipes. For example: “Tamari: traditional soy sauce (*shoyu*) made without chemicals. Tofu: curdled soy milk. Tekka: condiment of miso and vegetables cooked a long time.” All recipes are numbered.

Soy-related recipes include: 2d. Baked mochi with kinako. 4. Kombu, age, albi nishime. 5. Black bean nishime

[these are almost certainly black soybeans]. 8. Amasake. 8a. Amasake kanten. 13. Natto with pickled daikon leaves. 18. Vegetable miso soup. 20. Mackerel with ginger miso. 28. Wakame miso soup. 32. Kidney beans with miso. 35. Onion miso. 46. Burdock, carrot and lotus root with oily miso. 60. Vegetable oden (with stuffed age). 63. Collard greens with age nitsuke. 64. Home-made age (deep-fried tofu). 73. Home made natto I and II. 75. Northern white beans with miso. 80. Home made tofu and nigari. 80a. Clear soup with tofu and shingiku [sic, *shungiku* = chrysanthemum leaves]. 80b. Tofu-scallion miso soup. 82. Amasake cake with cream cheese frosting (3-layer, using 1 lb of dairy cream cheese). 87. Wheat gluten (made from 10 cups whole wheat flour and 4 cups unbleached white flour). 87a. Seitan (with wheat gluten and tamari soy sauce). 87b. Fresh wheat fu (with wheat gluten). 87c. Boiled fu. 87d. Fried fu (Gluten cutlet). 87e. Cutlet kabobs (with cooked wheat gluten). 97. Scallion miso. 100. Okara nitsuke (okara is “soybeans which are leftover after making tofu”). 132. Amasake cake. 135. Amasake yeasted doughnuts. 138. Vegetable kabobs with lemon miso sauce. 159. Koi-koku (carp soup with barley miso). 161. Amasake cake with fruit and nuts. 177. Buckwheat dumpling miso soup. 183. Cooked vegetable salad miso ai (miso dressing). 191b. Tomato sauce with miso. Amasake cookies. 197. Onion cream miso soup. 199. Soybean soup. 220. Tofu, snow peas and white rice miso soup. 229. Cucumber with miso. 233. Fresh corn tortillas with scallion and oily miso. 236. Toasted rice balls with soy sauce or miso. 244. Barley miso soup. 245. Tekka [miso]. 251. Pan-fried eggplant with lemon-miso sauce. 257. Green pepper with sauteed miso. 259. Tofu with mustard sauce. 261. Goma tofu (made from sesame butter and a little tamari soy sauce). 263a. Parsley miso pickles. 263b. Miso pickles. 266. Amasake wedding cake. 274. Shingiku miso soup. 290. Tofu with kuzu sauce. 294. Soybean nitsuke. 304. Kombu, dried tofu, age nitsuke. 305a. Millet and soybean soup. 329. Amasake crescent cookies. 333. Tofu-egg clear soup with watercress.

The Acknowledgments section begins: “After the French Meadows Summer Camp sponsored by the George Ohsawa Macrobiotic Foundation in 1972, I looked over the menus of the meals I served at camp. In revising them, I had the idea to keep a one-year record of menus. I thought this would be a practical, everyday help for those people beginning to cook...

“Since then, seven years passed.” Address: Oroville, California.

805. Riker, Tom; Roberts, Richard. 1979. Directory of natural and health foods: A sourcebook for dietary revolution. New York, NY: Putnam (A Paragon Book). 320 p. Index. 37 cm.

• **Summary:** The first part of this book (p. 7-49) consists of essays on natural foods and nutrition (some reprinted). Part two is a commercial catalog/directory of natural foods available in 1979; it lists and describes (with many photos and

labels) products from most of the major U.S. natural foods manufacturers. An Index (p. 293-308) lists participating companies alphabetically.

Soy-related products include: Hain Super-E Soy Oil and Crude [unrefined] Soy Oil (Los Angeles, California, p. 55). Health Valley Soy Moo (Montebello, California, p. 56). Edward & Sons Miso-Cup (Union, New Jersey, p. 57). Family Orchards Fruit & Nut mixes, incl. Back Packer+*, Hi-Fiber Mix+, Hi-Iron Mix+, Hi-Protein Mix+*, Hiker's Helper, Mixed Nuts*, Mountain Munchies*, Tamari Mixed Nuts* (+ = contains Soy Nuts; * = contains Tamari Peanuts) (Berkeley, California, p. 60-61). Niblack Tamari Pumpkin Seeds (Pepitas), Tamari Roasted Sunflower Seeds, Liquid Lecithin, Granular Lecithin (Rochester, New York, p. 72-73). Arrowhead Mills Unrefined Soybean Oil (Hereford, Texas, p. 75). Good Morning New England Granola incl. Cashew-Raisin Bran-ola (with okara soy fiber), Happy Trails Mix (with roasted soynuts) (Amherst, Massachusetts, p. 79). Elam's Soy Flour (Broadview, Illinois, p. 81).

A long section on Erewhon and its products (p. 84-108) is probably the reproduction of an Erewhon catalog. Erewhon is now located at 3 East Street, Cambridge, MA 02141. Following several pages about the company and its philosophy and standards, each of its major products is discussed in detail, often with nutritional analyses. A label for Soy Flour (organically-grown stone-ground, 24 oz.) is shown; the main recommended use is for making soy milk! A major part of the presentation is titled "Japanese food guide." Products described include: Umeboshi (2 pages): Plums pickled in brine (umeboshi). Umeboshi paste. Plum concentrate (*bainiku ekisu*). Miso (2 pages): Hatcho, waka-Hatcho, soybean, barley, brown rice, rice, and natto miso varieties. Tekka (made with Hatcho miso). Sweets made from mizu ame [rice syrup]. Nigari. Gomashio. Koji starters for various types of miso or shoyu. Goma-muso (60% barley miso and 40% whole sesame seed butter). *Gomamiso furikake* (with barley miso, whole roasted sesame seeds, and shredded nori seaweed). Kombu candy. Kokkoh. Dried tofu (*Kohya-dofu*). Brown rice sake. Mirin. Gluten cakes (*Kuruma-fu*). Seitan (Gluten cooked in shoyu). Rice crackers seasoned with tamari soy sauce. Kuzu (3 pages). Tamari and shoyu (4 pages; Johsen Shoyu is made in Sendai and tamari is made by San-jirushi Co.). Seaweeds (4 pages): Kanten, arame, hijiki, kombu, ne-kombu, nori, seasoned nori, kanten, kanten flakes, wakame, and mekabu.

Good Food brand Soy-Millet Bread (Austin, Texas, p. 120). Arrowhead Mills Bulgur-Soy Grits (p. 121). Erewhon Morning Cereal, and Infant Cereal (each containing soy beans). Chico-San Black Soybeans (imported), and Azuki Beans (Dainagon imported small red), and Lima Soy Sauce (Chico, California, p. 126-27). Arrowhead Mills 7 Grain Cereal, and Deaf Smith Crunch (granola-type cold cereal) (each contains soybeans, p. 130).

The section on pages 188-197 is titled "Soy." It lists

Farm Foods Tempeh Kit, Tempeh Starter, Natural Nigari for Curding Tofu, Soyflour, Whole Cleaned Soybeans, Good for Ya Textured Vegetable Protein (Summertown, Tennessee, p. 189). New England Soy Dairy Tofu (with many tofu recipes, Greenfield, Massachusetts, p. 192-96).

The Redwood Sprouter Co. sprouter containing Soy Sprouts (1976, Austin, Texas, p. 202-04). Worthington Foods (a photo shows their line of 38 products). Millstone Burger-Like (with soy flour and TVP), Wheat Fries (with wheat gluten), Tender Cuts (with wheat protein and soy flour) (Penryn, California, p. 222-23). Sunrise Health Products Lecithin Granules (p. 274-75).

806. Shih, Shêng-han. 1979. [Planting soybean and azuki]. In: West and East Han Dynasty Agriculture Book. Peking, China: Agricultural Publishing House. See p. 20-21. [Chi]* Address: Northwestern College of Agriculture, Wuking, Shensi.

807. Takenaka, Haruko. comp. 1979. Nihon kaseigaku bunken-shu 1969-1978 [Bibliography of home economics 1969-78]. Tokyo: Nihon Kasei Gakkai (Japan Home Economics Assoc.). 678 p. See p. 52-57. [275 ref. Jap]
• **Summary:** Bibliographies are given for soybeans (protein), soybeans (other nutrients), tofu, natto, other soyfoods, and azuki beans. Address: Nihon Joshi Daigaku, Kaseigaku-bu [Home Economics Dep., Japan Women's Univ.].

808. Yamaguchi, Momoo; Kojima, Setsuko. eds. 1979. Wa-Ei Nihon bunka jiten [A cultural dictionary of Japan]. Tokyo: Japan Times. vii + 408 p. See p. 108. 19 cm. [Eng; jap]
• **Summary:** A very useful book with excellent definitions of Japanese words in English. It is divided into nine parts; No. 2 is titled "dietary habits" (p. 79-131). Each definition has four parts: (1) The word is written in romanized English, with diacritical marks and a hyphen in compound words. (2) The word is written in characters. (3) A long definition is given in English. (4) Related words and "see also" words are given (romanized) and key words in the definition are defined in Japanese (Chinese characters).

Words only distantly related to soy are preceded below by an asterisk. Soy-related words: abekawa-mochi (with "sweetened yellow soybean powder-kinako"), abura-age (fried soybean curd), aemono, age-dama, age-dashi ("soybean curd fried lightly without a tempura batter"), Aji-no-moto ("a popular brand of monosodium glutamate"), ama-zake, * an (sweet bean jam = azuki-an; Can be strained {*koshi-an*} or mashed {*tsubushi-an*}), dengaku-tofu, doburoku, eda-mame, fu ("dried, bread-like pieces of wheat gluten"), fucha-ryori ("Chinese-style vegetarian dishes served in some Japanese temples of Chinese origin"), gan-modoki, goma-ae, goma-shio (widely used with sekihan), hiya-yakko, inari-zushi, isobe-maki (with mochi, soy sauce and nori), kara-age, kashiwa-mochi (stuffed with sweet

[azuki] bean paste), kina-ko (“yellowish soybean powder”), kishimen (seasoned with soy sauce and topped with a few pieces of fried bean curd), kitsune udon (seasoned with soy sauce and topped with a few pieces of fried bean curd), koji, koya-dofu, * kuzu-manju (a ball of sweet redbean paste {azuki-an} with a covering of kuzu starch), kuzu-mochi (with kinako), masu (a small square measuring box, usually made of Japanese cypress {hinoki}). The three sizes measure 0.18, 0.9 and 1.8 liters. It is constructed by dovetailing, without the use of nails or adhesive. It is used for measuring soybeans, cereal grains, or for drinking saké, miso, miso-shiru, miso-zuke, * mochi, nabe-mono (often contain tofu; examples are sukiyaki, yose-nabe, and mizu-taki), nama-gashi (traditional Japanese confections made with beans and/or glutinous rice, cooked but not baked), natto, * nori (a dried sheet of laver, a seaweed), * oboro (related to sushi, not soy), oden, * ohagi (coated with sweet redbean paste {azuki-an}), shiru-mono (the two basic types are clear soup and miso soup), * shiruko (sweet beanpaste soup with mochi; see zenzai), shojin-age, shojin-ryori, shoyu, suki-yaki, sukiyaki-nabe, suri-bachi, suriko-gi [suri-kogi], sushi, sushi-ya, teriyaki, tofu, * ume-boshi (a Japanese pickled plum), wa-gashi (Japanese-style confectionery), wakame, warishita (soy sauce flavored seasoning), washoku = nihon-ryori, yaki-dofu, yaki-mono, yakko-dofu, yu-dofu, * zenzai (“a thick kind of sweet redbean soup”).

Page 24 defines hiragana (lit. flat kana) as “The cursive form of kana script, one of the two sets of Japanese syllabary writing. *Hira-gana* is more commonly used than the other set called *kata-kana*. It is usually used for writing inflectional endings and function words not represented by Chinese characters (*kanji*).” Address: Tokyo, Japan.

809. Nishitani, Kazuhiko; Masuda, Y. 1980. Modifications of cell wall polysaccharides during the auxin-induced growth in azuki bean epicotyl segments. *Plant and Cell Physiology (Tokyo)* 21(1):169-81. Feb. [29 ref]

• **Summary:** “Changes in sugar compositions and the distribution pattern of the molecular weight of cell wall polysaccharides during indole-3-acetic acid (IAA)-induced cell elongation were investigated.”

Azuki bean is *Vigna angularis*. Address: 1-2. Dep. of Biology, Faculty of Science, Osaka City Univ., Sumiyoshi-ku, Osaka 558, Japan.

810. Yoshikawa, Mitsuyoshi; Kiyohara, T.; Iwasaki, T.; Kawata, M.; Ohtaki, Y.; Nakao, C. 1980. Isolation of some properties of two fragments with inhibitory activity obtained from adzuki bean proteinase inhibitor by peptic digestion. *J. of Biochemistry* 87(2):619-27. Feb. [24 ref]

• **Summary:** “Proteinase inhibitor II’ from adzuki beans was subjected to peptic digestion. One of the resulting fragments, which inhibited chymotrypsin but not trypsin, was composed of 27 amino acid residues. The fragment was confirmed to

be derived from the chymotrypsin-inhibitory domain of the original inhibitor.” Address: 1. Lab. of Biochemistry, Faculty of Agriculture, Kobe Univ., Nada-ku, Kobe, Hyogo 657 [Japan].

811. Adachi, T.; Chiba, I.; Murata, K.; Satoh, H.; Narikawa, T. 1980. [The new adzuki bean variety “Hokkai-shiroshozu” Hokkaido]. *Hokkaido Nogyo Shikenjo Jiho (Hokkaido Agric. Exp. Station, Bulletin)* (43):80-87. March [9 ref. Jap; eng]*

812. Nakamura, Yurika; Shibaoka, H. 1980. Increase in the gibberellin response by low temperature pretreatment of azuki bean epicotyls. *Botanical Magazine (Tokyo)* 93(1029):77-87. March. [12 ref]

• **Summary:** “Epicotyl segments cut from azuki bean (*Vigna angularis*) seedlings grown at 27°C for 5 days and then treated at 15 C for 2 days were compared with those cut from seedlings not receiving the 15-C treatment, for their response to auxin and auxin plus gibberellin.” Address: Dep. of Biology, Faculty of Science, Tokyo Metropolitan Univ., Fukazawa, Setagaya-ku, 158, Tokyo.

813. Sawaguchi, M.; Nomura, K. 1980. [Growth and nitrogen uptake by adzuki bean varieties]. *Hokkaido Nogyo Shikenjo Jiho (Hokkaido Agric. Exp. Station, Bulletin)* (43):1-11. March. [17 ref. Jap; eng]*

814. Tang, Anthony M.; Stone, Bruce. 1980. Food production in the People’s Republic of China. *International Food Policy Research Institute, Research Report No. 15*. 179 p. May. (Washington, DC). [4 ref]

• **Summary:** Table 3 (p. 26) gives the “Quantity and value of output of grains, soybeans, and cotton, 1952 to 1977.” Soybean production in China did not change much from 1952 to 1977. In 1952 it was 9.52 million metric tons (mmt), rising to a peak of 11.50 mmt in 1959, falling to a low for the period of 6.20 mmt in 1969, then rising back 9.50 mmt in 1977. In 1957 this was 5% of total food grain production, but in 1977 only 4%.

“The 1952-77 figures for soybeans are from People’s Republic of China, Ministry of Agriculture, Bureau of Planning, *A collection of statistical of data on agricultural production of China and other major countries* (Peking: Agricultural Publishing House, 1958).

The term “Coarse grain and pulses” includes millet, corn, sorghum, barley, buckwheat, oats, proso-millet, small beans [azuki?], small green beans, broad beans, peas, and others. Address: Washington, DC.

815. Westbrae Natural Foods. 1980. Wholesale food catalog: Spring 1980. Emeryville, California: Westbrae. 23 p. 22 by 28 cm.

• **Summary:** On the cover, the lettering is in dark blue and dark red on a tan background. Contents: Westbrae juices.

Honey butters. Unsweetened spreads. Preserves. Applesauce. Nut butters (Almond butter roasted, cashew butter roasted, cashew butter raw, cashew-peanut-date butter, raw sesame tahini, toasted sesame tahini, peanut butter crunchy, peanut butter smooth, peanut butter crunchy salted, organically grown Valencia peanut butter crunchy). Cereals (mostly granola, incl. cashew granola, maple almond granola).

Trail mixes: Bay to Breakers trail mix (with sunflower seeds and Valencia peanuts, both roasted and coated with shoyu), Chisholm trail mix (with sunflower seeds, cashew pieces, and almonds, each roasted and coated with shoyu).

Roasted nuts (bulk, 12-25 lb; * = 9 oz package also available): Tamari almonds*, Tamari cashews*, Tamari Chisholm mix*, Tamari Valencia peanuts, Tamari pepitas (pumpkin seeds), Tamari sunflower seeds*, Tamari nutroaster's mix*, Deluxe tamari nut mix, roasted Spanish [peanuts] splits for butter stock, roasted Valencia peanuts. Packaged nuts.

Wholegrain pasta (incl. Soy linguini). Westbrae miso (imported from Japan): Red miso, brown rice miso, barley miso, Hatcho miso, soybean miso, natto miso. Cold Mountain miso (made in Los Angeles): Light yellow, mellow white, red. Sea vegetables: Kombu, hijiki, arame, wakame, nori. Atlantic Mariculture dulse.

Westbrae tamari and other Asian foods: Johsen shoyu-tamari, Traditional (true) tamari—wheat free, White tiger tofu sauce, natural nigari, agar flakes and sticks, umeboshi salt plums, rice wine vinegar, brown rice wine vinegar, ramen with soup stock.

Helpful tools (incl. Learning Tree tofu kit, wok, vegetable steamers, vegetable brush, utility knife). Informational pamphlets: What is miso? What is tofu? Miscellaneous (incl. falafel mix, tabouleh mix, Ak Mak crackers, sea salt, mayonnaise, black spiced olives, kosher dill pickles). Oils. Sweeteners. Bakery products. Dried fruit. Beans (incl. azuki beans, soybeans). Grains. Nuts and seeds. Non edible (drums, jars, and bottles). Glossary of manufactured products showing ingredients. Address: 4240 Hollis St., Emeryville, California 94608; 4841 Eastern Ave., City of Bell, CA 90201 (10 miles southeast of Los Angeles). Phone: (415) 658-7518 (orders).

816. Robinson, R.G. 1980. Registration of Minoka adzuki bean (*Vigna angularis*). *Crop Science* 20(4):549. July/Aug. *

817. Nakashima, H.; Tsuda, C.; Murata, K.; Narikawa, T. 1980. [Histological features and inheritance of male sterile adzuki bean (*Vigna angularis* (Willd.) Ohwi & Ohashi)]. *Ikushugaku Zasshi (Japanese J. of Breeding)* 30(3):241-45. Sept. [7 ref. Jap; eng]*

818. Yasui, T. 1980. Identification of a new galactosyl cyclitol from the seeds of *Vigna angularis* Ohwi et Ohashi (adzuki bean). *Agricultural and Biological Chemistry*

44(9):2253-55. Sept. [11 ref]

Address: Dep. of Agricultural Chemistry, Faculty of Agriculture, Tohoku Univ., Sendai [Japan].

819. Erewhon, Inc. 1980. Erewhon quarterly—winter 1980-1981. Over 100 new products [mail order catalog]. Cambridge, Massachusetts. 82 p. Oct. Catalog and price list. • **Summary:** See next page. This is a new type of Erewhon mail order catalog; it is to be issued quarterly, it is from the new warehouse at 3 East St. in Cambridge, and it signals a dramatic increase in the number of products being sold by Erewhon.

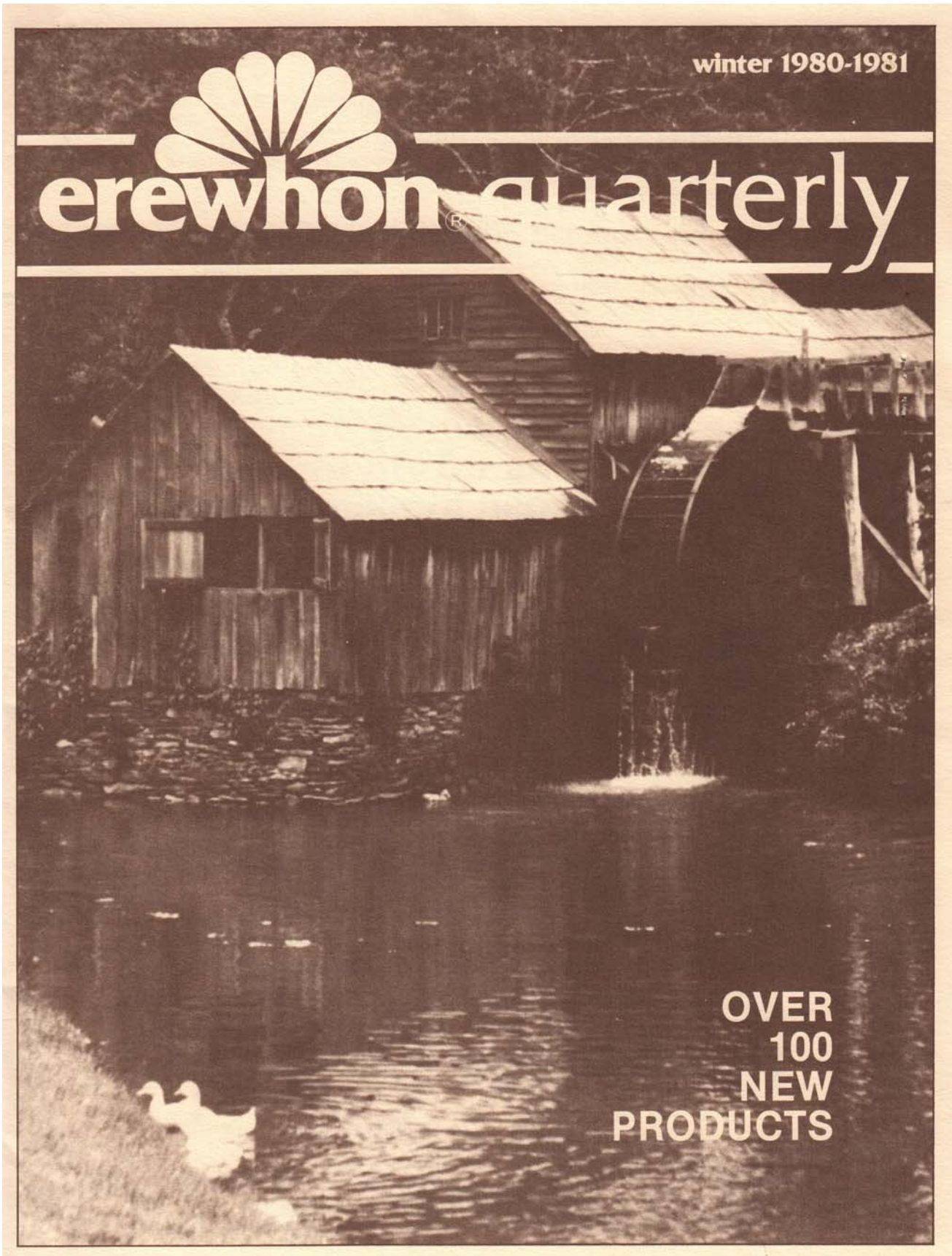
On the front cover is a brown and white photo of an old mill and mill pond. Address: 3 East Street, Cambridge, Massachusetts 02141. Phone: (617) 354-2001.

820. Esko, Edward; Esko, Wendy. 1980. Macrobiotic cooking for everyone. Tokyo: Japan Publications, Inc. 272 p. Nov. Foreword by William Tara, Director, Community Health Foundation, London, England. 26 cm. [50 ref]

• **Summary:** The authors studied in Japan (mostly Kyoto), from Sept. 1978 to May 1979, at which time they returned to Boston. In the summer of 1979 “more than 100 delegates from various regional centers throughout the United States and Canada met in Boston for the first North American Congress of Macrobiotics.” Part I of this book discusses the theory of macrobiotics and Part II gives recipes. Unfortunately, the book has no index, and the bibliography gives no years of publication. There are chapters on: Seitan, fu, and noodles (incl. soba), and Sea vegetables.

Soy-related recipes include: Brown rice and soybeans (p. 90). Miso soft rice (p. 96). Somen with deep-fried tofu (p. 118). Kenchin soup (with deep-fried tofu cubes and tamari, p. 130). Okara soup (p. 132). Miso soups (p. 137-143; 12 recipes are given plus a long letter from Jan Belleme, about how she and her husband, John, who arrived in Japan in late October 1979, are now living with the Onozaki family and studying miso-making there—p. 138-39). Sauteed cucumbers and miso (p. 154). Boiled cabbage, sweet corn, and tofu (p. 155). Udon-vegetable bane (with deep-fried tofu, p. 159). Steamed kale and tofu (p. 161). How to make sprouts (incl. soybean sprouts, p. 177).

Chapter 5 is titled “Bean dishes, including tofu and natto.” It states (p. 178-79, without citing the source) that “In China and Japan there is a proverb, ‘A man who eats too many beans becomes a fool.’... Lima beans and soybeans are both very yin, and require thorough chewing. They should be eaten only on occasion and in small quantities... Kombu can be placed on the bottom of the pot when cooking chickpeas, soybeans, lima beans or kidney, pinto and navy beans. I have found that kombu definitely improves their flavor, and because of its high mineral content, creates a very balanced dish.” To pressure cook soybeans so that they do not clog the steam escape valve, first boil them for 30 minutes. Skim



the foam off the top as it rises, and when no more foam rises to the surface you may place them in a pressure cooker and continue cooking until done. Recipes include: Japanese black beans (black soybeans). Soybeans with kombu and burdock. Soybeans with lotus root and salmon. Following a long discussion of tofu, Homemade tofu. Tofu with scallions. Tofu with bonito flake broth. Baked tofu with miso/lemon sauce. Broiled tofu. Tofu loaf. Steamed tofu rolls. Deep-fried tofu cakes. Aburage (Age or deep-fried tofu). Stuffed age pouches. Okara. Okara croquettes. Sautéed natto. Natto rice or noodles. Natto tempura. Dried natto.

Note 1 This is the earliest English-language document seen (April 2013) that uses the term “broiled tofu” to refer to grilled tofu.

Page 192: “Cooking with Sea Vegetables: For centuries, people around the world who lived near the salty oceans and seas have harvested kelp and other sea vegetables to use in their cooking. For instance, in America a number of the Indian tribes...

Hijiki with soybeans (p. 193). Hijiki and deep-fried tofu (p. 194). Tempuraed tofu-nori rolls (p. 198). Koi-koku (Carp miso soup, p. 220). Daikon and tamari. Scallion miso. Green peppers and miso (p. 224). Miso condiments (p. 226). Tamari. Moromi (p. 227). Rutabaga-tamari pickles (p. 233). Quick miso pickles (p. 234). Tofu tamari dressing (p. 236). Tofu-sesame dressing. Shiro-miso-tofu dressing. Miso dressing (p. 237). Tamari-lemon dressing. Tamari-rice vinegar dressing. Miso-tahini dressing (p. 238). Miso-rice vinegar dressing. Miso walnut dressing. Miso-tahini spread. Sesame miso spread. Miso-nut spread (p. 239). Lentil-miso spread. Lima bean miso spread (p. 240). Tofu dip (p. 243). Amazake (p. 247-48). Clear broth soup with tofu & scallions (p. 253). The glossary lists many soy products plus azuki beans, sea vegetables (many types), gluten, koji, kuzu, mochi, natto, nigari, okara, seitan, tekka, tempeh, umeboshi, unohana (okara), and yuba.

Macrobiotic periodicals include: *East West Journal* (Brookline, Massachusetts). *Kushi Institute Study Guide and Kushi Inst. Newsletter* (Brookline, MA). *The Order of the Universe* (East West Foundation, Brookline, MA). *The Macrobiotic Review* (East West Foundation, Baltimore, Maryland). *Spiral* (Community Health Foundation, London). *Le Compas* (Paris). Note: The date each periodical began publication is not given.

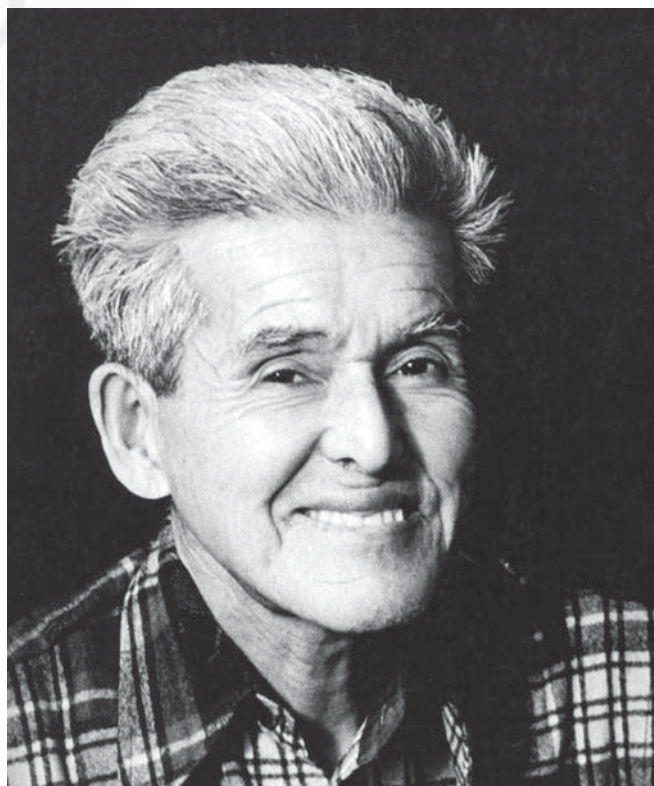
The lengthy section on seitan (p. 110-13) gives a detailed recipe for making seitan at home using the short method and 3½ lb hard spring wheat flour or hard red winter wheat flour. The broth is made with kombu and tamari. Seitan recipes include: Seitan stew. Seitan fried rice. Stuffed mushrooms (with sauce). Stuffed squash or Hokkaido pumpkin. Address: Boston, Massachusetts.

821. Aihara, Herman. 1980. Learning from salmon. Oroville, California: George Ohsawa Macrobiotic Foundation. xiii +

156 p. Illust. No index. 22 cm.

• **Summary:** This is a collection of Herman Aihara's writings, over the past 20 years, compiled by Sandy Rothman, editor of GOMF, with Carl Ferre as typesetter. Each article or essay is dated. Contains a good early history of macrobiotics in the USA, and of Chico-San (p. 26-35).

Contents: Dedication. Acknowledgments (Feb. 1980). Preface, by Sandy Rothman (April 1980). Introduction: Before Learning from Salmon, by Herman (Feb. 1980). Thanksgiving 1964 (Nov. 1964). America Was Defeated in Vietnam (because Vietnamese soldiers had the will to fight and persist, while American soldiers had no fighting spirit. Feb. 1973). Happy New Year 1974 (1 Jan. 1974). An Introduction to Spiritual Japan (Dec. 1973). The President's Greeting (March 1961, New York City; about Dogen). Macrobiotic Beginnings in the United States (Campfire lecture, French Meadows, July 1979). George Ohsawa Seventh Year Memorial Ceremony (“This is the seventh year since George Ohsawa left this world.” May 1972). Never Mind vs. No Matter (Feb. 1961). Macrobiotic Principles (From a summer camp lecture, July 1975). The Abuse of Memory (Sept. 1973). Forgiveness and Marriage (Aug. 1974). Macrobiotics and EST (Dec. 1974). East West Journal Interview (Dec. 1978). Honda (the car maker. Aug. 1978). Psychological Transmutation (June 1971). A New Life (July 1977). Friendship (Dec. 1975). Transmuting Dislike to Like (Dec. 1975). Maintenance of Karma (Feb. 1977). His daughter Marie has been plagued with psychological problems. He realizes this is due to his karma, and that



he must change himself). Lima-San (Lima Ohsawa. Sept. 1972. She radiated happiness. Ohsawa tried many times to divorce Lima but he failed. “In reality, they had difficulties and troubles between them all the time”). George Ohsawa Ninth Memorial Day Prayer (27 April 1975). Learning From Salmon (3 Sept. 1975. Like the salmon, George Ohsawa took the most adventurous trip near the end of his life). Why Do Salmon Go Upstream? I (March 1977. They use their sense of smell and imprinting). Why Do Salmon Go Upstream? II (May 1977). Chewing is to Return to God (May 1975). Eyes Lie Horizontally, Nose Lies Vertically (Eihei Dogen zenji. March 1973). Editorial (July 1968). Why Did Vietnam Win the War? (May 1973. A table shows per capita consumption of sugar {lbs.} in selected nations in 1961 and 1964. The four countries with the lowest consumption in 1964 are North Vietnam {2.20}, South Korea, North Korea, China. The four countries with the highest consumption in 1964 are Ireland {129.8 lb}, Denmark, England, and USA {101.20}). Japanese Alphabets and Brain Functions (Feb. 1974). Cutting Redwoods (on his property at Mirimichi. April 1972). Proper Food for Man (Grains are man’s principal food. Aug. 1968). Wu-Wei (from the *Tao Te Ching* by Lao Tsu. Aug. 1968). Yin and Yang (April 1980). Jitsu and So (July 1968). How Did Religion Start? (June 1971). Create Your Own Temple (Sept. 1975). The Art of Cooking (March 1977). Two Kinds of Memories (Dec. 1972). Giving My Books a Home (June 1978). Great Paradoxes in Man (July 1976). Message to the North American Macrobiotic Congress (Aug. 1979). Thanksgiving 1979 (Nov. 1979). The Author (Herman Aihara, p. 155-56).

“Herman Aihara was born [Nobuo Nishiyama] in Arita, a small town [in Saga Prefecture, near Nagasaki, Kyushu] in southern Japan, on September 28, 1920. The town is famous for its production of porcelains called *Imari-ware* or *Kakiemon-ware*. Imari is the name of the port from which Arita porcelains were shipped to Europe... His birth family was too poor to support ten children, and so at the age of nine Herman was adopted into his uncle’s home in Tokyo. His family name was changed to Aihara. He grew up without knowing his actual mother. He was told who she was when she died, and at that time he returned home to his native community... His ‘stepfather’ owned a factory that produced iron materials for the national railways and telephone companies, and Herman chose metallurgical engineering as a life work. He was accepted by the school of engineering at the reputable Waseda University.

“At this time he attended a lecture by George Ohsawa. Immediately he became more interested in the philosophy of yin and yang than metallurgy. As World War II began in 1942 he graduated with a bachelor’s degree from Waseda. Illness kept him from military service. When the war ended, he recovered and began to attend Ohsawa’s classes from time to time.”

He was fascinated by the philosophical part of Ohsawa’s

teaching (yin and yang) but showed little interest in the food, which was cooked by Ohsawa’s students. These meals consisted of brown rice, hijiki seaweed, carrots, burdock and red beans [azuki beans]. Herman was in college where his classmates laughed at him for his interest in yin and yang, which were considered old, obsolete ideas in Japan. His classmates were busy digesting 20th century Western science—on their way to becoming the future engineers of Sony, Toyota, Datsun, and Toshiba (p. 2).

During his first year in college, Herman was chosen for the crew of a rowboat race representing his class. He was the heaviest among the crew, so he was positioned as number one. He trained every day during the summer. In the hot weather he ate shaved ice with sugar syrup. His stomach cramped. Since he thought he understood macrobiotics, he ate salt to balance the yin of the ice and sugar. “What a silly mentality.”

After graduating from college, he began to cook for himself—but he became weak and skinny. His friend became worried, since he was “one of the most athletic students” (p. 4). But the real cause of his sickness was arrogance; he thought he understood macrobiotics but his practice was unwise. During World War II he worked at his father’s factory. When the war ended in 1945 he lived at home. Since food was very scarce in those days (they had to buy foods on the black market) he ate whatever his mother cooked—including white rice and sugar.

He started to learn social dancing in the newly opened dance halls. “Social dance was a new fashion after American forces occupied Japan. When people were starving to death just after the war, I was a playboy, chasing sexy girls at various dance halls.

“My father worried about my behavior and hurried my marriage. I married because my parents were agreed, but I myself was not much attracted to her. My wife committed suicide before our marriage passed one year. It was the end of autumn. She climbed a mountain alone, drank poison, and died without giving anyone her reasons.” Herman was shocked and depressed for a long time. He lost his mind for a month. “How pitiful a man I was. My wife could not rely on me” (p. 5).

Herman decided to become an independent man and he chose George Ohsawa as his life’s teacher and he asked Ohsawa if he could stay at his unique school. Ohsawa’s teaching was about how to understand and acquire infinite freedom, absolute justice, and eternal love. He inspired his students greatly, and told them it was their own fault if they were not happy. The food you eat is one of the most important factors that influences a person’s health and happiness.

Herman landed in San Francisco in 1952 at age 32 to start a new life. His wife was sick, and two of their babies died.

Before March of 1961 Ohsawa visited Europe and

saw many beautiful macrobiotic restaurants and clinics in Belgium, France, Italy, Germany, Switzerland, and England. The Lima factory in Belgium produces macrobiotic foods. Macrobiotic restaurants include *Au Riz Dore*, and *Longue Vie* (p. 24).

Like the salmon, Ohsawa took his most adventurous trip late in his life (p. 77).

He held his first American macrobiotic lectures in 1960 on Long Island, New York. They lasted for 2 months (p. 26). At that time Herman was manager of the first macrobiotic food store in the USA, in New York City [Named Ginza, it had been started by Herman in 1960.] In 1960 Herman went to Europe to solve visa problems, then in about late 1960 he returned to New York and started publication of *Macrobiotic News*, a magazine that contained mostly Ohsawa's lectures. In 1961 Ohsawa returned to New York for a summer camp at Watsboro in the Catskill Mountains. After the camp he said that followers of macrobiotics should leave New York because nuclear war was immanent. 36 people, including 15 families, decided to move to Chico, California, which they had calculated was the safest place from nuclear fallout. Arriving in Sept. 1961, they soon founded Chico-San, which was the first macrobiotic food production and distribution company in the USA. The first store was in the basement of a small shop. Herman began to import miso, tamari, and other traditional, natural foods from Japan (p. 31).

Some followers of macrobiotics stayed in New York to keep up the Ohsawa Foundation and food store. One customer got sick and died [Beth Ann Simon died in Nov. 1965]. The FDA came in and closed the store. Bob Kennedy became president of Chico-San and soon began America's first successful production of Rice Cakes.

Herman moved to San Francisco in about 1971 (p. 35). At the end of 1970, John Deming Jr. had given him some land in Mendocino. In Sept. 1972 a fire, started by a rice-cake machine, burned down the Chico-San factory (p. 34) and most of its inventories of food. Chico-San started making money in about 1978.

Western medicine is interested only in treating symptoms. Medical professionals are largely ignorant of the influence of diet on health, and even block the development of the dietary approach to healing. Address: Oroville, California.

822. Calkins, Fern; Register, U.D.; Sonnenberg, Lydia. 1980. *It's your world vegetarian cookbook*. Enlarged, 2nd ed. Washington, DC: Review and Herald Publishing Association. 304 p. Illust. Index. 24 cm. Sponsored by Dept. of Nutrition, School of Health, Loma Linda University, and Southern California Conference of Seventh Day Adventists.

• **Summary:** *It's Your World* is a television series hosted by Art Linkletter and sponsored by the Seventh-day Adventist Church in Glendale, California. The original edition was published in 1973. Contains a number of quotations on diet

and health by Ellen G. White.

Soy-related recipes include: Catalina cutlets (with cooked soybeans, p. 13). Florentine fritters (with soybeans, p. 18). Frontier fritters (with soybeans, p. 21). Saucy soy sizzlers (with soybeans, p. 23). Hawaiian chestnut balls (with tofu, p. 24). Tofuburgers (p. 24). Tasty tofu timbales (p. 25). Millet gourmet casserole (with soybeans, p. 34). Tender soya broccoli (with FriChik and Soyannaise, p. 40). Savory baked beans (p. 45). Baked soybeans Americana (p. 48). Beans 'n' apples (p. 50). Soybeans Hawaiian (p. 54). Mandarin garden soys (using Loma Linda Green Soybeans, p. 60). Celebrated red rice (with adzuki beans, p. 63). Oriental tofu (p. 69). Stir-fry vegetables with tofu. Luncheon tofu (p. 70). Tofu dippers (p. 71). Pepper-olive tofu (p. 78). Emperor's feast (with tofu, p. 78). Tofu "steak" (p. 79). Tofu scramble (p. 88). Quick 'n' easy tofu (p. 89). Crispy tofu sticks (p. 89). "Cheesy" spread (with tofu, p. 96). Soybean soup a la Creole (p. 106). Tokyo special (with tofu, p. 111). Tofu salad (p. 130). Tofu stuffing (p. 132). Garlic-dill dressing (with tofu, p. 145). Tofu sour crème topping (p. 151). Garden vegetable dip, or Confetti dip (with tofu, p. 152). Whole-wheat bread (with tofu, p. 174). Wabash fried mush (with soy beans and soy flour, p. 182). Tofu "jerky" (p. 200). Roasted soy smacks (dry-roasted, seasoned soynuts, p. 201).

Pages 42-43 contain a cooking guide for dry beans, peas, and lentils. Adzuki (or Chinese red) beans are included. Concerning soybeans: "It is better to soak soybeans longer than other beans—2 or 3 hours or overnight. Soaked beans in small quantities may be frozen in containers as a convenience. Thaw before cooking or drop frozen into boiling water. 2/3 teaspoon of salt is enough for each cup of dry soybeans, or use 1 tablespoon chicken-like seasoning and ¼ to ½ teaspoon salt. When pressure cooking 1 cup soybeans, use 2 cups water; 1 teaspoon of oil may be added to keep from foaming; at the end of cooking time cool immediately under cold running water. Soybeans have a more nutty flavor and are more tender when they are served immediately after cooking."

Many recipes also called for commercial branded soy-based products made mostly by Loma Linda Foods or Worthington Foods. Pages 273-75 give a list of "Vegetable Protein Alternates (Analog)." Those made by Loma Linda Foods or Worthington Foods are so marked. Details on tofu are given on pages 24, 69, 79, 275, and 298. Address: 1. B.A.; 2. PhD, RD, Chairman, Dep. of Nutrition; 3. M.A., R.D., Assoc. Prof., Dep. of Nutrition. All: School of Health, Loma Linda Univ., Loma Linda, California.

823. Chiba, I. 1980. [Differentiation and breeding of adzuki bean varieties]. *Ikushugaku Saikin no Shimo* (*Latest Advances in Breeding, Tokyo*) 21:59, 64. [8 ref. Jap]*

824. Jain, H.K.; Mehra, K.L. 1980. Evolution, adaptation, relationships, and uses of the species of *Vigna* cultivated in

India. In: R.J. Summerfield and A.H. Bunting, eds. 1980. *Advances in Legume Science*. Royal Botanic Gardens, Kew, Richmond, Surrey, England. xvi + 668 p. See p. 459-68. [36 ref]

• **Summary:** The 100-150 species of *Vigna* are found mainly in Africa and India. Six species are cultivated to varying extents in different parts of the Asian continent. *Vigna angularis* (Willd.) Ohwi & Ohashi [the azuki bean] is closely related to *V. umbellata*. “*Vigna angularis* differs from all other cultivated species of the genus; it occurs mainly in sub-temperate and temperate regions in Japan and Korea, and to a lesser extent in Manchuria and China. It is grown to some extent in the north-eastern region of India and has also been introduced to the southern United States, Latin America, and Zaire (see *The Wealth of India*, 1976)... *V. angularis* is a popular food in Japan and Korea even though it is relatively poor yielding compared to soyabean... The meal of *V. angularis* is used in Japan to make gruels and soups, or it is mixed with rice and used in various kinds of cakes and confections, sometimes in preference to soyabeans.” Address: 1. Indian Agricultural Research Inst.; 2. National Bureau of Plant Genetic Resources. Both: New Delhi, India.

825. Kasin, Miriam. 1980. *The age of enlightenment cookbook*. New York, NY: Arco Publishing, Inc. v + 342 p. Illust. Index. 25 cm. [1 ref]

• **Summary:** A vegetarian cookbook. The chapter on Basic Ingredients discusses dairy substitutes (incl. recipes for soy milk [made from whole soybeans or soy flour], coconut milk, nut milk {from blanched almonds or raw cashews}, and soy margarine [free of preservatives]), bean curd (as a substitute for panir), and soy flour. The chapter on beans (p. 129-37) has recipes for: Roasted soybeans. Aduki (azuki) beans. Stewed soybeans. Soyburgers. Soy loaf. Bean curd (tofu or dofu). Stir-fried or deep-fried bean curd. Scrambled bean curd.

Other soy-related recipes include: Soy mayonnaise (p. 170). Soyburgers or tofu sandwiches (p. 186). Soy spread or dip (with whole soybeans, p. 187). Soy noodles (with equal parts soy flour and unbleached white flour, p. 201). Noodles and bean curd (Japan, kitsune udon or domburi, p. 205).

826. Murata, M.; Shimomura, M.; Yamazaki, K. 1980. Properties of *kowameshi* (boiled glutinous rice): Effect of adzuki bean. *Kaseigaku Zasshi (J. of Home Economics)* 31(4):339-45. [7 ref. Jap; eng]* Address: Japan.

827. *Quadernos de Natura (Editorial Posada, Mexico)*. 1980. La alimentacion macrobiotica [The macrobiotic diet]. No. 10. 88 p. [10 ref. Spa]

• **Summary:** Includes information on miso, natto, tamari, tekka miso, and sea vegetables.

828. Raymond, Jennifer. 1980. *The best of Jenny's kitchen*. Mendocino, California: Mendocino Presbyterian Church. [x] + 180 p. Preface and Foreword by Lois Jean Raymond. Illust. Index. 22 cm. [9 ref]

• **Summary:** A vegetarian cookbook (comb-bound), printed with brown ink on tan paper. Contents: Nutrition—Nutrition: protein. Nutrition: carbohydrates. Nutrition: fats. Nutrition for pregnancy and lactation. Vegetarian diets for pets. Legumes and grains. Sweeteners. Salt and sodium.

Menu planning—Menu ideas. Seasonal eating. Growing sprouts (a table, p. 31, gives details on sprouts grown from aduki beans, alfalfa, chia, cress, lentils, wheat, rye, radish, and mung). “Mung bean sprouts are the typical bean sprout used in Chinese cooking.” Protein content of recipes.

The recipes—Breakfasts. Soups. Salads, spreads and sandwiches. Breads. Entrees. Desserts. Making the basics.

Sources, substitutes, and equivalents—Sources (books). Substitutes. Equivalents.

Soy related recipes: Tofu, scrambled (for breakfast, in place of eggs, p. 45). Tofu salad sandwich spread (p. 74). Soy paté (with cooked whole soybeans, as a sandwich spread, p. 76). Tofu cornbread (p. 82). Tofu burgers (p. 97). Soybean crockpot stew (p. 108). Tofu stuffed shells (p. 127). Tofu lasagne (p. 129). Tofu & vegetables (p. 142). Okara & coconut macaroons (p. 151). Okara tofu spice bars (p. 152). Making tofu at home (p. 163). Many recipes call for either “tamari soy” or “soy sauce.”

Publishing history: First published by Mendocino Presbyterian Church, Mendocino, California. 1980. Comb binding. Next published by SunRay Press. 1980.

Jennifer sold the rights to this self-published vegetarian cookbook to Avon Press, which published it in 1982 as *The Best of Jenny's Kitchen: Cooking Naturally with Vegetables* (180 p.). Address: Teacher of Vegetarian Cooking, College of the Redwoods, Mendocino Coast Branch, California.

829. Root, Waverley. 1980. *Food: An authoritative and visual history and dictionary of the foods of the world*. New York, NY: Simon & Schuster. 602 p. Illust. (some color). 28 cm. [547 ref]

• **Summary:** This interesting book, written in the author's unique witty and erudite style, presents facts and lore about fruits, vegetables, herbs, spices and food preparations (some exotic or rare, with emphasis on animal products) in alphabetical order. It contains more than 200 major entries, and many more very minor ones. Beautiful photos and illustrations are found throughout the book, making it an informal visual history of food in art. At the beginning of each letter of the alphabet are several quotations by writers whose surname begins with that letter. For example, at “F.” Horace Fletcher: “Nature will castigate those who don't masticate” At Benjamin Franklin: “Eat not to dullness. Drink not to elevation.” Although he cites no sources in the text, he has an extensive bibliography (“Works consulted”) at the end

of the book (p. 590-97).

Even though the author has at least half a page each about angelica, anise, bass, breadfruit, and camel, under “So...” he has only two lines about the soybean: The “most important bean of China, Manchuria, Japan and Malaysia.” From there he refers us to “Bean” where he expands the entry to 14 lines, noting: The soybean is the world’s most important bean—followed by the American haricot bean and the European broad bean. Though most Americans associate the soybean with China, the USA is actually the world’s largest producer. “If we are less conscious of them, it is because they are used in America as animal food more commonly than as human food, and also because a large proportion is shipped abroad...” the U.S. is the world’s leading exporter of soybeans; we now even export them to China.

There are separate, major entries for: Almond, Almond, bean (incl. azuki bean, liked by “health food faddists”), chick-pea, corn, cowpea, cotton, lentil, and olive. Also mentioned very briefly (1-3 lines): Amaranth, bambara pea, broad bean, chufa, goa bean [winged bean], gluten, hemp, hyacinth bean (lablab niger), jack bean, job’s tears, lima bean, lupine, mung bean, pigeon pea, quinoa, sunflower seeds, sword bean, rape or colza, velvet bean, yard-long bean (related to the cowpea), and sesame.

Waverley Lewis Root was born in 1903.

830. Strang, J. 1980. Voluntary register of grain legume cultivars in Australia: 5. Adzuki bean cv. Bloodwood. *J. of the Australian Institute of Agricultural Science* 46(4):264. *
• **Summary:** “The origin, morphology and agronomic characteristics of the adzuki bean [*Vigna angularis*] cv. Bloodwood are described. Bloodwood is similar to the determinate adzuki beans from N. Japan.” Address: Dep. of Agric., Sydney, N.S.W., Australia 2000.

831. Tsuji, Shizuo; Sutherland, Mary. 1980. Japanese cooking: A simple art. New York and Tokyo: Kodansha International. 518 p. Introduction by M.F.K. Fisher. Illust. (510 line drawings by Yoshito Suzuki. 16 color pages, mostly photos). Index. 27 cm.

• **Summary:** This is a beautiful and informative book by a great Japanese chef, though the awkward English terminology often sounds like “Japlish.” The illustrations are very nicely done, but the artist’s name does not appear in the book. Tsuji is the author of 29 books on gastronomy, travel, and music. His basic thesis is that “like Japanese and poetry, cooking is simply the result of an acute awareness of the seasons. Freshness and naturalness are the *sine qua non* of Japanese cuisine.”

This definitive treatise on Japanese cooking, the most complete and well-thought-out to date, is written by the head of the *Ecole Technique Hoteliere Tsuji*, the technical hotel school in Osaka, Japan. This is the “largest school training

professional chefs in Japan,” according to the publisher.

The excellent “Ingredients” section (p. 53-100) gives detailed descriptions (with Japanese characters) of: Azuki beans (p. 55). including red rice (*sekihan*) and “sweet red-bean paste” (*an*). Bean curd (*tôfu*, p. 56-61) incl. *momen* tofu (regular; “The type described here as ‘regular’ is known in Japan as *momen*—‘cotton’ tofu... ‘Cotton’ bean curd is the type most commonly used in Japan”), *kinu-goshi* (silk tofu), *yakidôfu* (lightly broiled or grilled bean curd), *atsu-age* or *nama-age* (thick cakes), *aburage* or *usu-age* (thin deep-fried tofu), *ganmodoki* (mixed tofu), *kôya-dôfu* or *kôri-dôfu* (“freeze-dried bean curd”), *yuba* (“soybean milk ‘skin’” [soybean milk skin]), *okara* (“bean curd pulp or ‘lees’”).

Note 1. This is the earliest English-language document seen (April 2013) that contains the term *atsu-age* or the term *usu-age* or the term “thin deep-fried tofu” (all regardless of hyphenation), all of which refer to types of Japanese of deep-fried tofu.

Miso (p. 76-77) incl. shiro-miso, Shinshû-miso, inaka-miso, Hatchô miso, akadashi miso. Soybeans and edamame. Soy sauce (*shôyu*, p. 90-93) incl. Natural Japanese soy sauce, synthetic soy sauce, Kikkoman, light soy sauce (*usukuchi shôyu*), tamari (“In Japanese cooking tamari is generally used as a dipping sauce or a base for basting sauce such as Yakitori Sauce”). “Dutch traders in Nagasaki in the seventeenth century exported soy sauce to Europe, and it was the secret seasoning served at the court banquets of Louis XIV of France” [sic]. Kuzu (p. 93-94). Wheat gluten (p. 98, 60).

Soy-related recipes include: Making soups (p. 151-56). Miso soup (*Miso-shiru*, p. 156-57). Ginger soy sauce (*Shôga-jôyu*, p. 172). Ponzu sauce (p. 172, with soy sauce and tamari). Mustard-vinegar miso sauce (*Karashi-su-miso*, p. 172-73). Dengaku, dengaku miso toppings, and bean curd dengaku (*Tôfu dengaku*) (p. 190-93). Teriyaki (p. 199-202, 370; the meaning in the United States is now different from the original meaning in Japan. Definition and history, homemade teriyaki sauce, teriyaki yellowtail, chicken teriyaki, steak teriyaki). Egg “tofu” (*Tamago-dôfu*, p. 216). Dressings for aemono (salads, p. 246, incl. white tofu dressing, white miso dressing, red miso dressing). Rice with miso soup and pickles (p. 270-71). Nori-roll sushi (*Nori-maki*, p. 300, with freeze-dried bean curd). Fox noodles (*Kitsune udon*, p. 312). Pickling vegetables (*Tsukemono*, p. 315, 318, with miso). Pureed corn soup (*Tômorokoshi surinagashi-jiru*, p. 347, with miso). Thunder soup (*Kaminari-jiru*, p. 349, with “1 cake *tôfu* (bean curd)” and “2-3 cakes thin deep-fried *tôfu* {*aburage* or *usage*}, cut into julienne strips). Potatoes simmered in miso (*Jaga-imo miso-ni*, p. 393). Radish with white miso sauce (*Furofuki daikon*, p. 394). Chinese cabbage and deep-fried tofu (*Age-dôfu hakusai-ni*, p. 398). Tortoiseshell tofu (*Tôfu bekkô-ni*, p. 398-99). Fried and simmered freeze-dried tofu (*Kôri-dôfu age-ni*, p. 399-400). Gold purses (*Fukuro*, p. 400,

JAPANESE COOKING A SIMPLE ART

Shizuo Tsuji

introduction by
M. F. K. Fisher



with thin deep-fried bean curd). Deep-fried tofu (*Agedashi-dôfu*, p. 412-13). Green beans with sesame-miso dressing (*Sandomame goma-miso ae*, p. 420). Savory okra (cold) (*Okura wasabi-joyu*, p. 420-21). Tangy white salad (*Shirazu-ae*, p. 421-22). “River Bank” oyster stew (*Kaki dote-nabe*, p. 433-34, with miso). Simmering tofu (*yudôfu*, p. 436-37). Mushroom rice (*Shiitake gohan*, with “1 cake thin deep-fried bean curd (*aburage* or *usage*),” p. 438-39). Soybeans in the pod (*Edamame*, p. 471-72).

Murasaki (p. 287): Japanese love *sushi* so much that they have developed a special aficionado’s vocabulary. “At a *sushi* restaurant, you do not ask for soy sauce as *shôyu*, but, rather, as ‘purple,’ or *murasaki*. Every shop has its own house sauce, made by reducing soy sauce or thicker *tamari* sauce over heat with *saké*, *mirin*, bonito flakes and so on.” Since the resulting sauce is darker than regular soy sauce, the name *murasaki* seems appropriate.

The recipe for Abe River mochi (Abe-kawa mochi) uses “1 cup kinako (roasted soybean flour)” as a major ingredient (p. 469).

Concerning azuki beans (red beans; characters small + bean) (p. 55): “This small, red bean is the legume you will most frequently encounter in Japanese cooking besides soybeans (*daizu*). It is used in the cooking of many countries, so it is stocked in most supermarkets throughout the United States. For some historical reason this bean is commonly spelled *adzuki*. This spelling is a Victorian romanization; phonetically, *azuki* is correct.

“These beans are steamed with glutinous rice on special occasions to make the festive red rice (*sekihan*; p. 280). They are more commonly boiled with sugar to make sweet red-bean paste (*an*), which forms the base of a large percentage of Japanese sweet confections (see p. 327). *An* is made in two textures: smooth puree (*koshi-an*) and ‘chunky,’ with beans partially crushed (*tsubushi-an*). If there is no time to make *an* from scratch, ready-made *an* is available canned and stocked in most Japanese food stores.”

Note 2. This is the earliest English-language document seen (March 2006) that uses the term “smooth puree” to refer to *koshi-an*, or the term “chunky” to refer to *tsubushi-an*. Address: Tsuji Professional Culinary Inst., Osaka, Japan.

832. Chico-San, Inc. 1981. Chico-San products: A catalog of unique natural foods. P.O. Box 1004, Chico, CA 95927. 28 p. Revised Jan. 1981.

• **Summary:** Contents: A message from the president, J. Robert Kennedy. Chico-San rice products: Rice Cakes (6 varieties; plain, millet, or buckwheat, each salted or unsalted), Carob Crunch (carob-coated rice cakes in plain or mint flavors), Golden Rice Nuggets, Yinnies candies (Taffy made from rice and barley; Caramel made from rice, barley, oat powder, raisins, almonds, sesame oil, coconut, rice bran, lecithin, natural vanilla, and agar agar).

Yinnies brand Rice Syrup (“A pure, natural sweetener

made from rice, water, and barley malt...”). “How Yinnies brand Rice Syrup is made: Chico-San’s process involves the conversion of the natural starches in the rice into complex sugars. Extended low temperature cooking allows the enzymes from the malted grains to create a fermentation which occurs in a liquid mash. After an optimum period of fermentation, the process is halted and liquid squeezed from the mash. This liquid is then vacuum cooked at low temperature, bringing the syrup to the proper consistency.” Yinnies brand rice syrup and refined sugar comparison. This rice syrup is high in maltose.

How Chico-San guarantees Oriental-type organically-grown brown rice (describes in detail how the rice is grown in California). Chico-San whole grains, seeds and beans (Incl. organically-grown brown rice, sweet brown rice, sesame seeds, black soybeans, and azuki beans). Chico-San condiments: Lima soy sauce, soybean puree (miso, in 3 types, mugi, kome, or hacho), barley koji, kuzu, malt vinegar malt vinegar, salt plums, nigari (for tofu making), sesame oil (light or dark), tekka. Chico-San imported seaweeds: Hijiki, kombu, wakame, nori, sea vegetable gelatin (*kanten*). Herb teas and other products. Chico-San cookbooks. Chico-San special recipes—including recipes for Sesame miso spread, Black soy beans, Azuki beans, and Wakame miso soup. Address: Chico, California.

833. Tajiri, Takashi. 1981. Mamerui moyashi no saibi to sendo hoji ni kansuru kenkyû. IV. Mamerui moyashi no saibaichû no ganyu seibun no shôchô to shûkaku tekiki [Studies on cultivation and keeping quality of bean sprouts. IV. Suitable harvest time relative to the changes in nutritional components during cultivation of bean sprouts]. *Nippon Shokuhin Kogyo Gakkaishi (J. of the Japanese Society for Food Science and Technology)* 28(2):79-84. Feb. [7 ref. Jap; eng]

• **Summary:** Soy, mung (*Vigna radiata*), and adzuki (*Vigna angularis*) bean sprouts were cultivated under optimum conditions. Vitamin C contents were at a maximum after 5 days in all 3 species, the majority of the vitamin being in the hypocotyl. Total protein and fat content fell rapidly in the 4-5 days after sprouting, but levels of both constituents were significantly higher in soy sprouts. The optimum sprouting time was concluded to be 4-5 days. Address: Lab. of Food Processing, Faculty of Agriculture, Kinki Univ., Kowakae, 3-4-1 Higashi-Osaka-shi, Osaka-fu, 577 Japan.

834. Nakaseko, K.; Gotoh, K. 1981. [Comparative studies on dry matter production, plant type and productivity in soybean, azuki bean and kidney bean. III. Dry matter production of soybean plant at various population densities]. *Nippon Sakumotsu Gakkai Kiji (Proceedings of the Crop Science Society of Japan)* 50(1):38-46. March. [16 ref. Jap; eng]*

835. Sperbeck, Jack. 1981. Adzuki beans: one specialty crop with an undeveloped market. *New Farm (The)* 3(3):48-49. March/April. *

836. Takeda, Kazuo; Shibaoka, H. 1981. Changes in microfibril arrangement on the inner surface of the epidermal cell walls in the epicotyl of azuki-bean (*Vigna angularis* Ohwi et Ohashi) during cell growth. *Planta (Berlin)* 151(4):385-92. [20 ref]

• **Summary:** "Throughout the entire period of cell growth, the microfibrils on the inner surface of the outer tangential walls of the epidermal cells of *Vigna angularis* epicotyls are running parallel to one another and their orientation differs from cell to cell. Although transverse, oblique and longitudinal microfibrils can be observed irrespective of cell age, the frequency distribution of microfibril orientation changes with age." Address: 1. Dep. of Biology, Faculty of Science, Tokyo Metropolitan Univ., Fukazawa, Setagaya-ku, 158, Tokyo, Japan.

837. Takeda, Kazuo; Shibaoka, H. 1981. Effects of gibberellin and colchicine on microfibril arrangement in epidermal cell walls of *Vigna angularis* Ohwi et Ohashi epicotyls. *Planta (Berlin)* 151(4):393-98. April. [13 ref]

• **Summary:** *Vigna angularis* is the azuki bean. "Gibberellic acid (GA3) treatment of azuki bean epicotyls resulted in alterations of the direction of newly deposited microfibrils, on the cell walls. Cells having transverse microfibrils on the inner surface of the wall were observed more frequently in GA3-treated epicotyls than in untreated or water-treated ones." Address: 1. Dep. of Biology, Faculty of Science, Tokyo Metropolitan Univ., Fukazawa, Setagaya-ku, 158, Tokyo, Japan.

838. Erewhon Mail Order. 1981. Erewhon. Natural foods mail order catalog. Brookline, Massachusetts. 16 p. May. Catalog and price list.

• **Summary:** See next page. This is a new mail order catalog, whose prices become effective on 1 May 1981. On the front cover is a woodblock print of a man with a sickle cutting sheaves of grain in a field. He is wearing a hat, and behind him on the ground is a wooden barrel. Erewhon is now located at 26 Washington St. in Brookline Village—also the home of Erewhon Mail Order. There are retail stores at 342 Newbury St. in Boston and 1731 Massachusetts Ave. in Cambridge. Address: 236 Washington Street, Brookline, Massachusetts 02146. Phone: 617-738-4516.

839. Ohnishi, Masao; Fujino, Y. 1981. Chemical composition of ceramide and cerebroside in azuki bean seeds: Note. *Agricultural and Biological Chemistry* 45(5):1283-84. May. [15 ref]

• **Summary:** "Few analyses concerning bean sphingolipid have so far been carried out." Address: Dep. of Agricultural

Chemistry, Obihiro Univ. of Agriculture and Veterinary Medicine, Obihiro 080, Japan.

840. Shurtleff, William. 1981. William Morse: The father of soybeans in America. *Soyfoods* No. 5. p. 56-60. Summer.

• **Summary:** The most detailed biography of William Morse (1884-1959) written to date. "America now occupies the enviable position of producing more soybeans than all other countries in the world combined, some 62 percent of the total output. And our country is increasingly the center of innovation in soyfoods research, development, and marketing. What caused this remarkably rapid transformation of the soybean from a virtually unknown Oriental curiosity as recently as 1910 to America's largest cash crop, export crop, and total acreage crop in 1979? Of course many factors have played their part; the vast and flat expanses of fertile Corn Belt cropland, a good climate, an efficient and mechanized farming system, to name but a few.

"But the soybean could never have started its rise to fame in America without the help and bold initiative of a small group of men, truly men of vision and courage, who saw possibilities when the rest of the country scoffed, and who were willing to work and persist for a cause in which they believed deeply. Foremost among these men was William J. Morse who, more than any other man, has made America the soybean center of the world. During a career spanning 42 years and with great singleness of purpose, he focused his entire life on popularizing soybeans and soyfoods in America. He wrote the first major book in English on soybeans, introduced some two thousand soybean varieties and strains from East Asia, including large-seeded vegetable-type soybeans, did extensive research on East Asian soyfoods and helped introduce them to America, and was a great source of inspiration to all who knew and worked with him.

"Early years (1884-1929): William Joseph Morse was born in Lowville, New York, on May 10, 1884, the son of John Baptist Morse, a butcher shop owner. He attended Lowville Academy, then in June 1907, received his Bachelor of Science in Agriculture degree from Cornell University. Two days later he went to work for the U.S. Department of Agriculture (USDA) in the Division of Forage Crops and Diseases, Bureau of Plant Industry just at the time the Bureau was planning to carry on research in the growing of soybeans.

"At the Bureau, Morse, then 24 years old, was assigned work under Dr. Charles Vancouver Piper, who was to have an immense influence on the rest of Morse's life. Born in 1867 and then 40 years old, Piper was head of the USDA's Office of Forage Crops. Often referred to by his colleagues as "The Prophet," Piper was the first man to see clearly the potential of the soybean in America. A dignified, handsome, and austere plant scientist with great talent and drive, Piper was at once a practical farmer, and a theorist, philosopher,



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and dreamer. He was looking for a way to attract attention to the soybean, which had laid dormant in America for over a century, and to give it the impetus for growth. When Piper met Morse, a shy, gangling, studious young man from New York state, fresh out of college but with great energy and the adaptability of youth, he knew he had found his man. Morse became Scientific Assistant in Forage Crop Investigation within the Bureau of Plant Industry, Washington, D.C., and was assigned to grow and test a dozen or so distinct varieties of soybeans at Arlington Experimental Farm, located across the Potomac River in Virginia (on land on which the Pentagon now stands). Although he didn't have much to start with, Morse took his assignment seriously. Soon he was even spending his evenings and weekends selecting and propagating his soybeans. Dr. Piper often joined Morse at his work.

"Young Morse was eager to share the fruits and discoveries of his work with farmers. As soon as he had several bagfuls of good soybeans, he would take them to the Carolinas by train. North Carolina was America's largest soybean-growing state at the time, but most of the beans were still grown for hay or forage. There he would go to a livery stable, rent a spring wagon and horses, and set out across the countryside. Whenever he saw a farmer in the fields planting corn or hay-type soybeans, he would tether his horses to a fence post, climb over the fence, and visit the farmer. If the farmer was interested, Morse would give him enough soybeans to plant a few rows to determine their productivity. That was the beginning of growing soybeans for beans rather than for hay or forage. As early as 1914 Morse made a journey through the southeastern U.S. to study the feasibility of cottonseed mills launching a soybean crushing industry. He found the time too early. He soon became head of the USDA Office of Soybean Investigations and was in charge of developing soybean varieties in the 12 midwest states and the southern states.

"Piper's first writing on soy was a 16-page article entitled 'Soy Beans,' published in 1909 with co-author H.T. Nielsen. The only mention of soybeans as foods stated that, 'Their flavor, however, does not commend them to Caucasian appetites and thus far they have found but small favor as food in either Europe or America.' Piper also noted that they had been tested as a forage crop at most of the state agricultural experiment stations in the southeastern U.S. In 1910 Piper and Morse coauthored 'The Soybean: History, Varieties, and Field Studies,' an 84-page booklet; it contains no mention of food uses. This was Morse's first publication on soy. In 1911 Piper went to India and, among other things, brought back to the U.S. 108 varieties of soybeans from different parts of the country. In 1914 Piper published 'The Name of the Soy Bean: A Chapter in its Botanical History,' in the *Journal of the American Society of Agronomy*. And in 1916 they coauthored 'The Soybean with Special Reference to its Utilization for Oil, Cake, and Other Products.' Other

of Morse's early writings included 'Harvesting Soybean Seed' (1917), 'The Soybean Industry in the United States' (1918), and 'The Soybean: Its Culture and Uses' (1918). In the latter article he wrote: 'Until 1916 the soy bean had been used but little in the U.S. for food and only as a special diet for persons requiring foods of a low starch content. Much interest has been shown in the last two years in the possibilities of the soy bean for food. The USDA and many schools of domestic cookery and science have conducted successful experiments using the dried beans in the manner of navy beans and green beans when three-fourths to full grown as a green vegetable [edamamé]. The variety and palatability of the forms in which the bean can be served make it a very desirable article of food, and undoubtedly it will grow in favor as it becomes better known. Soybean meal and flour may be used as a constituent of bread and muffins and in pastry. Soy oil is utilized to a very considerable extent in Europe and America for culinary purposes.' A definite change in attitude had taken place since Piper's first article nine years earlier. Throughout his career, Morse also wrote numerous articles on other crop plants including azuki beans, alfalfa seeds, hyacinth beans, cowpeas, velvet beans, mung beans, peanuts and hay. By far the most important fruit of Piper and Morse's joint writing efforts was their classic, *The Soybean*, published in 1923 by McGraw-Hill and reprinted (unrevised) in 1943 by Peter Smith Co., New York. This 329-page work contains a 40-page chapter with 26 photographs from East Asia on soybean products for human food, plus an additional 20 pages of Western-style soyfoods recipes (developed for Morse by the USDA Office of Home Economics in Washington, D.C.), and a most valuable bibliography containing 500 entries on all aspects of the soybean, including most of the earliest English-language research papers on soyfoods published before 1922." Continued. Address: Soyfoods Center, P.O. Box 234, Lafayette, California.

841. Corn Country Whole Foods, Inc. 1981. Market Street: Natural foods with a difference (Catalog). 132 South Market St., Champaign, IL 61820. 24 p. Index. 28 cm.

• **Summary:** This natural foods, vegetarian catalog is printed on beige paper with black ink. Corn Country is now distributing products made by many other companies. Interesting products: (1) Stoneground flours: Soy flour-full fat (OG = Organically Grown). Chickpea (garbanzo) flour. Our "old fashioned granite stone mills keep the flour at the lowest grind temperature..." Soybeans and chick peas are preheated before grinding. (2) Beans: Soybeans OG. Azuki beans. Chickpeas (Garbanzos). Lentils (green or red). Mung beans (for sprouting). (3) Peanut butter. Almond butter. Sesame tahini. (4) Sea vegetables (10 types). Westbrae miso (7 types). (5) Light Foods: Tofu. Marinated tofu. "Soyproducts are becoming an increasingly attractive source of protein throughout the world... We offer a small

variety of soy products.” (6) Condiments. Nigari (bulk or 5 lb). Umeboshi plums. Shoyu (pints to 4.75 gal tin). Miso (red or white). Tamari (with dispenser to quarts). (7) Market Street meals (vegetarian): Nutburger. Soyburger. Chick ‘n sea burger. (8) Nutritional (brewer’s) yeast (20 lb to 125 lb): “These yeasts are primary yeasts cultured on molasses for human consumption. They are not a byproduct of petroleum, or paper industries.” Sold in powder or flakes. (9) Natural oils: Sesame oil. Safflower oil. (10) Seeds. Alfalfa seed for sprouting. Sesame seeds whole brown. Sesame seeds hulled white. Sunflower seeds. (11) Market Street shoyu almonds, suns (sunflower), cashew pieces. (12) Soy & corn “nuts”: Soy nuts salted. Soy nuts plain. (13) Market street mixes (unsulfured fruits and natural nuts): Sweet & shoyu mix. (14) Literature: 26 Talking Foods pads. (15) Dr. Bronner’s soap (14 types). (16) Kitchen help: Tofu kit. Sprouter lids. Wok set. Address: Champaign, Illinois. Phone: 217-359-8843.

842. Kiyohara, Toshifumi; Yokota, K.; Masaki, Y.; Matsui, O.; Iwasaki, T.; Yoshikawa, N. 1981. The amino acid sequences of proteinase inhibitors I-A and I-A’ from adzuki beans. *J. of Biochemistry* 90(3):721-28. Sept. [20 ref]

• **Summary:** “Several proteins which strongly inhibit trypsin have been found in adzuki bean seeds. Two of them, designated as adzuki proteinase inhibitors (API) I-A and I-A’, were analyzed for their amino acid sequences by conventional methods.” Address: 1. Lab. of Biochemistry, Faculty of Agriculture, Kobe Univ., Nada-ku, Kobe, Hyogo 657 [Japan].

843. Nakaseko, K.; Gotoh, K. 1981. [Comparative studies on dry matter production, plant type and productivity in soybean, azuki bean and kidney bean. IV. Dry matter production of adsuki bean at various population densities]. *Nippon Sakumotsu Gakkai Kiji (Proceedings of the Crop Science Society of Japan)* 50(3):388-95. Sept. [10 ref. Jap; eng]*

844. Lima N.V. 1981. Lima natural foods pricelist. Lima Foods, Edgar Gevaertdreef 10, B-9830 Sint-Martens-Latem, Belgium. 12 p. Catalog. 30 cm. [Eng]

• **Summary:** Lima has been making organic, unrefined foods, without additives, for 20 years. Organic quality is guaranteed. Contents: Whole cereal grains. Stone-ground whole flours (incl. soya flour, 500 gm). Whole pulses (incl. soya, and azuki, each 500 gm). Coffee substitutes (incl. Yannoh with azuki, Dandelio [dandelion root], roasted barley, and chicory). Lima specialties (incl. Kokoh with azuki flour, Seitanpast [Vegetable spread with seitan]). Oriental specialties: Tamari-shoyu (from soya and wheat), Tamari, Hatcho miso, Barley miso, rice miso, instant miso soup (with dried vegetables), Kozou (kuzu), Mebosi (umeboshi), Tekka (natural seasoning with miso). Seaweeds. Unrefined oils. Sea salt. Vegetable protein products: Seitan

(vegetable protein concentrate, 150 gm jar), Seitan goulash (seitan with vegetables), Soya filtrate (soyamilk), Tofu (curdled soya filtrate). Concentrated soups (incl. azuki soup). Books (incl. 2 cookbooks by Anette Gevaert). Address: Lima Foods, Edgar Gevaertdreef 10, Sint-Martens-Latem 9830, Belgium.

845. Suzuki, Tsuguyoshi; Okazaki, M.; Kashiwazaki, H.; Moriyama, M.; Takemoto, T-I. 1981. Changing food consumption of Japanese immigrants in the lowland of Bolivia. *Ecology of Food and Nutrition* 11(2):103-16. Nov. [13 ref. Eng]

• **Summary:** During a 3-day period in July and August 1975, dietary records of 34 households of Japanese immigrants in the lowlands of Bolivia were analyzed for the amounts and types of food consumed. The colony of Japanese immigrants, *Colonia San Juan de Yapacaní*, was established in 1955 on the basis of a governmental agreement between Bolivia and Japan. From 1955 until 1974 a total of 297 households, including 1,649 individuals, immigrated into the colony; the majority came during the first ten years. Among the items consumed were soybean products (not including soy sauce; consumed by 79.4% of the households), *tsukudani* (small fish cooked in soy sauce), wakame, nori, and kombu (3 sea vegetables), *furikake* (a seasoning containing nori), and azuki beans. “Among legumes, soybeans occupied the top position even after excluding the consumption of soybean sauce. The usual preparation was miso (soybean paste fermented and salted) and tofu (soybean curd), raw or fried, which the colonists could buy from a tofu shop in the colony.”

Adzuki beans were boiled with glutinous rice and served at celebrations. “Immigrants procured the seed from Japan or Brazil and cultivated the beans.” Also served was *kintsuba* (a sweet adzuki bean cake). One of the most widely used seasonings was soybean sauce, used in 85.3% of the households. Address: 1. Dep. of Human Ecology, School of Health Sciences, The Univ. of Tokyo, Tokyo, Japan.

846. Burns, Ken. 1981. Re: George Ohsawa and a brief history of macrobiotics in America (Continued—Part II). Letter to William Shurtleff at Soyfoods Center, Dec. 9—in reply to inquiry. 7 p. Typed, with signature. [1 ref]

• **Summary:** Continued: “Michio Kushi, giving up a promising career in some area of international politics, arrived in New York in 1949. Still a little uncertain, and actually quite new to the macrobiotic way of life, himself, he did not immediately begin to teach the macrobiotic way of life on a full-time basis. Besides, his English wasn’t sufficient, and he had to work full-time to support himself. To do this he engaged in many types of work such as managing a department store, elevator operator, and other types of odd jobs. Also, at this time, he had some connection with Columbia University. (Whether as a student or as a teacher or both, I am not quite sure. Maybe, if this is

important, you could contact him, but I don't know if he would have the time to answer you.)

"In 1951, he was joined by Aveline (Tomoko) Kushi who had lived for a year and a half in Ohsawa's school 'Maison Ignoramus' near Tokyo. In 1961, instead of going to Chico as many other macrobiotic families did on the advice of George Ohsawa, they stayed in New York, not long afterward finding their way to Boston. Just how this happened I am a little uncertain. According to Peter Magnusson whom I have mentioned above, there was a certain fellow, whose name is probably forever lost, who was from this area and who convinced them that this was where they would have their greatest success. After all, the great ideological movements, the ones that had affected this country most profoundly, had come, mainly, out of New England.

"So, it was in 1963, I think, they arrived here, living successively in Cambridge, Wellesley, and Brookline. From this time dates the tradition of study house—always they had a full complement of 'students' with them—many of whom were withdrawing from psychedelic drugs and perfectly outrageous 'lifestyles.' They must have thought Americans were very strange people, indeed, (At least the ones they knew.) But if they didn't, their neighbors sure did. By some magic or sleight-of-hand, they always managed to end up in some rather elegant houses in some rather elegant neighborhoods. Thus, in one or more cases, they were asked by the authorities to move.

"But, sure enough, it was here in the Boston area that they had found a medium in which they could really function well. Not long after, regular lectures were started in the Arlington Street Church where we would troop dutifully and eagerly in under the watchful eyes of a bust of William Ellery Channing, one of the founders of American Unitarianism. In the beginning, there weren't many people present at these talks—maybe six, eight or ten. (And even in the spring of 1967 when my wife and I arrived after spending a year in Detroit knocking our heads against this strange thing called 'macrobiotics' there might be only twelve, fourteen or sixteen.)

"But the spirit of adventure and camaraderie was simply exquisite. And the lectures were tremendously exciting—one moment we would be on the outer rim of the Milky Way Galaxy, examining its structure, and the next moment we would be examining the spirals on our fingertips. People who were here when we got here and whose names you may have heard were Evan Root, Bill Gleason, and Paul Hawken (and by the way, I think Paul Hawken has a company out there in your area—maybe you can contact him). Also Joe Leis and Jim Gronemeyer whose whereabouts I don't know. Not long afterward came Bill Tara and Ron Kotzsch who are still active in macrobiotics. The Word was out and people were coming from everywhere.

"In 1965 Erewhon was started, also on a wing and a

prayer, right in the Kushi's home in Brookline. It moved in 1966, I think to a location on Newbury Street [April 1966 to 303-B Newbury St., below street level] where I used to see Mr. Kushi putting rice and aduki beans in little white paper bags. Evan Root and Paul Hawken originally managed the store [Evan first, then Paul Hawken more than a year later] and later on Bill Tara also had a hand in it. But it was definitely Paul Hawken who set his stamp on the store, and who had the most to do with it becoming what it eventually became—the largest handler of macrobiotic and natural foods in the country. At present there is a little difficulty there, but if you know the history of Erewhon, you cannot help but be convinced, as am I, that everything will come out all right.

"Also in 1965, certainly in 1966, Mr. Kushi began to travel around the country giving talks on macrobiotics as well as consultations. I wonder if his experience in other cities was anything like his experience in Detroit. It simply never dawned on us that he might need any money for traveling expenses, etc. I wouldn't be surprised if on a lot of these tours Michio Kushi didn't arrive back home with a lot less money than he started out with.

"But now I must get down to the gist, the 'nitty-gritty' of this story. There is something that is not explained here. The tremendous success of macrobiotics in this country is not really explained here. Of course some people will say that macrobiotics has not been a tremendous success. But I say it has. If you will look at its history from beginning to end, noting that it has never received any funding or any support from powerful organizations, that it has always operated on a wing and a prayer (I'll use that phrase again), then I think you can agree with me that its success has been miraculous.

"Well, one of the chief reasons for that is to be found in the behaviour of Mr. Kushi. Over the years he has literally given himself away, literally used himself up so many times over that you would swear there is simply nothing left to use up anymore. He has seen hundreds of thousands of people in formal consultations and as many more in informal consultations. And an awesomely large percentage of these consultations have been with crazy, sick, and desperate people anywhere and any time of the day or night. (And I ought to know, I was one of them.) I am not being overly sentimental here, nor am I stretching anything to make something seem true that isn't true. As a matter of fact, for various reasons I sometimes wish it weren't true, because for some people it has led to a 'cult of the personality' that limits their own development.

"To round out the list of macrobiotic developments that are more or less Boston based: The *East West Journal* commenced publication in January of 1971, its purpose being 'to explore the unity underlying apparently opposite values: Oriental and Occidental, traditional and modern, visionary and practical.' I think that's pretty well what it has done; and in the process it has helped more people to substantially change their lives than any publication I know of. Although

many dedicated and talented people have been involved with it over the years, the two people who have had the most to do with creating and directing the *East West Journal* have been Lennie Jacobs and Sherman Goldman.” Continued. Address: Boston, Massachusetts.

847. Ariga, Toshiaki; Asao, Y. 1981. Isolation, identification and organoleptic astringency of dimeric proanthocyanidins occurring in azuki beans. *Agricultural and Biological Chemistry* 45(12):2709-12. Dec. [12 ref]

• **Summary:** “Six kinds of dimeric procyanidins were isolated from azuki beans... The total content of dimeric procyanidins was assumed to be at least 0.011% in azuki beans. These compounds may contribute to the astringency of the bean and its products.” Address: Central Research Laboratories, Kikkoman Corporation, Noda-shi, Chiba 278, Japan.

848. Mitsuhashi-Kato, Miko; Shibaoka, H. 1981. Effects of actinomycin D and 2,4-dinitrophenol on the development of root primordia in azuki bean stem cuttings. *Plant and Cell Physiology (Tokyo)* 22(8):1431-36. Dec. [12 ref]

• **Summary:** “In the rooting of disbudded azuki bean stem cuttings, actinomycin D and 2,4- dinitrophenol (DNP) acted as auxin synergists. Although cuttings treated with actinomycin D or DNP alone formed almost the same number of roots as water-treated cuttings, cuttings treated with actinomycin D or DNP for 24 hr then with auxin for another 24 hr formed more roots than cuttings treated only with auxin during the second 24 hr.” Address: 1. Dep. of Botany, Faculty of Science, Univ. of Tokyo, Hongo, Bunkyo-ku, Tokyo 113, Japan.

849. Duke, James A. ed. 1981. Handbook of legumes of world economic importance. New York and London: Plenum Press. 345 p. See p. 83-90. 28 cm. [7 soy ref]

• **Summary:** Discusses for *Glycine max* and *Glycine wightii*: Introduction, folk medicine, chemistry, description of plant, germplasm, distribution, cultivation, harvesting, yields and economics, biotic factors (incl. plant protection). For *Glycine max*: Folk medicine: Old Chinese herbals suggest that the soybean was a specific remedy for the proper functioning of the bowels, heart, kidney, liver, and stomach. A decoction of the root is said to be astringent. The meal and flour are used to prepare diabetic foods due to the small amount of starch contained therein. Soybean diets are valued for acidosis. Soybean oil, with a high proportion of unsaturated fatty acid, is recommended to combat hypercholesterolemia. Commercial grades of natural lecithin, often derived from soybean, are reported to contain a potent vasodepressor. Medicinally lecithin is indicated as a lipotropic agent. Soybean is listed as a major starting material for stigmaterol, once known as an antistiffness factor. Sitosterol, also a soy by-product, has been used to replace diosgenin in some antihypertensive

drugs.

Also discusses the kudzu (*Pueraria lobata* (Willd.) Ohwi; p. 211-14), adzuki bean (*Vigna angularis* (Willd.) Ohwi & Ohashi; p. 288-93). Address: USDA, Beltsville, Maryland.

850. Duke, James A. ed. 1981. *Vigna angularis* (Willd.) Ohwi & Ohashi [Adzuki bean]. In: James A. Duke, ed. 1981. Handbook of Legumes of World Economic Importance. New York and London: Plenum Press. 345 p. See p. 288-93. 28 cm. [1 ref]

• **Summary:** “Family: Fabaceae

“Common Names: Adzuki bean, Adsuki bean

“Synonyms: *Azuki angularis* (Willd.) Ohwi

“*Dolichos angularis* Willd.

“*Phaseolus angularis* (Willd.) Wight

A photo shows the pods, leaves and flowers.

“Uses: Adzuki beans are grown mainly in the Orient, dried and used for human food, either cooked whole or made into a meal used in soups, cakes, or confections. Beans may be popped like corn, used as a coffee substitute, or candied by boiling in sugar (amanatto). Flour is also used for shampoos and to make facial creams. Adzuki bean meal is prepared by grinding dry beans and then removing seed coats with sieves. A more common wet process consists of 4 stages: (1) boiling beans until soft, usually after a presoaking; (2) crushing the cooked beans; (3) removing seed coats by forcing mass through sieves, or by putting bean paste in cold water, where seed coats are easily separated; and (4) drying bean paste. In Japan, fresh, undried bean paste is called *an*, and dried product *sarashian*. Sometimes seed coats are removed from the soaked and parboiled beans before they are crushed. On boiling, the red color of seed coats dissolves, necessitating a couple of changes of water, but the final bean meal is reddish. Crop grown for forage or green manure. Sprouted beans used as a vegetable.

“Folk Medicine: In traditional. Chinese view, everything is composed of 2 complementary and antagonistic qualities, yin and yang. Food is considered to have a bipolar nature, and any dietary item may be placed on the yin-yang continuum. Imbalance of the primeval forces yin and yang in the body is considered the cause of disease, which may be treated by administration of food or medicine containing a yin-yang balance appropriate to the ailment. Thus if one is suffering from a yin sickness (excessive yin), a yang remedy is indicated to restore harmony. Foods that are strongly yin and yang are used medicinally. The adsuki is considered the most yang of beans. Thus it is used to treat yin sickness such as ‘kidney trouble, constipation, boils, abscesses, certain tumors, threatened miscarriage, difficult labor, retained placenta, and nonsecretion of milk.’ The leaves (yin) are said to lower fever and the sprouts treat threatened abortion caused by injury (Sacks, 1977).”

Also discusses: Chemistry and nutritional content.

Description. Germplasm. Distribution: Probably native to India or Japan; long established in China and Sarawak; cultivated for centuries in Japan, Korea, China and Manchuria for human food. Has been introduced to Hawaii, United States,... Ecology. Cultivation. Harvesting. Yields and economics. Biotic factors. Reference (Sacks 1977). Address: USDA, Beltsville, Maryland.

851. Madlener, Judith Cooper. 1981. *The sea vegetable gelatin cookbook and field guide*. Santa Barbara, California: Woodbridge Press Publishing Co. 154 p. Illust. Index. 15 x 21 cm. [51* ref]

• **Summary:** This cookbook and field guide for foraging contains 200 gelatin recipes with no animal-based gels for gourmet, kosher, or vegetarian dining with a flair.

Soy-related recipes include: Cold tofu in lemon jelly (p. 80). Tofu chunks in aspic (p. 86). Cold tofu mousse (p. 87). Jellied Japanese tofu (p. 95; tofu is called “soybean cake”). Contains a good bibliography. Address: P.O. Box 5560, Elmwood Station, Berkeley, California 94705.

852. McCallum, Cass. 1981. *The real food guide*. Vol. 2: Pulses, grains and seeds. Glasgow, Scotland: The Molendinar Press. 196 p. Index. 20 cm.

• **Summary:** The section on “Anti-nutritional factors in pulses” discusses those found in many legumes (such as haemagglutinins, trypsin inhibitors, phytic acid, flatulence factors) and those of importance in specific legumes; for soybeans, only heat-resistant trypsin inhibitors are mentioned. The section on “Basic bean cookery” gives general guidelines and tips (never add salt until beans are cooked tender). A table (p. 54) shows that soybeans require the longest cooking time of any bean listed.

The section titled “A-Z pulses” gives details (incl. the scientific name) concerning many legumes listed alphabetically. Includes adzuki, kura mame [sic, kuro mame = black soybeans] (p. 65), and winged beans. By far the longest section is on soy beans (p. 71-82). Contents: Introduction. Nutritional values. Dried soy bean products: Soy grits, soy coffee, soy flour (full fat, medium fat, fat free), soy nuts, soy milk, soy yolk (a concentrated form of soy flour), textured vegetable protein, soy splits, tofu powder. Fermented soy bean products: Black beans—fermented, chao, chee-fan, chiang (Chinese miso), Hamanatto, ketjap, koji, meitauza, miso, mame miso, Hatcho miso, kome miso, mugi miso, natto, okara. Soy sauces: Introduction, Chinese soy sauce, ketjap, synthetic sauce, tamari. Sofu [sic, sufu], tahuri, tamari, tao-cho, taokoan or tao koan, taotjo or tao dji [sic, taotjo is Indonesian-style miso; tao dji are Indonesian fermented black soybeans], tempeh, tofu. Tofu from whole beans (homemade recipe). Tofu from powdered [soy] milk.

The part titled “Recipes” (p. 129-92) is divided into three sections. Soy-related recipes in each are listed here: (1) Soups and starters: Iced tofu (p. 134). Miso soup (p. 138).

Adzuki bean soup (p. 141). (2) Main dishes: Deep-fried tofu (p. 167). Szechuan bean curd (p. 168). (3) Bread, side dishes, sauces and desserts: Miso lemon sauce (p. 186). Miso ginger sauce (p. 187). Peanut butter (homemade recipe, p. 191).

The back cover states: “These books fight a war against junk food—and win.” The author is a woman.

Note: This is the earliest English-language document seen (April 2013) that uses the word “tao koan” (or “tao-koan”) to refer to tofu. Address: United Kingdom.

853. Shandler, Michael; Shandler, Nina. 1981. *The complete guide and cookbook for raising your child as a vegetarian*. New York, NY: Schocken Books. xiv + 337 p. Index. 24 cm. [65 ref]

• **Summary:** On p. 22 soybeans and rice are used to illustrate protein complementarity. Fats survival plan (p. 70-71): Describes how to make clarified butter (ghee); it is superior to other fats for frying purposes and is not subject to the same polymerization as vegetable oils. “Eggs do not constitute a cholesterol risk,” but “soy milk and tofu are... excellent high-protein substitutes for eggs if your children are allergic.” Good sources of protein during pregnancy include beans, grains, tofu, gluten, dairy products, and soy products. Use complementary proteins together. Tofu can be blended into creamy salad dressings.

“Homemade soy milk is deficient in vitamin B-12, vitamin D, and calcium. Commercial soy drinks for infants [infant formulas] are fortified with these and other nutrients but often contain sugar and other detrimental additives” (p. 110).

“After approximately 1 month of eating solid foods, a second series of foods can be introduced to your infant.” These may include puréed tofu or light miso soups (p. 116-17).

Soy-related recipes include: Whole wheat soy flakes (p. 206). Tamari broth with dumplings (and soy flour, p. 216). Nondairy cream of vegetable soup (with tofu, p. 216). Summer cucumber tofu soup (p. 218). Soyburgers (with whole soybeans, p. 222-23). Barbecued tofu sandwiches (p. 226). Tofu cheesie macaroni (p. 232). Tofu noodle casserole. Fried tofu over rice. Tomato tofu lo mien (p. 233-34). Tofu and rice seaweed rolls (p. 236). Pizza (with soy flour and gluten flour, p. 236-37). Creamed spinach with tofu (p. 254). Tamari-glazed “trees” (Broccoli, p. 255). Vegan dips (p. 264-65): Avocado tofu dip. Cucumber tofu dip. Nondairy dressings (p. 271-72): Tofu dressing. Nut and soy milks (p. 311-13): Fortified soy milk. Carob soy milk. Spiced soy milk. Almond milk. Cashew milk. Coconut milk. Tahini milk. Nondairy sandwich fillers (p. 320-21): Soy sandwich “meat” (with whole soybeans and tamari soy sauce). Tofu sandwich spread.

854. Stobart, Tom; Owen, Millie. 1981. *The cook’s encyclopedia: Ingredients and processes*. New York, NY:

Harper & Row, Publishers, Inc. xii + 547 p. Illust. 25 cm. [20 ref]

• **Summary:** Soy related entries include: Bean curd (incl. tofu). Bean-curd cheese [fermented tofu]. Bean paste and bean sauce (incl. Red bean paste) is sweet and made from adzuki beans. Yellow bean paste is made from soybeans and is salty and pungent. “Fermented salted black beans” is made from a black variety of soybeans; these salted black beans can be used to make “black bean sauce” which can be used as a flavoring in fish, lobster, chicken, and pork dishes.

Soybean (incl. soya bean, soja bean, flour {“pork soya links” used in Britain during World War II}, sprouts, soy oil, soy sauce, soymilk, vegetable yogurt [soy yogurt], vegetable cheese [soy cheese], tempeh, bean curd skin [yuba], miso, tamari, soy sauce, soy protein isolate, soy granules or grits, textured plant protein [textured soy protein]). The name in four European languages is given.

Soy sauce or shoyu (It “is said to be one of the ingredients of Worcestershire sauce.” Incl. the “very heavy Indonesian *ketjap* {*ketjap manis* or *ketjap benteng*}, which is a type of soy sauce,...”). The name in four European languages is given.

Textured plant protein (a high-protein foodstuff manufactured from plants (soybeans, peanuts, wheat, cottonseed, etc.). “Originally it was aimed at the vegetarian market.” Also called “textured vegetable protein” in the USA. Incl. textured soy flour, textured soy protein gel and fibers).

Worcestershire sauce: Begins with a history (starting in 1837) based on the fanciful story so widely known. “Thus was born what is probably the world’s best-known and most ubiquitous bottled sauce, one which has become a standard ingredient.” Note: How about soy sauce? “The exact formula is secret. Although it is much imitated, nobody seems to be able to get quite the taste of the original.”

Also contains entries for adzuki, ketchup (“Javanese *katjap* [ketjap], for example, is a very sweet soy sauce”), peanut (groundnut or monkey nut), pulses, seaweed, sesame seed, tahini.

Note: Millie Owen prepared the American edition of this book. Address: 1. Hassocks, Sussex, England; 2. Northfield, Vermont.

855. Yepson, Roger B. ed. 1981. Home food systems. Emmaus, Pennsylvania: Rodale Press, Inc. 475 p. Illust. Index. 29 cm. [15 ref]

• **Summary:** Extensive, positive information on soyfoods is contained in the chapters on Grains (and bread, see p. 35), Beans (p. 94-95, 99-115; tofu, tempeh), Sprouting (p. 120, 125, 127), Canning (p. 203), and The Home Dairy (p. 298; soymilk, soy yogurt). Reviews and photos of many soyfoods books are given, with a sample recipe from most.

Pages 298 notes: “Soymilk is low in riboflavin (vitamin B-2), totally lacking in vitamin B-12, and has drastically

less calcium than dairy milk. On the other hand, soymilk is lower in carbohydrates, has 12% fewer calories, 25% less fat, no cholesterol, and contains 15 times more iron than cow’s milk.” Address: Emmaus, Pennsylvania.

856. Yopp, J.H.; Mandava, N.B.; Thompson, M.J.; Sasse, J.M. 1981. Activity of brassinosteroid in selected bioassays in combination with chemicals known to synergize or retard responses to auxin and gibberellin Dwarf bean, sunflower, adzuki bean, mung bean. *Proceedings of the Plant Growth Regulation Society of America* 8:138-45. [18 ref]*

857. Young, Mala. 1981. Main dishes. Newton Abbot, Devon, England: David & Charles. 48 p. Illust. No index. 21 cm. Series: Health Food Cooking.

• **Summary:** Page 8 notes that miso and tamari, both fermented soya products, are useful ingredients—as are adzuki beans and seaweeds. Soy-related recipes include: Mixed bean and grain stew (with miso and tamari, p. 20). Soya beans and vegetables in miso sauce (p. 22-23). Adzuki pâté and salad (p. 24-25). Winter vegetable and miso pie (p. 38).

858. Nakaseko, K.; Gotoh, K. 1982. [Comparative studies on dry matter production, plant type and productivity in soybean, azuki bean and kidney bean. VI. Differences in the early vegetative growth in relation to seed weight and character of cotyledon]. *Nippon Sakumotsu Gakkai Kiji (Proceedings of the Crop Science Society of Japan)* 51(1):110-16. March. [14 ref. Jap; eng]*

859. Chico-San, Inc. 1982. Choice imported natural foods (Ad). *Bestways*. April. p. 65.

• **Summary:** A half-page black-and-white photo shows Lima Ohsawa, wearing a kimono and carrying a tray of Japanese foods, including Lima Soy Sauce. “Top quality natural foods and condiments are imported from Japan under the supervision of Mrs. Lima Ohsawa, Chico-San’s specialist in macrobiotic foods.”

Chico-San imports from Japan include Lima Soy Sauce,



soybean puree (miso), mineral-rich mercury-tested seaweeds, azuki beans, black soybeans, barley koji, kuzu, nigari, and tekka. “Soon, a companion for Lima Soy Sauce–Lima Tamari–Wheat Free–Whole soy beans–Rice & zestful–Naturally brewed in wooden casks for about 2 years.” Address: Chico, California 95926.

860. Bubel, Nancy. 1982. Adzuki: The quick-cooking dry bean. *Organic Gardening* 29(5):59-60. May.

• **Summary:** Describes how to grow, cook, and serve red adzuki beans. They need no presoaking; just boil them for about 30 minutes. They are delicious in soups and also make good sprouts. Address: South central Pennsylvania.

861. E.C. [Ellen Cohen]. 1982. Fresh green soybeans: Top of our crop. *Organic Gardening* 29:58-59. May.

• **Summary:** “Field and flavor trials at the Rodale Research Center in eastern Pennsylvania have turned up four super varieties of green soybeans. These soybeans performed outstandingly in garden plots at the center both in 1980 and in 1981. They were also favorites at the Rodale Test Kitchen, where they were served steamed like peas to 30 panelists.

“Our four top choices–Altona, Envy, Early Green Okuhara and Edible Soybean–competed with 35 others in the garden trials... These green soybeans mature early (68 to 83 days to the plump green stage), so you can put in cool-season crops after the soybean harvest...

“Their rich, buttery flavor is another great reason to grow green soybeans. Steaming the pods for a few minutes softens them and make shelling a real snap–the beans pop right out. Serve the round glossy, bright-green beans after steaming about 30 minutes. You can also freeze them. Just blanch for two minutes in boiling water, drain, rinse with cold water, and shell. Package for the freezer–and that’s all there is to it.

“Altona and Envy are available from Johnny’s Selected Seeds, Albion, Maine 04910. Early Green Okuhara is carried by Redwood City Seed Co., P.O. Box 361, Redwood City, California 94064. Burgess Seed & Plant Co., 905 Four Seasons Rd., Bloomington, Illinois 61701, carries Edible Soybean.”

Note: The article that follows this one is titled “Adzuki: The quick-cooking dry bean.”

862. Bo, Thi-an. 1982. Hishio to shōyu no engen to sono seisan gijutsu ni tsuite. I. [On the origins of chiang and shoyu, and their production technology. I.]. *Nippon Jozo Kyokai Zasshi (J. of the Society of Brewing, Japan)* 77(6):365-71. June. [9 ref. Jap; eng]

• **Summary:** This is one of the most interesting and carefully researched articles seen up to this time on this subject. The author (Ho Keian in Japanese), is a Chinese graduate of Iwate University in Japan. He sent this article to the university alumni association on the university’s 80th

anniversary. Shoyu has become a world-class seasoning. Even in Moscow they have built plants to produce soy sauce and chiang (miso).

The earliest chiang was made with meat, fish, and shellfish; later, as agriculture advanced, beans and grains were used. The two main types of chiang are (I) those made using flesh as a main ingredient and (II) those made solely from plants. The flesh chiangs can be further subdivided: IA. Those made from animal and bird flesh. IA1. Made without bones (mentioned in the Shih Ching [Classic of Food], the Chou Li [Rituals of the Chou Dynasty, 3rd century B.C.], the Li Chi [Book of Rites, 2nd to 3rd century B.C.], and the I Li); IA2., Made with a large amount of liquid (mentioned in the Chou Li and Li Chi); IA3. Made with flesh and bones (mentioned in the Chou Li, I Li, and Ch’i-min Yao-shu [Essential techniques for the peasantry of Ch’i, written by Chia Ssu-hsieh in A.D. 535]); IB. Made with fish or shellfish, including IB1. Fish chiang (mentioned in the Chou Li, Ch’i-min Yao-shu), and IB2. Fish intestine chiang (mentioned in the Ch’i-min Yao-shu). The non-flesh or vegetable chiangs (II) can be divided into: IIA. Those made with beans including IIA1. Chiang (mentioned in the Chou Li (3rd century B.C.), Lun Yu [Analects of Confucius, after 479 B.C.], Shih Chi [The Historical Record by Ssu-ma Ch’ien, ca. 90 B.C.], and Chi Chiu P’ien [48 to 33 B.C.]). IIA2. Bean (Soybean) chiang (tou-chiang, mentioned in the Ch’i-min Yao-shu). IIA3. Small (Red/Azuki) bean chiang (mentioned in the Nung Sang I Shih Chi Yao [+1314]). IIB. Chiang made from other vegetable materials including: IIB1. Wheat chiang (mentioned in the Shih Ching); IIB2. Wheat flour chiang (mentioned in the Pen-ts’ao Kang-mu [Compendium of Materia Medica, by Li Shih-chen, A.D. 1578-97] and the Chü Chia Pi Yung Shih Lei Ch’uan Chi [+1301]); IIB3. Coconut chiang (Mentioned in the Ch’i-min Yao-shu); IIB4. Barley chiang (mentioned in the Pen-ts’ao Kang-mu); and IIB5. Mustard chiang (mentioned in the Li Chi and Chih Ching).

It is interesting to note that the earliest meat and fish chiang was made with koji, typically millet koji. Koji is also used today to make some of the fish sauce called Shottsuru in Akita prefecture in Japan. Shottsuru has a 3,000 year history.

The use of the terms “hai” (meat chiang) and “chiang” in the Chou Li imply that some chiang was made from ingredients other than meat. An illustration from the Han dynasty shows a hole in the bottom of a chiang pot for drawing off soy sauce. The *Ssu Min Yüeh Ling* by Ts’ui Shih from the Later Han (25-220 A.D.) uses the term “ch’ang chiang” to refer to refined/filtered soy sauce. The *Ch’i-min Yao-shu* also uses two terms for refined chiang that seem to be referring to types of soy sauce. Thus it seems relatively sure that chiang has a history of about 3,000 years from the Chou dynasty (1122-256 B.C.) and soy sauce has a history of over 2,000 years since the Ch’in (221-206 B.C.) or Han (206 B.C.–A.D. 220). In the literature of the T’ang dynasty it is

not rare to use soy sauce for medicinal purposes.

Soy sauce came from *chiang*, which was made from soybeans and wheat flour or wheat; it is still widely produced today. But from *shih* (fermented black soybeans) came *tamari* and *kuan-tou* soy sauce (*kuan-tou* is a region in Fukien / Fujian in southeast China). Only soybeans were used to make these types of soy sauce. The first *tou-shih* (fermented black soybeans) was made from soybeans only, with *Aspergillus oryzae* mold. If salt was added, the product was called *hsien tou-shih*; if none was added, it was called *tan tou-shih*. Later they started to use *Mucor* (as in Szechuan *tou-shih*) or *Rhizopus* mold species. Today most *tou-shih* is made with *Aspergillus*. This is the ancestor of *tamari shoyu* and *kuan-tou* soy sauce. Address: Iwate Daigaku Nôgaku-bu, Sogaku 80 shunen no gosukuji ni kaete; Present address, China.

863. Chico-San, Inc. 1982. Mail order–Price list. P.O. Box 1004, Chico, CA 95927. 4 p. June. 28 cm.

• **Summary:** Products include: Rice Cakes (6 varieties, with 4 new ones coming soon); all in 3 different packages. Carob coated rice cakes in plain or mint flavors. Yinnies brand products: Taffy, Caramel, or Rice Syrup. Grains, beans, and seeds: Incl. Sweet brown rice, azuki beans, black [soy] beans (the latter two imported from Japan since 1962). Tea. Natural condiments from Japan (some imported since 1962): Lima soy sauce. Mugi (barley) miso. Kome (rice) miso. Rice malt vinegar. Tekka (soy plus). Nigari (for tofu making). Kuzu (wild arrowroot). Salt plums (umeboshi). Sesame oil (dark). Koji, barley. Seaweeds from the Orient: Wakame (curly dulse). Kombu. Hijiki. Kanten (gel). Nori. Household goods: Incl. The Yinnies Brand Rice Syrup Cookbook.

Introducing a new Chico-San Product: Tamari Soy Sauce. Address: Chico, California. Phone: 916-891-6271.

864. Tajiri, Takashi. 1982. [Improvement of bean sprouts cultivation by the application of artificial sunlight lamp]. *Nippon Shokuhin Kogyo Gakkaishi* (*J. of the Japanese Society for Food Science and Technology*) 29(6):359-65. [8 ref. Jap; eng]*

• **Summary:** The following beans were investigated: Soybeans, mungbeans, and adzuki beans.

865. Tajiri, Takashi. 1982. Jinkô taiyô tôshô-sha ni yoru mame-rui moyashi saibai no kairyô [Studies on cultivation and keeping quality of bean sprouts. VI. Improvement of bean sprouts cultivation by the application of artificial sunlight lamp (Studies on cultivation and keeping quality of bean sprouts. IV.)]. *Nippon Shokuhin Kogyo Gakkaishi* (*J. of the Japanese Society for Food Science and Technology*) 29(6):359-65. June. [8 ref. Jap; eng]

• **Summary:** Sprouts of soybeans, mung beans, and adzuki beans cultivated in dark chambers at 30°C were improved by application of artificial sunlight from a lamp at 2500

lux for 1 hours each day from 48 hours after planting. The sprouts were elongated and thickened, weight increase was accelerated, and vitamin C content was considerably increased. The cultivation period was shortened by 1-2 days. Both lower intensity light (500 lux) and higher intensity (5,000 and 10,000 lux) gave comparatively less favorable results. Address: Lab. of Food Process, Faculty of Agriculture, Kinki Univ., Kowakae, 3-4-1 Higashi-Osaka-shi, Osaka-fu, 577 Japan.

866. **Product Name:** [Traditional Tofu].

Foreign Name: Traditionelle Tofu.

Manufacturer's Name: Tofuhaus Belsen. Changed to Yamato Tofuhaus Sojaprodukte GmbH on 1 Jan. 1984.

Manufacturer's Address: Moessingerstr. 41, D-7406 Mössingen 2-Belsen, West Germany. Phone: 07071-71094 or 95.

Date of Introduction: 1982 July.

How Stored: Refrigerated.

New Product–Documentation: Interview with Bernd Drosihn of Soyastern. 1987. Nov. 30. They make about 3,500 kg/week of tofu. Letter from Harry Whitford of Soyastern. 1987. Dec. 14. They make 3,000 to 3,500 kg/week of organic calcium sulfate tofu. Address: Mössingerstr. 41, D-7406 Mössingen-Belsen, W. Germany. Letter from Klaus Gaiser. 1989. May 5. "In the year 1978 I had the chance to learn the basic principles of making tofu at Kamakura/Japan. The master there said that another 'hen-na gaijin' [Shurtleff] had spent the nights on the meadow opposite the house in order to take part in the early morning work making tofu. He even wrote a book about it and dedicated one copy to him (the master). It was your 'Book of Tofu' which I had the chance to study during my stay. It's about time to say thanks for this initial help on making tofu. By now, I am looking back on 7 years of running a Tofu-Ya. And if there is ever a chance, I would be pleased to meet you."

Die Geschäftsidee. 1989. Dec. p. 27-28. Klaus Gaiser (with photo and interview), a former student of Sinology and Japanology, started Yamato Tofuhaus in 1983 in Tuebingen, making about 150 kg/week. He learned to make tofu in Japan, where he lived for a year. He now makes 3,500 kg/week of tofu (up 35% during the past year) and is West Germany's most successful company.

Talk with Klaus Gaiser. 1990. March 12. This tofu is now sold in 250 gm and 400 gm packs. Note 1. Mössingen is in Baden-Wuerttemberg, a little south of Tuebingen.

Talk with Klaus Gaiser. 1990 May 8. The name of his first company was Tofuhaus Belsen, started as a "single man's company" in the village of Belsen near the small town of Mössingen. He started to make tofu commercially in the summer of 1982 (June or July). The company's main product was tofu (called Traditionelle Tofu, and coagulated with calcium sulfate), but it also made a lot of sprouts as a side business—from mung beans, azuki beans, lentils, and alfalfa

seeds. It changed into Yamato Tofuhaus GmbH on 1 Jan. 1984 at the same address. The company moved from Belsen to Hirschau near Tuebingen in March 1987.

Letter (fax) from Klaus Gaiser. 1990. May 5. The information from *Die Geschäftsidee* about his company starting in 1983 was incorrect. They also wrote that he stated with the money somebody else started with. He definitely started in the summer of 1982.

Note 2. This is the earliest record seen (May 2015) concerning Huegli.

867. Corn Country Whole Foods, Inc. 1982. Fall-winter 1982: New & improved (Catalog). 132 South Market St., Champaign, IL 61820. iv + 26 p. No index. 28 cm.

• **Summary:** The cover of this natural foods, vegetarian catalog is printed on orange paper with brown ink. Corn Country has increased the number of products it distributes, both those under its own Market Street brand and those made by many other companies. Corn Country trucks deliver throughout the Midwest: Freight is free with a minimum order of \$400. Product categories: Refrigerated products. Bulk foods. Packaged foods. Snacks. Other.

Interesting products: (1) Tofu: Packaged (\$0.82/lb) or bulk (\$80/lb). (2) Market Street bread: Cinnamon raisin and Whole wheat both contain “whole soy flour.” (3) Stoneground flours: Soy flour-full fat (OG = Organically Grown) (\$0.42/lb). Corn Country uses old fashioned granite stone mills to keep the temperature low, which “preserves the nutritional value and flavor of the whole grain... Whole soy flour is milled from soybeans which have been heated first to destroy an enzyme which interferes with protein digestion. It is milder tasting compared to the defatted soy flour typically sold commercially.” (4) Market Street granolas: Of the 7 varieties, 6 contain small amounts of “soy flour.” (5) Beans, peas, and lentils: Soybeans OG (\$0.28/lb). Azuki beans. Chickpeas (Garbanzos). Lentils (green or red). Mung beans. (6) Market Street meals (vegetarian): Nutburger (incl. soy flour). Soyburger (soy flour is main ingredient). (7) Sea vegetables (9 types). (8) Westbrae miso (6 types). (9) Market Street nut butters: Peanut butter (“coarsely ground to retard oil separation”). Almond butter. Sesame tahini. (10) Natural oils: Sesame oil. Safflower oil. (11) Condiments. Nigari (bulk or 5 lb). Umeboshi plums. Shoyu (pints to 4.75 gal tin). Tamari (with dispenser to quarts). (12) Seeds: Alfalfa seeds. Sesame seeds whole brown. Sesame seeds hulled white. Sunflower seeds. Pepitas. (13) Market Street snack nuts: Shoyu almonds. Shoyu suns (sunflower), Shoyu cashew pieces. (14) Soy & corn snacks: Soy nuts salted. Soy nuts unsalted. (15) Market street mixes (unsulfured dried fruits, nuts and seeds): Sweet & shoyu mix (ingreds: Raisins, date pieces, dried bananas, shoyu almonds, shoyu cashews, shoyu sunflower seeds). Flatland mix (incl. unsalted “soynuts” {soybeans, vegetable oil}, fancy cashew pieces, and pumpkin seeds). (16) Health and beauty aids: Dr.

Bronner soap (14 types). (17) Literature: 25 Talking Foods pads. (18) Traditional medicinal herb teas (27 types). (19) Celestial Seasonings teas (38 types); (20) Packaging supplies and kitchen help: Tofu kit (\$12.56). Address: Champaign, Illinois. Phone: 217-359-8843.

868. Hayakawa, I.; Breene, W.M. 1982. A study on the relationship between cooking properties of adzuki bean and storage conditions. *J. of the Faculty of Agriculture, Kyushu University, Fukuoka* 27(1/2):83-88. [8 ref. Eng]* Address: Dep. of Agronomy and Plant Genetics, Univ. of Minnesota, St. Paul, MN 55108.

869. Aihara, Cornelia. 1982. Macrobiotic kitchen: Key to good health. Tokyo: Japan Publications, Inc. 140 p. Illust. Index. 26 cm.

• **Summary:** This book was originally published under the title *The Chico-San Cookbook* (1972). This completely revised and enlarged edition was published in Nov. 1982. Address: Chico, California.

870. Oak Feed. 1982. Catalog and price list. Coconut Grove, Florida. 1 p. Back to back. 36 cm.

• **Summary:** At top of page 1: “Your Japanese connection: Importers and wholesale distributors of macrobiotic foods. Lowest wholesale prices available. Abbreviations: E = Erewhon. M = Mitoku. W = Westbrae. * = New product. Contents: Miso and tamari. Sea vegetables. Tea. Noodles. Condiments. Vinegars, pickles & mirin. Beans. Crackers. Miscellaneous foods. Kitchen utensils. Body care products. Medicinal products.

Miso and tamari: Onozaki miso (11 lb or 44 lb). Tamari-filled dispenser (W). Organic shoyu (Lima Ohsawa). Authentic tamari (4.75 gal. or dispenser). Hatcho miso (M). Soybean mame miso (M). Mugi (barley) miso (unpasteurized). Mugi miso (W). Genmai (brown rice) miso (W). Genmai (brown rice) miso (unpasteurized, 44 lb). Organic brown rice miso (unpasteurized, 22 lb). Kome (white rice) miso (W). Instant miso soup (light or red, M). Soba (buckwheat) miso (M). Natto miso (22 lb or 2.2 lb).

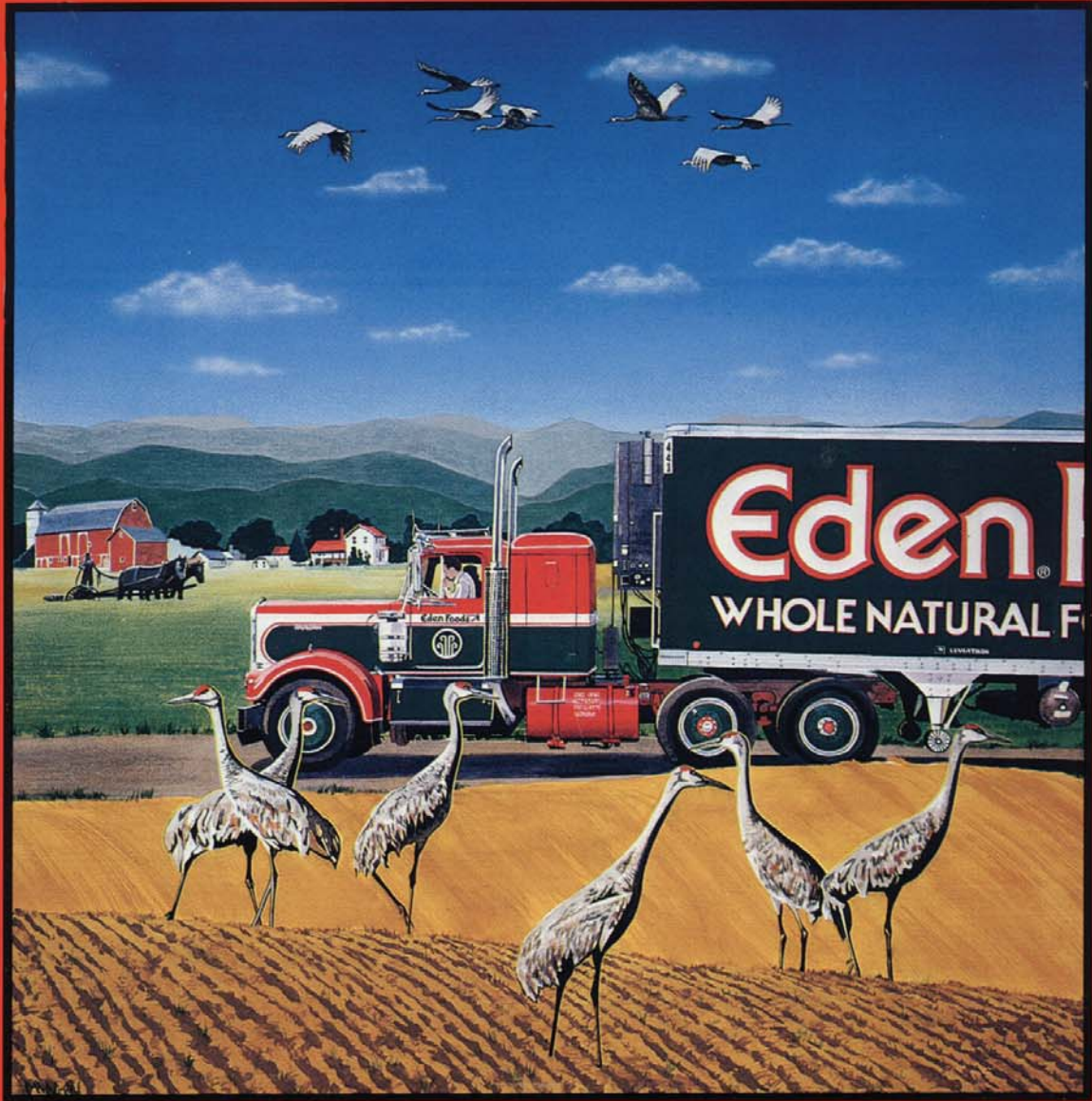
Condiments: Goma muso. Goma muso furikake (M). Tekka. Jinenjo tekka (M). Seitan condiment. Umeboshi. Roasted sesame oil. Black sesame salt. Black tahini.

Also: Barley miso pickles. Adzuki beans [azuki]. Black soybeans. Kuzu. Address: 3030 Grand Ave., Coconut Grove, Florida 31333. Phone: (305) 448-7595.

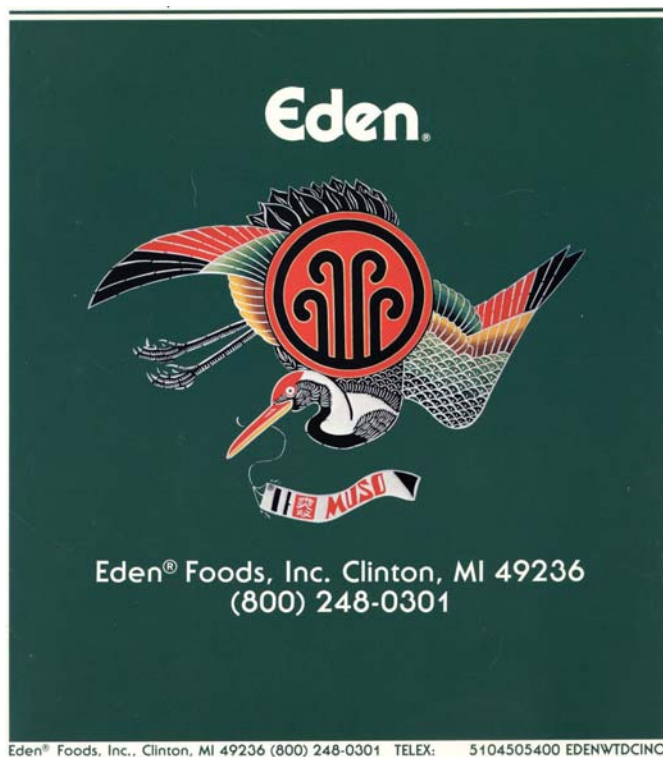
871. Eden Foods, Inc. 1982. Catalog 1983. 701 Tecumseh Rd., Clinton, MI 49236. 70 p.

• **Summary:** “Founded in July 1967, Eden Foods began as a small retail outlet of macrobiotic foods in Ann Arbor, Michigan.”

Contents: Organic certificate. History. Terms and policies. Whole grains. Beans. Flour. Pasta. Cereals and



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granolas. Packaged dinners & beans. Mixes. Oils—unrefined. Vinegars. Shoyu-tamari. Miso. Seaweed. Oriental vegetables & special foods. Ume plum products. Nuts & seeds. Snacks & dry roasted nuts, Nut & seed butters. Fruit jams. Apple butter & sauce. Dried fruit. Juices & drinks (incl. Edensoy natural soy milk). Sweeteners. Condiments. Sauces. Pickles. Baking & cooking. Crackers & chips. Rice cakes. Tea. Candies. Cheese. Herbs & ginseng. Body care. Vitamins & supplements. Cooking utensils. Books. Recipes. Advertisers (in alphabetical order): Arrowhead Mills. Barbara's Bakery, Inc. Chico-San Inc. Eden Foods, Inc. Edward & Sons. Honey Pure Corporation. Owls Head Mountain Bakery. Rosewood Farms. Timber Crest Farms. Vicco. Weleda. Wizard Baldour (Linden's Elf Works; Hot Stuff). Address: Clinton, Michigan. Phone: 1-800-248-0301.

872. **Product Name:** [Marusan Soy and Azuki Milk].

Manufacturer's Name: Okazaki Marusan K.K. (Marusan-Ai Co., Ltd.).

Manufacturer's Address: 1 Aza Arashita, Niki-cho, Okazaki-shi, Aichi-ken 444-21 Japan.

Date of Introduction: 1982.

How Stored: Shelf stable; refrigerate after opening.

New Product–Documentation: Talk with Ron Roller of American Soy Products. 1992. Feb. 26. One interesting product is a soy & azuki milk, which Marusan launched in about 1982; Ron is not sure if it is still on the market.

873. Adachi, Iwao. 1982. *Nihon shokumotsu bunka no kigen* [Origins of Japanese food culture]. Tokyo: Jiyu Kokuminsha.

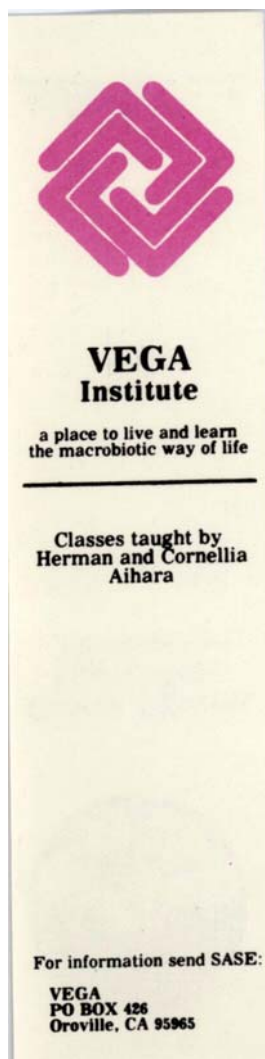
470 p. See p. 69-70, 113. [Jap; eng+]

• **Summary:** Kinako (Yayoi period): Also called “mametsuki” in Japanese, kinako is written with characters that mean “yellow soy flour.” In the *Wamyosho*, it is called “Daizu-iri” or “Mametsuki.” From these expressions we can learn that since ancient times, people have pounded soybeans in a mortar (*usu*). Stone mortars came to Japan during the Nara period (A.D. 710-784) and finally became popular among the people in about the middle of the Edo/Tokugawa period. Kinako was brought to Japan from China through Korea. Kinako is probably mentioned in the *Engi Shiki*. At a certain festival the people served at the altar 5 measures each of magarimochiki and mametsuki, and 10 measures of daizumochiki. These may have been the early names for kinako-mochi and/or azuki mochi.

Tamari: The original form of shoyu was tamari. The by-product of tamari was miso. And the original form of miso was *kuki* [fermented black soybeans], which was a seasoning developed in China. More on the history of *kuki* is given under “miso.” The government office (*yakusho*) for miso was built at the imperial court (*kyutei*) in A.D. 701 (Taiho 1). Therefore tamari started there at the same time. In the book *Yamato Honso* (Japanese materia medica) by Ekiken Kaibara, tamari (written with the characters for bean + oil) was mentioned. But on the sign board (*kanban*) of Yuasa Shoyu (which was started in the Tenshō period, 1573-1592), Tamari Shoyu was written (and “tamari” was written with the single character for “tamaru”). In the *Vocabulary of the language of Japan* (1603; Nippo Jisho) tamari was defined in Portuguese: “Tamari, a very delicious liquid taken from miso which can be used as a seasoning when cooking foods.” Furthermore, in the *Oshufushi* (1684) it is written that “The liquid from shoyu is tamari.” During the Middle Ages (*chūsei*) in Japan, shoyu was written with the characters for bean + oil, but during the Tenshō period (1573-1592) it came to be written with the single character for “tamaru.” Tamari and shoyu were first distinguished during the Kyōhō period (1716-1735). In the Chubu region of central Japan (Chūbu-Chiho; Toyama, Ishikawa, Fukui, Yamanashi, Nagano, Gifu, Shizuoka, and Aichi prefectures) one special kind of miso, which is a by-product of shoyu, is called “tamari-miso.”

874. Aihara, Cornelia. 1982. *The dô of cooking: Complete macrobiotic cooking for the seasons*. Oroville, California: GOMF Press (George Ohsawa Macrobiotic Foundation). 230 p. Illust. by Carl Campbell. Index. 28 cm.

• **Summary:** This is a compendium of four seasonal cookbooks, each with the title *The Dô of Cooking (Ryorido)*, first published individually in 1971. Contents: Preface. Introduction. Selecting good foods. The secret of cooking. Spring. Summer. Autumn. Winter. Glossary. Cutting styles. Topical index (within each major food category {grains, grains with vegetables, seaweeds, beans and tofu, etc.}, recipes are listed alphabetically). Recipe index (of all



recipes).

Contains many recipes calling for: Miso, natto, tofu (regular, deep-fried, and frozen). Also: Amazake, azuki beans, kuzu, mochi, sea vegetables, seitan (wheat gluten), sesame seeds and gomashio.

Near the front of the book is a biographical sketch and photo of Cornellia Aihara. She was born in 1926 in Fukushima, Northern Japan. She learned macrobiotics from George Ohsawa when he came to her town (Aizuwakamatsu) for lectures; this changed her life. While in school, she began corresponding with Herman Aihara, who was living in New York. In 1955 he invited her to New York. Although they had never met, she trusted him and went to America with only ten dollars in her pocket. They were married soon after her arrival in New York. There they engaged in retail business. When Mr. and Mrs. Ohsawa came to the USA from Europe, Cornellia studied macrobiotic cooking by helping Mrs. Lima Ohsawa at the first macrobiotic summer camps on Long Island in 1960; in the Catskill Mountains in 1961; at the University of California at Chico in 1963; and at the



Big Sur Camp in 1964. Since 1961 Cornellia has devoted her life to the teaching of macrobiotic cooking, childcare, home remedies, and philosophy. Since 1965 Cornellia and Herman Aihara have organized fourteen macrobiotic summer camps in California; her cooking has been the biggest attraction.

On the cover is a large color photo of freshly prepared food, including slices of deep-fried tofu. Address: 902 14th St., Oroville, California 95965.

875. Aykroyd, Wallace R.; Doughty, Joyce. 1982. Legumes in human nutrition. 2nd ed. Revised by Joyce Doughty and Ann Walker. Rome, Italy: Food and Agriculture Organization of the United Nations (FAO). viii + 152 p. Illust. 28 cm. The original edition was 1964. [293* ref. Eng]

• **Summary:** Contents: Preface. Introduction. History of legumes. Production and consumption. Composition and nutritive value. Methods of processing and cooking. Effects of processing on nutritive value. Toxic substances. Legume proteins. Observations on the value of legumes in human feeding. The place of legumes in human diets. Appendixes. References.

On pages 49-51 are sub-sections on: Traditional fermented soybean products (methods of home preparation are detailed in Appendix 5, p. 120-22): Soy sauce (shoyu), soy paste (miso), tempeh, natto, Hammanatto. Protein separation and other extraction techniques. Soy-milk. Soybean curd (tofu). Modern products from soybeans. Soy flour and grits. Soy protein concentrates. Isolated soy protein.

Under tofu (p. 50): "The curd may also be fermented to make soy-cheeses, which resemble the more highly flavoured European cheeses. These are known in China as *chou tofu*,

which means stinking bean curd.” See also p. 120, where yuba is mentioned.

Note: This 1982 edition was made by revising the original 1964 edition. Ann Walker is from the Dep. of Food Science, University of Reading. Dr. Wallace Aykroyd died in Feb. 1979 just as he was taking the first steps toward this revision. Address: 1. Dep. of Human Nutrition, London School of Hygiene and Tropical Medicine; Former Director, Nutrition Div., FAO, Rome, Italy.

876. Grain legumes production in Asia. 1982. Tokyo: Asian Productivity Organization. i + 550 p. Illust. No index. 22 cm. [10+ ref]

• **Summary:** This book is based on a symposium held in Chiang Mai, Thailand in November, 1980.

Section V, “Country reports on the status of grain legumes production,” includes the following chapters:

12. China, Republic of [Taiwan], by Chih-Kang Chao.

13. India, by Tejwant Bolaria.

14. Indonesia, by Justika S. Raharsjah.

15. Japan, by Y. Tanaka and S. Konno.

16. Korea, Republic of [South Korea], by Young-Hyun Hwang. Contents: Introduction (Soybean is by far the leading grain legume in South Korea, followed by azuki bean). Trends in demand and supply of grain legumes: Demand-supply situation, production and productivity. Agronomic aspects of grain legume farming. Economic aspects of grain legume production. Government participation and support. Prospects of grain legumes production.

Tables for Korea: (1) Per calorie intake per day of calories and protein from food and grain sources, 1968-1977. (2) Comparative protein content and prices of major food items (Soybean is by far the least expensive source of protein, and beef is by far the most expensive). (3) Food demand and supply trends for soybeans, 1971-1980 (Supply: Production grew from 232,000 metric tons (mt) in 1971 to a peak of 319,000 mt in 1975 and 1978, then fell to 257,000 mt in 1980. Imports rose dramatically from 61,000 mt in 1971 to 576,000 mt in 1980. Demand grew rapidly: For animal feeds grew by far the fastest, from 27,000 mt in 1971 to 449 mt in 1980. For food use stayed constant, from 143,000 mt in 1971 to 140,000 mt in 1980). Source: KMAF (Korean Ministry of Agriculture and Fisheries).

(4) Distribution of area planted to major food crops, 1969-1978. (5) Area planted, production and yield of grain legumes (In 1978, azuki bean production was only 9.2% of soybean production). (6) Distribution of grain legume production areas, 1978 (Gyeongbug-do is the leading South Korean province for soybean production). (7) Characteristics of major grain legume varieties. (8) Recommended fertilizer and herbicide doses for major grain legumes. (9) Costs and returns of soybean crop, 1979. (10) Comparative costs and returns of major grain legumes and competing crops, 1979. (11) Commercialization ratios of soybean, azuki bean and

mungbean, 1970-1975. (12) Comparative farmgate and wholesale prices for major grain legumes. (13) Wholesale price indices, by month, for major grain legumes. (14) Long-term plan for increasing soybean area, yield and production, 1981-1986.

Figures for Korea: (1) Marketing channels for soybean. (2) Marketing channels for azuki bean. (3) Marketing channels for mungbean [sprouts]. (4) Marketing channels for groundnut. (5) Flow chart of grain legumes research and extension service [under the Korean Office of Rural Development].

17. Nepal, by M.P. Bhartai.

18. Pakistan, by M. Mumtaz Ali.

19. Philippines, by Federico B. Ballon.

20. Sri Lanka, by A.S. Kunasingham. Address: Tokyo, Japan.

877. Hatai, A. 1982. [Influences of storage temperatures on characteristics of adzuki beans]. *Kaseigaku Zasshi (J. of Home Economics)* 33(11):579-84. [8 ref. Jap; eng]* Address: Japan.

878. Horsley, Janet. 1982. Bean cuisine. Stable Court, England: Prism Press. 89 p. Revised ed. 1993. Illust. (by Andrew Pomeroy). Index. 20 cm. General index. Recipe index. U.S. edition published in 1989 by Avery Publishing Group (Garden City, New York).

• **Summary:** Page 16 shows 2 illustrations of a soya bean.

Pages 20-23. In the section titled “The A-Z of beans” is description of each kind of bean, with the longest reserved for “Soya Bean.” which “has been a staple food in the Far East for over 5,000 years, and it is even referred to as ‘the meat of the soil. It is the most nutritious of all beans, having a protein content equal in quality to that of animal protein foods.’” This section also contains descriptions of soya sauce, soya paste or miso, bean curd or tofu (“sold in Chinese delicatessens and some wholefood shops”). Then comes a 6-line “Recipe for home-made tofu,” and additional brief descriptions of soya milk and finally a 5-line “Recipe for home-made soya milk.”

Page 29: The subsection on “Types of bean sprouts” has a 3-column table—type, average length after 5 days, comments. The types of beans are mung beans, aduki beans, green lentils, chick peas, and soya beans, which are 1-1½ inches long after 5 days. Comments: “The hardness of the bean makes it difficult to sprout. Best to soak initially for 24 hours.

Pages 34-35: “Cooking times” gives both simmering times and pressure cooking times for 20 types of beans. The soaking time for each type for simmering is overnight, except for soya beans which is 24 hours—followed by 3-3½ hours of simmering. The soaking time for each type for pressure cooking at 15 psi pressure is 6 hours for all types except soya beans which is 24 hours, followed by 25-30

minutes of pressure cooking.

The rest of the book is recipes: Tofu spreads: Tofu nut spread (with peanut butter). Tofu scrambled eggs. Tofu garbanzo paté. Miso spreads: Miso and spring onion spread. Miso and spring orange spread. Miso and banana spread. Miso and cheese spread. Paté minute. Soft soya cheese. Soya paté.

Salads: Tofu salads (p. 62-64): Melon medley. Tangerine tofu.

Soups (p. 70-71): Miso soup.

Stove-top dishes: Tomato and soya hotpot (with soya flour; p. 79-80). Miso and almonds (with brown rice; p. 85-86).

Oven dishes: Sesame soya croquettes (p. 109-10). Spiced soya beans (p. 110-11).

Desserts: Mixed fruit and soya pie (p. 127-28). Address: England.

879. Lifespan Community Collective Ltd. 1982. Full of beans. Sheffield, England: Lifespan. 24 p. Illust. 21 cm. [1 ref]

• **Summary:** “This is a book about cooking pulses and beans,” with several vegetarian recipes for each type. Contents: Introduction. Red kidney beans. Brown lentils. Soya beans. Chick peas. Butter beans [Lima beans]. Haricot beans. Red lentils. Field beans. Aduki beans. Split peas. Marrowfat peas. Black eye beans. Mung beans. Tofu or bean curd. Miso or bean paste. Bean sprouts.

Soya bean recipes: Soya and carrot pistou. Soya bean curry. Soya swede pie. The section on tofu describes “Tofu using soya beans” and “Tofu using soya flour. There is also a section on miso.

“Who we are: Lifespan is a workers’ collective registered under Industrial & Provident Society rules. We live communally in two terraces of houses and share our work including childcare, domestic work, gardening, building maintenance, craft workshops and the printing business. We are part of a network of communities, seeking to provide an alternative lifestyle to the nuclear family, patriarchy and the nuclear state.” Address: Townhead, Dunford Bridge, Sheffield S30 6TG, England. Phone: Barnsley (0226) 762359.

880. Liu, Christine Y.C. 1982. More nutritional Chinese cooking. Ann Arbor, Michigan: Graphique Publishing. [xii] + 415 p. Illust. Index. 23 cm. [24 ref]

• **Summary:** A color photo on the dust jacket shows Christine Liu standing in her kitchen. Each recipe has its name written in 3 ways: In English, in romanized Chinese (pinyin), and in Chinese characters.

The section on “Chinese ingredients, seasonings, storage and substitutes” (p. 33+) includes entries for: bean curd or to fu; bean curd dried or to fu gan [extra firm tofu]; bean curd fried; bean curd fermented; bean curd sticks or sheets, dried

[dried yuba sticks or dried yuba]; beans, salted, or black beans, or fermented black [soy] beans; bean sprouts [mung or soy], bean paste, salted; bean paste, Sichuan; bean paste, sweet (made from small red beans [azuki beans]); bean curd solidifiers (calcium chloride, magnesium chloride, or Epsom salt); Hoisin sauce (made from fermented ground soybeans), seaweed (dried purple vegetable).

Soy-related recipes: Sour & hot soup, with shredded bean curd (p. 58). Fermented black beans with meat (p. 106). Fermented black beans with meat and vegetables (p. 126). Steamed spareribs with fermented black beans (p. 140). Soy sauce boiled chicken (p. 171). Fermented black bean chicken with nuts (p. 184). Hot bean sauce fish (p. 222). Steamed fish with fermented beans (hot; p. 226). Smoked fish (with soy sauce; p. 227). Shrimp with hot bean sauce (p. 240). Eggplant with vegetables (and young, green soybeans; p. 289). Bean pasted nuts (with Hoisin sauce; p. 306). Braised steamed gluten (mian jing; p. 308). Hot pepper paste or sauce (with FBS, p. 312).

There is an entire chapter on bean curd with 16 recipes including fermented tofu and sweet soy milk (p. 318-33). Note: bean curd or tofu is not usually fermented, yet it is the most widely used soyfood in China and Japan.

“About the author: Mrs. Christine Liu was born in Shanghai, and raised in Mainland China, where she studied and learned Chinese culture and experienced traditional Chinese cuisine. She studied biology in college and received her first university degree from the National Taiwan University. While in college, she met and later married Dr. Stephen Liu, presently a professor of microbiology at Eastern Michigan University.

“After a short stay in Minnesota, the Lius, together with their first son, Ted, moved to Sao Paulo, Brazil where they resided for several years. The Chinese community in that city was sizeable and known for its affluency and Chinese cuisine. This afforded a great opportunity for Christine to learn the different styles and methods of diversified Chinese cooking. Accordingly, she acquired a great deal of skill and expertise. This extensive exposure and experience kindled her latent talent and interest in culinary arts which ultimately led her to pursue graduate studies, writing, and a teaching career.

“The Lius returned to the United States in 1965 and settled in Ann Arbor, Michigan. Christine undertook her graduate work in nutrition at the School of Public Health and received the M.P.H. degree from the University of Michigan in 1971. She later did further graduate work at the Massachusetts Institute of Technology.

“For more than a decade, Christine Liu has taught subjects such as ‘Creative Chinese Cooking,’ ‘Nutrition and Diet with Chinese Foods,’ and coordinated classes in ‘International Gourmet Cooking’ at the Continuing Education Department of the Ann Arbor Public Schools. Her most recent class is ‘Traveling and Eating in China,’

which she teaches through the University Extension of the University of Michigan.

“Her first book, *Nutrition and Diet with Chinese Cooking*, which was launched in 1976, has been very popular and is in its fifth printing. Christine has been invited and has appeared on numerous occasions on TV programs and has given many lectures and demonstrations concerning the method of preparation and the nutritional qualities of Chinese cooking. From time to time, she has been invited to participate in college symposia and educational conferences around the country. Her expertise and enthusiasm have invariably won her admiration and endorsement from the public. For many years she has enjoyed a reputation for popularizing nutrition and diet through Chinese cooking.

“Since normalization of diplomatic relations between the United States and China, Christine has returned to her homeland three times (in 1980, 1981, and 1982). She taught at universities and spoke to various groups about American food and culture. While in China, Christine traveled extensively in the northern, northwestern, northeastern, southern, southwestern, and eastern parts of the country and gained first-hand experience concerning many varieties of Chinese cuisine. Consequently, she was able to bring back a great deal of new knowledge about regional Chinese cooking to share with her American readers in this beloved and chosen country of hers. At the present time, she is the only one who writes Chinese recipes in English for the *China Daily*, China’s only English language newspaper.” Address: M.P.H., P.O. Box 1332, Ann Arbor, Michigan.

881. Magariños, Hélène. 1982. *Cuisine pour une vie nouvelle* [Cuisine for a new life]. Paris: Editions Debard. 230 p. Preface by Aveline Kushi. Preface by Dr. Yves Nani. Illust. (some color). No index. 22 cm. [195 ref. Fre]

• **Summary:** This is a book about macrobiotic foods, cookery, and medicine. On the cover: *La macrobiotique, pratique alimentaire de la sagesse orientale*. Lacking an index, the book is difficult to use.

Contents: Introduction by the author. Macrobiotic / yin-yang terminology. Glossary. 1. Cereals. 2. Vegetables. 3. Legumes and sea vegetables. 4. Soups, sauces and condiments. 5. Seitan and fish. 6. Desserts and beverages. 7. For mothers and infants. 8. Suggestions for some familiar remedies.

The glossary (p. 41-43) includes: Sea vegetables, amazake, azuki, gomashio, hijiki, koji, kombu, kuzu, miso, natto, nigari, nori, potimarron (or Hokkaido pumpkin / kabocha), rice koji, sake, seitan, shoyu, soba, suribachi, tahini, tamari and shoyu, tekka, tea (3 years old), tofu, udon, umeboshi, wakame, yang and yin.

The section on sauces (p. 76-77) includes: Cream of umeboshi. Creame of umeboshi and tofu. Tamari with citron. Tofu mayonnaise. Grilled sesame miso. Miso with grated orange rind. Miso nuts. Note: Miso and tamari are used as

seasonings throughout the book.

Chapter 3 includes (in the section on Soya, p. 109-15): Edamame. Special recipe for anemia or fatigue. Soybeans cooked with miso. Homemade tofu (curded with nigari, with 5 helpful photos). A kind of fromage blanc made from tofu. Tofu mayonnaise. Tofu cooked with tamari. Tofu and vegetables. Homemade natto. Natto with onions. Natto with hard-boiled eggs.

About the author (with a photo) appears on the back cover. Address: France.

882. Stone, Bruce. 1982. The use of agricultural statistics [from China]: Some national aggregate examples and current state of the art. In: R. Barker, R. Sinha and B. Rose, eds. 1982. *The Chinese Agricultural Economy*. Boulder, CO: Westview Press. xiii + 266 p. See p. 205-45. Appendix A. [21 ref]

• **Summary:** Table A.2 (p. 212-13), titled “Estimates of total food grain production in China, 1949-1980” is the “first up-to-date, complete, and continuous food grain series published by the Chinese since 1959.” Five series (columns) of figures for total food grain production (including soybeans) are given from five different sources. “Note: Although most countries exclude soybeans from total food grains, China does not. Thus, soybean production estimates (including green, yellow, and black soybeans) have been provided to allow calculation of Chinese total grain series excluding soybeans.” One of the five sources called “Reconstructed official” refers to “this author’s amalgamation are verbatim official statements and estimates based on incremental change given in Chinese media, academic, or government publications” (Note 2, p. 244).

In addition, three series (columns) of estimated figures are given for soybean production from three sources: “Reconstructed official,” Wiens (1980), and USDA (1980, 1981). The “Reconstructed official” statistics show soybean production in million tonnes growing from 5.1 in 1949 to a peak of 11.5 in 1959. There is a gap until 1965, when 6.2 million tonnes were produced, followed by 9.2 in 1970, 8.4 in 1973, and 6.6 in 1976. From that production grows each year to 7.9 million tonnes in 1980.

“Currently Chinese food grains include rice, wheat, corn, millet, sorghum, barley, buckwheat, oats, proso-millet, small beans [probably azuki], green beans, broad beans, field peas, sweet and white potatoes, minor tubers (notably cassava), and green, yellow, and black soybeans. Tubers have been valued at both one-fourth and one-fifth of their natural weight. At present a one-to-five ratio is used. Soybean production has been included or excluded depending on the years under consideration. Confusion over when soybeans became part of food grain production accounts for some of the divergence in individual estimates. Recently Chinese officials have indicated that soybeans were included in total food grain production from 1958 and that tubers were valued

at one-fifth their weight from 1963. The ‘reconstructed official’ series is based on these assumptions. The Chinese have adjusted the *Agricultural Yearbook of China 1980* series to include soybeans since 1949, but continue to value tubers at differing rates. There has also been some confusion over which soybean production the Chinese count. According to official statements made to a 1979 Japanese delegation, only soybeans used for direct human consumption are included in total grain numbers. Occasionally it has been alleged that only marketed soybean output has been counted, and most recently Chinese officials reported that all soybean production is included in food grain output statistics” (p. 214).

Table A.6 (p. 224-25) gives “Estimates of areas sown to major food grains, 1949-1980.” These grains are wheat, rice, maize, soybeans, and tubers. Three series (columns) of estimated figures are given for soybeans from the same three sources cited above. The “Reconstructed official” figures show soybean area (in million hectares) growing from 7.0 in 1949 to a peak of 16.3 in 1958, after which there are only two figures until 1977–11.3 in 1965 and 10.3 in 1970. From 1977 to 1979 soybean area ranged between 10.4 and 11.8 million ha. Address: Research fellow, International Food Policy Inst., Washington, DC.

883. Yoneda, Soei; Hoshino, Koei; Schuefftan, Kim. 1982. Good food from a Japanese temple. Tokyo, New York, and San Francisco: Kodansha International. 224 p. Illust. Index. 27 cm.

• **Summary:** An outstanding, beautiful book, the best seen to date on Buddhist Vegetarian Cookery (*shojin ryori*)—after you get past the poor, almost embarrassing introduction, written by Robert Farrar Capon of New York. The author, Sôei Yoneda, is a great Zen Abbess and cook, and a visit to Sankô-in, a Rinzai nunnery, is an unforgettable experience. The recipes are arranged by season: Spring, summer, autumn, winter, all seasons. For every recipe, both a Japanese and an English-language name are given. Soy-related recipes include: Soybean rice (*mame gohan*, p. 73). Unohana rice (with fried okara, p. 75). Thick-rolled sushi (with dried-frozen tofu, p. 75). Tofu rice (p. 80). Soy bean dashi (p. 82). Miso soups (p. 85-88; 14 recipes, one for each month but two for Jan. 1 and 2—White miso Ozoni and Zen temple ozoni—and one for all seasons—Saké lees soup). Pickling with miso (p. 89). Rape blossoms with miso-mustard dressing (p. 93). Bamboo shoots with vinegar-miso dressing (p. 98-99). Quick oden (with tofu, p. 107-08). Green beans with miso dressing (p. 113-14). Eggplant with miso sauce (p. 123). Zucchini with sesame-miso sauce (p. 129). Steamed zucchini with three-color miso (p. 130-31). Jade nuggets (*kizami nattô no ao-jiso age*, p. 136). Pine cones (*matsukasa*, with tofu, p. 151). Miso-pickled vinegared konbu kelp (p. 153). Crisp turnip with sesame-miso dressing (p. 158). Amazake (p. 162). Daikon with miso sauce (*daikon oden*, p. 170).

GOOD FOOD from a JAPANESE TEMPLE



Soei Yoneda
Abbess, Sankô-in Temple



introduction by
Robert Farrar Capon



a 600-year tradition of simple, elegant vegetable cookery

Brussels sprouts with miso sauce (p. 179-80). Dried-frozen tofu mélange (p. 181-82). Not exactly hamburger (“patties” with dried-frozen tofu and okara, p. 182). Simmered dried-frozen tofu (p. 182-83). Dried-frozen tofu tempura (p. 183). Konnyaku in miso dressing (p. 184). Fried unohana (*iri unohana*, with thin deep-fried tofu and okara, p. 187; “The mash or lees (*okara*) remaining after making tofu are inexpensive, plentiful, and nourishing—ideal everyday temple food. By itself *okara* is not interesting, but it is brought to life by the addition of a little oil and a few other ingredients”). Inari-zushi (p. 189-90). Grilled usuage (with thin deep-fried tofu, p. 190). Deep-fried usuage (p. 190-91). Golden sushi rolls (with usuage, p. 191). Rôbai (Sanko-in fresh wheat gluten, p. 192-93). Deep-fried dried yuba (p. 195). Fried and simmered dried yuba (p. 196). Sesame “tofu” (with kuzu, p. 196-99). Almond tofu (p. 202). Salt-grilled tofu (from old Naniwa, today’s Osaka, p. 203-04). Steamed tofu loaf (p. 206). Salad with white [tofu] dressing (*shira ae*, p. 206-07). Steamed tofu cup (*otôfu no chawan mushi*, p. 208). Deep-fried tofu in thick sauce (p. 209). Tofu sauté (*yaki-dofu no atsuyaki*, p. 213). Bean flowers (*nattô no mochi gurumi*, p. 215). Buckwheat-miso topping (p. 215-16). Miso mayonnaise (with sweet white Saikyo miso, p. 216-17).

Contains 17 pages of color photos showing dishes prepared from recipes in this book. The 510 delicate illustrations (both line drawings and simple brush paintings) clarify and enhance the text throughout.

In 1987 this book was re-issued with a new title: *The Heart of Zen Cuisine: A 600-year Tradition of Vegetarian Cookery*. Address: 1. Abbess, Sanko-in Zen temple, Honcho 3-1-36, Koganei-shi, West Tokyo (Musashi Koganei Station).

884. Huie, Karen. 1983. An eating tour of Chinatown. *Los Angeles Times*. Jan. 9. p. T76.

• **Summary:** At the Lo Tien Lu Bakery, many of the “pastries are filled with sweet red, green, or black bean paste,…” Note: This means red bean paste, green bean paste, or black bean paste.

The sweet rice cake is made with red beans.

885. Tucker, Ella Mae. 1983. Friendship cake recipes offered: garden recipes. *Springfield Leader and Press* (Springfield, Missouri). Jan. 30. p. 51.

• **Summary:** “About the Adzuki Bean: Marjorie Hardy asked earlier about sources for the azuki bean for 17-bean soup. Louise Hawk, Lead Hill, Arkansas, telephoned to say that she bought some sprouts identified as adzuki or adsuki bean sprouts. They looked exactly like the Japanese chick pea sprouts. When she noticed this, she consulted her dictionary. Under ‘adsuki bean’, she learned that the adsuki was a Japanese chickpea.

“My dictionary under ‘adsuki bean,’ states that adsuki bean, grown in China and Japan, is a kidney bean. Also known as adzuki and (Japanese) azuki.

“Food stores might have the bean available under these names. You might even be able to find the adzuki bean at a Chinese food place. They might at least tell you how to get them. Ms. Hardy, we’d like to have your recipe for the 17-bean soup.” Address: The News-Leader.

886. Ornish, Dean. 1983. *Stress, diet, and your heart*. New York, NY: Holt, Rinehart and Winston. xxi + 392 p. Foreword by Alexander Leaf, M.D., Illust. Printed in 1983 by New American Library (Signet Books). 24 cm. [224+ ref]

• **Summary:** The title page states: “With a Foreword by Alexander Leaf, MD. Original recipes by Martha Rose Shulman.” This is Dean Ornish’s first book on the benefits of diet, stress reduction, and exercise in reducing heart disease. Grains, legumes and vegetables are the staples in this low-fat, vegetarian diet. Dairy products (such as milk and yogurt) are used sparingly.

In the section on the “Five Food Groups,” the subsection titled “Legumes” includes azuki beans, miso, soybeans, soy flour, soy milk, tempeh, and tofu.

The recipes—which are innovative, tasty and nutritious—were developed by Martha Rose Shulman and she wrote most of Chapters 14-20.

The word “tofu” appears on 46 pages in this book, “soy flakes” on 10 pages, “soy milk” on 5 pages, “soy flour” on 2 pages, and “tempeh” on 1 page. Soy-related recipes and information include: Soy flakes, tofu (p. 161-63). Modified sautéed eggplant (p. 164-65). Brief descriptions of azuki beans, soybeans, soy flakes, and soy grits (p. 175-76). Instant soy milk (such as Fearn or Jolly Joan), Tofu—description and uses (p. 181). Recipe for Brown rice, barley, soy grits (p. 182). General cooking directions for legumes (p. 184-87). Very simple cooked soybeans (“The size of the pot is especially important with soybeans, which bubble up dramatically,” p. 185). Cooked soy flakes (p. 188). Herbed tofu spread (p. 207-08). Apple spice tofu morning spread (nice on toasted morning bread or muffins, p. 208, 279, 290). Peanut butter banana tofu spread (209). Nutty tofu cheese substitute (p. 236-37). Roasted soybeans (dry roasted = baked, p. 239-40). Homemade granola (with “½ cup soy flour,” p. 241-42). Deep-dish vegetable pie (with cooked soy flakes, p. 252-54). Eggplant and rice casserole (with soy grits, p. 257-58). Sprouts, tomato, and white bean spread sandwich (with dry roasted soybeans cracked in a blender, p. 260). Tofu banana cream pie (p. 266-67). Gazpacho (p. 269-70). Pizza (homemade, with Tofu cream sauce, p. 271-73). Brown rice salad (with dry roasted soybeans, p. 279). Buckwheat noodle salad with hot and sour dressing (and dry roasted soybeans, p. 282-83). Bulgur-spinach salad with poppy seed dressing (p. 285). Curried tofu and vegetables (p. 287). Mushroom and barley soup (with soy flakes, p. 291). Pasta with vegetables (and dry roasted soybeans, p. 296). Pasta with vegetables (and dry roasted soybeans, p. 296). Millet raisin pudding (with “¼ cup instant soy milk {such as Fearn},” p. 298). Spaghetti sauce with tofu tomato sauce (p. 298-99). Grated zucchini casserole with eggplant sauce (and dry roasted soybeans, p. 301-02). Couscous casserole (with “½ pound {2 cakes}” tofu, p. 321). Soybean-grains casserole (with “2 cups cooked soybeans or soy flakes, p. 325-26).

For information on a vegetarian diet, see p. 3, 144-50.

The excellent Foreword by Dr. Alexander Leaf, M.D. (Chairman, Dep. of Preventive Medicine and Clinical Epidemiology, Harvard Medical School) notes that coronary heart disease is now the leading cause of death in our western industrialized world. Medicine has been grappling with this modern killer largely by trying to cure coronary artery disease—angina and nonfatal heart attacks—rather than to prevent it. “With heart attacks accounting for as many deaths annually in the United States as all other causes of death combined, we are dealing with a modern epidemic still taking a toll of 600,000 lives per year... Many of these deaths are sudden...” The major risk factors for future heart attacks are cigarette smoking, arterial hypertension, elevated serum cholesterol, Type A personality, etc. “What is still lacking in the logical chain is evidence that reducing the risk factors in a given individual will prevent the occurrence of coronary artery disease in that person.” Dr. Ornish, through

his research and preventive approach, is seeking the evidence for that missing link. Nevertheless “the prudent person will benefit his or her well-being, and very possibly his or her heart as well, by adopting and adhering to the dietary and stress modification programs Dr. Ornish has presented” in this important book. Address: M.D., Sausalito, California.

887. Walnut Acres. 1983. Organic farming—natural foods [Mail order catalog and price list]. Penns Creek, Pennsylvania 17862. 40 p. Jan/Feb. Illust. Index. 28 cm. [37 ref]

• **Summary:** A large color photo on the cover shows a red barn in the snow, with the caption “Buy direct from the farm—500 acres of chemical free soil.” In 1946 Paul and Betty Keene first fell in love with Walnut Acres. They had just completed four years of study in organic homestead-and-farm schools. Note: It is unclear when they started to do business. They also sell products made by other companies, such as Shiloh Farms, Fearn, and Westbrae. Soy related products: Miso Plus all natural dip mixes. 4-grain cereal (incl. soybeans). Hearty cereal (incl. soya). 12-grain cereal (incl. soy). Soy grits, organic. Rice pancake mix (with soya flour). Triticale pancake mix (with soya flour). 12-grain pancake mix (with soya flour). Unbleached white pancake mix with soya flour. Wheatless pancake mix with soya flour. Whole wheat and soy pancake mix with soya flour. Cornell flour, with organic soy flour. Soy flour, organic. Instant soy milk powder. Sterling special carob blend (soya carob). 12 grain flour (incl. soya flour). Soya-carob bread mix (with soya flour). Corn muffin mix (with soya flour). Apricot nut quick bread mix (with soya flour). Granola maple quick bread mix (with soya flour). Four Fearn cake mixes (with soy powder). Pro-Nuts (soy-nuts). Soybeans, yellow (25 lb, 5 lb, 3 lb, 1 lb). Tempeh starter. Whole wheat and soy spaghetti. Pea and soybean soup. Miso-Cup red vegetarian soup. Green soybeans (whole dry, canned). Tamari soy sauce (with or without wheat). Comtessa coffee substitute (with soy beans). Celestial Seasonings Breakaway Coffee Substitutes (most have roasted malted barley and barley grains, and roasted chicory root as the main ingredients). Lecithin granules (soya phosphatides). Soy bean lecithin (raw, crude, natural pint). Books. Soya-carob bread. Portrait photos show Paul Keene and Betty Keene.

Also discusses: Gluten flour. Amaranth seeds. Psyllium seed. Sesame seed (raw hulled; raw unhulled; toasted hulled). Adzuki beans. Peanut butter, sesame tahini, and other nut butters. Pita bread. Address: Penns Creek, Pennsylvania. Phone: (717) 837-0601.

888. Robinson, Robert G. 1983. Yield and composition of field bean and adzuki bean in response to irrigation, compost, and nitrogen. *Agronomy Journal* 75(1):31-65. Jan/Feb. *

• **Summary:** Field bean (*Phaseolus vulgaris*) and adzuki bean (*Vigna angularis* {Willd.} Ohwi and Ohashi) were

grown “in central Minnesota to measure the effects of irrigation, rhizobial inoculant, and N on seed yield, protein concentration, and nutritive value.” Address: Dep. of Agronomy and Plant Genetics, Univ. of Minnesota, St. Paul, MN 55108.

889. Erewhon Mail Order. 1983. Erewhon. Natural foods mail order catalog. Brookline, Massachusetts. 16 p. Nov. 1. Catalog and price list.

• **Summary:** This is a new mail order catalog, whose prices are effective from 1 Nov. 1983. On the front cover is a woodblock print of two wooden barrels, a wooden tub, two sacks of corn, a sheaf of wheat, several ears of corn, and a scythe. Erewhon is located at 26 Washington St. in Brookline Village—also the home of Erewhon Mail Order. There are retail stores at 342 Newbury St. in Boston and 1731 Massachusetts Ave. in Cambridge. Products grown organically, without chemicals, are marked with the code “OG.”

Contents: Whole grains & cereals (incl. Erewhon granolas). Flours. Pastas. Beans (incl. azuki beans, black soybeans from Japan, yellow soybeans from Minnesota). Seeds, nuts & dried fruit (incl. alfalfa seeds, sesame seeds, and tamari roasted nuts and seeds). Sea vegetables. Misos and tamari soy sauces. Japanese macrobiotic specialty products. Condiments, vinegars & sauces. Sea salts. Erewhon vegetable oils. Baking & home products (incl. koji rice for making amasake and miso, nigari for making tofu, tempeh starter). Sweeteners (Yinni rice syrup, barley malt, maple syrup, clover honey, wildflower honey {unfiltered}). Erewhon nut butters (Almond, cashew, peanut, sesame, sunflower). Fruit spreads. Snack foods. Sweets. Perishables (incl. bread, mochi, produce, amazake, tempeh). Beverages. Supplements. Natural cosmetics & body care. Cookware & appliances. Books & publications. Ordering & shipping information. Zone & shipping charts. Address: 236 Washington Street, Brookline, Massachusetts 02146. Phone: 1-800-222-802 or (617) 738-45168.

890. Shurtleff, William; Aoyagi, Akiko. 1983. George Ohsawa and the macrobiotic movement: Noboru Muramoto (Document part). Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 46 p. See p. 39-40. Nov. 10. 28 cm. Unpublished typescript.

• **Summary:** “In June 1971 Noboru Muramoto emigrated to America from Japan and lived with the Aiharas in San Francisco at GOMF. In Japan he had studied Chinese literature and philosophy at Tohoku University and Kanazawa University, then began his own study and practice of herbal medicine. He had begun studying Ohsawa’s writings in 1942, then studied with Ohsawa after 1964, while running a family business cleaning the cotton from futons. In 1973 he gave a series of lectures in New York which were published that year as the popular book, *Healing Ourselves*

(Avon/Swan House). Many uses of miso and natural shoyu were given; soybeans and tofu were not recommended in the book, except that tofu was used in making poultice-like 'plasters' for use in healing. In 1974 Muramoto started Rising Sun, a macrobiotic storefront containing the Herb Tea Co. in San Francisco. Here he gave classes on making miso and shoyu. In November 1976 he acquired Top of the World Ranch on 140 acres of land near Glen Ellen, California, and established Asunaro Institute, a residential program of macrobiotic studies. He also published a newsletter 'Asunaro Notes.' At Asunaro he set up a regular shop for making miso and shoyu, complete with a nice koji incubation room. Many unique and American-style misos were developed, including some made with peanuts, garbanzos (chickpeas), azuki beans, and even natto. A number of Americans apprenticed at the miso-shoyu school. A nice article about the school, 'Making Miso in America,' appeared in the *East West Journal* (Lachman 1978). In March 1979 Muramoto displayed his miso and shoyu equipment and samples of his products at the famous New Earth Exposition in San Francisco. He also sold these products at Rising Sun, and some customers swore that they were the best in America."

Note: On 11 Jan. 1976 William Shurtleff attended a class on how to make miso at Rising Sun (Judah Street, San Francisco), given by Noboru Muramoto. Jimmy Udesky was there, as were about 15 other people.

On 19 Sept. 1977 William Shurtleff and Akiko Aoyagi visited Muramoto sensei at his place, Asunaro, in Glen Ellen, California. He makes miso there and teaches miso making. Shurtleff interviews him about his life and history of interest in macrobiotics and soyfoods. We stay overnight and help him the next morning with royalty problems connected with his book *Healing Ourselves*; he is quite sure he is not being paid the royalties due based on his contract with the publisher. Address: Lafayette, California. Phone: 415-283-2991.

891. Ogawa, T.; Abe, S.; Kugimiya, M. 1983. [Gelatinization of starch in dried azuki *an* granules *Phaseolus cyrysanthos*, Japan]. *Nippon Shokuhin Kogyo Gakkaishi* (*J. of the Japanese Society for Food Science and Technology*) 30(6):323-30. [Jap; eng]*

• **Summary:** Azuki *an* is sometimes called "bean jam." It is a sweet paste, widely used in Japanese confections.

892. Shiota, Y.; Matsuura, Y.; Hatanaka, C. 1983. [Studies of *an* (bean jam). IX. Pectic polysaccharides in cotyledon of adzuki beans *Vigna angularis*]. *Nippon Shokuhin Kogyo Gakkaishi* (*J. of the Japanese Society for Food Science and Technology*) 29(12):712-19. [Jap; eng]*

• **Summary:** Azuki *an* is a sweet paste, widely used in Japanese confections.

893. Tsumura, ? 1983. Mame no hanashi arekore [Assorted

stories about beans]. *Hachiju Nendai* (*The 1980s*) No. 14. p. 30-31. [Jap]

• **Summary:** In Japanese culture, beans are considered to be powerful in getting rid of evil and in bringing good health—as in the *mame-maki* ceremony of throwing roasted soybeans at Setsubun. Black soybeans are always included in dishes served at New Years, and beans are generally a part of festive occasions and meals. Part of the reason for this has to do with the word "mame," which can mean either bean or "diligent." Thus, "Mame ni hataraku" means to work diligently. When people visit a sick person in Japan, that person usually gives the visitors rice cooked with azuki beans (*o-sekihan*); the beans and the colors symbolize both celebration and regaining health (so one can work diligently).

During the Japanese New Year, a decoration of pine boughs, bamboo, and plum branches (named *kado-matsu*) is set at the front gate of each house to symbolize the hope that the New Year will bring vigor and long life, strength, steadfastness, and virtue. Stalks of the soybean plant are sometimes also included in the *kado-matsu*.

894. Aubert, Emmanuelle. 1983. Les 9 grains d'or dans la cuisine [The nine golden grains in the cuisine. 2nd ed.]. Paris: Le Courrier du Livre. 286 p. Illust. by C. Galinet. Index. 22 cm. [Fre]

• **Summary:** The subtitle on the cover reads: 400 simple and savory recipes. Menus and advice on good health. Contents: Introduction. 1. The cereals (see p. 28-31 for instructions for making seitan at home from 500 gm wheat flour, plus 8 seitan recipes). 2. Breads. 3. Legumes: Cooking legumes, lentils, haricots, dry peas, chick-peas, azuki beans, soya. 4. Vegetables. 5. Soups. 6. Animal products. 7. Condiments, aromatics, and sauces (incl. tamari and miso). 8. Desserts. 9. Beverages. 10. 80 menu ideas. 11. Pregnancy and the feeding of young infants. 12. Some natural remedies. Where to buy supplies.

Soy-related recipes include: Making tofu at home (p. 87-91; illustrations and method taken without credit or permission from *The Book of Tofu* by Shurtleff & Aoyagi). Yuba. Grilled tofu (p. 91). Tofu with nuts (*noix*) and miso. Skewered tofu. Tofu salad (p. 92). Tofu with vegetables. Onions with tofu. Okara croquettes. Soymilk with fruits (p. 93). Making tempeh at home (p. 94-95). Tempeh goreng. Tempeh bachem (p. 95). Keripik tempeh (tempeh chips; p. 96). Tempeh croutons (p. 96). Pate of vegetables with tofu (p. 126). Jardinière au tofu (p. 128). Peas with tofu (p. 128). Soy sprouts made from mung beans (p. 129-30).

Pages 191-94 give basic information on the following fermented soya condiments: tamari, miso (Hacho [sic, Hatcho] miso, barley miso, rice miso). Pages 278-79 list manufacturers and handlers of various foods used in this book, and pages 280-81 give their addresses: Yellow soybeans: Celnat, Les Sept Marches, Le Seuil, Lima. Miso: Celnat, Lima, Les Sept Marches, Le Seuil, le Bol en Bois,

Tenryu. Only Lima and Les Sept Marches manufacture miso in France. Tamari: Celnat, Le Seuil, Les Sept Marches, Lima, le Bol en Bois, Tenryu. Nigari: Le Bol en Bois, Tenryu. Tofu: Le Bol en Bois, Tenryu, Soy. Tempeh: Traditions du Grain, Le Bol en Bois. Tempeh culture: Semailles. Koji: Les Sept Marches, Tenryu, Le Bol en Bois. Amasaké: Traditions du Grain. Soymilk: Celnat, Lima.

A photo on the back cover shows Aubert, a woman.

Note: This is the earliest French-language document seen that mentions amazake, which it calls “Amasaké.” Address: France.

895. Chico San, Inc. 1983. Mrs. Lima Ohsawa—Pioneer in health. Chico-San’s specialist in macrobiotic foods (Leaflet). Chico, California 95927. 1 p. 28 cm.

• **Summary:** On the top half of this black-and-white leaflet is a portrait photo of Lima Ohsawa. Near the bottom is Chico-San’s logo, a spiral. Just above that: “Look for these special Chico-San imports: Lima Soy Sauce and Lima Tamari; soybean puree (miso); salt plums; mineral-rich mercury-tested seaweeds—hijiki, kombu, wakame, nori, and kanten; 16 Herb Lima Mu tea; Ohsawa Twig tea; malt vinegar; azuki beans; black soybeans; barley koji; kuzu; nigari [a coagulant for making tofu]; tekka; light and dark sesame oils; and lotus root tea.” Address: Chico, California.

896. Flaws, Bob; Wolfe, Honora Lee. 1983. Prince Wen Hui’s cook: Chinese dietary therapy. Brookline, Massachusetts: Paradigm Publications. v + 201 p. Index. 23 cm. [16 + 25 footnotes]

• **Summary:** The story of Prince Wen and his cook appears in Chuang-Tzu’s *Inner Chapters* (trans. G.F. Feng & J. English, New York: Vintage Books, 1974, p. 55). Diet is the third of the Eight Limbs of Classical Chinese Medicine. The other 7 limbs are meditation, exercise, astrology, geomancy, massage, herbology, and acupuncture.

If a man is diagnosed as having a liver imbalance, such as “liver fire blazing upwards,” he should consume food and herbs that will sedate, calm, and cool the liver and lower the Yang; foods that raise the Yang, produce internal fire, or aggravate the liver should be avoided.

Page 35 notes that foods that are energetically cool and cold include soy products (such as tofu, tempeh, soymilk). Foods that produce fluid and are damp in nature include soybean and tofu.

In the section titled “Categorization of Foods,” a number of individual foods are analyzed in detail, based on characteristics described below: Aduki bean, agar (p. 143), alfalfa, almond, and amasake (fermented glutinous rice) (p. 144), black soybean (p. 148), gluten (seitan, p. 158), kudzu root powder (p. 161), seaweed (p. 179), soybean (p. 181), soybean oil (p. 181), and tofu (p. 185).

Taking tofu, then black soybeans, as examples of the format used. Tofu: Nature: Cool. Flavor: Sweet. Meridian:

Lungs, large intestine, stomach. Direction: Descending. Quality: Yin and yang. Elemental quality: Earth. Treatment principles: Tonifies Qi [ch’i] and Blood, clears Heat, sedates Yang, tones Yin, harmonizes the Middle Burner, produces Fluid, lubricates Dryness, counteracts toxins. Commonly used in the treatment of conjunctivitis, chronic amoebic dysentery, diabetes, sulfur poisoning, and alcoholism. Contraindications: spermatorrhea.

Black soybean: Nature: Neutral. Flavor: Sweet. Meridian: spleen and Kidneys. Direction: Ascending. Quality: Yang. Elemental quality: Earth. Treatment principles: Tonifies Qi [ch’i] and Blood, activates the Blood, benefits Water, expels Wind, counteracts toxins. Commonly used in the treatment of edema, Wind Bi (rheumatism), jaundice, beriberi, and spasms.

The remedial recipes are divided into Chinese (p. 96-116) and American (p. 117-35) types. Soy-related recipes include: Lord Buddha’s delight casserole (with tofu, p. 88-89). Clams with black bean garlic sauce (with salted black beans [fermented black soybeans], p. 91). Five jewel casserole (with tofu or tempeh, p. 92). Quick braised soybean sprouts (p. 104).

Amasake cheesecake with cherry topping (p. 119). Shepherd’s pie with seitan (Gluten meat, p. 122). Ginger seitan beef (p. 122). Seitan veal marsala (p. 129). Aduki bean brownies (p. 133). Dairyless pumpkin pie (with soymilk or cashew milk, p. 135). Many recipes use soy sauce or tamari in their braising liquid. The cookbook also uses meat, poultry, fish, and sugar quite extensively.

897. Jaffrey, Madhur. 1983. Eastern vegetarian cookery. London: Jonathan Cape. xii + 531 p. Illust. by Susan Gaber. Index. 24 cm.

• **Summary:** This is an expanded version of *Madhur Jaffrey’s World-of-the-East vegetarian cookery* (1981, New York). The author of this creative book, a woman, was born in British India on 13 Aug. 1933. She first became known as an actress in India, but later found fame as a food writer. She has lived in America for more than 20 years. She presents 21 recipes for bean curd (tofu), 7 for tempeh, and some for yuba and miso. Soy-related recipes include: Aubergine slices with white miso (Japan, p. 4-5). Green beans with soy sauce (Japan, p. 20). Cabbage with miso (Japan, p. 29). Lotus root with soy-sauce dressing (Korea / Japan / Hong Kong, p. 46-47). Yellow pumpkin cooked with soy sauce (Japan, p. 74-75). Fresh soy beans, steamed (China, p. 76, with “fresh green soy beans in their pods”). Yien Koo’s Spinach with fermented bean curd (China, p. 78-79). Pecel (Vegetable salad with spicy peanut sauce, plus tofu and tempeh; Indonesia, p. 87). Tempura (with tofu; Japan, p. 89-92). Soy bean sprouts (how to grow, p. 119). Soy-bean and mung-bean sprouts seasoned with sesame oil (Korea, p. 123-24). Tempeh, Fried tempeh, Fried, pre-seasoned tempeh, Sambal goreng tempeh kering (Sweet and sour tempeh), Tempeh

cooked in coconut milk (Indonesia, p. 127-30). Thai fried rice (with red fermented tofu, p. 176).

Chapter 4 (p. 187-221), titled “Soy milk, bean curd, and wheat gluten,” contains the following: Introduction to each ingredient. Soy milk (making your own at home). Making your own bean curd. Udofu (Yudofu, simmering bean curd with seasonings, Japan). Bean curd with watercress (Singapore Chinese). Bean curd with fresh coriander (Taiwan). Korean-style bean curd in a hot water bath. *Hiya-yakko* (Chilled bean curd, Japan). Bean curd with broccoli (Hong Kong). Cabbage cooked with bean curd (Japan). Bean curd with a deliciously spicy sauce (China). Carrots and beans with a bean-curd dressing (Japan). Bean curd, mushrooms, and peanuts in hoisin sauce (Chinese style). Sautéed bean curd (Korea). Tofu dengaku (Toasted bean curd with a miso topping, Japan). Fried bean-curd cubes (Most of East Asia). Soy-bean sprouts sautéed with fried bean curd (China). Fried bean curd with a sweet-and-sour sauce (China). Fried bean curd cakes with a mustard surprise (Japan). Inari-zushi (“Bags” of fried bean curd stuffed with sushi rice, Japan). Pressed bean curd with cabbage (China). Salad of pressed bean curd, mung-bean sprouts, and agar-agar (China). How to make fried and baked wheat-gluten balls. Stew of baked wheat gluten, potato, turnip, carrot, and cabbage rolls (Japan, p. 215). Fried wheat gluten with broccoli, carrot, and mushrooms (China). Fried wheat gluten and potato stew (Indian style). Shredded wheat gluten and Cabbage with fennel seeds (Indian style). Buddha’s delight (A mixed Chinese stew, Hong Kong; with yuba, fried tofu, and fried wheat gluten balls).

Chawanmushi (Steamed savory custards, with tofu; Japan, p. 223-26). Omelette with bean curd (Japan, p. 230-31). Soy-sauce eggs (Thailand / China, p. 245). Paneer (Fresh cheese from cow’s milk; India, p. 277-78). Hot or cold noodles with a soy-sauce dressing (China, p. 288). Noodles with a hot-and-sour bean sauce (China, p. 290). Vegetarian mee krob (Crisp noodles with pressed bean curd and eggs; Thailand, p. 296-97). Noodles with quail eggs, mushrooms, spinach, and yuba (Japan; p. 298-99). Hoppers (yeast pancakes; Sri Lanka, p. 315). Roti (Flat whole-wheat bread; India, p. 320). Delicious stock made with soy-bean sprouts (p. 340). Clear soup with mushrooms, bean curd skins [yuba], and spinach (Japan, p. 346). Clear soup with soft bean curd and Chinese leaves (p. 346). Miso soup with bean curd (Japan, p. 357). Miso soup with carrots and mushrooms (Japan, p. 358). Fried, munchable soy beans [soynuts] (China, p. 373). Potato and tempeh patties (Indonesia, p. 394). Dipping sauces (with soy sauce, p. 414-17, incl. *kochu chang*—Korean soy sauce). Kombu relish (with soy sauce; Japan, p. 435). Shoyu daikon (White radish pickled in soy sauce; Japan, p. 436). Ginger quick-pickled soy sauce (China, p. 436). Aomidaikon (Quick pickled small white radishes, with slightly sweet yellow miso; Japan, p. 438-39). Chinese-style jellied bean-curd sweetmeat with a

peanut topping (Singapore, p. 462-63).

General information [like a glossary] (p. 481-506): See: Bean curd (regular, fried, fermented {*fu-ju*, *nam-ye*, *tao-hoo-ye*, red bean curd}, pressed {*doufu kan*}, pressed seasoned {*pai doufu kan*}, dried bean-curd skin or yuba). Beans (azuki, soy). Bean sauce (made from fermented soy beans). Chilli paste with soy bean (and garlic). Hoisin sauce. Miso. Nam yee (see Bean curd, fermented). Nigari. Soy beans, fresh. Soy-bean sprouts. Soy milk. Soy sauce (incl. Japanese, Chinese dark and light, Japanese *usukuchi*, Indonesian *ketjap manis*). Tao Hoo Yee (see Bean curd, fermented). Tempeh. Yuba. Sources (of ingredients; p. 507-10). Address: New York City, NY.

898. Kushi, Michio; Jack, Alex. 1983. The cancer prevention diet: Michio Kushi’s nutritional blueprint for the relief and prevention of disease. New York, NY: St. Martin’s Press. xi + 460 p. Index. 22 cm. [32 ref]

• **Summary:** Contents: Part I: Preventing Cancer Naturally. 1. Cancer, Diet, and Macrobiotics: Introduction, cancer in the ancient world (modern civilization is a major cause of cancer and other degenerative diseases. “... cancer is a disease of overnutrition, caused by intake of sugar, white flour and other refined foods, as well as excess protein and fat. When these items are introduced into primitive societies degenerative diseases follow close behind” {p. 6}), the staff of life, cancer in medieval times, the rise of modern science and medicine, cancer treatment in the twentieth century, a return to whole foods, the macrobiotic approach, 2. Cancer and Modern Civilization. 3. Preventing Cancer Naturally. 4. Diet and the Development of Cancer. 5. The Macrobiotic Cancer-Prevention Diet. 6. Yin and Yang in the Development of Cancer. 7. Relieving Cancer Naturally. 8. Diagnosing Cancer Safely. 9. Medically Terminal or Macrobiotically Hopeful? 10. The Myth of Carcinogens.

Part II: A Guide to Different Cancers. Introduction. 11. Bone Cancer. 12. Brain Cancer. 13. Breast Cancer. 14. Female Cancers: Ovary, Endometrium, Cervix, and Vagina. 15. Cancer of the Large Intestine. 16. Leukemia. 17. Liver Cancer. 18. Lung Cancer. 19. Lymphoma and Hodgkin’s Disease. 20. Male Cancers: Prostate and Testes. 21. Pancreatic Cancer. 22. Skin Cancer and Melanoma. 23. Stomach Cancer. 24. Upper Digestive Cancers: Esophagus, Larynx, Mouth, and Pharynx. 25. Urinary Cancer: Bladder and Kidney.

Part III: Recipes and Menus. 26. General Dietary Recommendations. 27. Guidelines for Cancer Patients. 28. Making a Smooth Transition. 29. Recipes. 30. Menus. 31. Kitchen Utensils. 32. Baby Food Suggestions. 33. Home Cares. Glossary. Recommended Reading. Notes on the Authors.

In this book, cancer preventing effects are attributed to miso (p. 50-51, 220-21, 304-06), and to soybeans (p. 51, 154-55, 293, 306). Natto, soymilk, tamari, tempeh, and tofu

are also discussed.

Pages 50-51 note: “A ten-year study completed in 1981 by the National Cancer Center of Japan reported that people who ate miso soup daily were 33 percent less likely to contract stomach cancer than those who never ate miso soup. The study also found that miso was effective in preventing heart and liver diseases...”

“Soybeans, a major source of protein in the macrobiotic diet, have been singled out as especially effective in reducing tumors. The active ingredient in soybeans is called a protease inhibitor. Laboratory tests show that soybeans and certain other beans and seeds containing this factor added to the diet prevent the development of breast, stomach, and skin tumors. Whole soybeans and soy products, including miso, tamari soy sauce, tofu, tempeh, and natto are staples of the macrobiotic diet... At St. Luke’s Hospital in Nagasaki, a group of macrobiotic doctors and patients who had survived the atomic bombing on August 9, 1945 subsequently protected themselves against potentially lethal doses of radiation on a diet of brown rice, miso soup, sea vegetables, and sea salt.”

Pages 220-21 contain a long excerpt from the account of Dr. Tatsuchihiro Akizuki, director of internal medicine at St. Francis’s Hospital in Nagasaki. He survived the world’s first atomic bomb attack on 9 Aug. 1945. He believed that the main reason that neither he nor any of his co-workers at the hospital suffered or died from radiation was because of their diet, based on miso, brown rice, and sea vegetables.

Pages 293, and 304-06 summarize a number of publications which seem to show that consumption of soybeans, miso, or soymilk may prevent cancer. Pages 391-99 contain soyfoods recipes.

On the rear dust jacket are endorsements from R. Buckminster Fuller, George McGovern, Christiane Northrup, M.D., Robert S. Mendelsohn, M.D., John Denver, and William Dufty. Address: Boston, Massachusetts.

899. Nakayama, T.; Osanai, S.; Nakano, H. eds. 1983. [Pictorial of comprehensive crop management]. Hokkaido, Japan: Hokkaido Prefecture Cooperative Communication Publishing House. [Jap]*

• **Summary:** A chapter by K. Murata titled “Azuki” appears on pages 102-15.

900. Rasyid, Abdul. 1983. Protein quality of soybean, red bean and corn tempeh. MSc thesis, Washington State University. viii + 46 leaves. 29 cm. *

• **Summary:** Includes bibliographic references (leaves 43-46). Abdul Rasyid was born in 1950.

901. Sams, Craig; Sams, Ann. 1983. The brown rice cookbook: A selection of delicious, wholesome recipes. New York and England: Thorsons Publishers Inc. 128 p. Illust. by Clive Birch. Index. 20 cm.

• **Summary:** Page 14 gives a description of soya sauce, shoyu, tamari, and miso. Soy-related recipes include: Miso soup with brown rice (p. 30). Miso sauce (p. 54). Tamari sauce (p. 55). Miso rice (p. 125). Craig Sams has also written a book titled *About Macrobiotics*.

“In the early 1960’s many people in Europe and the U.S.A. were attracted to the ideas of Georges Ohsawa, a Japanese who had rediscovered the importance of dietary balance in traditional Eastern medicine.” He taught macrobiotics, a dietary system in which brown rice plays a major role. “In the world of pop music the expression ‘brown rice sandwiches’ was used in association with the musicians who adopted wholefood diets.” Then in the mid-1970s came the bran boom with an upsurge of interest in sources of dietary fibre, including brown rice.

Why did brown rice ever lose its once pre-eminent position to white rice? “The answer lies partly in the fact that while white rice will keep almost indefinitely, brown rice should be fresh. It attracts insects once it has been husked, so it needs more care in storage and more attention to efficient distribution.” White rice also cooks more quickly.

“Pythagoras would not let his students eat beans because he believed they inhibited the higher intellectual processes. However, it is likely that this was because the prevalent bean of classical Greece was the fava bean—harmless in itself but with a hard brown skin which, if regularly eaten, can lead to favism, symptoms of which are deterioration of vision and mental faculties.”

902. Sams, Craig. 1983. Macrobiotica: una forma de alimentarse [About macrobiotics: The way of eating]. Madrid, Spain: EDAF. 123 p. 18 cm. [Spa]*

• **Summary:** Translated from the English by Rafael Lassaletta. Also published the same year in Mexico by the same publisher (EDAF Mexicana) with the same number of pages.

903. Shiota, Y.; Kurata, M.; Tsuchiya, F. 1983. Water absorption by adzuki beans (*Vigna angularis*). *Kaseigaku Zasshi (J. of Home Economics)* 34(12):775-81. [Jap; eng]* Address: Japan.

904. Tims, William; Allanson, Robert. 1983. Macrobiotic dietary suggestions. Mountain Ark Publishing Co., 109 S. East Street, Fayetteville, AR 72701. 38 p. 22 cm.

• **Summary:** Contents: Introduction. Important points to remember. Daily dietary suggestions. Feeding infants and children. Special dishes, Home remedies (incl. cold tofu compress). Starter shopping list. Helpful hints about food. Energy exercises. Helpful hints for your home. Helpful hints for a positive outlook. Helpful hints for family and society.

Under “Bean Products,” tofu, tempeh, and natto are mentioned. “Fermented foods make wonderful seasonings for soups and strengthen the digestive function. Those used

in making soups include: Miso, shoyu, tempeh, sauerkraut.” There are recipes for Boston baked soybeans, and Boiled tofu. Address: Fayetteville, Arkansas.

905. Yamaguchi, Mas. 1983. World vegetables: Principles, production and nutritive values. Westport, Connecticut: AVI Publishing Co., Inc. xv + 415 p. Illust. Index. 24 cm. [9 soy ref]

• **Summary:** In Chapter 21, “Vegetable legumes” is a section titled “Soybean, Soya: *Glycine hispida*. Perhaps the most important leguminous crop in the world, the soybean is grown chiefly for its dry seeds. The soybean is included in this chapter because of its use “as a vegetable at the immature bean stage.” Vegetable soybeans are harvested “while the beans are still succulent and have not begun to accumulate much starch and oil.” A map (p. 274) shows soybean maturity groups. A diagram (p. 275) shows “Temperature requirements at [six] different stages of growth” (minimum, sufficient, and optimum temperatures). The soybean is also discussed on pages 48 (protease inhibitors), 49 (hemagglutinins), 53 (antivitamin A and D), 58 (saponins), 289 (bibliography).

The section on harvest and storage of sweet corn (p. 171-72) also applies to vegetable soybeans. Sweet corn should be harvested early in the morning to take advantage of the cool temperature. Immediately after harvest, the temperature of the ears of corn should be lowered to 10°C (50°F) by immersion in ice water. The ears should be cooled further to near 0°C (32°F) as soon as possible. Low temperature decreases the rate of conversion of sugars into sweet starch; this the corn tastes sweeter when eaten. The recommended storage temperature is 0°C (32°F).

Also discusses: Peanuts (p. 50, 58, 275, 288-89). Kudzu (p. 165; *Pueraria lobata*, *P. thunbergiana*, *Pachyrhizus trilobus*). Adzuki bean, azuki (p. 281, 290; *Phaseolus angularis*). Winged bean, Goa bean, four-angled bean (p. 282-84, 290; *Psophocarpus tetragonolobus*, *Tetragonolobus purpureus*). Bambara ground nut, Madagascar peanut (p. 287, 290; *Voandzeia subterranea*). Address: Dep. of Vegetable Crops, Univ. of California at Davis, California.

906. Shim, Chung-shil. 1984. Korean recipes. Seoul, Korea: Seoul International Tourist Publishing Co. 79 p. Feb. Illust. (color photos by Edward B. Adams). Index. 26 cm.

• **Summary:** Recipes include: Five grain rice (-*kok pap*, with ½ cup each red [azuki] beans and black [soy] beans). Rice with soy bean sprouts (*Kong namul pap*). Mixed vegetables on rice (*Pibim pap*, with 100 gm soy bean sprouts, soy sauce, and red pepper paste). Dumplings (*Mandu kuk*, with 150 gm beancurd [tofu]). Seaweed soup (*Miyok kuk*, with 50 gm brown seaweed {*Miyok*} and 2 tablespoons soy sauce). Soy bean sprout soup (*Kong namul kuk*). Soy bean paste stew (*Toinchang ch'igye* [*doenjang*], with 2 tablespoons soy bean paste and 200 gm beancurd). Beancurd with beef (*Tubu*

chorim, plus 3 tablespoons soy sauce). Curd with vegetables (*T'angp'yong Ch'ae*, with 250 gm mung bean curd, 200 gm soy bean sprouts, and 2 tablespoons soy sauce). Bean pancake (*Pindae tok*, with 50 gm soy bean sprouts and 4 tablespoons soy sauce).

Each recipe is accompanied by a large color photo. About the author: She is a publisher, artist, and wife of Edward B. Adams, Headmaster of Seoul International School. She has developed a keen interest in Korean cooking, and has chosen here the simple dishes that are most popular among foreigners. She was educated in California, where she married. A color photo shows Shim Chung-shil. Address: Founder, Seoul International Publishing House.

907. Gotoh, K. 1984. Historical review of soybean cultivation in Japan. *Tropical Agriculture Research Series* No. 17. p. 135-42. March. International Symposium on Soybean in the Tropics and Subtropics. [24 ref. Eng]

• **Summary:** Contents: Abstract. Before the Meiji era (-1866): Dissemination, instructions to farmers. Traditional cultivation (1867-1945): Characteristics of this period, special methods of cultivation. Scientific approaches (1946-1977): Characteristics of this period, genetic resources, cultivation practices recommended, physiological studies, planting density, differences between record yields and average yields. Recent situation (1978-): Take-off in yields, problems in the near future.

“The time when the soybean was introduced from the northern part of China to Japan is not precisely known. The earliest reference to soybean appeared in the Kojiki (completed in 712 AD) and Nihonsyoki [Nihonshoki] (in 720 AD). They referred also to rice, barley, Italian millet (*Setaria italica* Beauv.), Japanese millet (*Echinochloa frumentacea* Link), and adzuki beans (*Vigna angularis* (Willd.) Ohwi and Ohasi). Thus, it appears that soybeans were grown as one of the important crops in olden times.”

Nagata (1959) proposed that soybeans first entered Japan in the northern part of the country, having been disseminated from Korea. Prior to that they had arrived in Korea from north China. “Nagata’s assumption that soybean may have been introduced to the northern part of Japan seems plausible. In 1932 and 1933 at the Komoriyama ruins located in Senhata, Akita Prefecture, which date back to the Jyōmon (Jōmon) era (see Note) carbonized soybeans and hulled rice were found in an old house. The dating of this specimen of soybean was not performed since radio-carbon was not available at that time. As will be mentioned later, a large number of land races have been found in Tohoku, as a result of extensive surveys conducted in the early 1950s. Apart from the Nagata’s hypothesis it is probable that soybeans may have been first introduced as an important medicinal herb and later as a food crop into the ports along the Japan Sea.

“Instructions to farmers: *Engishiki* (completed 927 AD)

which described in detail the regulations on crop products (for example, exchange rates of soybeans with bundles of rice and barley for yearly tribute), stated that the Kinki, Chugoku, and Shikoku districts [all located in southwest Japan, from Kyoto in the northeast to just above Kyushu in the southwest] were the main soybean production areas, as shown in Fig. 1.

“*Seiryōki* (published around 1560) which is the oldest Japanese book of agronomy, identified two types of soybeans, namely summer and autumn types. *Aizu-nōsyō* (1684) and *Hyakusyō-denki* (around 1688) described in detail the characteristics of many cultivars, and various cultivation practices, namely ridging and intercropping with barley. *Nōgaku-zensyō* (1697) outlined the principles and practices of soybean management already widely applied, and mention was made of vegetable beans (Edamame) [green vegetable soybeans]. *Kōka-shunjiyū* (1707) described special types of soybeans, such as boiled soybeans (Nimame). This book also described how to grow soybeans on dikes or levees between paddy fields. *Seikei-zusetsu* (1804) outlined the methods of soybean production as recent practices.”

Note: According to Fairbank, Reischauer, and Craig’s *East Asia: Tradition and Transformation* (1973, p. 327): “The earliest neolithic culture, named Jōmon for its characteristic “cord-pattern” pottery, spread throughout Japan about 6,000 years ago. The Jōmon people lived in sunken pit dwellings and subsisted by hunting, fishing, and gathering nuts, roots, and shellfish. They left behind extensive shell mounds and a wealth of pottery, unsurpassed in richness and imaginativeness of design by any other stone-age culture in the world.” Note that they did not practice agriculture. In the third century B.C. Jōmon culture was replaced by Yayoi culture in western Japan and by the end of the first century B.C. it had spread as far east as the Kantō plain. Address: Faculty of Agriculture, Hokkaido Univ., Nishi 9, Kita-ku, Sapporo, Japan.

908. Hong, E.H.; Kim, S.D.; Hwang, Y.H. 1984. Production and use and research on soybeans in Korea. *Tropical Agriculture Research Series* No. 17. p. 81-93. March. International Symposium on Soybean in the Tropics and Subtropics.

• **Summary:** Abstract. Trends in soybean production: importance of soybeans, area planted, yield, production and import, regional distribution. Trends in supply and consumption: demand and supply, utilization. Methods of cultivation currently applied: cultural practices (planting time, land preparation and planting, fertilizer application, management, harvesting and processing, marketing and procurement, cropping patterns, competitive power), varieties and their distribution, major diseases and pests, problems in farm cultivation. Soybean research and extension service. Government participation in and support for soybean production. Future prospects of soybean

production and main constraints. Discussion.

In Korea, soybeans rank third among all food grain crops, in both the area planted and in production, after rice and barley. Soybean “products such as soy paste [doenjang], soy sauce [kanjang], beancurd [tofu] and bean sprouts are the primary side dishes in conventional daily Korean meals.” The area planted to soybeans has steadily decreased from about 300,000 acres average in 1967-1971 to only 183,000 acres in 1982.

Tables: (1) Area planted and production of major food crops in Korea. (2) Production, yield and import of soybeans by year in Korea. (3) Regional distribution of soybean production in Korea. (4) Demand and supply of soybeans in Korea. (5) Utilization of soybean in Korea. (6) Regional distribution of soybean planting times in Korea. (7) Results of sample investigation for the application of herbicides on soybean in Korea. (8) change of cropping systems in the central part of Korea. (9) Farm income derived from major summer crops in Korea. (10) Characteristics of main soybean varieties currently recommended and their geographical distribution in Korea. (11) Research institutions, location and number researchers related to soybeans in Korea. (12) Amounts, area planted, and production for every class of soybean seeds in Korea in 1982. (11) research institutions, location and number of researchers related to soybeans in Korea. (12) Amounts, area planted, and production for every class of soybean seeds in Korea in 1982. (13) The amount and purchasing prices of soybean by the government and the prices of imported soybeans by year in Korea. Figures: (1) Marketing channels for soybean in Korea. (2) Flow chart of soybean research and extension services in Korea. Address: Crop Exp. Station, Office of Rural Development, Suwon 170, South Korea.

909. Jian, Yu-Yu. 1984. Isolation, culture and callus formation of soybean protoplast. *Tropical Agriculture Research Series* No. 17. p. 111-13. March. International Symposium on Soybean in the Tropics and Subtropics. [10 ref]

• **Summary:** Abstract. Isolation. Materials and methods. Results. Discussion. Figures: (1) Area planted to soybean, adzuki bean and vegetable soybean in Taiwan (Kaohsiung district only). (2) AVRDC selections with high yield potential that are adapted to different seasons. Address: Soybean Inst., Jilin Academy of Agricultural Science, Gongzhulin, Jilin province, China; 3. Graduate student, Dep. of Agricultural Economics, Univ. of Illinois.

910. Shanmugasundaram, S. 1984. Limited popularity of soybean cultivation in South and Southeast Asia. *Tropical Agriculture Research Series* No. 17. p. 115-25. March. International Symposium on Soybean in the Tropics and Subtropics. [19 ref]

• **Summary:** Contents: Abstract. Research emphasis.

Socio-economic aspects. Major causes for low yield and future prospects: varietal development, agronomic aspects, disease and insect problems, adaptability to unfavorable environments. Conclusion. References.

Tables: (1) Soybean area, production and yield in South and Southeast Asia. (2) Soybean exports. (3) Asian soybean imports. (4) Soybean production costs and returns in Thailand, Philippines, and Taiwan. (5) Comparison of production factors between grain soybean and its competing crops—vegetable soybeans, pods, seeds, and adzuki bean in Taiwan, 1979-80 (in US\$/ha). (6) Production costs and returns for soybeans in selected South and Southeast Asian countries and the USA. (7) Major soybean cultivars grown by farmers in different countries until 1972. (8) Major soybean cultivars developed after 1972 and grown by farmers until 1982. (9) AVRDC soybean cultivars released by national programs. (10) Yield of G 2261 in three different densities at IRRI in the dry season. (11) Yield of selected AVRDC genotypes at Sukamandi in West Java, Indonesia. (12) Cultivars with high yield potential in the tropics.

Figures: (1) Graph of area planted to soybean, adzuki beans and vegetable soybean in Taiwan (* Kaohsiung district only), 1971-1982. (2) AVRDC selections with high yield potential that are adapted to different seasons. Address: AVRDC, Shanhua, Taiwan.

911. Wan, Hsiung. 1984. Soybean production and research in Taiwan. *Tropical Agriculture Research Series* No. 17. p. 45-51, 53-65. March. International Symposium on Soybean in the Tropics and Subtropics. [101 ref]

• **Summary:** Abstract. Production. Supply and demand. Methods of culture: varieties used, planting methods and field management (conventional method, rice-stubble planting method), harvesting, disease and pest control. Soybean research and extension systems: research institutions, extension service. Major research programs completed: variety improvement, breeding and genetics research, physiology, nutrition and cultural practices, diseases. Major constraints in soybean production: import of low-priced soybeans, competitive crop in soybean-producing center, unfavorable growing conditions in the tropics, high cost of production. Measures for promotion of soybean production: price support, expansion of acreage, change in the aim of variety improvement, reduction of production cost. Prospects. References. Tables: (1) Soybean production in Taiwan. (2) Soybean production in Kaohsiung-Pingtung area, Taiwan. (3) Soybean production in different planting seasons in Taiwan. (4) Soybean varieties released in Taiwan and their characteristics. (5) Acreages of soybean and adzuki bean. Figures: (1) Location of soybean research and extension institutions. Address: Taiwan Agricultural Research Inst., Wufeng, Taichung, Taiwan.

912. Chen, Tony H.H.; Gusta, L.V.; Tjahjadi, C.; Breene,

W.M. 1984. Electrophoretic characterization of adzuki bean (*Vigna angularis*) seed proteins. *J. of Agricultural and Food Chemistry* 32(2):396-99. March/April. *

• **Summary:** “Seed proteins of adzuki beans (*V. angularis* L. cultivar Takara) were sequentially extracted with deionized distilled H₂O, 0.5 M NaCl and 0.05 M Tris-HCl buffer (pH 8.6) containing 2% sodium dodecyl sulfate (SDS) and 5% 2-mercaptoethanol... The major seed protein of Takara adzuki bean is a glycoprotein that consists of 2 carbohydrate-containing subunits with a relative mass (MW) of 55,000 and 35,000, respectively.” Address: Japan.

913. *Country Reader* (Arrowhead Mills, Inc., Hereford, Texas). 1984. Adzukis have arrived. 4(1):1. Spring.

• **Summary:** “Arrowhead Mills is proud to add another product to our long list of organically grown beans—Adzukis.

“Adzukis have a somewhat less ‘beany’ taste than most legumes, with a distinct and delicious flavor. In Japan they are outranked only by soybeans in legume consumption.”

“Adzukis are excellent for sprouting plus they can be cooked like other beans.”

914. Negishi, H.; Kobayashi, K. 1984. [Effect of soybean cyst nematode on the incidence of brown stem rot (BSR) of adzuki bean]. *Nihon Shokubutsu Byori Gakkai Ho (Annals of the Phytopathological Society of Japan)* 50(4):500-06. Oct. [10 ref. Jap; eng]*

Address: Japan.

915. Ohsawa, Lima. 1984. *Macrobiotic cuisine*. Tokyo and New York: Japan Publications, Inc. 175 p. Illust. by Seiji Onishi. Index. 26 cm.

• **Summary:** On the copyright page we read: “This book was originally published under the title of *The Art of Just Cooking* by Autumn Press, Inc. in 1974. This Japan Publications Edition is completely revised, rewritten and expanded by arrangement with the author and Nippon C.I. Foundation. (c) 1984 by Nippon C.I. Foundation.

Contents: Preface, by Lima Ohsawa. Introduction: table of daily foods, vegetable cutting techniques. 1. Whole grains and flour: Brown rice, plus brown rice with azuki beans, brown rice with soybeans, sushi stuffed *agé* (*inari-zushi*), brown rice porridge with vegetables and miso, mochi (sweet rice cakes), mochi with soybean flour (*abekawa*), buckwheat, millet, grain milk (*kokoh*), millet burgers with kuzu sauce, breads, wheat gluten (*kofu*), seitan cutlet.

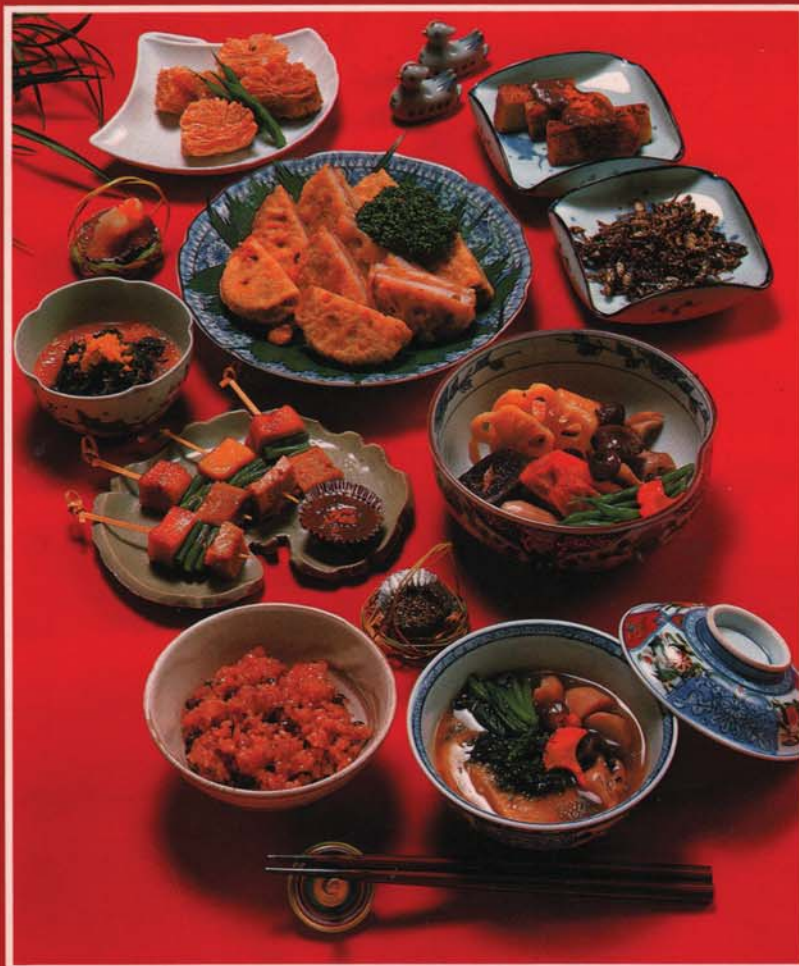
2. Vegetables from land and sea: Including burdock with miso, carrot with tofu dressing, carrot *agé* roll, fried jinenjo with soy sauce, sea vegetables (*hijiki*, *kombu*, *nori*, *wakame*), tempura, wild vegetables, salads.

3. Soups and stews Incl. “A bowl of delicious miso soup made with your favorite vegetables,” soybean potage (*go jiru*), *oden*.

4. Condiments and pickles: Sesame salt (*gomashio*),

MACROBIOTIC CUISINE

by LIMA OHSAWA



sautéed vegetables with miso (*tekka miso*), soybeans with miso and burdock.

5. Sauces, spreads and salad dressings: Ginger soy sauce, walnut miso.

6. Beans: Azuki beans, chick-peas, soybeans with vegetables (*gomoku mame*), Cooking with soy foods: Okara stuffed pouches, tofu croquettes (*gammodoki/ganmodoki*), *Koya-dofu* sandwich, deep-fried yuba.

7. Seafood and eggs: Egg tofu.

8. Pastries and desserts.

9. Beverages.

Glossary (excellent).

Back cover (from the publisher): Written by a world-recognized authority in the field, this is a complete guide to health-giving, macrobiotic foods. A diet composed of such wholesome, delicious ingredients as brown rice, whole wheat, other grains, vegetables, edible sea vegetables, beans, and soy products will make you look better and, more important, will correct bodily abnormalities and give you both physical and psychological good health. But the diet Mrs. Ohsawa has planned is not merely vegetarian. Anyone who tries it with the idea that it is no more than a series of salads is in for a surprise.

“Her husband, the late George Ohsawa, whose name is famous for the tens of books he wrote on macrobiotics and whose memory is cherished in the minds and recollections of many people who studied directly with him, was Mrs. Ohsawa’s demanding instructor in the evolution of her culinary art. He insisted that, in cooking, thought, attitude, and personality training are more important than technical skill. This approach and stern Oriental-style training are the foundation of Mrs. Ohsawa’s cooking philosophy.

“In 1953, Mr. and Mrs. Ohsawa set out from Japan on a trip that took them to India, Africa, and Europe. Wherever they went, Mr. Ohsawa lectured on macrobiotics and gave health guidance; and Mrs. Ohsawa concentrated on macrobiotic cooking. In France they opened a summer health camp where so many people were cured of difficult illnesses that the institution came to be called the Camp of Miracles. Their work for the next quarter of a century pioneered the way for the introduction of macrobiotics to Western society in general.

“Today millions of people all over the world are devoted to the macrobiotic way of living and eating. All of these people plus many others who are interested in the relation between diet and good health are certain to purchase this book.

“Lima’s Cookbook contains over 300 recipes, explained in a way that Americans can readily understand, and many variations. The 78 stylish illustrations greatly enhance reader pleasure.

“As a young woman she was so frail that doctors predicted she would not live to be thirty. Her first marriage was unhappy, but later she met George Ohsawa, who

introduced her to macrobiotics. And with this event, the life-style of a woman who had been a weakly, desperate, and unsophisticated suddenly changed completely. She earnestly wishes to share her own experiences and those of many other people from various parts of the world in order to propagate to the maximum extent a diet system that brings both health and happiness. In this book, the publication of which cannot fail to make big news in the field this year, Lima Ohsawa proves beyond a shadow of a doubt that anyone who suspects it of being dangerous does not understand macrobiotics and is not cooking in the correct macrobiotic way.”

A portrait photo shows Lima Ohsawa in about 1984. Address: Tokyo.

916. Bray, Francesca. 1984. Science and civilisation in China. Vol. 6, Biology and biological technology. Part II: Agriculture. Joseph Needham series. Cambridge, England: Cambridge University Press. xxvii + 724 p. Illust. Index. 26 cm. [1487* ref]

• **Summary:** Contents: List of 271 illustrations. List of 13 tables. List of 17 abbreviations. Author’s note. Introduction: General characteristics of Chinese agriculture, agricultural regions, origins of Chinese agriculture. Sources: The *yüeh ling* or agricultural calendars, agricultural treatises, state-commissioned compilations, monographs, supplementary sources, the content of the Chinese sources and the implications for historical interpretation, a comparison with European tradition. Field systems: Land clearance and reclamation, shifting cultivation, permanent fields. Agricultural implements and techniques: Tillage implements, sowing, fertilisation, weeding and cultivation, harvesting and threshing and winnowing, grain storage. Crop systems: Crop rotation, millets and sorghum and maize, wheat and barley, rice, legumes (incl. soybeans and adzuki beans [*Phaseolus angularis*, or *hsiao tou*]), oil crops, tuber crops, fibre crops, vegetables and fruits. Conclusions—Agricultural changes and society—stagnation or revolution?: Did China contribute to Europe’s agricultural revolution?, agricultural revolution in China?, development or change?

Bibliographies: Abbreviations. Chinese and Japanese books before + 1800: 254 references. Chinese and Japanese books and journal articles since + 1800: 306 references. Books and journal articles in Western languages: 778 references. Note: There are 560 references in Chinese.

“This book is dedicated to the memories of Shih Shen-han of the Northwestern Agricultural College, Wukung, Wang-Yü-hu of the Peking Agricultural College, and Amano Motonosuke of Osaka University, without whose pioneering work on the history of agriculture in China this volume would not have been possible.”

The section titled “Monographs” (p. 74-75) notes that farm tools and machines were not considered interesting by Chinese writers. “It would never have occurred to an educated Chinese to attempt to benefit mankind by

improving the design of the plow, and there is none of the technical, experimental literature that we find in the West on such topics.” Address: Cambridge, England.

917. Bray, Francesca. 1984. Early Chinese references to soybeans or adzuki beans in green manures and crop rotations (Document part). In: F. Bray. 1984. Science and Civilisation in China. Vol. 6, Biology and Biological Technology. Part II: Agriculture. Joseph Needham series. Cambridge, England: Cambridge University Press. xxvii + 724 p. See p. 293, 431, 464, 515-16. [2 ref]

• **Summary:** “The earliest Chinese references to the cultivation of green manures occur in the +6th-century *Ch’i Min Yao Shu* [Essential techniques for the peasantry of Ch’i (to gain their living in peace) by Chia Ssu-hsieh, A.D. 535], which advocated the ploughing in of adzuki beans (*lū tou*) before cultivating melons, mallows, and other vegetables. However, it was the opinion of the Ch’ing scholar Ma Kuo-Han that these sections of the *Ch’i Min Yao Shu* were taken from an early Han work, the *Yin Tu Wei Shu*; the modern scholar Ch’en Liang-Tso concurs in this opinion and gives a complete list of the very wide range of green manures mentioned in the early Chinese texts... The majority of green manures were leguminous plants with nitrogen fixing properties. Although the legumes fertilising powers are greatest if they are ploughed in when still young, they add greatly to the soil’s fertility even if they are allowed to mature and their beans are harvested before the straw is ploughed in” (p. 293).

“Green manures played a very important role in Chinese crop rotations, apparently as early as Chou times [1027–770 B.C.]; they are repeatedly referred to in the *Ch’i Min Yao Shu* and subsequent agricultural treatises. The *Ch’i Min Yao Shu* recommends that the soybean is the best crop to follow broomcorn millet (*Panicum miliaceum* = *shu*) and 8th best crop to follow foxtail millet (*Setaria italica* = *ku*) in rotations. It recommends the adzuki bean (*Phaseolus angularis* = *hsiao tou*) as the best crop to follow hemp (*Cannabis sativa* = *ma*) and cucurbits [*kua*; plants of the gourd family, incl. cucumbers and squash], and the second best plant to follow foxtail millet (p. 431).

“As early as the Northern Wei [A.D. 386–535] it seems that the system of growing three crops in two years was well known in North China. The author of the *Ch’i Min Yao Shu* says: ‘For lesser beans (*hsiao tou*) it is usual to use land that has been cropped with wheat or barley” (p. 464).

“The soybean was probably the most important legume grown in China, but it was by no means the only one. ‘Lesser beans (*hsiao tou* or *ta*) came, according to the *Ch’i Min Yao Shu*, in three varieties, red, green and white (Fig. 239; illustration shows the Red adzuki bean [*ch’ih hsiao tou*], reprinted from *CMYS* 6.1.5 and *Shou Shih T’ung K’ao* 27/10a). The term *hsiao tou* can probably be identified with the adzuki bean, *Phaseolus angularis* (Willd.) Wight [*Vigna*

angularis], which is native to China and Japan.” (Footnote: *See N.I. Vavilov. 1949-50. “The origin, variation, immunity, and breeding of cultivated plants. Translated from the Russian by K. Starr Chester.” *Chronica Botanica* 13:21). “The ‘green bean’ (*lū tou*), much valued as a rotation crop for its fertilising properties, has been variously identified as *Phaseolus radiatus* L., [*Vigna radiata* = mung bean] a native of India akin to *Phaseolus mungo* L., the black gram, and as *Phaseolus aureus* Roxb., the green gram” (p. 515-16). Address: Cambridge, England.

918. Bray, Francesca. 1984. Crop systems (Document part). In: F. Bray. 1984. Science and Civilisation in China. Vol. 6, Biology and Biological Technology. Part II: Agriculture. Joseph Needham series. Cambridge, England: Cambridge University Press. xxvii + 724 p. See p. 423-510.

• **Summary:** Note: Chinese characters are given for all romanized Chinese words or terms. Crop systems in China emphasize cereal grains far more heavily than any farming system in the West. Productive livestock play a very small role in China’s farm economy, and the proportion of arable land devoted to pastures is very small. Grain has always been the essential ingredient in Chinese diets, with millets and wheat in the north, and rice in the south, providing almost all the carbohydrates and a significant part of the protein. Legumes, especially soybeans and their products, provided supplementary proteins and also restored the soil’s nitrogen content. The Chinese have been among the best-fed people in the world, especially during periods of economic prosperity like the Sung dynasty.

Important crops like rice, millet, and hemp have been cultivated in China since Neolithic times; soybeans, which emerged later, were probably first domesticated in north China during Chou times (after 1045 B.C.); from there they spread to Japan and Southeast Asia, then eventually to the Americas and Europe.

Crop rotations (p. 429): By Western standards, the size of Chinese land holdings were very small, even as early as Han times. During the Sung, a large holding was considered to be 100 *mu* (about 15 acres or 6 ha). During the 1930s, the average holding was 5½ acres in North China and 3 acres in the south—but these small farms were very productive. The fertility of the soil came not from the manure of grazing livestock on fallow land but from the application of fertilizers (such as human excrement, river mud, or oil-cake) and the wise use of crop rotations including legumes, green manures, and other soil-enriching crops. Continuous cropping seems to have been widely established in China by Han times. The *Ch’i Min Yao Shu* (544 A.D.) recommended various crop rotations. For example, foxtail millet (*Setaria italica*; *ku*) should be preceded by adzuki bean, hemp, sesame, or soybean. Broomcorn millet (*Panicum miliaceum*; *shu*) should be preceded by soybean or foxtail millet. Adzuki beans should be preceded by wheat or barley, or foxtail

millet. Note: In 1978 the adzuki bean was reclassified from *Phaseolus angularis* (Willd.) to *Vigna angularis* (Willd.). The Chinese term for grain, *ku*, has been applied not only to the main cereal grains but also to such field crops as hemp and beans, also cultivated for their grains. Thus *wu ku*, the “five grains,” a term often found in Classical Chinese texts, was understood to comprise setaria millet (*chi*), panicum millet (*shu*), rice (*tao*), wheat and barley (*mai*), and legumes (*shu*)—though some commentators substituted hemp (*ma*) for rice. Other classifications referred to the “six grains” (*liu ku*) or “nine grains” (*chiu ku*).

Table 10 (p. 433) shows some common Chinese crop rotations. In the winter wheat area 3-year rotation (20th century): Winter wheat, soybeans (summer), fallow, kaoliang (summer), winter wheat, soybeans or black soybeans (summer). The Kiangsu high land 3-year rotation started with wheat or barley (winter), then soybeans and sesame (summer).

Millet, sorghum (incl. kaoliang) and maize (p. 434-59). Discusses many species, glumes, spikes, panicles, awns, illustrations (p. 438-39, 444), table of terminology of Chinese millets (p. 440, incl. glutinous varieties), distribution, food uses. The name *kaoliang* (“tall millet”) first appears in the *Wang Chen Nung Shu* (+1313). The plant, cultivated primarily in northeastern China, is characterized by tall stems ten feet high, huge panicles, and comparatively large black seeds. A map (p. 437) shows the distribution of four species of millet plus Job’s tears.

Wheat and barley (p. 459-77). Both are of Near Eastern origin. They may have been grown in some parts of China as early as Neolithic times, and were certainly cultivated during the Shang (1600 to 1045 B.C.) and Chou (after 1045 B.C.) in areas such as Shantung and Anhwei. “The most important feature distinguishing wheat and barley from the native Chinese cereals is that they are winter crops, that is to say they are sown in the autumn or winter and harvested in the late spring.” Their great attraction was that they were supplements to, not substitutes for, the more traditional crops, and were harvested in the lean summer season when supplies of millet and rice were running low. “Since they did not compete for field-space with autumn-ripening crops, wheat and barley permitted the development of highly productive crop rotations.” In northern China they were often rotated with millet or kaoliang, and even replaced them entirely in some areas. Northern rotations often included soybeans or other legumes. Illustrations from *Pên Ts’ao Kang Mu* (+1596) (p. 468-69). Only during the T’ang dynasty did wheat and barley really become economically important in China. The *Pu Nung Shu*, by Chang Lü-Hsiang (+1620) mentions the use of bean-cake (*tou ping*) as a fertilizer on wheat fields. For wheat and barley, the yield to seed ratio (number of grains harvested for every grain planted) was about 3 or 4 to 1 whereas rice in China was 50 or 100 to 1. Today wheat is clearly the most important crop

in North China.

Rice (p. 477-510). Rice (*Oryza sativa* [*Oryza sativa*]) has been a key crop in the Chinese economy since the T’ang dynasty (+618-906). Two sub-species are commonly distinguished: *indica* is short and round-grained whereas *japonica* is long-grained. Most Asians reserve glutinous rice for ceremonial purposes. Address: Research Fellow, East Asian History of Science Library, Cambridge, England.

919. Bray, Francesca. 1984. Legumes: II (Document part). In: F. Bray. 1984. Science and Civilisation in China. Vol. 6, Biology and Biological Technology. Part II: Agriculture. Joseph Needham series. Cambridge, England: Cambridge University Press. xxvii + 724 p. See p. 514-18. [49 ref]
• Summary: Note: Chinese characters are given for all romanized Chinese words or terms. While the soybean was probably the most important bean grown in China, it was certainly not the only one. Lesser beans (called *xiaodou* or *da*, according to the *Guangya*, as quoted in the *Qimin Yaoshu*) came, according to the latter book in three varieties: red, green, and white. The term *xiaodou* can probably be identified with the adzuki bean, *Phaseolus angularis* (Willd.) Wight, which is native to China and Japan. The “green bean” is probably the mung bean (*lūdou*). Valued as a rotation crop that enriched the soil with nitrogen, it has been variously identified as *Phaseolus radiatus* L., a native of India akin to *Phaseolus mungo* L., the black gram, and as *Phaseolus aureus* Roxb., the green gram. This “green bean” was extensively cultivated in North China and was often ground and used as flour to make noodles and cakes (as gram flour is also used in India).

Footnote: Recent reclassifications: *Phaseolus angularis* -> *Vigna angularis* (Willd.) Ohwi & H. Ohashi. *Phaseolus radiatus* -> *Vigna radiata* (L.) R. Wilczek; *Phaseolus radiatus* and *Phaseolus aureus* are now being classified together as a single species. *Phaseolus mungo* -> *Vigna mungo* (L.) Hepper.

“Several important legumes came to China from West Asia, including the broad bean (*Vicia faba* L.) and the pea (*Pisum sativum* L.), both of which were said to have been introduced by the Han envoy Zhang Qian (W.-G. Chang Ch’ien) on his return to China from Central Asia in -126 (Laufer 1919, p. 305). Both were sometimes referred to as *hutou* (pinyin: *hudou*), ‘Western bean’; the pea was more commonly known as *wandou* (a term first used in the early +3rd-century *Guangya* as cited in *Qimin Yaoshu* 6.1.2) and the broad bean as the ‘silkworm bean,’ *candou*, because of its shape (Fig. 240; the term *candou* does not appear in texts before the Song dynasty. See C.N. Li 1958, p. 351, which cites the earliest appearance of the term in a work from the Northern Song dynasty dated 1061).”

“Both peas and broad beans were used to make noodles, cakes, and dumplings as well as being eaten whole, and they were appreciated for their keeping qualities (as they

were in Europe where they formed an important part of the traditional peasant diet). Peas were more common in Northwest China, broad beans in the South and especially the Southwest; today broad beans are still the most important food crop after rice in Yunnan.

“Another pulse grown in China was the cowpea, *Vigna sinensis* (L.) Sair ex Hassk, or asparagus pea, *Vigna sesquipedalis* (L.) Fruw. (*chiang tou*). This crop is known to have originated in tropical Africa and was known in India by Sanscritic times, but it probably reached China through Central Asia since it too was sometimes called *hu tou* or ‘Western bean’ in early texts, and the Northern Sung *Thu Ching Pên Ts’ao* says that it was much grown in the Northwestern provinces of China.” Address: Research Fellow, East Asian History of Science Library, Cambridge, England.

920. Brennan, Jennifer. 1984. *The cuisines of Asia: nine great oriental cuisines by technique*. New York, NY: St. Martin’s Press. ix + 542 p. Illust. (line drawings). Index. 24 cm.

• **Summary:** The “Nine great Oriental cuisines” are those of “China, India, Indonesia, Japan, Korea, Malaysia, The Philippines, Thailand, Vietnam” (as stated on the book’s cover). The book contains many recipes, yet it is largely organized into chapters by cooking techniques: barbecuing, steaming, stir-frying / using a wok, deep-frying, etc.

The chapter on “Japan” discusses soybeans, miso, tofu, and shoyu on pages 44-45. Soyfoods are said to be the 2nd largest source of protein in the Japanese diet.

The section on “Soybeans” (p. 97-104) includes a discussion of the names of various soyfoods in different Asian languages and countries. For example: “The basic bean curd is called *tau-fu* in Cantonese, *tau-hu* in Hokkien, and *tofu* in Japanese.” Or consider this (p. 99): “During the basic process of making bean curd, at the stage where the bean and water mixture is boiled, a skin or residue forms on the top. This skin [yuba] is skimmed off and dried. It is commercially available in sheets... and in the form of sticks that bear the picturesque name of ‘second bamboo’ [dried yuba sticks] in Chinese, meaning that they are the second residue from the curd.”

There follows a 3-page table titled “Soybean products” (p. 101-03) which has four columns: Description, Chinese name [Cantonese], Japanese name, comments.

Note: Before proceeding, we believe that the design of this table is fundamentally flawed. (1) Why are the names of the basic soyfoods not given in the other languages with which this book is concerned, including Mandarin Chinese, Korean, Indonesian, Vietnamese, Filipino, etc.? (3) Why is no English name given for each basic soyfood product? Sometimes the description is the English name, yet that name is rarely the name a person would use if they were selling the product in an English-speaking country. (3) Why are so

many common “soybean products” omitted from this table, such as the various basic other types of Japanese miso and of Japanese shoyu (besides koikuchi shoyu), fermented black soybeans (douchi, dow see), soymilk, soy sprouts, roasted soy flour, whole soy flour, soybean oil, textured vegetable protein, etc. These problems are easily solved with alternate table designs. For example, have one table for each language, with the name of each soyfood product given first in English and then in the language of that country. Put the description and comments in a glossary to avoid repetition. Or, have a glossary entry for each soyfood, with the English name, description, comments.

The table is divided into four basic types of soybean products. After each, we will give the Cantonese name and then the Japanese name, and we will indicate disagreements using [sic]. NL = Not listed.

(1) Bean curd: Tau fu fu [sic] = kinugoshi tofu. Tau fu = momen tofu. NL = yaki tofu [sic, yaki-dofu]. NL = koya tofu or kori tofu [sic, koya-dofu or kori-dofu]. Tau fu pok = abura age. Fu chu = yuba [sic, fu chu is dried yuba sticks. Yuba in Mandarin is doufu pi]. fu joke [sic, fu jook] (bean curd sticks) = NL. Tim joke [sic, tiem jook] (sweet bean curd sticks) = NL. tau fu kon [Mandarin: doufu gan; pressed tofu].

(2) Soy sauce: Light = chan ch’an or sang chu = usu kuchi shoyu [sic, not the same]. Dark, medium = see yu chan yan = shoyu [sic, see yu is soy nugget sauce, not made in Japan. Japanese shoyu is not traditionally made in China]. Dark, heavy, sweet = chu yan = NL.

(3) Fermented bean pastes and cheeses. Black bean paste = dau see tau ch’ih = NL. Sweet, white bean paste = NL = shiro miso. White soy cheese [fermented tofu, should be classified under tofu] = pai doufu-ru or foo yee or foo yu = NL. Red soybean paste = NL = aka miso. Red soy cheese or spiced red bean curd = hung doufu-ru or nom yee or nam yu.

(3) Miscellaneous soybean productions. Soy jam = yun shi jeung = NL. Whole fermented soybeans = NL = nato [sic, natto]. Red bean sauce = saang see jeung = NL. Soybeans and malted rice = NL = moromi miso. Hoisin sauce = hoisin = NL.

In the “Basic recipes” section is a recipe for Indonesian dark sweet soy sauce (*ketjap manis*).

The Glossary (p. 499-515) contains the following soy-related entries: “Bean Curd (*tofu*, Japanese; *tao foo*, Chinese; *tahu*, Indonesian and Thai; *tokwa*, Philippines): A curdled, soft, cheeselike preparation made from soybean milk. Used as a source of protein in Asian cooking. Available loose or in packages.”

Bean paste, red sweet [from azuki beans]. “Substitute Chinese sweet red bean paste, p. 132.”

Bean paste, yellow (Chinese).

“Beans, black salted fermented. (Called dow see in Chinese) These are very salty soybeans, sold in cans in Chinese markets. Used with garlic as a flavoring for fish and pork dishes. substitute: Soybeans, cooked until soft and

seasoned with plenty of soy sauce.”

Bean sprouts: Usually refers to mung bean sprouts, “although alfalfa and soybean sprouts are also used.”

Hoisin sauce: Soybeans are a major ingredient, along with garlic, chili peppers, and various other spices and ingredients.

Miso. Oyster sauce: “A Chinese sauce, made from oysters cooked in soy sauce and brine.” Used as a seasoning with cooked foods and as a table sauce. See recipe p. 146.

Red bean sauce: “A strong table sauce made from mashed soybeans.” Available in cans from Chinese stores.

Soy sauce

Also contains entries for: Kombu. Monosodium glutamate (MSG; “I do not use it nor do I recommend its use”). Mung beans.

The index contains 28 entries for soybean, 22 for soy sauce, 14 for miso, 6 for bean paste, oyster sauce, teriyaki, 4 for bean curd—deep fried, hoisin sauce, vegetarian dishes, 2 for ketjap, and 1 each for beans—black salted fermented, bean curd—fermented, jam—soy, jang (see miso), milk—soybean, ragi, shoyu (see soy sauce), soybean oil, sukiyaki, tahu, tau-fu or tau-hu (see bean curd), tempe [tempeh], textured vegetable protein (TVP), tofu (see bean curd), tou shih [fermented black soybeans],

About the author (from the back cover): “Jennifer Brennan grew up in Pakistan and India and has spent many years in Southeast Asia. She is the author of *The Original Thai Cookbook*.” She is “Winner of the IACP [International Association of Culinary Professionals] Award for the Best Literary Food Writing.”

921. Greenwood, Sadja. 1984. *Menopause, naturally: Preparing for the second half of life*. San Francisco, and Volcano, California: Volcano Press. 201 p. Illust. by Marcia Quackenbush. 23 cm. [36 ref]

• **Summary:** This is a pioneering, wonderful book on menopause. Chapter 10, titled “Estrogen replacement therapy: The pros, cons, and unknowns” states (p. 89) that when estrogen was first isolated in the 1920s, it was used for women who had lost their ovaries through surgery and for women with severe problems after natural menopause. “However, its use was not widespread until the 1960s, when a book entitled *Feminine Forever*, by Robert Wilson, popularized estrogen use for all women who wanted to retard aging and retain their feminine allure. The use of ‘estrogen replacement therapy,’ or ERT, spread widely among middle- and upper-class women treated by private physicians.”

Chapter 15, titled “Nutrition: All about eating and drinking” (p. 147-76) advocates a diet low in meat and high in whole grains, beans, vegetables, and fruits. Beans are excellent foods; they are high in protein, low in fat, and a good source of fiber. If gas is a problem, cook the beans well and serve small portions. “Fresh green beans and peas, bean sprouts, and soybean foods like tofu rarely give you gas.” An

illustration (line drawing) shows sacks and boxes of various types of beans (not including soybeans) and a cake of tofu. People who get much of their protein from beans and grains are also helping to make most efficient use of world food resources—an idea developed in *Diet for a Small Planet*. Sprouts are a delicious food, high in nutrients. Anyone can make bean sprouts in the kitchen from lentils, aduki beans, mung beans, etc. Sea vegetables are excellent; avoid canned veggies.

Concerning meat fish and poultry: Try to cut back, replacing them with a combination of whole grains and beans—which provides high-quality protein without added fat. “You can eliminate entirely and be healthy! Vegetarians have good health records, with lower rates of heart disease and cancer than meat-eaters.” Nonfat or low-fat milk, yogurt, and cheese are good foods for mid-life women because of they are high in calcium. But some adults lack the ability to digest milk sugar (lactose), and experience cramping, gas, and diarrhea after consuming milk products. “Soy ‘milk’ can be used, especially in cooking, as a milk substitute.” A table shows common foods that are high in calcium, including “tofu (soybean curd).” 4 oz. contains 150 mg of calcium.

Note: This is the earliest English-language document seen (Aug. 2013) that contains the term “Soy ‘milk.’”

Cut down on fats, sugar, salt, alcohol, and caffeine. A table titled “Suggestions for healthy breakfast foods” (p. 171) includes “Tofu (bean curd): Eat steamed, scrambled, or grilled with onions, curry, soy sauce, or other flavorings.” Tofu is high in calcium. Suggestions for a healthy lunch include mashed tofu as a filling in sandwiches made from whole grain bread. Suggestions for healthy snack foods include slices of raw vegetables with tofu or cottage-cheese dip. Suggestions for a healthy dinner (p. 173) include brown rice with stir-fried vegetables and tofu. On p. 175 are recipe suggestions for Stir-fried vegetable dishes with tofu, meat, or fish.

On the back cover is a photo of Sadja Greenwood, M.D., M.P.H., and a biographical sketch. She is age 53, “mother of two grown sons, a vegetarian, a slow jogger, looking for the truths about life and the joy in every day.” A general practitioner, she has long been associated with women’s health programs. “She is Medical Director of Min An Health Center, which utilizes Eastern and Western medical treatments, and is Assistant Clinical Professor at the University of California Medical Center, San Francisco.”

Note: In 1984 the phytochemicals in soybeans and their possible benefits for menopause were largely unknown.

Note: This is the earliest document seen (Sept. 1999) in which soy is mentioned in connection with relief of menopausal symptoms. Address: M.D., MPH, San Francisco, California.

922. Harrington, Geri. 1984. *Grow your own Chinese vegetables*. Pownal, Vermont: Garden Way Publishing. xvi +

268 p. Illust. Index. 23 cm.

• **Summary:** The contents and pagination of this book are identical to those of the 1978 edition. Address: Author [USA].

923. Kennedy, B.W. 1984. Bacterial stem rot, a devastating disease of adzuki beans in Minnesota. *Annual Report of the Bean Improvement Cooperative* (Geneva, NY) 27:160. * Address: Japan.

924. Kurz, Marey. 1984. Soja in der Vollwertküche: Rat und Rezept-Ideen zum Kochen und Backen mit allen Soja-Varianten: Bohnen, Mehl, Milch, Sauce, Tofu und Miso. Das erste komplette Soja-Kochbuch [Soya in whole-foods cookery: Advice and recipe ideas for cooking and baking with all the varieties of soya: Beans, flour, milk, sauce, tofu and miso. The first complete soya cookbook]. Munich, West Germany: Gräfe und Unzer GmbH. 102 p. Illust. Index. 20 cm. [11 ref. Ger]

• **Summary:** Foreword. Everything about soy (*Soja*). Basic soy recipes (How to make at home): Soy grits, soy sprouts, light soybean pulp (cooked ground soybeans), dark soybean pulp, cooked soybeans, sweet cooked soybeans, cooked azuki beans, soymilk, tofu–Soya quark or soya cheese (*Sojaquark oder Sojakäse*), okar.

Soups and one-pot dishes. Refined ragouts. Delicate meatballs or rissoles. Pies, pastries and spreads. Hearty

vegetable dishes. Special salads. Side dishes, garnishes, and entremets. Fine sauces. Soya for those in a hurry. Desserts and confections. Drinks and energy-spenders. Delicious spreads for breads. Bread, cakes, pastries (*kuchen*) and baked goods.

Appendix: Glossary, books and addresses: gomashio (*gomasio*; sesame salt), graham flour (*Graham-Paniermehl*; see *Vollkornbrösel*), Indonesian soy sauce, margarine, miso, nigari, okara, mushroom soy sauce (*Pilz-Sojauce*), gomashio (*Sesamsalz*; *Gomasio*), soybeans (*Sojabohnen*), textured soy flour (*Sojamark*, TVP), tahini (*sessamus*), defatted soy flour (*Sojamehl fettarm*), whole (full-fat) soy flour (*Vollsojamehl*; *Sojamehl vollfett*), soy oil, soy sauce (*Sojasauce*), soy grits (*Sojaschrot*), tofu (*Sojaquark oder -käse*), tofu mayonnaise, Worcestershire sauce (*Worcestershiresauce*). Address: West Germany.

925. So, Yan-kit. 1984. Yan-kit's classic Chinese cookbook. London: Dorling Kindersley Ltd., London. 240 p. Illust. (color photos). Index. 24 cm. [1 ref]

• **Summary:** This is a remarkable Chinese cookbook. Although the text of this book was copyrighted in 1984, the photographs, layout and design have been updated to 1993. For a summary, see the 1993 edition. Address: England.

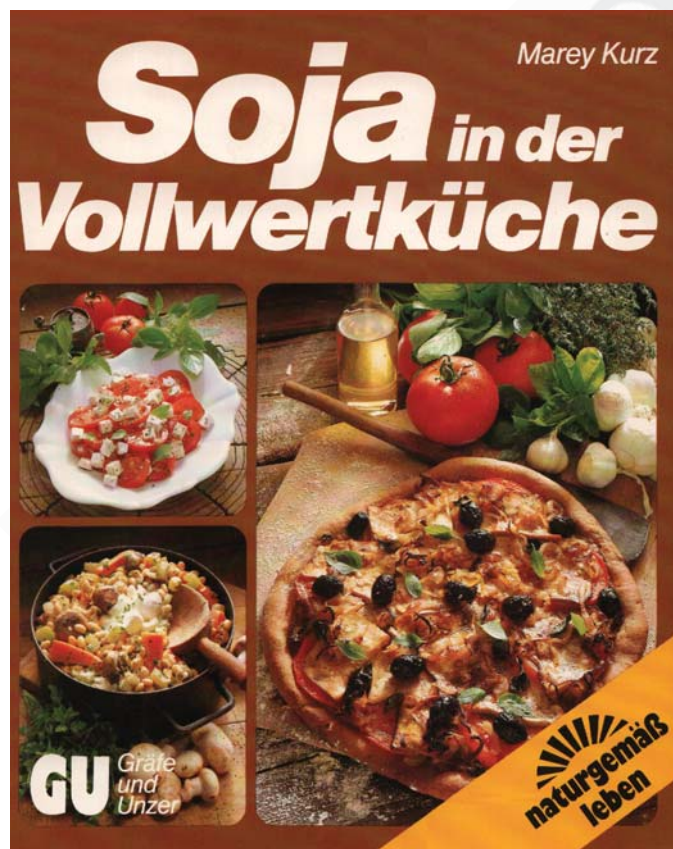
926. Goto, K.; Takahashi, M.; Nishiiri, K.; Abe, K. 1985. [Effect of overhead flooding on growth and yield of soybeans and azuki beans]. *Kenkyu Hokoku (Hokkaido National Agric. Exp. Station, Research Bulletin, Sapporo)* (141):127-45. Jan. [10 ref. Jap; eng]*

927. Saito, Akio. 1985. Daizu bunka-shi nenpyô [Chronology of soybeans, 122 B.C. to 1984]. *Daizu Geppo (Soybean Monthly News)*. Jan. p. 12-16; Feb. p. 10-18. 28 cm. [Jap; eng+]

• **Summary:** This very interesting, well-researched, and detailed chronology, which is full of new information, focuses on the development of soybeans and soyfoods in Japan. We have divided the contents of the chronology into 9 separate records; the date of each corresponds to the last year in that part of the chronology: 1292, 1599, 1699, 1868, 1899, 1926, 1949, 1969, and 1984. Address: Norin Suisansho, Tokei Johobu, Norin Tokeika Kacho Hosa.

928. Yoshikawa, Mitsuyoshi; Yokota, K.; Hiraki, K. 1985. [Purification and some properties of a subtilisin inhibitor from adzuki beans]. *Agricultural and Biological Chemistry* 49(2):367-71. Feb. [22 ref]

• **Summary:** "A subtilisin inhibitor was isolated from adzuki beans... by chromatography on CM-cellulose, Sephadex G-75, DEAE-cellulose, and SP-Sephadex C-25. The final preparation was confirmed to be homogeneous on polyacrylamide gel electrophoreses, and its pI value was 3.7. The preparation was a powerful inhibitor of microbial serine-



proteinases but its activity was destroyed by trypsin and chymotrypsin.” Address: 1. Lab. of Biochemistry, Faculty of Agriculture, Kobe Univ., Nada-ku, Kobe, Hyogo 657, Japan.

929. Product Name: Amazuki (100% Organic Rice and Bean Drink).

Manufacturer’s Name: Kendall Food Co.

Manufacturer’s Address: 46A Route 112, Worthington, MA 01098. Phone: 413-238-5928.

Date of Introduction: 1985 March.

Ingredients: Berkshire mountain water, organically grown brown rice, organically grown rice koji (cultured rice), organically grown azuki beans, and a pinch of high mineral sea salt.

Wt/Vol., Packaging, Price: 1 pint plastic bottle.

How Stored: Refrigerated.

New Product–Documentation: Label. 1988. 1.5 by 3.5 inches. Azuki reddish purple on pink. “Quality macrobiotic foods. Shake before using.” Unfiltered. Talked with Charles Kendall. 1988. Feb. 17. He started it on 18 March 1985, but only made it for about 1 year. Sales were small. Notes that azuki takes sweet nicely. Then there was too much demand for almond amazake.

He also experimented with other amazake made from other than just rice. In 1987 he made Oatmeal Stout Amazake. Oats take sweet very well. He also tried making yellow millet amazake, which had a fine flavor like egg custard, very smooth but a little chalky.

930. Tsai, H.; Tsai, L.T.; Fu, Y.K.; Shen, M.L. 1985. [Utilization of gamma ray for insect pest control of bagged mungbeans and adzuki beans]. *Chung Hua Chih Wu Pao Hu Hsueh Hui (Plant Protection Bulletin, Taipei)* 27(1):63-68. [7 ref. Chi; eng]*

931. Estella, Mary. 1985. Natural foods cookbook: Vegetarian dairy-free cuisine. Briarcliff Manor, NY, and Tokyo: Japan Publications. 250 p. April. Illust (color). Recipe index. Index. 26 cm. [22 ref]

• **Summary:** This macrobiotic cookbook, though free of dairy products, uses fish in many recipes. In the chapter titled “Getting Started” there is a section titled “Beans” (p. 25-26) which describes adzuki beans, black soybeans, chickpeas, lentils, mung beans, etc. Concerning black soybeans: “Distinct from our American black bean in shape, texture and taste, this is a type of soybean They are available in Oriental markets or at natural food stores. Black soybeans cooked with sweet brown rice is a special treat” (see p. 157 for the recipe).

On the same page, in the section on “Whole grains” is a description of seitan (“Wheat gluten, also known as ‘wheat meat’ in America... Making seitan at home is an easy but time-consuming process.”).

There is also a section on “Soy Foods” (p. 26-27) which

begins by stating that “Soybeans, the king of beans, are ironically not often eaten as whole beans, but instead are processed into miso, shoyu, tofu, tamari, and tempeh.” Each of these foods are discussed briefly. Three types of soy sauce are defined: Shoyu, tamari, and commercial soy sauce (which is said to be artificially colored and processed). Chapter 7, titled “Whole grains, beans, tofu and tempeh” contains 7 tofu and 7 tempeh recipes. There are a large number of soy-related recipes throughout the book, including others tofu, tempeh, using miso and tamari.

932. Shurtleff, William; Aoyagi, Akiko. 1985. The Americanization of tempeh (1970 to 1980s) (Document part). In: W. Shurtleff and A. Aoyagi, Akiko. 1985. History of Tempeh: A Fermented Soyfood from Indonesia. 2nd ed. Lafayette, California: Soyfoods Center. 91 p. See p. 39-43. May. [402 ref]

• **Summary:** “The 1960s, a decade of creative scientific research on tempeh, laid the foundation for the 1970s, when tempeh began to enter the American diet. The main forces spurring increased production and consumption of tempeh after 1970 were the three closely related movements working to popularize natural foods, meatless and vegetarian diets, and soyfoods. From the late 1970s on there was a rapid growth of interest among many Americans in health, nutrition, and fitness, in low-cost protein sources, meatless diets, and world hunger, in ecology, and simpler, more satisfying lifestyles. Specific factors popularizing tempeh were the various promotional efforts, books, media coverage, and increased availability of good fresh tempeh. By the early 1980s the growing mainstream concern with cholesterol and saturated fats, had also become a significant factor.

“During the 1960s the Cornell University [New York] group under Dr. Steinkraus and the USDA Peoria [Illinois] group under Dr. Hesseltine and Dr. Wang had completed most of their basic research on tempeh. But a few important discoveries remained to be made during the 1970s. At Cornell, the most important findings concerned the production of significant amounts of vitamin B-12 during tempeh fermentation. In 1977 Liem, Steinkraus and Cronk showed tempeh to be one of the best vegetarian sources of vitamin B-12. Curtis, Cullen and Steinkraus (1977) showed that the B-12 was produced by the bacterium *Klebsiella*. (Nutritional analyses of commercial tempeh done by independent scientific laboratories during the late 1970s and early 1980s showed that typical samples contained an average of 8.8 micrograms of vitamin B-12 per 100 gram portion, or 293% of the US Recommended Daily Allowance of 3 micrograms.)

“The most significant research work on tempeh done by the Peoria group during the 1970s concerned the development of improved, larger scale methods for making tempeh starter cultures. The group showed that rice or a mixture of rice and wheat bran yield the most viable spores,

and they developed methods whereby individuals or tempeh manufacturers could make good quality tempeh starter by themselves.

“But much more important than the research work of these two groups during the 1970s and early 1980s was their ‘extension’ work. Members of both groups summarized the results of their research on tempeh in at least 35 articles, both scientific and popular. They also gave many speeches. This brought tempeh to the attention of many more scientists and lay readers. Starting with the *Mother Earth News* in May 1976, a number of major magazine articles listed the USDA NRRC at Peoria as America’s only source of tempeh starter. Over the next few years the Peoria group sent out some 25,000 tempeh starter cultures and instructions for making tempeh, free of charge, to people and organizations requesting them; by 1981 the number had reached 35,000. Partly to stem the flood, in June 1977 Wang, Swain and Hesseltine wrote “Calling All Tempeh Lovers” for *Organic Gardening* magazine (circulation 1,350,000) describing an easy method for making this rice-based tempeh starter at home. Steinkraus organized a Symposium on Indigenous Fermented Foods, held in Bangkok, Thailand, in November 1977 in conjunction with the fifth United Nations-sponsored conference on the Global Impacts of Applied Microbiology (GIAM V), and attended by over 450 scientists from around the world. There 17 papers were presented on tempeh, more than any other single food. In 1983 Steinkraus edited the monumental *Handbook of Indigenous Fermented Foods*, containing 94 pages of information about tempeh, much of it from the 1977 Symposium. Hesseltine, Wang, and Steinkraus also did a great deal to help America’s first generation of Caucasian tempeh manufacturers start their businesses and deal with their production problems. They patiently answered hundreds of phone calls and letters from young entrepreneurs trying to educate themselves in the basics of applied microbiology—all in the best tradition of using tax dollars to serve the people and promote American agriculture and business. For their two decades of pioneering research, more than 65 publications on tempeh, and highly effective extension work, the US tempeh industry owes the Peoria and Cornell groups an immense debt of gratitude.

“Also in America during the 1970s, many other researchers published on tempeh. Chen, Packet, and co-workers (1969-72) at the University of Kentucky published three papers on antioxidants in tempeh. In 1970 Noznick and Luksas of Beatrice Foods were granted a patent on a powdered tempeh made by liquid submerged fermentation. Kao (1974) at Kansas State University wrote his PhD dissertation on tempeh made from chick-peas (garbanzos), horsebeans (broad beans), and soybeans. James Liggett of Foundation Foods developed a tempeh meat analog containing sesame seeds (*Soybean Digest* 1975). Jurus and Sundberg (1976) were the first to convincingly demonstrate that the tempeh mold hyphae penetrated deep into the

soybeans; this helped explain the rapid physical and chemical changes during tempeh fermentation. Beuchat (1976) in Georgia, studied peanut presscake tempeh. Charles and Gavin (1977) from the Biotechnology Research Center at Lehigh University, Pennsylvania, used a creative engineering approach to investigate the microbiological, biochemical, physical, and nutritional changes occurring during tempeh fermentation. Other studies were done by Souser and Miller (1977, *Rhizopus lipase*), Aramaki (1978, acceptability of tempeh made from bulgur wheat, millet, and azuki beans), Zamora and Veum (1979, fermentation improved the quality of tempeh protein), Gomez and Kothary (1979, tempeh from red kidney beans), Yueh et al. (1979, patent assigned to General Mills Inc. for a process for producing a soy & potato fried tempeh snack food), Rathbun and Shuler (1982, 1983, heat and gas transfer during tempeh fermentation),

“During the early and mid-1970s, in addition to the groups at Cornell and Peoria, there were four other main groups that played leading roles in introducing tempeh to America: The Farm in Tennessee, The Soyfoods Center in California, Rodale Press in Pennsylvania, and the food- and counter-culture media.

“A great deal of the credit for introducing tempeh to the American public goes to The Farm, a large spiritual and farming community of ‘long-hairs’ living on 1,700 acres in Summertown, Tennessee. People at The Farm pronounced the name of this food as TEM-pi, instead of the standard TEM-pay. In late 1971 Alexander Lyon, a member of The Farm with a PhD in biochemistry, learned about tempeh while doing library research on soy-based weaning foods. In 1972 he helped The Farm to set up a small ‘soy dairy.’ While serving as its first manager, and using starter culture and literature supplied by Drs. Hesseltine and Wang at the USDA in Peoria, Illinois, he worked with Dianne Darling to make an occasional small batch of tempeh for the soy dairy crew. In 1972 or 1973 Dianne wrote a ten-step kitchen method for making tempeh using spore suspension for inoculum. Soon Deborah Flowers made two large batches of tempeh, incubated in the boiler room at the Canning and Freezing plant, and many Farm members had their first taste. The group developed a method for growing tempeh starter on chopped, sterilized sweet potatoes with cultures in test tubes. This was America’s first Caucasian-run tempeh shop, although it was not a commercial shop. Tempeh was an immediate hit in The Farm’s vegan or total vegetarian diet—a diet containing no dairy or other animal foods. In 1974 Stephen, The Farm’s spiritual teacher, visited Amsterdam on a European trip and came back with a new realization of the potential of tempeh for The Farm and for a new industry in America” (Continued). Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

933. Kushi, Aveline; Jack, Alex. 1985. Aveline Kushi’s complete guide to macrobiotic cooking: For health, harmony,

and peace. New York, NY: Warner Books. xvii + 414 p. June. Illust. Index. 23 cm. [36 ref]

• **Summary:** Index entries include: Miso 61, Tofu 50, Tamari 19, Tempeh 17, Whole dry soybeans 6, Natto 3, Soymilk 3, Yuba 1. This book calls ganmodoki “Tofu Croquettes” and further states that “*Gan* means ‘crane’ and *modoki* means ‘looks like.’” Among the 31 chapters are ones titled Beans (incl. basic black soybeans, and brown rice with black soybeans); Tofu, Tempeh, and Natto (including yuba); Sea Vegetables; Condiments and Garnishes (incl. miso), and Fish and Seafood.

Under “Black Soybeans” (p. 257) we read: “These nice shiny beans are also called Japanese black beans. They have a strong, delicious taste. Their juice is said to make the voice clear and beautiful. Throughout Japan, mothers prepare their children for music tests and singing lessons with this dish. Black soybeans are also used medicinally to help discharge animal toxins from the body.” Note: This is the earliest macrobiotic cookbook seen that uses the term “Black soybeans” in a recipe title. All previous macrobiotic cookbooks called them “Black beans.”

Contains recipes for homemade tofu, tempeh, and natto. Address: Brookline, Massachusetts.

934. Jenkins, Nancy Harmon. 1985. In pursuit of the perfect ingredient: Food shops. *New York Times*. Nov. 3. p. SMA8.

• **Summary:** When exploring New York’s ethnic food markets one is bound to find surprises and new, delicious foods and ingredients. The section titled “Chinese” notes that Kam Man Food (200 Canal St., in Chinatown—south central Manhattan, New York City) “offers a choice of Chinese teas, preserved vegetables and bottled condiments including red, black, and yellow bean pastes, fish and shrimp sauce and hoi sin [hoisin] sauce.

Note: Red bean paste is typically made from azuki beans. Black bean paste and yellow bean paste are typically made from soybeans.

935. Duke, James A.; Ayensu, Edward E. 1985. Medicinal plants of China. 2 vols. Algonac, Michigan: Reference Publications, Inc. 705 p. Introduction by Edward S. Ayensu. 24 cm. Medicinal index (by disease). Common names index. Index to species. No. 4 in the series “Medicinal Plants of the World.” [234* ref]

• **Summary:** The plants are grouped by family. Two families are tied for containing the largest number of medicinal species: Leguminosae (Fabaceae) and Compositae (Asteraceae) each have 354 species. The soybean (*Glycine max*) is discussed on p. 326-27. “Uses: Leaf: Bruised leaves applied to snakebite. Flower: Used in blindness and opacity of the cornea. Stem: Ashes of stalks applied to granular hemorrhoids or fungus growths on the anus. Fruit: Green hulls chewed to a pulp and applied to corneal and smallpox ulcers. Seed: Chinese herbals suggest that soybean is specific

for proper functioning of bowels, heart, kidney, liver and stomach; antidote to *Aconitum* and *Croton*. Root: Decoction astringent. Plant: Bean sprouts (“Ta tou huang chuen”) are considered constructive, laxative, resolvent, to help in alopecia [hair loss, baldness], ascites, and rheumatism.

“A salty relish ‘Hsien-shih’ [salted fermented black soybeans] is made by soaking the beans in water for three days, spreading them to ferment, with salt, ginger, peppers, orange peel, thyme, fennel, and apricot kernels, sealed in an earthen jar, and placed in the sun for one month. This relish is said to be used for ague, bone diseases, chills, colds, cold feet, colic, dogbite, difficulty in breathing, dysentery, fever, headache, marasmus, melancholy, nausea, poisons, and ulcer. Bean ferment (tou huang) is used for rheumatism, especially of the knees. It is chewed to a paste and applied to eczema. Bean curd (tou fu) is prescribed in drunkenness, dysentery, ophthalmia, or swellings. Soy sauce (“Chiang,” “Chiang yu,” “Shih yu”) is applied to burns, eczema, leprosy, scalds, and sores, and is considered useful in preventing abortion and the hematuria of pregnancy.

“Chemistry: Sitosterol, an anticancer active, replaces diosgenin in some hypotensive drugs. Stigmasterol used to be employed for stiffness. Lecithin derived from soybean may function as a vasodepressor and a lipotropic agent. Soybean oil, with unsaturated fatty acid, is recommended for hypercholesteremia.”

The adzuki bean (*Phaseolus vulgaris*) is discussed on p. 336-37, and kudzu (*Pueraria lobata*) on p. 339-40. Address: 1. USDA Germplasm Services Lab., ARS B-001 R-133, Beltsville, Maryland 20705.

936. Findlater, Evelyn. 1985. Making your own home proteins: Tofu, tempeh, soft cheeses, yoghurt and sprouted seeds. London: Century Publishing. 151 p. Illust. Index. 20 cm.

• **Summary:** Contents: The soya dairy (The soya bean, products of the soya bean {soya flour, shoyu and tamari, miso, cooking with miso}, soya milk, how to make it at home, recipes, tofu, silken tofu, yuba, soya milk yoghurt, soya milk yoghurt cheese, tempeh). Gluten (wheat protein). Goat’s milk dairy produce. Sprouting beans, grains and seeds (beans: aduki, alphantoco, chick peas, flageolet, lentils, mung beans, soya beans).

A portrait photo of the author appears on the front cover; a brief biography is found on the first page and in the introduction. Address: England.

937. Holt, Helen. 1985. Eten zonder vlees: dat kan! [Eat without meat: It’s possible!]. Den Haag, Netherlands: De Nederlandse Vegetariërsbond. 38 p. Illust. Index. 15 x 21 cm. [9 ref. Dut]

• **Summary:** A vegetarian cookbooklet. Soy-related foods are mentioned on the following pages: Miso (sojapasta, p. 6-7). Soy bits / morsels (probably chunks of textured soy

flour; Sojabrokjes, p. 12, 32). Soybeans (sojabonen, p. 12, 15). Tempeh (tempé, p. 2, 3-4, 12, 22). Tofu (tahoe, table of contents, p. 3-4, 7, 12, 18, 20, 28).

Also discusses: Azuki beans (adzukibonen, p. 11, 15). Quark (kwark, p. 7). Sesame salt (sesamzout, gomasio, p. 6) Sesame tahini (sesampasta, tahin, p. 6-7)

Note: This is the earliest Dutch-language document seen (Oct. 2021) that mentions azuki beans, which it calls *adzukibonen*. Address: Larensweg 26, 1221 CM Hilversum, Netherlands.

938. Hsiung, Deh-Ta. 1985. Chinese vegetarian cooking. London: The Apple Press; Secaucus, New Jersey: Chartwell Books. 128 p. Illust. (color). 29 cm.

• **Summary:** Every page of this excellent book is in full color on glossy paper, loaded with color photos. Contains over 70 recipes. Contents: Introduction: History of Chinese vegetarian cooking, essential tools and utensils, basic techniques and cooking methods, regional cooking styles (northern, eastern, western, and southern groups), special ingredients and seasonings (with a photo of each), how to plan your menu. Cold dishes. Soups. Quick stir-fried dishes. Braised & steamed dishes. Rice, noodles & sweets.

History (p. 8): “Vegetarian cooking has a long history in China,” and Chinese have traditionally been highly aware of it because of their deep interest in the connection “between food and health, whether physical or spiritual.” Chinese Buddhists are vegetarians because they abhor the killing of all living creatures.

“Until quite recently, many people believed that vegetarian cooking in China originated in the Buddhist temples, and that it was first introduced into China with Buddhism from India during the reign of the Han emperor Ming (AD 58-75).” However scholars in China have now found that the earliest known mention of vegetarianism on record was during the Zhou Dynasty (beginning ca 1028 B.C.). Other “references also exist in ancient texts all pre-dating the introduction of Buddhism into China by several hundred years.”

“It is generally agreed that the development of vegetarianism in China owed more to the introduction of many foreign fruits and vegetables during the Han Dynasty (206 BC–AD 222) than to Buddhism. Many Chinese vegetarians were influenced by the indigenous philosophy of Taoism, which developed the hygienic and nutritional science of food closely related to the basic yin-yang principles. The appearance of bean curd (tofu)—also during the Han dynasty—and many other soy bean products, together with the discovery of making gluten from dough, helped to enrich and further diversify the vegetarian diet.”

It is interesting and important to note “that despite their continual introduction, milk and dairy products are, to date, not prominent in Chinese cuisine. Therefore, unlike their counterparts in the West, Chinese vegetarians will not use

butter, cheese, or milk in their cooking, and a true Buddhist will eat neither eggs nor fish.” However this book uses eggs (p. 33, 40, 64, 78 etc.).

“One of the best known poets of the Southern Song period, Lu You (1125-1210; W.-G. Lu Yu) was a noted vegetarian. He lived to the ripe old age of 86.

The section on ingredients (p. 13-14) includes concise descriptions of: Bean curd (tofu). Gluten. Red bean paste (also called “sweetened red bean paste,” p. 124) [azuki, sweet]. Salted black beans [fermented black soybeans]. Sesame seed oil. Soy sauce (“Use Light Soy Sauce which has more flavour and does not discolour the food as much as the Dark or Rich Soy Sauce”). Sweet bean paste or Hoi Sin sauce (Made from soy bean sauce...). Yellow bean sauce (“This thick sauce is made from crushed yellow [soy] beans, flour and salt”). Photos here show (p. 15, 19): (1) Dried bean curd skins [yuba]. (2) Six squares of tofu on a rectangular wooden cutting board, and many cubes of deep-fried tofu on a sieve [for deep frying]. A can of “Black beans with ginger” under the label Yang Jiang Preserved Beans with Ginger.” With very few exceptions, the Chinese drink neither water nor tea during the meal; they drink soup instead. A surprisingly large percentage of the recipes in this book call for “bean curd (tofu).”

Soy related recipes: Five spice bean curd (tofu) (with “4 cakes bean curd,” p. 34). Hot and sour soup (p. 42). Spinach and bean curd (tofu) soup (p. 43). Deep fried bean curd (tofu) and wood (tree) ear soup (with 50 gm / 2 oz deep-fried bean curd or 1 cake fresh bean curd (tofu), p. 48-49). Dried bean curd (tofu) skin and vermicelli soup (with 15 gm / ½ oz dried bean curd skin [yuba], p. 50-51). Bean curd (tofu) with mushrooms (quick stir fried, p. 68). Stir-fried spinach and bean curd (tofu) (p. 70). Vegetarian chop suey (with tofu, p. 81). Chinese cabbage casserole (with deep-fried or fresh tofu, p. 82, 84). ‘Buddha’s delight—Eight treasures of Chinese vegetables (with 15 gm / ½ oz dried bean curd (tofu) skin sticks [dried yuba sticks], p. 92-93). Fried gluten (Mianjin, homemade, starting with 2 lb flour, p. 95). Kao fu—Sewed gluten in sweet bean sauce (with 1 tablespoon sweet bean paste or hoi sin sauce, p. 96). Casserole of vegetables (with 1 cake bean curd (tofu), p. 97). Fu-yung bean curd (tofu) (with 1 cake bean curd (tofu), 4 egg whites, and 50 ml / 2 fl oz milk, p. 98-99; Fu yang usually means omelette, but literally means scrambled eggs). Sichuan bean curd (tofu) (with 3 cakes bean curd and 1 teaspoon salted black beans, p. 100-01). San shian—‘The tree delicacies’ (with 275 gm / 10 oz fried gluten or deep-fried bean curd, p. 104-05). Braised ‘three precious jewels’ (with 2 cakes bean curd (tofu), p. 106-07). Vegetarian ‘lion’s head’ casserole (with 4 cakes bean curd and 100 gm / 4 oz fried gluten, p. 108-09). Shanghai vegetable casserole (with 2 cakes bean curd (tofu) or 50 gm / 2 oz deep-fried bean curd, p. 110-11. “For some reason, the best vegetarian restaurants in China are found in Shanghai...”).

“Rice and noodles provide the bulk of the Chinese meal. The best plain boiled rice is obtained by using only the long grain [white] rice known as patna.” Photos show that many dishes are served with a small bowl of white rice. Chow mein–Fried noodles (with 25 gm / 1 oz dried bean curd skin sticks, p. 119). Vegetarian spring rolls (handmade using 1 pack of 20 frozen spring roll skins, p. 122-23).

Note: Many, if not most, recipes call for soy sauce—either light, dark, or both.

About the author (inside rear dust jacket): “Deh-ta Hsiung is a native Chinese who gained his knowledge of Chinese cooking directly from some of the great Chinese chefs. He has made several television and radio appearances in connection with his expertise on Chinese foods and now writes widely on the subject and teaches at Kenneth Lo’s Chinese Cookery School [in London, England].

From Gareth Jones’ Food blog (posted 9 Feb. 2011) titled “‘Kung Hay Fat Choy’ Deh-Ta Hsiung.” “Cooking Chinese food at home—complete with wok, steamer and all—took off in the early 1980s. Deh-Ta was at the spearhead of the movement, along with Ken Lo and Chef But from the Ken Lo Cook School. His Chinese Regional Cooking was published in 1979 and was out of print before it got to take off.” “Eating Chinese home cooking, for me, is far superior to most restaurant food—dim-sum excluded.”



through a proper diet in harmony with the environment in which we live.

“This book is a basic and readable presentation of the principles behind the macrobiotic diet. It explains the foodstuffs that comprise the diet, appropriate cooking techniques, proper attitudes toward food and its preparation, and applications of the diet for weight loss, increased energy, relief from and prevention of sickness, and encouragement of psychological health, spiritual development and social stability. Dietary adjustments and modifications are given for men, women, and children, as well as differing climates, levels of activity, and ages.”

Macrobiotics, which originated in Japan, has done much to introduce Westerners to soyfoods. This book is an excellent example: The chapter on “Soup” has a long section on miso soup (p. 99-101, 104-05) and the main varieties of miso: Barley miso, soybean miso (Hatcho miso), brown rice miso, light misos, and natto miso (a spicy condiment not usually used in soups).

In the chapter on “Vegetables,” the section on “Pickling” has subsections (p. 118-19) on “Tamari soy sauce pickles” and “Miso pickles.”

In the chapter on “Beans and bean products” is a long section on “Soybeans” (p. 141-49) which includes an introduction (discusses the “vegetable soybean” vs. “field soybean”) and descriptions of miso, natto, okara, soy flour, soy grits, soy milk, soy oil, tamari soy sauce, tempeh, tofu (incl. nigari, oden, Yu-dofu, aburage, inari-zushi), viilia (somewhat like soy yogurt from Finland), and yuba.

The subsection on “Soybeans” (for example, p. 147) states: “Yellow soybeans are hard and require thorough cooking. They should be soaked overnight with a strip of kombu and then pressure-cooked for a short time prior to boiling. Properly cooked, yellow soybeans are very soft and delicious and give no problems with gas. A delicious dish called Colorful Soybean Casserole is made from

939. Kushi, Aveline; Esko, Wendy. 1985. The changing seasons macrobiotic cookbook. Wayne, New Jersey: Avery Publishing Group, Inc. xii + 265 p. Illust. Index. 28 cm. [43 ref]

• **Summary:** The recipes are arranged by the four seasons. The index contains 43 entries for miso, 39 for tofu, 35 for tamari, 18 each for seitan and tempeh, 3 for natto, and 1 each for Japanese black [soy] beans, and for soybeans (dry).

Also contains entries for amazake, amazake pudding, azuki beans, brown rice, hiziki [hijiki], kuzu, mochi, and sea vegetables. Address: Brookline, Massachusetts.

940. Kushi, Aveline; Kushi, Michio. 1985. Macrobiotic diet. Edited by Alex Jack. Tokyo and New York: Japan Publications. 288 p. Illust. Index. 26 cm. [74 ref]

• **Summary:** This is perhaps the best, most comprehensive book seen to date by Aveline and Michio Kushi about the macrobiotic diet. The back cover states:

“Humanity has been continuously degenerating in spite of scientific and technological achievements. This degeneration is reflected in physical disorders, psychological disorders, and general distrust in human relations. Since diet affects our physical and psychological functions, macrobiotics strives to change our health and behavior

yellow soybeans, kombu, shiitake mushroom, lotus root, dried tofu, daikon, carrot, burdock, and celery. The yellow variety also goes very well served with hijiki sea vegetables. Black soybeans, also known as Japanese black beans, have a strong, delicious taste. They may be prepared plain or cooked with rice. To sweeten black soybeans, a little barley malt, rice syrup, or mirin is often added. Black soybeans are usually cleaned by rubbing with a damp towel to prevent their skins from falling off under water. During cooking, some of the skins from these beans may float to the surface and should be skimmed off. Foam also arises and needs to be discarded. Yellow soybeans are nice seasoned during cooking with a little tamari soy sauce or miso. Black soybeans are usually seasoned with tamari soy sauce.”

The chapter on “Snacks and desserts” has a good section on Amazaké (p. 190, 196) and also notes: “In the West, the introduction of tofu has resulted in the creation of many tofu-based desserts such as tofu cheesecake, tofu ice cream, and tofu whip topping. In the Far East, however, tofu is not traditionally combined with barley malt, rice syrup, or other sweetener. It is recognized that tofu’s cooling qualities are naturally balanced by a salty taste, not a sweet one. As a result, tofu is customarily cooked and served warm, rather than prepared raw and eaten cold, except in special cases for cooling and refreshment, usually in the hot summer. The macrobiotic diet does not encourage the use of tofu in sweetened desserts except for those in transition from dishes made with dairy food and sugar.”

The chapter on “Salt, oil, and other seasonings” includes sections on tamari soy sauce (p. 203-04, 209), miso (p. 204, 210-11), and soybean oil (p. 207).

The chapter on “Dressings, sauces, garnishes, and condiments” includes sections on “Dressings” (p. 215-16, with tamari soy sauce dressings, umeboshi dressings, miso dressings, tofu dressings, sesame dressings), “Condiments” (p. 216-17, with gomashio or sesame salt, sea vegetable powders, tekka, umeboshi plums, miso with scallions or onions, etc.).

The chapter on “Beverages” has sections on amazake and soy milk (if naturally processed, good for those in transition from cow’s milk and other dairy foods).

This book also contains a wealth of information (see the index) on such varied foods as azuki beans, barley malt, brown rice, kuzu, sea vegetables (many species), sesame seeds and sesame oil, umeboshi, etc.

Note: The macrobiotic diet is not vegetarian; it allows the inclusion of fish and seafood (see index). Address: Brookline and Becket, Massachusetts.

941. Kushi, Michio; Jack, Alex. 1985. Diet for a strong heart: Michio Kushi’s macrobiotic dietary guidelines for the prevention of high blood pressure, heart attack, and stroke. 1st ed. New York, NY: St. Martin’s Press. xx + 532 p. Foreword by H. Robert Silverstein, M.D., F.A.C.C. Illust.

Index. 20 cm. 1st paperback edition. [48 + 289 endnotes]

• **Summary:** Contents: Part I: Preventing Heart Disease Naturally. 1. The Heart Disease Epidemic. 2. The Macrobiotic Approach to Heart Disease. 3. How the Heart Beats. 4. Diet, Ecology, and the Heart. 5. Making Balance Naturally. 6. The Standard Macrobiotic Diet. 7. Nutritional Studies and the Heart. 8. Cholesterol and the Heart. 9. The Macrobiotic Studies at Harvard [University; Massachusetts]. 10. Diet and the Development of Heart Disease. 11. Evaluating the Heart Naturally. 12. Sex, Race, Genetics, and Smoking. 13. Diet, Emotions, and the Heart. 14. Diet, Exercise, and the Heart. 15. The Artificial Heart and the Future of Humanity.

Part II: A Guide to Different Cardiovascular Conditions. 16. Getting Well. 17. Dietary Recommendations. 18. Abnormal Blood Pressure. 19. Coronary Disease and Heart Attack. 20. Stroke. 21. Heart Failure and Cardiomyopathy. 22. Irregular Heartbeats. 23. Valve Disorders. 24. Rheumatic, Pulmonary, and Infectious Heart Disease. 25. Diseases of the Arteries. 26. Diseases of the Veins. 27. Congenital Heart Disease. 28. Case Histories. 29. The Tragical Case History of Prince Hamlet.

Part III: Recipes and Exercises. 30. Kitchen Utensils. 31. Menus. 32. Recipes. 33. Cooking Self-Reflection. 34. Home Cares. 35. Breathing and Chanting Exercises. 36. Meditation Exercises. 37. Do-In Exercises. 38. Stretching and Walking Exercises. 39. Macrobiotic Resources.

Notes. Glossary. Recommended Reading. Index. Recipe Index. Note on the Authors.

The following soyfoods are mentioned in this book (See Glossary and Index): Miso, miso soup, natto, tekka, tempeh, tofu.

See also: Amasake [amazake], azuki bean, fu (dried wheat gluten cakes or sheets), hiziki [hijiki], kelp, kombu, kuzu, nori, sea vegetable, seitan, shio kombu, umeboshi, wakame.

See also Framingham Study in the index. Address: 1. Leader of the international macrobiotic, natural health movement; 2. Born in Chicago and grew up in Evanston, Illinois. Graduated from Oberlin College in 1967 with a degree in philosophy.

942. Lo, Kenneth H.C. 1985. New Chinese cooking school. Tucson, Arizona: HP Books. 288 p. Illust. Index. 28 cm.

• **Summary:** On the cover, below the title we read: “An illustrated course in contemporary Chinese cuisine.” A gorgeous book, packed with superb color photos on glossy paper. One chapter (p. 98-115), titled “Bean curd and eggs,” contains many tofu recipes. Other tofu recipes are scattered throughout the book.

The section titled “Soy beans and bean-based products” (p. 26) gives brief definitions of: Bean curd [tofu], bean curd cheese [fermented tofu], bean curd skin [yuba], salted black beans [fermented black soybeans] (“Cooked, salted

and fermented whole soy beans. Mash them with other ingredients or mix into dishes for color” and rich, earthy, piquant flavor), Sichuan chili paste (yellow soy bean paste mixed with dried chilies and their seeds, sugar, and garlic), soy bean paste (crushed soy beans mixed with sugar, salt, and chili), sweet bean paste (made from cooked, puréed, sweetened red beans [azuki]), and yellow bean paste (made of fermented, salted puréed yellow [soy] beans with salt, flour and water). Also contains recipes for: Bean-curd cheese [fermented tofu], p. 88, 89. Bean curd skin [yuba] (p. 200, with color photo of “dried bean curd skin” on p. 18).

Recipes and photos for “salted black beans” [fermented black soybeans] or black bean sauce are: Steamed scallops with black bean sauce (p. 132, 138). Quick-fried crab in black bean sauce (p. 144). Cantonese steamed spareribs with black beans (p. 186, 188). Sliced beef in black bean and chili sauce (p. 201). Ho-fen noodles with beef in black bean sauce (p. 270, 273). Soy sauce is used in recipes throughout the book.

A color photo on the rear dust jacket cover shows Kenneth Lo. His biography, on the inside rear dust jacket, states that he is acknowledged the world over as an authority on Chinese food, and is a graduate of both Peking and Cambridge universities. He is also the founder of one of London’s best-known Chinese restaurants.

943. McDougall, Mary A. 1985. The McDougall health-supporting cookbook. Vol. 1. Piscataway, New Jersey: New Century Publishers. v + 122 p. Index. 23 cm.

• **Summary:** This is a vegan cookbook whose 250 original recipes are designed to support The McDougall Plan, which is a diet low in fat and sodium, high in complex carbohydrates. Since soyfoods are relatively high in fat, they are used sparingly and the recipes are marked by a symbol of a crown. Soy-related recipes include: No gluten bread (with 2 cups defatted soy flour, p. 7). Rice-soy bread (gluten-free) (p. 7). Easy corn bread or muffins (gluten-free) (p. 7-8). Puffs (gluten-free) (p. 8). Carrot corn bread (gluten-free) (p. 8). Plain & simple corn bread (gluten free, p. 9). Tofu-garlic dressing (p. 12). Tofu chili dip (p. 16). Curried tofu dip (p. 16). Best tofu mayonnaise (p. 16-17). Tofu mayonnaise (p. 17). Tofu “TVP” (using frozen tofu, p. 17). Tamari sauce (p. 37). Azuki rice (p. 62). Tofu and vegetables with rice (p. 67). Mu shui tofu (p. 78). TVP sloppy joes (p. 89). Smoothies (non-soy, p. 27; using regular or frozen bananas, apple juice or water, and other frozen or fresh fruits). Tofu cheesecake (p. 108). Apricot tofu pie (p. 108-09). A portrait photo on the back cover shows Mary McDougall.

Note 1. Not long after this book was published, New Century Publishers changed its name to New Win Publishing, Inc. and moved to Clinton, New Jersey. As of 2000 this book is published by Putnam/Penguin.

Note 2. This is the earliest English-language document seen (Feb. 2005) that contains the term “gluten-free” (or

“gluten free”). Address: P.O. 14039, Santa Rosa, California 95402.

944. Noh, Chin-hwa. 1985. Traditional Korean cooking: Snacks & basic side dishes. Elizabeth, New Jersey; Seoul Korea: Hollym Corporation. 78 p. Illust. (color). Index (general). Index of Korean recipe titles. 27 cm. [Eng; kor] • **Summary:** This is an excellent cookbook of authentic Korean recipes, each with its Korean name (romanized and in Korean characters). Each recipe is accompanied by numerous useful color photos. The front matter contains an Introduction, Preparation tips, and 2 pages about the healthy Korean diet. Soy related recipes include: Soft bean curd soup (*Sundubutchigae*, p. 10). Seasoned fermented soybean soup (*Ch’onggukchangtchigae*, with 1 cake bean curd and 6-8 tablespoons seasoned fermented soybeans, p. 11 [ch’onggukchang is Korean style natto]). Royal soybean paste soup (*Kungjungdoenjangtchigae*, with 2 tablespoons soybean paste [Korean miso], p. 12). Bean curd casserole (*Tubu Chon-gol*, p. 13). Wrapped bean curd (*Tubussamtchim*, p. 15). Stuffed bean curd (*Tubusobagi*, p. 16). Steamed bean curd (*Tubuson*, p. 16-17). Bean curd in soy sauce (*Tubut’wigimjorim*, p. 18). Salted bean curd and beef (*Tubu Soemgogijorim*, p. 18). Salted beans (*K’ongjorim*, with 1 cup black beans plus soy sauce, sugar, sesame seeds, and sesame oil, p. 19). Cold cooked bean curd (*Tubu Naengch’ae*, p. 22). Bean sprout rice (*K’ongnamulpap*, with 2/3 lb. [soy] bean sprouts, p. 24). Dried radish strips in soy sauce (*Muumallaengijangatchi*, p. 54). Cucumbers in soy sauce (*Oijangatchi*, p. 55). Sesame leaves in soy sauce (*Kkaennipchangatchi*, p. 56). Todok in red sauce (*Todokchangatchi*, with 1 cup soy sauce, p. 56). Fermented soybean lumps (*Meju*, with 18 lb. dried yellow soybeans, p. 62-63). Soy sauce (*Kanjang*, homemade, p. 62-63). Soybean paste (*Toenjang*, homemade, p. 63). Red pepper paste (*Koch’ujang*, homemade, with 2 lb. fermented soybean powder, 6 lb glutinous rice powder, p. 64).

Note 1. This is the earliest English-language document seen (Jan. 2012) that uses the word “ch’onggukchang” to refer to Korean-style natto.

Note 2. This is the earliest English-language document seen (March 2009) that uses the word “Toenjang” to refer to Korean-style soybean paste (miso), or the word “Koch’ujang” to refer to Korean-style fermented red pepper and soybean paste (miso).

The useful Glossary (p. 73-75) contains definitions of: Bean curd (*tubu*). Beans, incl. yellow soybeans (*huink’ong*) which are used to make [soybean] sprouts (*k’ongnamul*), bean curd (*tubu*), soft bean curd (*sundubu*), bean paste (*toenjang*), fermented soybeans for making soy sauce (*meju*), seasoned fermented soybeans (*ch’onggukchang* [Korean natto]), soybean flour (*k’ongkaru*), soy sauce (*kanjang*).

Brown soybeans (*pamk’ong*—literally “chestnut beans”) are a chestnut brown color and have a smooth chestnut-like

texture when cooked.

Black soybeans (*komunk'ong*) are served as a side dish.

Mung beans (*noktu*), used to make mung bean sprouts (*sukchu namul*), etc. Red kidney beans [*azuki*] (*kangnamk'ong*).

Bean sprouts (*k'ongnamul*) may be grown at home or purchased in the vegetable section of most grocery stores. The large sprouts are from the yellow soybean; the smaller, more delicate sprouts are from the green mung bean.

"Soybean paste (*toenjang*) is a thick brown paste made from a mixture of mashed fermented soybean lumps [soybean koji] (left from making the soy sauce), powdered red pepper seeds and salt. It is used as a thickener for soups and stews and will keep well in the refrigerator.

"Soy sauce (*kanjang*) is a brownish-black salty liquid made by cooking fermented soybean cakes with water and salt. Each household in Korea used to make their own soy sauce in the spring; some still do. These are mild and add good flavor to most any food." Soy sauce is used in cooking and at the table. Japanese "soy sauce is less salty but sweeter than Korean soy sauce.

"Sweet red beans (*p'at*) are small and round and used widely in Korean confections. When cooked and mashed they are sweet and soft textured. This sweet bean puree [Japanese *an*] is used as filling in rice cakes [*mochi*] and also now in donuts and rolls."

The Glossary also mentions laver (*kim*), a sea vegetable called "nori" in Japan, that is widely used in recipes in this book. No other sea vegetables are mentioned. Address: Munhwa Cooking School.

945. Scott, David; Golding, Claire. 1985. The vegan diet: True vegetarian cookery. London, Sydney, Auckland, Johannesburg: Rider (Random Century). 141 p. Illust. by Steve Hardstaff. Index. 20 cm. [10 ref]

• **Summary:** This gourmet vegan cookbook, containing over 250 recipes, uses many soyfoods in its recipes: Tofu, soy sprouts, soymilk (Plamil), miso, soy flour (Soyolk), vegan cheese (nonfermented, made with Soyolk soy flour, margarine, and yeast extract), tofu ice cream, and whole dry soybeans. Address: England.

946. Sacolick, Diane. 1986. Where life and livelihood meet: A family macrobiotic food business produces amasake, natto, and mochi amidst the rural Berkshires [Kendall Food Co.]. *MacroMuse*. Winter/Spring. March. p. 24-28.

• **Summary:** "When the Kendalls started making amasake, they began with one five-gallon pot. Today they have the capacity to make 100 gallons of amazake a day with their four 30-gallon pots... Charlie thinks he invented the 'milk shake' form of amasake.

On a typical day, wakeup time is 5:00 or 6:00 a.m. Charlie only need take a few steps from his home kitchen to the shop. The first job is to pressure cook the rice for the

amasake... in a 10-gallon pot. The rice is then allowed to cool overnight slowly without opening the pressure cooker. The next morning the rice is put in earthenware crocks and the koji is mixed in. The earthen crocks give the amasake more of a chocolate like taste. Here it is kept at a temperature of 135-140°F and occasionally stirred for 24 to 30 hours. Then the amasake is ground with blenders and put into a bottling vessel. It is topped with boiling water so the thick amasake will have more the consistency of a drink. Here it sits overnight before it is bottled, put into a walk-in refrigerator for a few days and shipped out.

"Only organic ingredients are used. Koji is prepared especially for the Kendalls the traditional way from milled brown rice using red cedar trays. High quality Lima [from Belgium] or Muramoto sea salt is used in cooking the rice, even though they are at least three times the cost of regular sea salt... Charlie's Amazuki is made with American organic adzuki beans. The beans are fermented with the rice; this can be tricky since beans sour more easily than grains. I found the Amazuki slightly reminiscent of chocolate milk and enjoyed its unusual flavor.

"Charlie says natto, a soy food, is the best product he makes, ranking high in the world of medicinal foods, along with umeboshi and miso." A description of the process follows. Photos show: (1) The Kendall's home and food company. (2) Charlie and Yoko Kendall, and their young son, standing by the Kendall Food Co. sign. (3) Charlie Kendall—up close.

Note: This is the earliest document seen (Dec. 2020) that contains the word "medicinal foods" (or "medicinal food") in connection with soy.

947. Kotsch, Ronald E. 1986. Understanding macrobiotics. *Vegetarian Times*. April. p. 15-16, 18. [1 ref]

• **Summary:** "If you ask 10 people what they know about the macrobiotic diet, you'll probably get 10 disparate answers. And likely they will include versions of some of the following:

"'Never heard of it in my life. Goodbye.'

"'Isn't that the brown rice and salt diet that causes malnutrition? I read about it in *Ladies Home Journal* years ago.'

"'That's the diet that's supposed to cure cancer. I heard a doctor talk about it on TV.'

"'I had a macrobiotic meal once. Horrible. All kinds of heavy brown glop that I couldn't identify.'

"'The macrobiotic diet changed my life. A year ago I was overweight and plagued by PMS. I've lost 30 pounds, and I feel wonderful. People tell me I look years younger.'

"In short, macrobiotics, introduced to the United States some 25 years ago, is neither well-known nor well-understood. Its image in the public's mind is vague and often negative. Yet, it is a balanced and delicious way of eating, practiced by thousands, including many physicians, scientists

and nutritionists. Recent research indicates that it can prevent many health problems, including cancer and heart disease, and may even be an effective therapy in dealing with these and other illnesses.

“Macrobiotics was developed in Japan about a century ago. That country, newly opened to the world, was frenetically adopting elements of Western culture, including medicine and diet. The government, eager to modernize and strengthen the country, established European allopathy as the official medical system. This supplanted the traditional holistic approach which stressed diet, acupuncture, massage and herbs. Also, the government urged the introduction of bread, meats, eggs and fruit into the typical diet of rice, fish and vegetables. In time, these policies stimulated a reaction.

“Sagen Ishizuka (1850-1910) was a young physician trained in the Western system. When he became ill with an ‘incurable’ skin disease, however, he began to look to the past for help, to the medical heritage of the Orient. Intrigued by many references in Chinese and Japanese sources (including the 3,000-year-old Yellow Emperor’s Classic of Medicine) concerning the importance of food in the cause and cure of illness, Ishizuka began a systematic study of the issue. After years of research, he developed a theory which he called Shoku-Yo, or ‘The Cure Through Food.’ In 1897 he presented this in a book called Shoku-Yo: A Chemical Nutritional Theory of Long Life.

“There, Ishizuka argues that the basis of health and longevity is a proper balance between minerals in the body, particularly between sodium and potassium. Since this ratio is determined primarily by the food we eat, diet is crucial both in the genesis and in the cure of disease. Ishizuka maintained that whole grains form the basis of human diet. They provide an optimal balance of sodium and potassium, and of proteins, carbohydrates, fats and other minerals. A diet with whole grains as ‘principal food’ and including beans, seeds, local vegetables, fruits, nuts and (if desired) animal foods as supplements is the key to good health. Also, in the event of illness, it can restore the body to its proper state of balance and well-being.

“Ishizuka applied his ideas in public medical practice. He became famous as the doctor “who cures with food.” Eschewing medication and surgery, he used instead the traditional foods of Japan—brown rice, miso (soybean paste), seaweed, burdock, etc. He attracted a large and devoted following, and in 1908 an organization, The Shoku-Yo Society, was formed.

“In 1913 Jyoichi Sakurazawa, a young man ill with tuberculosis, discovered Ishizuka’s theories and cured himself with the Shoku-Yo diet. Ten years later, after a career in business, he resolved to spend his life spreading Shoku-Yo in Japan and around the world. Energetic, charismatic, and ambitious, Sakurazawa (later known as George Ohsawa) quickly became a leading figure in the Shoku-Yo movement. In 1929 he went to Paris and spent six years there trying to

introduce this key to ‘health, happiness and peace’ to the West. He returned in 1956, and for the past 10 years, he has spent most of his time in Europe and America, teaching and writing.

“Over the years Ohsawa introduced new elements into the Shoku-Yo ideology. He grafted it onto a unique offshoot of Taoist yin-yang thought, maintaining that foods and illnesses can be classified as yin (expansive, cool, feminine) or yang (contractive, hot, masculine). Ohsawa further emphasized the religious aspect of the diet, saying that it could lead to spiritual peace and enlightenment; he promoted world peace as the ultimate social goal of the movement. Also, he introduced the term ‘macrobiotics,’ meaning ‘the great art of life,’ from the Greek words macro or ‘great’ and bios or ‘life.’ Yet the essential message was the same: food is the key to health and well-being.

“By the time Ohsawa arrived in America in late 1959, he had a distinctive style of presentation. His diagnoses were often pointed: ‘Madame, you are a walking garbage can,’ he might say. In *Zen Macrobiotics* (1960), the first book in English on macrobiotics, Ohsawa writes, ‘There is no incurable disease. Any condition can be reversed within 10 days!’

“Ohsawa also vigorously attacked the conventional American diet at a time when very few were doing so. He deemed meat a factor in many diseases including gout, cancer, and heart disease, and a cause of aggressive, violent behavior and materialistic thinking. He denounced sugar as ‘the greatest killer in the history of the world.’ Ohsawa said milk and dairy foods are proper food for young cows but not for human beings, since they impart bovine characteristics, physical and psychological, to those who use them. ‘If you drink milk you become a cow,’ he declared. He was not a man to mince words.

“It was Ohsawa’s philosophy of diet, however, that most sparked both followers and critics. Although Ohsawa admitted there were many versions of the diet, with different percentages of grain, vegetables, fruit, etc., he tended to emphasize its stricter forms. Usually he recommended a rice-based regime with much salt and little or no salad, fruit, or liquid. Diet number seven, a regime of grains or rice only, was described as the fastest way to cure any illness. Although these radical views were most often associated with Ohsawa, his teachings were also filled with warnings to remain flexible and to question anything he or any other teacher may promote.

“Many followed Ohsawa’s teachings. Some did so with the questioning attitude and flexibility he urged. Others took his teachings literally and applied them rigidly; they often had problems. After a few unfortunate and well-publicized incidents, critics dubbed macrobiotics a dangerous diet that could lead to serious malnutrition.

“With Ohsawa’s death in 1966, Michio Kushi and Herman Aihara, two of Ohsawa’s disciples, became

the leading spokesmen for macrobiotics in America. Experienced with American people and the culture, they began to liberalize the diet. Both teachers advised less salt and grain, more vegetables, salads, and fruits. Kushi and Aihara emphasized that the macrobiotic diet is not a fixed regime. Rather, it is a flexible way of eating that must be adapted by each individual. According to a person's age, sex, type and level of activity, medical history, and personal likes and dislikes, the diet must vary. In time, Kushi proposed a 'standard diet' as a broad guideline. This consisted of 50 percent grain, 5 percent soup, 10 percent beans and bean products, 25 percent vegetables, and 10 percent seeds, nuts, fruit and fish. Many chose to leave out fish, and a vegetarian version of macrobiotics became common.

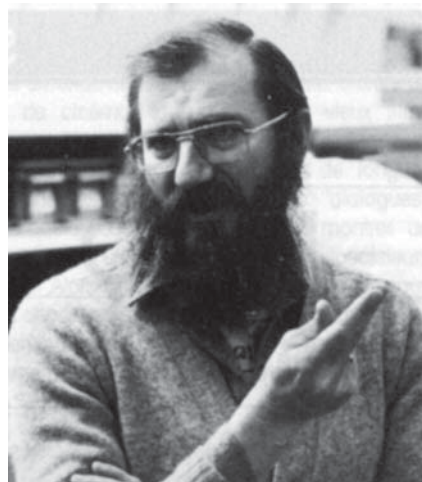
"Meanwhile, another change was occurring—the Americanization of the macrobiotic diet with adaptations to the American larder and palate. In the early years the teachers of macrobiotic philosophy and cooking were all Japanese. They taught what they were familiar with. Hence, the macrobiotic diet tended to be equated with a Japanese diet, consisting of brown rice, azuki beans, miso soup, seaweed, noodles, etc. Gradually, the first generation of American macrobiotic followers realized this need not be so. They began to see that the basic principle of macrobiotics is an ecological one. That is, human beings should eat the food growing in their immediate natural environment. Produced by Mother Nature in her wisdom, local foods best allow us to function healthfully and happily in our particular place. A macrobiotic diet for America must be based on American foods" (Continued). Address: PhD, Massachusetts.

948. Soppe, Fennie. 1986. Jonathan, Histoire d'un boucher reconverti. Interview de Jos Van De Ponsele [Jonathan. History of a reconverted butcher. Interview with Jos Van De Ponsele]. *Compas (Le) (France)* No. 26. p. 14-16. March/April. [Fre]

• **Summary:** It all started in 1974, when Jos's wife experienced serious health problems. There were suspicions of lung cancer. She went to Switzerland for care, and had a fever of 38-40°C for 6 months without improvement. One day someone gave them a small book about natural foods. She then began to eat macrobiotically and her fever disappeared after 3 months.

At the beginning, this diet was not at all attractive. The food was very poor, and Jos began to ask himself questions and to read books on the subject. He learned that it wasn't a bad diet at all. Not wanting to have to prepare two types of food, he started to eat the same diet as his wife. His health did not improve much, but he found he had the capacity to work much more, and a need for less sleep. His days started at 6:00 A.M. and ended between 11:00 P.M. and midnight.

Upon seeing the results, he began to think and live differently. In the long run, the work at the butcher shop worried him. He no longer ate meat, but he was still selling



it. That wasn't logical. He then decided to sell organic meat products at the butcher shop, and they sold very well. However that was a form of hypocrisy.

You must understand that at that time, macrobiotic people in the area were very fanatical. Meat was considered bad, in fact a poison. A more moderate viewpoint was needed; a bit of meat in itself is not bad, but its consumption in large quantities can present problems.

Jos opened two natural food shops in succession, and they were a success in part because he had experience in running a business. He tried to sell his butcher shop, which was very large. Through his new shops he met people who wanted to stop eating animal proteins, but they knew of no replacement. Back then, you could not find any tofu, or seitan, just beans. When a person decides to change her diet, she cannot fully benefit from the proteins in beans: the

process is too slow. This made it hard for a person to change his or her diet.

Jos attended a seminar conducted by Michio Kushi at Drogen (Germany). They talked about these problems. Michio spoke to Jos about miso and tamari, and advised him to come to Boston, Massachusetts, where he could learn and see everything for himself. He did. Indeed miso and tamari were available, but they were made in a foreign country. He was somewhat deceived in the early days. Most of the products came from Japan. At the same time, he worked at the famous macrobiotic restaurant The Seventh Inn. He became friends with a Japanese person and they worked together making seitan. Finally, he started commercial production with two Americans.

Tofu was very well known, but it was made in [Boston's] Chinatown. The Chinese did not want to show others how to make it, but they were allowed to look. This interested him very much.

Upon returning to Belgium, after his studies in Boston, Jos began commercial production of seitan. At the beginning people were very closed. They thought that one should consume only beans. Their fanaticism seemed very natural to them, but that made it very difficult for Jos to survive economically by making only seitan. He started by producing 500 gm a week of seitan for Souen, a macrobiotic restaurant in Gent [Gand]. He urged the restaurant to serve seitan to each customer so that it would become well known. That was successful. After several months, the natural food stores began to order seitan from him; that was his goal. Subsequently he began to make fresh organic tofu. He encountered new opposition when he suggesting sterilizing the tofu, which would cause loss of vitamin C, etc.

People got to know seitan but they were getting tired of it, so now he has the seitan burger between two buns, with onion and lettuce. They are also thinking about introducing seitan brochettes and seitan in sauces. The starch left over from making large quantities is used in making soups, spreads for bread, goulash, etc.

How did his customers react initially to all this? They thought he was crazy—in 3 ways. (1) They thought macrobiotics was folly; (2) Who but a fool would sell a butcher shop that was doing so well, employed 16 persons, and was the first to sell organic meat with great success. They thought that America had made him lose his head; (3) They thought artificial meat was absurd and would not sell. But these people have changed their opinions as things have developed.

His best invention is seitan sold sterilized in jars; it is now a very successful product. He is also very proud of his tofu burgers (*les beignets*, *les ganmos*; made from tofu, sesame seeds, onions, mushrooms, and arrowroot), his sauces, and his mushroom tarts. Neither his soy croquettes nor his carob products sell well. His basic products are seitan, tofu, and mochi (made according to a traditional

Japanese recipe). The company will soon focus more on exporting its products, especially to Germany, followed by France (starting in 1987) and Austria. He has created a company in France named Jonathan France (La Comba 24620, Les Eyzies. Phone 53.06.94.68), directed by Frenchmen, because it is very difficult to export to France; he has been trying for 2 years.

Black-and-white photos show: (1) A portrait shows Jonathan, with a large beard, rimless glasses, and thinning hair. (2) Twenty-three of his sterilized products in jars, which have a shelf-life of 2 years. Among these are Sojapastei, Sojaboont Jes, Azukiboont [Azuki bean] Jes, Brown Rice Casserole with Seitan, and Tofu Salade. The company is studying a tempeh spread for bread. The company now has 16 employees, including 3 in stores and a representative. Most of the employees like this food. Not all are macrobiotic but most have changed their diet, usually without fanaticism.

The company's name Jonathan comes from the name of the book *Jonathan Livingston Seagull* (Jonathan Le Goëland), about a seagull who wants to live differently. Jos believes that vegetable proteins can play an important role in world hunger. His dream, which he hopes to realize, is to establish small food companies in Zaire, Rwanda, and all of southern Africa. "For example, a small tofu machine can produce 800 to 1,000 cakes of tofu/day. I would like these people in poor countries to be able to make tofu themselves."

Jos is not a vegetarian. He still likes meat and eats it in small quantities, often fish or organic meat. He has 3 children. Address: Pays-Bas (Netherlands).

949. Vietmeyer, Noel D. 1986. Lesser-known plants of potential use in agriculture and forestry. *Science* 232(4756):1379-84. June 13. [20 ref]

• **Summary:** In a survey of the world's 30 major crops, Vietmeyer ranked the soybean 9th in production at 60 million tonnes (2.5% of total food production). The top 8 food crops in terms of production in million tonnes were: wheat 360 (15.3% of total food production), rice 320, corn 300, potato 300, barley 170, sweet potato 130, cassava 100, and grapes 60. Address: National Academy of Sciences, Washington, DC.

950. Belleme, Jan; Belleme, John. 1986. *Cooking with Japanese foods: A guide to the traditional natural foods of Japan*. East West Health Books, 17 Station St., Brookline, MA 02146. xi + 220 p. Illust. Index. 25 cm. [45 ref]

• **Summary:** A good study from a macrobiotic viewpoint, with more than 200 macrobiotic recipes. The authors studied in Japan and speak Japanese. Contents: Foreword. Acknowledgements. Introduction. Fermented Foods: miso, shoyu, tamari, brown rice vinegar, sake, mirin, koji, amazake, pickles, umeboshi, ume su, medicinal teas, ume extract, bonito flakes, natto. Noodles: cooking noodles, udon, soba, somen, clear noodles. Grains, incl. rice, mochi,

seitan, fu gluten cakes, hatomugi [*hatomugi*] (Job's tears), rice syrup, rice bran. Vegetables: shiitake, daikon, Hokkaido pumpkin, Chinese cabbage, burdock, jinenjo, lotus root. Sea vegetables: kombu, nori, wakame, hijiki and arame, kanten (agar). Beans: azuki beans, black soybeans, tofu. Condiments: kuzu, dark (toasted) sesame oil, goma (sesame seeds), tekka, shiso momiji (shiso leaf condiment), wasabi. Teas. Cooking utensils. Appendix: Composing meals, pronunciation guide, suppliers. Bibliography.

Amazake (p. 39-45). Contains a ½ page description plus good instructions for making basic amazake (thick "pudding" and thinner beverage), both from glutinous ("sweet") rice. Also recipes for Vanilla Amazake Pudding, Amazake Cream Puffs, Neapolitan Parfait, Carob Amazake Brownies, Bob's Coconut Amazake Macaroons, Amazake Bread (yeasted), and Unyeasted Amazake Bread. Perhaps the most lengthy information on amazake available in English up to this time.

Hato mugi ("Job's tears," p. 93) "resembles barley, but it is actually a member of the rice family. An easily digestible whole grain with only the tough outer husk removed, hatomugi contains less vitamin B-1 than brown rice but approximately twice as much protein, iron, vitamin B-2, fat, and slightly more calcium." It has long been used in China and Japan as a medicinal food, "for strengthening the stomach, purifying the blood, and restoring health. Since it is so effective in helping the body to discharge toxins, people who are sick and weak, and women who are pregnant, nursing a baby, or menstruating should eat it sparingly." Address: Rutherfordton, North Carolina.

951. Holloway, Graham J. 1986. The potency and effect of phytotoxins within yellow split-pea (*Pisum sativum*) and adzuki bean (*Vigna angularis*) on survival and reproductive potential of *Sitophilus oryzae* (L.) (Coleoptera: Curculionidae) *Bulletin of Entomological Research* (London) 76(2):287-95. June. *

• **Summary:** "*Sitophilus oryzae* (L.) is a serious pest of stored cereal grains, but recently a few populations have been found able to feed and breed on certain legumes also. Legumes contain many toxic phytochemicals."

952. Watanabe, Tokuji. 1986. Traditional foods: Their values, problems and research and development. In: V.H. Potty, et al. eds. 1986. *Traditional Foods: Some Products and Technologies*. 292 p. See p. 201-08. Aug. Presented at the UN University Workshop on "Traditional Food Technologies: Their Development and Integrated Utilisation with Emerging Technologies." Held June 1983 at CFTRI, Mysore, India. [7 ref]

• **Summary:** Contents: Introduction (ways of classifying traditional foods). Structural characteristics of traditional food industries in Japan. Traditional food processing technologies. Problems and reevaluation of traditional foods. New food processing technologies applied to traditional

foods. Technologies applicable to traditional foods. Assessment in modernization of traditional food production. Some activities related to traditional foods. Conclusion.

Traditional foods can be classified as staple or non-staple, fresh or processed (processing technologies include fermentation [e.g. miso, soy sauce, natto], salting, acidifying, drying after freezing [kori-tofu], sun-drying, fractionation [tofu], fabrication [ganmodoki], simulation of animal foods [soy milk, ganmodoki, su-ho-tai made from yuba in China]), animal or vegetable origin, and region or national production.

In Japan, rice consumption is decreasing year after year. It is thus not surprising that consumption of traditional foods closely associated with rice production are also decreasing. The reevaluation of traditional foods and their advantages and disadvantages are discussed. New food processing and packaging technologies are being applied to traditional foods, including tofu, miso, natto, and koji. Recently a method has been found to extend the shelf life of natto beyond the traditional 1-2 day period. Miso has been freeze-dried.

"Another application of a new process for the traditional foods is the emulsion curd which is a semi-solid mixture with definite proportion of soybean protein, oil and water. It keeps its form without flow. Even the dried or frozen product recovers its original texture by hydration or thawing. Therefore, it is used as a substitute in dried or frozen *Tofu*. Regular *Tofu* cannot recover its texture once it is frozen or dried...

Miso can be enriched with vitamin B-2 and calcium, and its salt content lowered. Since 1980 the Laboratory of Food Science at Kyoritsu Women's University has been conducting a research survey on traditional foods and dishes in Japan in cooperation with the Cooking Research Laboratory. "This project consists of three components: (a) survey of the present status of traditional foods on local basis at respective regions by visiting prefectural research organisations—universities and colleges; (b) sending questionnaires to students for seeking information on the position of the traditional foods in the dietary patterns of individual homes and also to obtain their comments on the future prospects of the local traditional foods; (c) and documentation regarding local traditional foods, followed by classification according to preparation or cooking method for analysis. On the basis of the collected data, the relationship between each local traditional food and its natural, cultural and historical background has been studied and published in the university's journals. More efforts are being made to identify the reasons as to why and how some traditional foods have survived in certain regions, while the others have disappeared or reached the verge of extinction.

"Another related activity is the one carried out by Ajinomoto Company, a major food manufacturer in Japan, which has got the modern audio-visual media, video-tapes

and 36 mm-films. Their team has been documenting the processing of some selected traditional foods like *Tofu*, *Yuba*, *Fu* and such other foods as demonstrated by professionals by using the old traditional methods and facilities. This would help in the documentation of traditional technologies before they disappear in the event of modernisation of such foods. Such tapes and films have been made available by the company...

“Traditional foods, especially those of plant origin, are prepared by such complex multi-step processes as to be called ‘products of human wisdom.’ Therefore there is so much to learn from such products if serious attention be paid. Indeed they have great potential for developing new food industries.” Address: Kyoritsu Women’s Univ., Tokyo, Japan.

953. Gannett News Service. 1986. Beans: They’re really good for you. Legumes come in many sizes, shapes and colors. *Californian (The) (Salinas, California)*. Sept. 11. p. 23.

• **Summary:** After Black Beans, Brown Beans, Black-Eyed, Fava Beans, Garbanzos, Lentils, Lima Beans, and Pinto Beans, we come to:

“Red Beans: The red kidney bean, small red bean and adzuki bean add color and taste to three-bean salads and are perfect for making chili. Red kidney beans can be used as baked beans in New England. Small red beans and rice are combined for traditional Southern dishes, as are adzuki beans and rice in the Far East.

“A paste can be made by mashing cooked adzuki beans and adding flavorings. This paste may be used as a substitute for tomato paste on pizzas.

“All three beans need to be presoaked. Dry uncooked adzuki beans can also be ground into a meal and added to baked goods.

“Soybeans: Soybeans are creamy yellow beans that can be cooked, or sprouted and steamed for salads and Oriental dishes. Grind them into flour for baking or crack them into grits for cereal.”

The last beans described are White Beans, which are very similar to Navy beans and great northern beans.

954. Haytowitz, David B.; Matthews, Ruth H. 1986. Composition of foods: Legumes and legume products. Raw, processed, prepared. *USDA Human Nutrition Information Service, Agriculture Handbook* No. 8-16. 156 p. Dec. See p. 126-152. By Nutrition Monitoring Division. [29 ref]

• **Summary:** Data are presented for 133 legumes and legume products. Of these, only 53 were included in *USDA Agriculture Handbook* No. 8, published in 1963. The following soy-based foods are included: Simulated meat products (bacon, meat extender, and sausage), raw soybeans, cooked boiled soybeans, roasted soybeans, dry-roasted soybeans, soybean products: miso, natto, tempeh, full-fat soy flour (raw, and roasted), defatted soy flour, low-fat soy

flour, defatted raw soy meal, fluid soy milk, soy protein concentrate, soy protein isolate, soy sauce (shoyu, tamari, and HVP), raw tofu (firm {p. 147}, regular, dried-frozen/koyadofu, and fried) [Note 1. Tofu is called “tofu” and at “Soybean curd” it says, see “tofu.” Note 2. Footnote 2 states that the calcium content of tofu curdled with calcium sulfate is 683 mg/100 gm, compared with 205 mg/100 gm for tofu curdled with nigari. As of May 1997 Soyfoods Center believes that both these values are far too high; the two figures should be about 159 mg/100 gm (range 128-168) and 45 mg/100 gm respectively], okara, salted and fermented tofu (fuyu).

For each food the following information and number of values are given: Vertically: Proximate (7 values), Minerals (9), Vitamins (9), Lipids (Fatty Acids [Saturated (9), Monounsaturated (5), Polyunsaturated (7)], Cholesterol, Phytosterols), Amino acids (18). Horizontally: Amount in 100 gm edible portion (mean, standard error, number of samples), amount in edible portion of common measures of food (e.g. ½ cup or 1 cup), amount in edible portion of 1 lb of food as purchased.

Minerals include calcium, iron, magnesium, phosphorous, potassium, sodium, zinc, copper, and manganese (not aluminum).

Vitamins include ascorbic acid, thiamin, riboflavin, niacin, pantothenic acid, vitamin B-6, folacin, vitamin B-12, vitamin A.

Amino acids include tryptophan, threonine, isoleucine, leucine, lysine, methionine, cystine, phenylalanine, tyrosine, valine, arginine, histidine, alanine, aspartic acid, glutamic acid, glycine, proline, and serine.

For Adzuki beans (raw, cooked boiled, canned sweetened, and Yokan {yōkan–sugar-sweetened confection}) see p. 24-27.

For peanuts (all types raw, cooked boiled, oil-roasted, dry-roasted, Spanish raw, Spanish oil-roasted, Valencia raw, Valencia oil-roasted, Virginia raw, Valencia oil-roasted) see p. 109-18. For peanut butter (chunk style, smooth style), defatted peanut, and low-fat peanut flour, see p. 119-22. Address: USDA Human Nutrition Information Service.

955. *SoyaScan Notes*. 1986. Japan’s largest natto manufacturers (Overview). Dec. Compiled by William Shurtleff of Soyfoods Center.

• **Summary:** (1) K.K. Okame Natto Honpo, 15-14 Ogawa, Ogawa-cho, Ibaragi-gun, Ibaragi-ken, Japan.

(2) Asahi Shokuhin K.K., 180-2 Kamido, Ushihori-cho, Gyoho-gun, Ibaragi-ken, Japan. (3) Ugo Shokuhin Kogyo K.K., Noaramachi, Aza Kaido no ue 279, Sennan-mura, Senboku-gun, Akita-ken, Japan.

(4) Taishi Shokuhin Kogyo K.K., Kawamorita, Aza Okinaka 68, Santo-cho / machi, Santo-gun, Aomori-ken 039-01, Japan.

(5) K. K. Azuki Shokuhin, Sekibori 1001, Utsunomiya-

shi, Tochigi-ken, Japan.

Note: Each of these large natto makers is located in the northeast prefectures (*Tohoku Chiho*) of Japan.

956. Kono, S. 1986. Edamame [Edamame]. In: K. Tanaka, E. Ishida, S. Kono, and M. Kohata, eds. 1986. *Sakukei o Ikasu Mamerui no Tsukurikata* (Methods of Bean Production). Tokyo: Nosangyoson Bunka Kyokai. See p. 195-243. [Jap]* Address: Japan.

957. Yoshida, K.; Bando, A.; Yanagisawa, K.; Gotoh, K. 1986. Effects of TIBA (2, 3, 5-triiodobenzoic acid) on growth and yield of azuki bean, *Vigna angularis*. *Nippon Sakumotsu Gakkai Kiji (Proceedings of the Crop Science Society of Japan)* 55(3):345-51. [Jap; eng]* Address: Japan.

958. Artz, W.E.; Swanson, B.G.; Sendzicki, B.J.; Rasyid, A.; Birch, R.E.W. 1986. Protein-procyanidin interaction and nutritional quality of dry beans. *ACS Symposium Series* No. 312. p. 126-37. Robert L. Ory, ed. *Plant Proteins: Applications, Biological Effects, and Chemistry* (American Chemical Society). [38 ref]

• **Summary:** “Digestibility and PER of tempeh prepared with red beans [probably azuki beans, but no scientific name is given] and corn were less than the digestibility and PER of soybean tempeh... *Rhizopus oligosporus* fermentation did not improve digestibility or nutritional quality of dry black beans.” Address: Food Science and Human Nutrition, Washington State Univ., Pullman, Washington 99164-6330.

959. Chang, Kwang-chih. 1986. *The archaeology of ancient China*. 4th ed. New Haven, Connecticut, and London: Yale University Press. xxv + 450 p. See p. 362. Illust. Index. 25 x 22 cm. [soy ref]

• **Summary:** In Chapter 6, “The First Civilizations: The Three Dynasties,” is a section titled “The rise of the Three Dynasties and their common characteristics.” The three dynasties are Hsia (perhaps Erh-li-t’ou), Shang, and Chou, which existed from about 2000 B.C. to 207 B.C. The archaeological record shows that all three shared a number of common characteristics in both material culture and cultural processes. A map (p. 367) shows they were located in the area with the greatest distribution of copper and tin mines in ancient China; bronze is an alloy of copper and tin.

The author reviews the archaeological evidence and summarizes the shared characteristics. The people of all three civilizations were farmers of the millets: Foxtail millet (*Setaria italica*) and panic [broomcorn] millet (*Panicum miliaceum*). They used bone, stone, and shell hoes and sickles, and mortars and pestles. “We know that the Shang and Chou also planted soybeans, wheat, and some rice, but this we know only from inscriptions and texts, which are unavailable for Erh-li-t’ou.”

Note: In other words, soybeans have not been found in archaeological sites in early China.

The soybean is also mentioned in a table titled “Principal cultivated plants of China” (p. 80), based on H.L. Li (1966). It states that the soybean (*Glycine max*) is the principal legume of north China and that red beans [azuki] (*Phaseolus angularis*) are the main legume of south China / Southeast Asia. The two main cereals of north China are broomcorn millet (*Panicum miliaceum*) and foxtail millet (*Setaria italica*), while rice and Job’s tears (*Coix lacrym-jobi*) are the two main cereals of south China / Southeast Asia.

For an excellent history of “Modern and contemporary archaeology” in China, see p. 12-21. The modern period began after the revolution of 1911, and many important discoveries were made during the 1920s. “The Geological Survey of China, established in Peking in 1916, was the principal early instrument of the Western science of field work. The Western scientists working under it who exerted the strongest influence on China: A.W. Grabau (American), J.G. Andersson (Swedish), Davidson Black (Canadian), J.F. Weidenreich (German), and Pierre Teilhard de Chardin (French). Of these people, Andersson (fig. 5) undoubtedly exerted the strongest influence on Chinese archaeology (p. 13-14). He wrote: ‘1921 was a red-letter year: the Neolithic dwelling site at Yang Shao Ts’un, the Eocene mammals on the Yellow River, the Shao Kuo T’un cave deposit in Fengtien [northeast China] and the still more remarkable cave discovery at Chou K’ou Tien, which became world famous by the work of those who followed after us’” (p. 14). Address: Prof. of Anthropology, Yale Univ., New Haven, Connecticut.

960. Chang, Wonona W.; Chang, Irving B.; Kutscher, Austin H.; Kutscher, Lillian G. 1986. *Chinese dessert, dim sum & snack cookbook*. New York, NY: Sterling Publishing Co., Inc. 160 p. Illust. (color photos). Index. 26 cm.

• **Summary:** “Many of the dessert recipes in this book have been prized as family treasures for generations and are authentic; others have been adapted to the Chinese cuisine by the addition of oriental ingredients...” (p. 7).

The “Guide to ingredients” has interesting entries for “Bean curd or tofu (*dow foo*)” and “Bean filling, sweet (*Cantonese: dow sa*) (*Mandarin: do sa*)” (“Color: red {kidney beans [azuki]}, green {mung beans}. Available form: canned. When available: most commonly at Chinese New Year. Where purchased: Chinese bakery or grocery,” p. 13), and for “Hoisin sauce (Red seasoning sauce) (*hoy sin joing*) (*hai hsien jiang*)” (p. 16).

Desserts: Doughnut slices with Chinese flavors (with “sweet bean paste” [probably *an*], made with azuki beans, p. 33). Glutinous (sweet) rice cake (with “1 lb. black bean paste (*dow sa*),” p. 33). Fried bean paste pancake (with “4 oz. bean paste,” p. 40). Lychee peach tofu cooler (with “8 oz. tofu,” p.

56). Soybean milk (homemade recipe with “1 cup soybeans,” p. 58). Red bean paste ice cream (with “1 cup sweetened red bean paste” [azuki], p. 64). Lychee tofu custard (with “8 oz. tofu,” p. 91). Strawberry tofu pudding (with “6 oz. chilled tofu,” p. 91). Peach tofu custard (with “8 oz. tofu,” p. 93). Mandarin oranges with tofu (with “6 oz. Chinese-style tofu,” p. 93). Ginger sweet red bean dessert / spread (with “½ cup sweet bean paste” [azuki], p. 106). Orange tofu icing (with “12 oz. tofu,” p. 107). Sweet red bean dessert sauce (with “½ cup sweetened red bean paste” [azuki], p. 110).

Dim sum and snacks: New Year dumplings with sweet black bean paste (with “½ cup sweet black bean paste (*dow sa*),” p. 113). Bean paste sesame balls (with “sweet black bean paste,” p. 118). *Dow sa won ton* (“Prepare the same as Fried Won Tons {p. 139} except use *dow sa* (black bean paste) as a filling... *Dow sa* is available at Chinese bakery shops, p. 140).

About the authors (p. 146). Address: 1-2. Morristown, New Jersey; 3-4. Scarsdale, New York.

961. Hawkes, Alex D. 1986. *A world of vegetable cookery*. Revised ed. New York, NY: Simon & Schuster. *

962. Hoshikawa, Kiyochika. comp. 1986. *Shinpen shokuyô sakumotsu* [Edible crops]. Tokyo: Yokendo. xviii + 697 p. See p. 460-71. 6th printing. Index. Illust. 22 cm. [42 azuki ref. Jap]

• **Summary:** One chapter (p. 460-71) is about azuki.

963. Hunt, Janet. 1986. *The compassionate gourmet: The best of international vegan cuisine*. Wellingborough, Northamptonshire, England: Thorsons Publishers Ltd. 160 p. Illust. Index. 22 cm.

• **Summary:** An excellent vegan cookbook, written for animal lovers. Soy-related recipes include: Avocado tofu pâté (p. 31). Celery miso pâté (p. 36). French bean salad with tofu dressing (p. 66). Tofu curry (Thailand; p. 74). Tofu and vegetable pakora (p. 86). Tofu layered casserole (p. 96). Tomato flan with tofu (p. 104). Tofu Lemon flan (p. 137). Yogurt dessert (made with cultured soya milk, p. 140). Rhubarb fool (dessert in soya milk, p. 141). Maple pancakes (with soya flour, p. 149). Walnut tofu balls (p. 156).

At least one recipe uses Holbrook’s Worcester Sauce—a Worcestershire-type sauce without animal products. Many recipes call for soy sauce or soya milk, and some for canned soy or nut “sausage.” Page 9 lists a number of special ingredients including Direct Foods Protoveg (soya “meat”), Infinity Foods (distributors [in Brighton, at Sussex University]) Soya mayonnaise, Lotus Foods TVP (soya “meats” in a varieties of forms and flavors), Plamil concentrated soya milk (use diluted as a milk, undiluted as a cream), and Tomor Margarine (the author’s favorite of the many vegan margarines now available in the UK). In all recipes, each ingredient is listed twice in side-by-side

columns: once in its Imperial (metric) form and once in its American form, e.g. 385 ml soya milk, 1 1/3 cup soya milk. A number of recipes call for the use of alcohol (whiskey, brandy, etc.). The author has written at least 14 other books on vegetarian or wholefood cookery. Address: England.

964. Kondo, Sonoko; Stoumen, Lou. 1986. *The poetical pursuit of food: Japanese recipes for American cooks*. New York, NY: Clarkson N. Potter. 296 p. Illust. by Etienne Delessert. Index. 25 cm.

• **Summary:** A very artistic, attractive, and authentic book with superb (imaginative and lyrical) illustrations. The section titled “Staple foods you will need” (p. 17-20) discusses soy sauce, konbu and nori seaweeds, sesame seed paste (*atari-goma*; “Most Americans may be more familiar with the Middle Eastern version called tahini paste... Used in making salad dressings and dips”), miso, and sesame seeds. Soy-related recipes include: Grilled tofu with miso (Dengaku; p. 37). Sesame tofu (p. 38; no soy). Tuna sashimi and green onions with miso (p. 40). Daikon radish with lemon miso (p. 42). Cauliflower florets with miso (p. 42). Basic miso soup (p. 51). Clam miso soup (p. 51). Daikon radish miso soup (p. 52). Vegetable and chicken miso soup (p. 52). Tofu and wakame seaweed suimono (p. 53). Fried rice with tofu and vegetables (p. 89).

Chapter 7, titled “Tofu & egg dishes” includes (p. 103-17): Tofu in Kamakura. Description of different types of tofu: Silken, firm, grilled, pouches, deep-fried, fritters (*ganmodoki*), freeze-dried (*koya-dofu*), how to press tofu. Chilled tofu with ginger sauce. Braised koya-dofu with pea pods. Cold-day tofu. Vegetarian “chicken” tofu (with frozen tofu). Dragon’s head (*hiryo-zu*). Tofu from the sea (*Kenchin-mushi*). Tofu gratinée. Stuffed tofu. Scrambled tofu. Tofu treasure bags. Vegetarian “burger.” Egg tofu delight (*tamago-dofu*; no soy).

Beans for breakfast (*natto*; p. 125). Braised konbu seaweed, soybeans, and konnyaku (p. 128). Hijiki seaweed with tofu (p. 129). Stuffed tofu sushi (*Inari-zushi*; p. 157). Snapper tempura with asparagus and miso (p. 174). Marinated cod in miso sauce (p. 179). Seaweed, chicken, and vegetables with creamy miso (p. 185). Steak miso (p. 190). Sukiyaki (p. 206). Shabu shabu (p. 208). Vegetarian nabe (with tofu, p. 211). Sea and mountain (with miso sauce, p. 212-23). Winter nabe (with tofu, p. 214). Udon-suki (with tofu, p. 216). Tofu apple cake (p. 244). Chapter 15 (p. 260-71) is menu plans, by season and time of day.

The glossary (p. 272-82) includes: Agar-agar, azuki beans, konbu seaweed, kuzu, miso paste, nori seaweed, rice cakes (*mochi*), sesame seed oil, sesame seeds, soybeans—fermented (*natto*), soy sauce, tofu, tonkatsu sauce (with dark soy sauce), wakame seaweed. Address: Los Angeles, California.

965. Lu, Henry C. 1986. *Chinese system of food cures*:

Prevention & remedies. New York, NY: Sterling Publishing Co., Inc. 192 p. Index. 23 cm. [11 ref]

• **Summary:** Chapter 7, titled “Legumes, grains, oils and seeds,” discusses the following: Small red bean (adzuki bean): Edema, beriberi, jaundice, diarrhea, discharge of blood from anus, carbuncle swelling, mumps, cirrhotic ascites (p. 107). Bean curd (tofu): Pink eyes, diabetes, periodic diarrhea, sulfur poisoning (p. 111). Yellow soybean: Malnutrition in children, diarrhea, abdominal swelling, underweight, getosis (p. 111). Black soybean: Edema, beriberi, jaundice, rheumatism, muscular cramps, lockjaw, drug poisoning. Soybean oil: Gastric ulcer, duodenal ulcer, intestinal obstruction. Soy sauce: Promotes digestion (p. 112).

Note: Although he was born in Taiwan, Dr. Lu was quite skeptical of traditional Chinese medicine. But during this twenties he developed an ailment that resisted every form of Western medical treatment. In desperation, he traveled to Taiwan and Hong Kong to consult with Chinese specialists. The results changed his life. A traditional Chinese doctor cured him in a few months. Dr. Liu already held a PhD in education and philosophy from the University of Alberta. But at age 32 he decided to change his field. He began by translating the *Nei Jing (Yellow Emperor's Classic of Internal Medicine)* into English. He went on to translate 25 other Chinese medical books into English, including 7 books on acupuncture that are now listed as required texts by the Board of Acupuncture examiners. In 1972 he began practicing traditional Chinese medicine and acupuncture. In 1986 he founded the Academy of Oriental Heritage (in Vancouver, British Columbia), which now (1999) has 15 full-time teachers and more than 100 students. Address: Academy of Oriental Heritage, P.O. Box 35057, Station E, Vancouver, BC V6M 4G1, Canada.

966. McCarty, Meredith. 1986. American macrobiotic cuisine. Turning Point Publications, 1122 M Street, Eureka, CA 95501-2442. 110 p. Illust. Index. 28 cm. [6 ref]

• **Summary:** Page 7 and Chapter 7, titled “Beans and Soyfoods,” give basic descriptions of tempeh, miso, soy sauce, soymilk, and tofu. Recipes include Summer's Mixed Vegetable Quiche (with tofu), Tofu Egg Foo Young, and Baked Tempeh with Lemon-Mustard Sauce. Tofu recipes elsewhere in the book include Green Goddess Dressing, Nutty Noodle Bake, Pasta Patricio, and Sour Cream. Also contains information on sea vegetables. Address: Eureka, California. Phone: 707-445-2290.

967. Spivack, Ellen Sue. 1986. The Johnny Alfalfa Sprout handbook. Johnny Alfalfa Sprout, P.O. Box 294, Lewisburg, PA 17837. 94 p. Illust. No index. 22 cm. [17 ref]

• **Summary:** The section titled “Super soy sprouts” (p. 21-22) describes several methods for sprouting soybeans at home. Chapter 2 describes many different seeds that can be

sprouted, including lentils, alfalfa, sunflower seeds, wheat berries, fenugreek, radish, buckwheat, millet, common legumes (incl. peas, soybeans, aduki), amaranth, and quinoa.

Chapter 3, titled “Recipes for simple meals with sprouts” contains vegetarian recipes that call for the use of soymilk (p. 44, 46-47), tofu (p. 51-52, 55, 59), miso (p. 51, 59), sesame tahini or ground sesame seeds (p. 53, 72), non-dairy soy cheese (p. 60). A photo on the inside back cover shows the author and her husband (a professional sprouter) gathering sprouts. Address: Lewisburg, Pennsylvania.

968. Takahashi, Kuwako. 1986. The joy of Japanese cooking. Tokyo: Shufunotomo Company, Ltd. 311 p. Illust. (some color photos). Index. 27 cm.

• **Summary:** An excellent book with especially good descriptions of Japanese ingredients. Contents: Dedication. Foreword. Introduction. Part I. Japanese ingredients. Seasonings in Japanese cooking. Utensils and equipment. Tableware. Measurements and equivalents. Basic techniques: Making soup stock (*dashi*), cooking rice, preparing fish, boning chicken, cutting vegetables, broiling, poaching, steaming.

Part II. Seafood. Chicken. Eggs. Beef. Pork. *Tofu* (bean curd). Vegetables, dried and manufactured foods.

Part III. Appetizers (*zensai*). Soups. Salads (*aemono*). Casseroles (*nabemono*). Rice. Pickles. Desserts and Japanese sweets.

Part IV. Menu planning. Sample menus with preparation schedules. Part V. Making tea. Serving sake.

A color photo (p. 15) shows six different soyfoods made from soymilk: 1. Deep-fried soybean puffs (*age* or *aburage*). 2. Fried tofu cutlet (*atsu-age* or *nama-age*). 3. Tofu patties (*ganmodoki*). 4. Soymilk film, dried (*yuba*). 5. Bean curd cake (*tofu*). 6. Freeze-dried tofu (*Kôya dofu*).

Note 1. This is the earliest English-language document seen (April 2013) that uses the term *Kôya dofu* to refer to dried-frozen tofu.

The section titled “Japanese ingredients” (a superb glossary, with many entries accompanied by an illustration {line drawing}, p. 17-32) includes: Bean curd cake (*tofu*), incl. regular tofu (*momen dofu*), soft tofu (*kinugoshi dofu*), Ever-Fresh Silken Tofu (aseptically packaged), instant tofu, firm tofu (Chinese style). Tofu products: Deep-fried soybean puffs (*agé* or *aburage*), fried tofu cutlet (*atsu agé* or *name agé*), freeze-dried tofu (*Kôya dofu*), grilled tofu (*yaki dofu*), tofu patties (*ganmodoki*). Beans: Red beans, dried (*azuki*), soybeans, dried (*daizu*), soybeans, fresh (*eda mame*). Bean pastes: Bean paste, fermented (*miso*), sweet bean paste (*azuki an*). Soymilk film, dried (*yuba*). Soy sauce (*shoyu*).

The glossary also discusses: Horseradish, Japanese (*wasabi*), konnyaku, kombu, umeboshi, kabocha, daikon (4 forms), glutinous rice (*mochi gome*), red bean rice (*sekihan*), pounded rice cake (*mochi*), rice wine lees (*sakekasu*), rice wine lees pickles (*narazuke*), perilla (*shiso*), seaweeds (*hijiki*,

nori, *yakinori*, *small sized nori*, *wakame*, *ao nori*), sesame seeds (*goma*), sweet rice wine for cooking (*mirin*), wheat gluten cake (*fu*, incl. *nama fu*, *yaki fu*, and *matsutake fu*).

The section titled “Seasonings in Japanese cooking (another superb glossary, p. 33-37) discusses: Soy sauce, incl. Regular soy sauce (*koikuchi shōyu*), light soy sauce (*usukuchi shōyu*), tamari soy sauce (darker and thicker, made from fermented soybean and brine in the Nagoya area. “It is not saltier than regular soy sauce but has a richer flavor, thicker taste, and some people prefer tamari as the dipping sauce for sashimi... Note 2. In the USA the name ‘tamari’ is mistakenly used for natural soy sauce which is not tamari”), white soy sauce (*shiro shōyu*), milder soy sauce (contains less salt). A table showing the nutritional composition of five different types of Japanese soy sauce is given. Combinations of soy sauce and mirin: Teriyaki. Miso (incl. *kome miso*, *mugi miso*, *mame miso*, mixing of miso types).

Use the good index to see how each of the ingredients mentioned above are used in recipes.

A good biography of the author is appears in the Foreword and on the inside rear dust jacket (with portrait photo). The author was also very active in introducing ikebana (Japanese flower arranging) to the Bay Area and the USA. Address: Japan and Berkeley, California.

969. Ushirogi, T.; Yamakawa, T.; Hara, M. 1986. Hokkaido bean production techniques: Azuki and kidney bean. Hokkaido Ebetsu: Agricultural Production Dissemination Association. 205 p. *

970. Belleme, Jan. 1987. Much ado about mochi: An easy guide to making perfect mochi at home. *East West*. Jan. p. 18-21.

• **Summary:** Tells about mochi in Japanese culture, gives a recipe for making basic mochi at home, plus mochi varieties: Azuki mochi, black soybean mochi, chestnut mochi, sesame mochi, roasted walnut or almond mochi, peanut mochi, dandelion, mugwort, shiso, or nori mochi, ohagi. Mochi recipes include: Pan-fried mochi. Deep-fried mochi in broth. Broiled mochi. Mochi in soup. Sweet mochi (pan fried then dipped in rice syrup).

971. *Monthly New Food Products in Japan*. 1987. Dessert Mixes. Tofu or soy protein based dessert mixes are new from Morinaga Co. in Japan. 12(2):14. Feb. *

• **Summary:** The bean jam mixes yield an azuki bean jelly type dessert after chilling. Address: Japan.

972. Kimura, Eiichi. 1987. Gendai gokoku ko. Daizu wa “gokoku no hitotsu” to iwareru ga [Thoughts on China’s “Five Grains” today. It is said that soybeans were one of these, but were they?]. *Daizu Geppo* (*Soybean Monthly News*). Sept. p. 34-35. [3 ref. Jap]

• **Summary:** Early Chinese works that mention the Gokoku

or Five Grains are the Chou li (1122 B.C.?; mentions simply “beans.” Note: Most western scholars date this work as 3rd century B.C.); ? (330 B.C.; mentions “beans”); Daihinrei (about 50 B.C.; mentions “shu”); Soko (221 B.C.–220 A.D.; mentions soybeans).

In Japanese works, the soybean is specifically mentioned as being one of China’s “Five Grains” in the *Kojiki* (712 A.D.), probably in the *Nihonshoki* (720 A.D.), which said “large and small beans,” i.e., soybeans and azuki, and in the *Honcho Shokukan* (1695). Address: Daizu Kyokyu Antei Kyokai.

973. East West Journal. comp. 1987. Shopper’s guide to natural foods. Garden City Park, New York: Avery Publishing Group. x + 204 p. Illust. Index. 28 cm. [66* ref]

• **Summary:** The book from the editors of the *East West Journal* is mainly a series of articles published in *East West Journal* or special articles by individual authors. Contents: 1. Introduction to natural foods. 2. Grains. 3. Breads, pastas & seitan. 4. Vegetables. 5. Sea vegetables. 6. Labeling and standards. 7. Fruits. 8. Seeds & nuts. 9. Beans (incl. tofu, tempeh, miso, azuki). 10. Beverages. 11. Condiments (incl. tamari, shoyu, vinegar, salt, umeboshi). 12. Cooking ingredients. 13. Pressure cookers. Address: New York; Massachusetts.

974. **Product Name:** Tempehworks Macro Power Tempeh. **Manufacturer’s Name:** Lightlife Foods, Inc. **Manufacturer’s Address:** P.O. Box 870, Greenfield, MA 01302.

Date of Introduction: 1987 October.

Ingredients: Organically grown soybeans, carrots, sea vegetables, scallion, aduki beans, sesame, miso.

Wt/Vol., Packaging, Price: 8 oz vacuum pack. Retail for \$1.79.

How Stored: Refrigerated, 45 day shelf life. Or frozen.

New Product–Documentation: Leaflet. 1987. Lightlife Foods. “New Products Coming From Lightlife this Fall.” Soya Newsletter. 1987. Sept/Oct. p. 6.

975. Thottappilly, G.; Rossel, H.W. 1987. Viruses affecting soybean. In: S.R. Singh, K.O. Rachie, and K.E. Dashiell. eds. 1987. Soybeans for the Tropics: Research, Production and Utilization. New York, etc: John Wiley & Sons Ltd. xx + 230 p. See p. 53-68. Chapt. 5.

• **Summary:** Contents: Introduction. Soybean mosaic virus. Cowpea milk mottle virus. Indonesian soybean dwarf virus. African soybean dwarf virus. Mungbean yellow mosaic virus / Horsegram yellow mosaic virus. Cowpea yellow mosaic virus. Cowpea severe mosaic virus. Tobacco ringspot virus. Tobacco streak virus. Peanut mottle virus. Soybean stunt virus. Bean yellow mosaic virus. Alfalfa mosaic virus. Cowpea aphid-borne / Blackeye cowpea mosaic / Azuki bean mosaic. Blackgram mottle virus. Soybean crinkle leaf

virus. Soybean yellow vein virus. Other whitefly-transmitted diseases. Viruses from other regions. Diseases caused by mycoplasma-like organisms. Conclusions.

Eighteen viruses have been reported from soybeans in the tropics. Beyond doubt soybean mosaic virus (SMV) is the most frequently isolated virus of soybean; it probably occurs wherever soybean is grown. The disease caused by SMV was noted by Clinton (1916) in the USA as early as 1915. A discussion of each virus is given. Address: Virology Unit, International Inst. of Tropical Agriculture (IITA), PMB 5320, Ibadan, Nigeria.

976. Eden Foods, Inc. 1987. Product description: Eden Foods quality natural foods. 701 Tecumseh Rd., Clinton, MI 49236. 21 p. Plus 6 pages of inserts. Catalog.

• **Summary:** The catalog lists the following soyfoods: Edensoy (Original, Vanilla, Carob; shown on page 1. "Edensoy is the best tasting, best selling, best made natural soymilk on the market"), black soybeans (they "have a hearty yet sweet taste. In Japan, black soybeans are always prepared for the New Year's celebration as they are a symbol of health."), organically grown soybeans (usually Corsoy or Amsoy), Eden tekka ("a hearty, nutritious condiment made from hacho miso, carrots, burdock, ginger root, and unrefined sesame oil; 2.8 oz), dried tofu (actually dried-frozen; 5.8 oz), barley (mugi) miso, brown rice (genmai) miso, buckwheat (soba) miso, light (shiro) miso, rice (kome) miso, hacho (100% soybean) miso, natto miso "Kinzanji," shoyu, organic shoyu, low-sodium shoyu, wheat-free tamari, tamari-roasted nuts and seeds wheat free (pumpkin seeds, sunnies [sunflower seeds], almonds, cashews, mixed nuts), and Lima Tempeh.

Some interesting non-soy foods listed in the catalog include quinoa (16.2% protein), kudzu-kiri, kudzu root starch, adzuki beans, mochi (100% brown rice, with mugwort, or with millet), sea vegetables, organic amazake, barley malt syrup, and Lima seitan.

In the spring of 1986, Eden Foods became General Agent for North America for the Lima Company of Belgium. Lima soyfood products include Lima Tempeh. Note: This catalog was still in use in Jan. 1989. Address: Clinton, Michigan. Phone: 517/456-7424 or 800/248-0301.

977. Breene, W.M.; Hardman, L.L. 1987. Anatomy of a specialty crop—the adzuki bean experience. In: Grain Legumes as Alternative Crops. 1987. St. Paul, Minnesota: Center for Alternative Crops and Products. iv + 194 p. See p. 67-77. 28 cm. *

• **Summary:** In Minnesota, commercial azuki production was stimulated in 1977 by a Japanese trading company that wanted to export Minnesota-produced azuki to Japan. Address: 1-2. Dep. of Food Science & Nutrition, Univ. of Minnesota, 1334 Eckles Ave., St. Paul, MN 55108; 3-4. Dep. of Agronomy & Plant Genetics, Univ. of Minnesota.

978. Hymowitz, T. 1987. The grain legumes: an overview of crops and species. In: Grain Legumes as Alternative Crops. St. Paul, Minnesota: Center for Alternative Crops and Products. See p. 32-44. * Address: Univ. of Illinois.

979. Albert, Rachel. 1987. Gourmet wholefoods: Vegetarian and macrobiotic cuisine. Grain of Salt Publishing, 2211 N.E. 50th, Suite #12, Seattle, WA 98105. xi + 176 p. Illust. by Rebecca Rickabaugh. Index. Introduction by Karl Mincin. 21cm.

• **Summary:** This vegan cookbook contains no recipes calling for eggs or dairy products. At last, a macrobiotic cookbook without fish. This book has a brief, unstuffy introduction to macrobiotics and tasty, creative recipes. Includes 11 recipes featuring tofu, 4 with tempeh, 1 using black soybeans, and many using miso and shoyu. Note the correct use of the term "shoyu" throughout. Also has recipes for "amasake" and "amasake frosting." Address: Washington.

980. Downer, Lesley. 1987. Japanese vegetarian cooking. New York, NY: Pantheon Books. ix + 374 p. Illust. Index. 21 cm.

• **Summary:** An excellent, authentic and very well written book—much more than a cookbook. Part II, titled "Beans, soybean products, and eggs" contains chapters on: Beans, p. 223+ (including recipes for whole soybeans, such as: Soybean rice {served at the beginning of February, incl. "¼ cup dried soybeans"}). Five-color soybeans. Sweet simmered soybeans. Plus many recipes for azuki beans). Tofu, p. 232+ (incl. cotton tofu, kinugoshi, koya-dofu). Deep-fried tofu, p. 252+. Yuba, p. 259+ ("In Chinese vegetarian cuisine, a much thicker, chewier yuba, sold in Chinese shops as 'bean curd skin' or 'bean curd sheets' is actually used as a meat substitute, and vegetarian restaurants in Hong Kong and China abound with such dishes as Vegetarian Fish and Vegetarian Chicken, which even look similar to the real thing"). Okara, p. 273+. Miso, p. 276+. Natto, p. 289-97.

Born in London, England [her mother was Chinese-Canadian, her father Canadian and a professor of Chinese at the University of London] the author was not born a vegetarian; she became one by choice. In 1978 she went to Japan to live for four years in Gifu, a small provincial town near Kyoto. By this time her main interest was in food and cooking, so she had a marvelous and very interesting time.

Her Japanese friends expected her, a Westerner, to be a "meat-eating, coffee-drinking blue-eyed giant... They had all been prepared to cook up steaks and hamburgers to suit my supposed Western tastes." But they soon "realized that the traditional Japanese dishes that they had enjoyed before the advent of Western fast foods were largely vegetarian. Indeed it is only since the end of World War II that meat has become at all common in Japan and most older people still prefer a

largely meat-free diet... Before the Meiji restoration in the last century [starting in 1868] the Japanese ate no meat at all and were shocked and disgusted when Western newcomers demanded beef” (p. 6).

“I was also a teacher, the most highly honored profession in Japan.” “There can be few countries in the world—maybe none—where it is easier and more pleasurable to be a vegetarian than Japan” (p. 11) “The Japanese have explored and developed the possibilities of a meat-free cuisine, perhaps more than any other people in the world” (p. 13). Sea vegetables (such as kombu, wakame, and nori) are an important part of that cuisine. “The range of tofus and tofu products is seemingly endless.” Address: Author and cooking teacher, London.

981. Ferré, Julia. 1987. Basic macrobiotic cooking: procedures of grain and vegetable cookery, edited by Laurel Ruggels. Oroville, California: George Ohsawa Macrobiotic Foundation. xii + 275 p. Illust. (line drawings by Jim North). Index. 23 cm. [17 ref]

• **Summary:** Julia has written the book she wished she had when she was learning macrobiotics. The foreword is by Cornelia Aihara. Her portrait photo appears on the rear cover. This macrobiotic cookbook uses fish and eggs.

Miso is mentioned on 8 pages, soy on 1 page, soy sauce on 6 pages, tempeh on 6 pages, tofu on 16 pages,

Also mentions many arrowroot (kuzu), azuki beans, sea vegetables, umeboshi, yin and yang applied to cooking. Address: Vega Study Center, Oroville, California.

982. Hoshikawa, Kiyochika. 1987. Azuki [Azuki beans]. In: Origin and Spread of Cultivated Crops. Tokyo: Ninomiya Shoten Publishing House. See p. 60-61. [Jap]*

983. Ohsawa, Lima. 1987. Rezepte für die Makrobiotische Kueche. Mit Nahum Stiskin, translated by Gudrun Klein [Recipes for macrobiotic cuisine. With Nahum Stiskin]. Ravensburg, Germany: Otto Maier Verlag Ravensburg. 336 p. Illust. by Maurice Owen. Index. 18 cm. [Ger]

• **Summary:** This is a German-language translation of the following English-language book: Ohsawa, Lima. 1974. *The Art of Just Cooking*. With Nahum Stiskin. Hayama, Japan and Brookline, Massachusetts: Autumn Press. 216 p.

The Preface to this book is a 3-page autobiography by Lima starting in 1953, when she was about age 54. In 1953, at age 54, Lima Ohsawa first ventured beyond the shores of her native Japan. She and her 2nd husband, Georges Ohsawa, left on their first world tour. In 1955-56 they spent time with Dr. Albert Schweitzer in Lambarene, Gabon. “Being vegetarian Dr. Schweitzer was always very interested in the nutritional assets of the soybean and asked me to show him different ways to prepare it.” During this and many subsequent travels, Lima learned many traditional, natural recipes from around the world.

Contains numerous Japanese macrobiotic style recipes. Gives good definitions of miso and shoyu. Soy-related recipes include: Brown rice with soybeans. Inarizushi. Brown rice porridge with vegetables and miso. Soya omochi (mochi with soya flour). Burdock with miso and lemon peel. Broccoli and radish with miso dip. Carrot with green beans and tofu. Ninjin shiro-ae (with “½ cake of *tofu*, drained and mashed). Cucumber with wakame and walnut miso. Cucumbers with miso and sesame. Onion nitsuke with miso. Onion goma-miso-ae (onion with sesame miso). Eggplant nabeshigi-yaki (with miso). Scallion and aburage nitsuke. Scallion dengaku (with miso). Renkon ikada age with kuzu-lemon sauce. Kabocha miso ni. Kabu miso-ae (turnips with sesame miso). Daikon age rolls (with aburage). Vegetable skewers with koya-dofu (dried-frozen tofu). Kombu with shoyu. Renkon miso intro (lotus root tempura with miso). Coltsfoot buds with miso. Wakame miso soup. Mugi-miso soup. Sake-no-kasu jiru (miso soup with sake lees). Go jiru (soybean potage with aburage). Oden with ninjin and gobo kombu maki (with aburage).

Condiments and pickles. Gomashio (sesame-salt). Tekka miso (sauteed vegetables with miso). Shigure miso (moist tekka). Miso sauté. Soybeans with miso and burdock. Soybeans with miso. Miso pickles (fall and winter). Sauces, spreads and salad dressings: Lemon shoyu. Ginger shoyu. Orange shoyu. Tsuje-jiru dipping sauce (with shoyu). Goma joyu sauce (with shoyu). Scallion miso. Walnut miso. Citron miso. Goma miso (sesame).

Beans: Black bean ni (the black beans are actually black soybeans. Soak 1 cup soybeans overnight in 3 cups water. “Drain the beans through a strainer reserving any soaking water.” Add enough fresh water to equal 4 cups then pour this liquid into a heavy saucepan. Add the soaked beans, bring to a boil over high heat. Reduce heat to low, cover and simmer for 2+ hours, or until tender. Add water during cooking if liquid completely evaporates. Toss pan to stir. When done, season with a dash of salt and/or shoyu. “In Japan this exquisitely sweet dish [nimame] is a must on New Year’s Day. It gets even sweeter after standing for a day or two.” Cooking soybeans with a small strip of *kombu* helps to soften them). Gomoku-mame (soybean nitsuke).

Tofu ryori; (“Tofu or bean curd is rich in vegetable protein. Although it is rather *yin* in our classification of foods, the recipes I have included here balance its *yin* characteristics with *yang* so don’t hesitate to use it occasionally. It’s delicious in miso soup, stews and *nabe*, and as a dish by itself. It is available at Oriental food shops and can also be made at home.”). Homemade tofu (3 cups soybeans plus nigari make 1 lb. tofu; also describes how to make nigari {sea brine} by dampening 5 lb. sea salt). Variation: Homemade grilled tofu. Uohana pouches (with okara and aburage). Gammodoki. Tofu with kuzu sauce. Tofu roll. Koya-dofu sandwich. Tofu nitsuke. Chinese dow-foo oroshi-ae. Tofu mold (with kuzu). Tofu tempura. Goma dofu

(sesame tofu).

Squid and scallion miso-ae. Salmon head soup (with soybeans). Surimi shinoda (with aburage). Red snapper in miso. Koi koku (with miso). Egg tofu. Amazake manju (sweet sake dumplings). Amazake (homemade, using glutinous “sweet” brown rice).

The section titled “*Kofu*: Wheat Gluten” includes recipes for Homemade kofu (wheat gluten, including Kofu loaf and Seitan), and Kofu cutlet. “First introduced to Japan from China by Buddhist monks, *kofu* became a very popular food in Zen temples. It is delicious in soups and stews and mixed with sautéed vegetables. *Kofu* cutlet looks, feels, and tastes like meat.” Seitan is made by simmering 5 cups cold wheat gluten, separated into small pieces, for 3 hours in shoyu, sesame oil, and minced gingerroot.

Dandelion coffee (made from minced and dry roasted, ground dandelion root) and Yannoh (prepackaged grain coffee, made from 5 different grains) are described.

The book, which contains many fish recipes, begins with a nice photo of Lima at age 75—she looks 20 years younger—and ends with a good glossary. Lovely illustrations, a wealth of original information on Japanese foods. Address: Japan.

984. Passmore, Jacki. 1987. *Asia: The beautiful cookbook*. Los Angeles, California: Knapp Press. 256 p. Illust. (color). Index. 37 cm.

• **Summary:** This is a stunningly beautiful, oversized book—a feast for the eyes, filled with elegant color photos (many full page), authentic recipes and many insights about Asian cookery. Each recipe is accompanied by one or more photos, Contents: Japan: Simplicity and elegance. Korea: Warm and sustaining. China: From the beginning of time. Philippines: East meets West. Thailand: Titillating, tantalizing. Laos and Kampuchea: Unforgettable foods. Vietnam: Herbaceous overtones. Singapore and Malaysia: A blending of cultures. India: Southern fire, northern serenity. Burma: Exotic offerings. Indonesia: Symphony of flavors. Sri Lanka: Gems from an enchanted isle. Glossary. Acknowledgments.

Japan: Yudofu (Simmered bean curd, with 3 cakes tofu {bean curd}, p. 31). Tofu dengaku (Grilled bean curd on skewers, with 2 lb {1 kg} momen tofu and white miso, p. 31). Ton-negu no teriyaki (Teriyaki pork rolls, p. 38). Miso-shiru (Miso-flavored soup with bean curd).

Singapore and Malaysia: Popiah (with ¼ cup (about 2 oz / 60 gm) compressed bean curd cake, shredded, p. 155, 148-49). Tempe lemak (Tempe in coconut milk, p. 166). Hokkien mie (Hokkien style noodles, with 2 cakes compressed bean curd, p. 168). Laksa ayam (Chicken with laksa noodles in coconut sauce, with 2 squares / cakes compressed bean curd, p. 169).

Indonesia: Kecap manis is a sweetish soy and chili sauce (p. 218). Babi kecap (Pork in sweet soy sauce, p. 227).

Glossary (p. 252-54) includes short definitions of: Azuki beans. Bean curd. Bean pastes and sauces. Kecap manis

(“based on dark soy sauce, sugar and spices”). Kombu. Nori. Paneer (India). Sesam. Wakame.

985. Shannon, Sara. 1987. *Diet for the atomic age*. Wayne, New Jersey: Avery Publishing Group Inc. xviii + 316 p. Introduction by Ernest J. Sternglass, PhD. Index. 23 cm. [400+* ref]

• **Summary:** The subtitle on the cover reads: “How to protect yourself from low-level radiation.” This book, written from a macrobiotic viewpoint, contends that various foods, including miso and sea vegetables, can protect people from radioactivity. Chapter 6, “Diet for the Atomic Age,” discusses miso, tofu, tempeh, and sea vegetables at length as foods that can protect us from radiation (p. 130, 145-55). The story of how miso protected Dr. Akizuki and his staff from the radiation of the atomic bomb dropped on Hiroshima is told on pages 77, 116, 148-49.

Chapter 8, “Recipes” (p. 193-234) includes many macrobiotic-style soy-related recipes and a special section titled “Tofu and Tempeh.” The chapter contains 13 tofu recipes, 7 miso recipes, and 4 tempeh recipes. The author received her degree in nutrition from the State University of New York. Address: Practicing nutritionist and health counselor, New York City.

986. Rose, Peter G. 1988. Available vegetables range from familiar to esoteric: *Country Cook. Herald Statesman (The) (Yonkers, New York)*. Jan. 20. p. 44.

• **Summary:** “Area health food stores carry adzuki beans, a favorite bean in China and Japan. My sources say this lovely, tiny, mahogany-colored bean with a small, white stripe on top, have a diuretic effect. Their meaty flavor combines very well with stir-fried or sautéed vegetables such as chopped celery, carrots, scallions and mushrooms.”

A recipe titled “Adzuki beans” calls for 1 cup adzuki beans and 4 cups water.

“Combine beans and water. Bring to a boil. Reduce heat and barely simmer for 1 to 2 hours depending on the degree of doneness you prefer. These beans may be cooked a day ahead of time and used when needed, or may be frozen. They are a healthful addition to stir-fried or sautéed vegetables.” Address: Free-lance writer who lives in South Salem.

987. Elliot, Rose. 1988. *The complete vegetarian cuisine*. New York, NY: Pantheon Books. 352 p. First American edition. With many lovely full-page color photos. Index. 28 cm.

• **Summary:** Visually, this is a beautiful book. The author makes minimal use of soybeans or soyfoods in her vegetarian cookbooks. She has apparently not learned that very few cultures that use soya as a traditional part of their diet use either soybeans as such or soy flour. In “Learning to love the soybean” (p. 16) she notes: “Soybeans and soy flour are rich sources of nutrients, but, in my opinion, so difficult to make

palatable! However sprouted soybeans are delicious and make an excellent crunchy addition to salads, stir-fries, and sandwiches... Creamy soy milk (p. 106) and tofu (p. 108), which can both be made at home, are other palatable ways to eat soy."

Pages 38-39 contain a marvelous 2-page spread color photo of 30 different leguminous seeds (including soybean and soy flour), each with a brief description, followed by a longer description on pages 40-41. The section titled "Soybean *Glycine max*" states: "Soybeans have a strong flavor and need powerful condiments, such as curry, tomato and garlic, to make them taste good. I think they're nicest when sprouted (p. 207) and added to salads and stir-fries."

"Many products, such as miso, soy sauce, tempeh, soy milk and tofu, are made from soybeans and are described in other sections of this book."

"Soy flour is high in protein and low in starch, so it cannot be used to make a normal white sauce, although it can be stirred into savory sauces and gravies to add bulk and nutrients and is sometimes added to flour as a dough improver, in the proportion 8 parts flour to 1 part soy flour."

Pages 104-05 contain another 2-page spread color photo of dairy and nondairy ingredients, with a brief description of each, including tempeh, seitan, dried deep-fried tofu, aromatic dried tofu [probably five-spice pressed tofu = *wu-hsiang toufukan*], smoked tofu, firm tofu, soft tofu, textured vegetable protein (chunks or chopped), soy milk, and soy cream. A longer explanation is given on pages 106-06. The author does not like the strong soybean flavor or stodgy texture of tempeh. Page 108 gives a brief description of how to make tofu, and has a sidebar titled "Ideas for using tofu and vegetarian protein foods." A good but brief description of soy sauce is given on p. 184, and a poor description of "How to make soy milk" (with added vanilla, honey, and oil) is given on page 280.

Soy-related recipes include: Miso soup with bean curd (p. 133; a variation includes wakame). Vegan ice cream (uses soy milk instead of dairy milk, p. 280). Thus, only 1 recipe in the 352-page book uses tofu and none use tempeh.

Originally published in Great Britain as *Rose Elliot's Vegetarian Cookery* by William Collins Sons & Co. Ltd., London and Glasgow. "Rose Elliot, a vegetarian since the age of three, is one of England's most popular cookbook authors. Her many best-selling books include *Vegetarian Cooking from Around the World*, *The Festive Vegetarian*, and *The Vegetarian Mother and Baby*. An active food consultant, she has appeared often on television and radio in Britain. She lives in Hampshire, England." She was born and educated in England. Address: Hampshire, England.

988. *SoyaScan Notes*. 1988. Products containing little or no soya or seitan made by Jonathan in Belgium for which Soyfoods Center has labels (Overview). Oct. Compiled by William Shurtleff of Soyfoods Center.

• **Summary:** These labels were sent by Jonathan in 1988, along with many labels for soyfood products. Most labels have the product name given in English, German, French, and Dutch. Only the English is given below. Many of the products contain organically grown ingredients, with the Cinab logo.

Spiced biscuits [with fructose], Bran biscuits [soy flour is the 7th ingredient], Fruit biscuits (without addition of sugar), Almond biscuits (without addition of sugar), Sesame biscuits (without addition of sugar), Fructose biscuits, Four-cereal biscuits (with cane sugar), Spiced butter biscuits (with cane sugar)

Mochi, Lasagna (vegetarian, with soy sauce), Pilav rice (Pilaf), Risotto and lentils (with soy sauce). This line of products (each 300 gm) has elegant labels with a color photo on the front panel.

Wheat wafers (with soy flour), Muesli wafers without sugar, Coconut cake with fructose, Wheat biscuits, Hasselt spices biscuits (with soy flour; Speculoos, Spekulatorius), Baby-food. All self-adhesive labels, 4.5 by 2.25 inches.

Mushrooms in tomato sauce (vegetarian), Lentils (with soy sauce), Lasagna, Whole wheat pasta.

Vegetarian entrees, each 500 gm: Brown rice casserole with lentils + vegetables, Brown rice casserole with lentils + seitan, Pumpkin creme, Pumpkin soup with brown rice, Mushroom soup, Millet-onion soup, Azuki bean soup, Lentil soup, Seitan-Ratatouille (Wheat protein and vegetables), Seitan-Goulash, Seitan, Nutmix spread, Hazelnut spread with almonds.

Each 250 gm: Prepared azuki beans, Prepared lentils, Seitan Bolognaise, Lentil spread, Seitan spread, Mushroom spread, Mushrooms in tomato sauce, Apricot spread, Carob spread, Fig spread, Date spread, Raisin spread, Peanut butter, nutmix spread, hazelnut spread with almonds.

989. Lamont, Heather. 1988. *The gourmet vegan*. London: Victor Gollancz Ltd. 153 p. Index. 20 cm.

• **Summary:** This unillustrated vegan cookbook makes relatively little use of soyfoods, although it does use tofu (4 recipes), miso (3), and soya milk (in Soya Pudding). The author, a nurse by profession, has won three recipe competitions. Address: Quorn, Leicestershire, England.

990. Branca, Camillo; Ricci, D.; Bassi, M. 1988. Epidermis integrity and epicotyl growth in azuki bean. *J. of Plant Growth Regulation* 7(2):95-109. *

• **Summary:** "In order to verify if epidermis integrity played a determinant role in epicotyl elongation induced by fusicoccin (FC), buffers at different pH's, and indoleacetic acid (IAA), we studied the short-term kinetics of elongation growth, the increase of fresh weight in long-term treatment, and the H⁺ excretion in intact, abraded, and peeled azuki bean..." Address: 1. Istituto ed Orto Botanico Università di Parma 43100 Parma, Italy.

991. **Product Name:** Adzuki Beans (Cooked, in a Glass Jar, then in a Can).

Manufacturer's Name: Eden Foods, Inc.

Manufacturer's Address: 701 Tecumseh Rd., Clinton, MI 49236. Phone: 1-800-248-0301.

Date of Introduction: 1988.

Wt/Vol., Packaging, Price: 24 oz glass jar, then 15 oz (425 gm) can.

How Stored: Shelf stable; refrigerate after opening.

New Product–Documentation: Ad in Vegetarian Times. 1992. Jan. p. 31. “Bean Cuisine” Shows a color photo of canned organic adzuki, black, garbanzo, pinto, navy, and kidney beans.

Talk with Tim Redmond and Ron Roller. 1992. Feb. 10. Adzuki beans were introduced in glass jars in 1988, then in cans in 1991.

992. Fujimoto, S.; Sumida, K.; Sukanuma, T.; Nagahama, T. 1988. [Starches from yabu-mame (*Amphicarpaea edgeworthii* var. *japonica*), no-azuki (*Dunbaria villosa*) and modama (*Entada phaseoloides*). *Denpun Kagaku (Starch Science)* 35(1):37-41. [Jap; eng]*

993. Cost, Bruce. 1988. Asian ingredients: Buying and cooking the staple foods of China, Japan and Southwest Asia. New York, NY: William Morrow & Co. 333 p. Illust. Index. 27 cm. [39 ref]

• **Summary:** Soy related: Soybean sprouts and recipe (p. 86). Beans, incl. soybeans (p. 146-50). Asian “dairy” (p. 186-87): The soybean and the coconut (incl. bean curd, doufu-nao, fermented bean curd / fu-ru, molded bean curd / chou dou-fu, dried bean curd / dou-fu gan, and bean curd skin [yuba]. Soybean milk.

Soybean sauces, condiments and pastes (p. 195-211): Salted and fermented black beans with recipes for “Roast chicken with black beans stuffed under the skin,” and “Soft-shell crabs with ginger, lemon, and black beans” (“Fermented black beans, often flavored with bits of ginger and sometimes orange peel, are usually sold in 8-ounce plastic bags.” Acceptable brands: Mee Chun or Koon Chun Sauce Factory. “Earthier and probably more classic are the Yang Jiang Preserved Beans (with ginger) from Kwangtung, China), bean sauce (other names: Yellow bean sauce, brown beans sauce, bean paste, jiang; two types are with the beans whole or ground), hot bean sauce / paste with recipe, hoisin sauce, sweet bean sauce (made with soybeans [probably tian mian jiang, p. 202], Taiwan), soy sauce (Chinese, Japanese, tamari; Highly recommended light soy sauce: Pearl River Bridge. Highly recommended dark: Pearl River Bridge Mushroom Soy, flavored with straw mushrooms), Java’s ketjap and other soy sauces miso with recipe, yellow miso (*Shinshu miso*), white miso (*shiro miso*, *Kyoto shiro miso*, sweet white miso), red miso (*aka miso*), Hatcho miso

[soybean miso], barley miso (*mugi miso*), fermented bean curd (white or red; also called preserved bean curd, wet bean curd, bean cheese, dou-fu ru or fu-ru {Mandarin}, fu yu {Cantonese}) with two recipes).

“Red fermented bean curd” is described on pages 210 (also called “red bean cheese”), 211, and 283 (together with “red rice”).

Concerning ketjap (p. 206): Tomato ketchup, although it may seem to be of Asian origin, may or may not come from a family of Asian pickled products. But the word “ketchup” is clearly of Asian origin. [Note: The modern Indonesian word for soy sauce is *kecap* / *ketjap* / *kechap*.] “It comes from the Malay *kechap*, which apparently derives from the *kôe-chiap* of a southern Chinese dialect (Amoy); both of these refer to the kind of briny liquid preserves that include fish and soy sauces.” Throughout most of Southeast Asia, fish sauces are the standard condiment, in Indonesia (incl. Java) soy sauce is more widely used. Sweet Indonesian soy sauce (*ketjap manis*), which is very widely used, is traditionally sweetened with palm syrup and seasoned with garlic, star anise, salam leaves, and galangal.

Also discusses: Seaweed (p. 165-70): Kelp (*Laminaria*), laver (*Porphyra*), wakame, dashi, hair vegetable / black moss / hairlike vegetable (China; *Gracilaria verrucosa*), agar-agar. Monosodium glutamate (p. 247)

Bruce Cost was born in 1945. A photo and brief biography appears on the inside rear dust jacket. Address: [San Francisco, California].

994. Kurz, Marey. 1988. Soja in der Vollwertkueche: Rat und Rezept-Ideen zum Kochen und Backen mit allen Soja-Varianten: Bohnen, Mehl, Milch, Sauce, Tofu und Miso. Das erste komplette Soja-Kochbuch [Soya in whole-foods cookery: Advice and recipe ideas for cooking and baking with all the varieties of soya: Beans, flour, milk, sauce, tofu and miso. The first complete soya cookbook]. Munich, West Germany: Gräfe und Unzer GmbH. 102 p. Illust. Index. 20 cm. [11 ref. Ger]

• **Summary:** The copyright (but not the title page) page says that this is a 3rd edition, however the ISBN is unchanged from the 1984 edition. Address: West Germany.

995. Lautensach, Hermann; Dege, Katherine; Dege, Eckhart. 1988. Korea: A geography based on the author’s travels and literature. Translated from the German. Supplemented with a thoroughly revised and expanded index. And edited by Katherine and Eckhart Dege. Berlin, Heidelberg, New York, London, Paris, Tokyo: Springer-Verlag. xvii + 598 p. See p. 20, 160, 174, 180-81, 201, 203, 229, 420-21, 452, 476, 482, 488. Illust. Maps (some color). 26 cm. [936* ref]

• **Summary:** “With 42 photographs, 95 diagrams, 46 tables and a [larger color] map.” This classic was first published 40 years ago (a few months before the end of World War II) and the field work was done 50 years ago, when Japan still ruled

Korea and all place names were Japanese; these names have all been updated.

Vavilov classes soybeans among the plants that originated in the East Asian grain gene pool, and he includes Korea in the gene pool. Thus it is “quite possible” that soybeans were domesticated in Korea itself. Hulbert (1902) includes among the non-Chinese crops black soybeans, two of the three kinds of kaoliang, wild sesame (*Perilla*), and buckwheat (p. 20).

On page 21 is a very interesting “Chronological table of Korean history. Comparison with Chinese and Japanese history.” A major change took place in 680 AD when the Three Hans [Three kingdoms] (Tribal Leagues; Koguryo [Gouryeo, in the north], Paekche [Baekje, in the southwest], and Shilla [Silla, in the central and south east]) merged into one, named Silla. In 918-925 it became Koryô [Kingdom of Goryeo; Wang Dynasty], which in July 1392 became Chosôn [Joseon Dynasty; Yi Dynasty], that lasted until August 1910 when the Japan-Korea Annexation Treaty was enforced by the Empire of Japan.

Chapter 6, titled “The anthropogeographical character of ancient Korea” (p. 149+) contains extensive information about agriculture and food. Page 160: In wealthier sites, the farm buildings enclose a courtyard, to which an entrance gate gives access (Fig. 37c, p. 158). Some enclosures are so complete that a square courtyard results. “In some corner or other of the courtyard stand the huge brown earthenware jars, in which soy sauce (Jap. *shoyu*, Kor. *kanjang*) is prepared and stored.”

Nature and traditional culture: Plants found between the subtropical zone and the temperate zone include soybeans, foxtail millet, maize, and hemp. Since ancient times, rice has been Korea’s most important cereal crop. The great majority of it is grown in irrigated paddies. Paddy rice (an aquatic plant) has a different name in Korea from upland rice. Hubert (1902, p. 108) mentioned eight varieties of rice grown in traditional Korea, including glutinous rice, whose flour is made into rice cakes by mixing it with water and spicy herbs, then beating the cold mass for a long time with wooden hammers (p. 174).

Page 180: In East Asia, after cereal grains, pulses / legumes are the next most important crop. In Korea, by far the most important is the soybean (Kor. *k’ong*), which makes few demands on the soil. Korea’s climate is ideal for soybeans (Tanaka 1931, p. 18); it is even better than Manchuria’s climate, because of the large amount of precipitation during the summer. Today, soybeans are an indispensable part of the various dry-field crop rotations. After planting of the paddies has finished, soybeans are planted on the ridges too; there they grow extremely well without being fertilized. Soybeans are grown throughout Korea, but least in the Kaema upland because of the warmth they require. In northern Korea, on dry fields, they are planted between the end of March and beginning of May.

Toward the south, planting is delayed until the end of June. They are generally harvested in October, except in Chejudo, where they are not harvested until early November. Soybeans are the crop that is left standing the longest, and they are not harvested until their leaves have turned brown and started to fall.

Soybeans are used as a very nutritious food for both humans and horses. Also, cooked soybeans are used as a fertilizer for the rice paddies. “Above all, though, the hot brown soy sauce, which is never lacking on any Korean or Japanese table, is made of them, using salt and pepper and a process of fermentation. Bean curd (Kor. *tubu*, Jap. *tofu*) and soybean paste (Kor. *toenjang*, Jap. *miso*) are also made of them.”

Adzuki beans, cotton and hemp are discussed on p. 181.

The Korean regions: On the forest slopes, which were deforested but the Japanese are energetically reforesting, one can find various lianas [climbing vines] such as *Pueraria hirsuta* [Jap. kudzu]. In the northern part of the coastal fringe, soybeans are grown on the ridges between paddies (p. 200-01).

Namyang is a link in the shortest connection between Tokyo and Harbin, which includes the ship passage between Tsuruga or Niigata and Ch’ongjin. “For this reason, this section has been operated by the South Manchurian Railway since 1 October 1933.” The northernmost bays and harbors, especially Unggi, Najin, and Ch’ongjin, and their cities, are developing at an unusually rapid rate. “They have become the export harbors for central Manchuria, particularly for soybeans” (p. 203).

In the Kaema upland we find “fire-field farming” and soybean fields in the valley bottoms or basins. “The most important fire-field crops at lower elevations are foxtail and barnyard millet, barley, soybeans, kidney beans, hemp and sesame.” “The Japanese forestry commission has taken over management of the remaining forests. In the natural forests, wood is cut selectively and only as much as grows back” (p. 229).

Korea as a Japanese possession [colony]: “In southern Korea, barley has replaced rice as the principal staple food under the influence of Japanese economic policy.” A large portion of the rice is sold to Japan.

Table 37 (p. 420), titled “Cultivated area, harvested amounts and yields per acre of the most important crops, 1935,” includes: Soybeans: 785,000 ha. 7.9 hectoliters of weight. Worth: 60.2 million yen. Yield: 10.1 hectoliters per ha. Adzuki beans: 235,000 ha. 1.7 hectoliters of weight. Worth: 14.3 million yen. Yield: 7.3 hectoliters per ha. The table also includes paddy rice, upland rice, barley, naked barley, wheat, foxtail millet, barnyard millet, broomcorn millet, kaoliang, maize, oats, buckwheat, potatoes, sweet potatoes, mung beans, etc.

“The soybean vies with foxtail for the third place in the order of crops, by cultivated area. Its is a very profitable,

undemanding crop that does not fail even in meteorologically abnormal years. Therefore its harvest curve does not have the ups and downs that are characteristic of many other crops, particularly paddy rice (Fig. 84). Acreage and yield per hectare have not increased nearly as much during the Japanese period, however, as for many other crops. Nevertheless, soybeans are the third most important item of agricultural export today, and the quality is supervised by the state. Approximately one-fourth of the harvest is exported. The most important export markets are Unggi, Ch'ongjin, Songjin, Wonsan, Shinuiju, P'yong-yang, Kumch'on and Ch'olsan (T. Tanaka 1931). They are located without exception in the northern half of the country" (p. 421). Note: Since 1948, the northern half of Korea has been a separate nation, North Korea.

"The Korean adzuki bean, particularly that from the northeastern coast, is highly priced in the Japanese market because of its high quality." By acreage it is the sixth most important crop in Korea (p. 421).

The soybean mills that process Manchurian soybeans into oil and meal lie on the Japan Sea coast of Hamgyongbuk-do (p. 452).

Table 43 (p. 476), titled "Korea's most important import and export goods, 1939," shows that "Beans" were the No. 7 export item to Japan, worth 23 million yen. The leading export was rice (149 million yen) followed by fertilizer (53), copper (52), fish etc. (32). "Of the beans exported to Japan... soybean take first place. Soybean exports to Japan had a weight of 1.3 to 1.9 million q" [1 quintal = 100 kg] in the years 1934-1938. "In contrast, from the northeastern ports Manchurian beans were shipped to Germany and England." In addition, large amounts of soybeans were imported by Korea itself from Manchuria (0.29 to 1.02 million q). Large amounts of soybean products made in Korea were also shipped to Japan (incl. soybean oil as much as 11.500 q, bean curd [tofu] up to 1.2 million q). Moreover soybean oil (up to 3,210 q) and bean curd (as much as 1.3 million q) were imported from Manchuria (p. 476).

Considerable amounts of dried seaweed and laver [nori] were also exported to Japan (p. 477).

Pages 482-83 try to characterize Korea's significance in 1938 for the economy of Greater Japan (pan-Japan) in general and Japan proper in particular. Pan-Japanese production included that of Korea, Manchuria, and Formosa. "The Korean rice crop in 1938 (44.8 million q) amounted to 23.4% of the pan-Japanese crop and 36.6% of that of Japan proper; 63.2% of Japan's rice imports came from Korea. The soybean crop in 1938 amounted to 6.4% of the pan-Japanese crop, 68.7% of the crop of Japan proper; 17.8% of the soybean imports of Japan proper came from Korea. The relationship was that of a master country to a dominated colony. For example, the Japanese forced the Koreans to eat barley so that the Japanese could import and enjoy the rice grown in Korea.

Soybean production on steep slopes and at high altitudes is mentioned (p. 488).

Hermann Lautensach lived 1886-1971. This book was first published in 1945 in German. Address: Prof., Dr.

996. Perry, Rick. 1988. Hurricane kitchen: how to cook healthy foods for large groups and institutions. Augusta, Maine: Lance Tapley. 172 p. Illust. (by Douglas Alvord). 29 cm. [10 ref]

• **Summary:** "Dedication: to those cooks who have realized the need to change the American diet." This is largely a vegetarian cookbook—but not completely (see p. 117).

From April to October Rick is found on Hurricane Island, off the coast of Rockland, Maine, where he has been the food service director for the Hurricane Island Outward Bound School since 1975.

Chapter 3, "Real foods" (p. 32-45) includes whole grains (incl. whole wheat, brown rice, corn, millet, quinoa). The section on "The amazing soybean" begins: "The versatile soybean is truly the food of the future." It discusses miso, tamari, tempeh, and tofu. The section on "Oil" mentions soy oil. The section on "seaweeds" begins: "I prefer to call them sea vegetables..."

Chapter 5, "Ordering staples and setting up a grain room" has a large table for various foods showing the quantity in pounds and barrel size in gallons. Foods include: Adzuki beans (azuki). Brown rice, shortgrain. Brown rice, sweet. Sesame seeds. Soybeans.

Soy related recipes: Tofu dill bread (p. 83). Basic miso soup. Miso soup for 30 (p. 106). Cooking legumes (cook 4 parts water with 1 part whole soybeans for 9 hours, p. 111). Pressure cooked beans (cook 3 parts water with 1 part whole soybeans for 2 hours, after coming to pressure, at 15 psi, p. 112). Seitan (p. 113, 122). Seaweeds (p. 115). How to make tofu (and okara) in an institutional kitchen—makes 8 lbs (p. 125). Tofu—Baked, sautéed, or fried (p. 124). Soysage burgers (p. 124). Tofu salad or mock egg salad. Tempeh—Baked or sautéed (p. 125). Tofu salad dressing (p. 138). Soy mayonnaise (with 2 cups soy milk, p. 140). Soy milk (homemade, from 10 cups soybeans, p. 153). Hot carob drink (with milk or soy milk, p. 153). Soy frosting for desserts (p. 155). Address: Portland and Rockland, Maine.

997. *SoyaScan Notes*. 1988. Terms related to azuki beans: Library of Congress subject headings and call numbers (Overview). Compiled by William Shurtleff of Soyfoods Center. [1 ref]

• **Summary:** The 11th edition (LCSH 11) of the *Library of Congress Subject Headings* (published in 1988) lists the following subject headings and call numbers related to azuki beans.

Azuki bean [QK495.L52]. [SB327 (Culture)]. UF
Adzuki bean. Adzuki bean. Phaseolus angularis. BT Beans.
Azukia radiata. USE Mung bean.

Abbreviations: [] = Call number. UF = Use for. BT = Broader terms. NT = Narrower terms. RT = Related terms. May Subd Geog = May subdivide geographically.

998. McClary, Dean C.; Raney, Terri L.; Lumpkin, Thomas A. 1989. Japanese food marketing channels: A case study of azuki beans and azuki products. Pullman, Washington: IMPACT [International Marketing Program for Agricultural Commodities & Trade], College of Agriculture & Home Economics, Washington State University. iii + 42 p. Illust. 28 cm. IMPACT Center Information Series No. 29. [41 ref]

• **Summary:** Contents: The message in brief [summary]. List of figures. Introduction. Japanese consumption of azuki beans: "Azuki beans are second to soybeans in total Japanese legume production."

42% used to make Japanese-style cakes and confections

35% used to make candy

19% sold as uncooked whole beans

4% infused with sugar to make *Ama-natto* (Takahashi 1988)

A bar chart (p. 2) shows "Azuki production for Japan: Domestic, imports, total supply."

Page 3: "Most azuki bean used in traditional Japanese confections and candies is in the form of a sweet paste called *an*. *An* accounts for approximately 70% of azuki use (Japan Peas and Beans Importer Association, 1987). Like American peanut butter, *an* comes either in a smooth form called *Koshi-an* or a chunky style referred to as *Ogura-an*. Some Japanese *an* products are *Taiyaki*, *Yokan*, and *Manju*. *Taiyaki* is an *an*-filled waffle, *Yokan* is gelatinized *an* served in slices, and *Manju* is a steamed, *an*-filled bun. *An* is also used as a base for a soft drink called *Shiruko*, as a topping for snow cones and as an ingredient in ice cream and popsicles. Whole cooked azuki beans are included in a soup called *Zen'zai* and mixed with rice in such dishes as *Azuki-mochi* and *Sekihan*. Azuki beans are also sprouted and milled into flour."

Japan's overall marketing system: General characteristics, Japanese agricultural cooperatives, Japanese trading companies, Japanese wholesalers, Japanese retailers, Japanese consumers.

Japan's azuki bean marketing channel: Japanese azuki bean production, Foreign production of Japanese azuki bean imports, azuki bean producers sell their product, the role of Japanese agricultural cooperatives and trading companies, the role of Japanese wholesalers, the role of Japanese processors, the role of Japanese retailers, the role of facilitating institutions.

Conclusions. Glossary of Japanese azuki bean food terms. Works cited.

Summary: "A research trip to Japan determined basic characteristics of Japanese azuki bean consumption, cultivation, importation, and its marketing channels. Japan's 1000 year-old preference for azuki beans in soups, with rice, and as part of traditional Japanese confections remains

strong. Japanese azuki bean consumption is increasing due to societal trends of increased health consciousness, improved standard of living, and a general aging of the population.

"Japan's azuki producers met approximately 53% of their domestic demand in the 1980's, but production is quite erratic due to frequently unstable weather conditions on the island of Hokkaido, production site for 60% of Japanese azuki beans. Azuki bean imports of 32,500 MT/year during the 1980's have been dominated by China which controls over 95% of the market. Chinese azuki bean quality is low, however, and their prices have increased recently; consequently the Japanese government is encouraging the importation of American azuki beans.

"The Japanese market channel for azuki beans is dominated by the domestic activities of agricultural cooperatives; trading companies are the key institutions in the importation of azuki beans. It is the researchers' belief that Washington State producers can be successful in exporting dry edible azuki beans to Japan if they maintain consistently high quality at competitive prices and work through a Japanese trading company which will provide the necessary market penetration in Japan. The long-term future may be brightest in the processing of Washington State produced azuki beans into commodities for the Japanese market since there are currently no market entry restrictions on processed azuki. Azuki bean processing may create employment opportunities in the state."

This is one of the best publications seen on azuki beans in Japan. "The authors wish to thank Tomoko Lumpkin who provided invaluable translation assistance in the preparation of a Japanese language questionnaire and this publication." Address: College of Agriculture and Home Economics, Washington State Univ., Pullman, Washington.

999. Colbin, Annemarie. 1989. The natural gourmet: Delicious recipes for healthy, balanced eating. New York, NY: Ballantine Books. x + 325 p. March. Illust. by Laura Hartman Maestro. Index. 24 cm. [16 ref]

• **Summary:** Pat McNees of *The Washington Post* has called Annemarie "The Julia Child of natural foods cooking." Her photo, in color, graces the cover. The book incorporates "The Five Phases of Food" theory from China, based on a book by John W. (Jack) Garvey (1983), as an aid to meal balancing. Below each recipe name is given the major phase and minor phase that it represents. Soybeans, tofu, tempeh (as well as brown or white rice and mochi) are metal (declining state), while black soybeans are water (maximum rest before growth).

Page 27 notes: "You will not find any recipes in this book with whole soybeans; I find their taste too unpleasant, and tend to believe some research that indicates they may contain oxalates and other elements that prevent nutrient absorption. Soybean products such as miso, shoyu (the natural soy sauce made with wheat), tamari (a wheat-free

natural soy sauce), tofu, and tempeh, on the other hand, are delicious; tofu and tempeh are good protein sources when combined with the grains. You will also find the condiments miso and shoyu or tamari used in many of the recipes.”

Soy-related recipes include: Black and white aioli dip (with tofu, p. 49; Note: “Aioli” is derived from the French words for “garlic” + “oil.” Aioli sauce is made from crushed garlic, egg yolks, olive oil, and lemon juice). Tofu and spinach turnovers (Spanakopitas, p. 66-67). Bean-of-the-Orient miso soup (p. 74-75). Shoyu consommé with enoki mushrooms (p. 77). Collard miso soup (p. 78-79). Carrot-beet soup with tofu sour cream (p. 83-84). Tofu sour cream (p. 84-85). Baked [kidney] beans with miso and apple butter (p. 136). Vegetable-tofu sauté (p. 154-55). Tofu mushroom stroganoff with bulgur (p. 155). Tofu sour cream (p. 156). Broccoli-tofu quiche with wild mushrooms (p. 157-58). Open herbed tofu sandwiches (p. 158-59). Tempeh with shallots and white wine (p. 160-61). Tempeh in sweet and sour sauce (p. 161-62). Tempeh with creamy horseradish sauce (p. 163). Stir-fried bak choy with marinated tofu (p. 169-71). Green peppers with miso (p. 182-83). Spinach-nori rolls with tofu and wild mushrooms (p. 186-87). Green salad with miso-coriander dressing (p. 203). Red and white cabbage salad with miso-onion dressing (p. 208). Radish-watercress salad with soy-sesame dressing (p. 209; with ½ tablespoon black sesame seeds and ¼ cup toasted sesame oil). Salad of wilted collard greens with yellow peppers and white miso dressing (p. 210). Spiced glazed pears with tofu cream (p. 271-72). White miso and orange dressing (p. 285).

Note: This is not a vegetarian cookbook. There is a chapter of fish recipes, and other recipes for the use of alcoholic beverages/seasonings (wine, mirin). Address: Founder and director, Natural Gourmet Cookery School / Inst. for Food and Health, 365 West End Ave., New York City, NY 10024.

1000. Westbrae Natural Foods. 1989. Distributor catalog: FOB West pricing. Spring 1989. P.O. Box 91-1181, Commerce, CA 90091. [6] + 19 p. 22 x 28 cm.

• **Summary:** Has a black on yellow cover. Address: Commerce, California. Phone: (213) 722-1692.

1001. Thornbury, B.E. 1989. Global pursuits: Salad doughnuts and other Japanese delicacies. *Washington Post*. Aug. 6. p. E1.

• **Summary:** She first arrived in Japan 15 years ago, and when she is away, her thoughts begin to dwell on all the treats that she is missing. “But one of the greatest gustatory challenges of Japan comes in the form of beans: the little red [azuki] beans that are boiled, mashed, sugared and turn up with regularity in traditional Japanese sweets; and the soybeans that are fermented until they are slimy and odoriferous and then served—sometimes whipped up with raw egg, mustard and onion—and poured over hot rice. The

latter are called *natto*. When you say that you are a devotee of Japanese food, you will invariably be asked, ‘But do you like *natto*? Answer honestly. Many Japanese people don’t care for *natto* either.’”

1002. Kojima, M.; Ohnishi, M.; Ito, S.; Fujin, Y. 1989. Characterization of acylmono-, mono-, di-, tri- and tetraglycosylsterol and saponin in adzuki bean (*Vigna angularis*) seeds. *Lipids* 24(10):849-53. Oct.

• **Summary:** “Five steryl glycosides (acylmono-, mono-, di-, tri- and tetraglycosylsterol) and a saponin were isolated from Adzuki beans and characterized. In the glycosylsterols, the principal component sterols were sitosterol and stigmasterol; the major sugar component was glucose.” Address: 1-4. Dep. of Agricultural Chemistry, Obihiro Univ. of Agriculture and Veterinary Medicine, 080, Obihiro, Hokkaido, Japan.

1003. McCarty, Meredith. 1989. Fresh from a vegetarian kitchen. Turning Point Publications, 1122 M Street, Eureka, CA 95501-2442. ii + 263 p. Illust. by Bernice Kagan. Index. 28 cm.

• **Summary:** A macrobiotic cookbook containing over 450 recipes, many using tofu (at least 20, including many innovative sauces and dressings), tempeh, miso, amazake, soy sauce, soymilk, and amazake. A section titled “Soyfoods: Tofu and tempeh” (p. 151-55) contains 6 recipes and several variations. On page 202 is a recipe titled “Amazake-Soy milk” in which ¾ cup soymilk is mixed with ¼ cup plain amazake. The author has co-directed this natural health center in northern California since 1977. Address: Eureka, California.

1004. Nozawa, Hisanori; Yamagata, H.; Aizono, Y.; Yoshikawa, M.; Iwasaki, T. 1989. The complete amino-acid sequence of a subtilisin inhibitor from adzuki beans (*Vigna angularis*). *J. of Biochemistry (Tokyo)* 106(6):1003-08. Dec. *

• **Summary:** “The complete amino acid sequence of a major molecular form of subtilisin inhibitor from adzuki beans (*Vigna angularis*) was established by manual analysis using 4-N, N-dimethylaminoazobenzene-4 -isothiocyanate (DABITC).” Address: Kobe Univ., Hyogo pref., Japan.

1005. Hardman, L.L.; Oplinger, E.S.; Doll, J.D.; Combs, S.M. 1989. Alternative field crops manual: adzuki bean. University of Wisconsin-Cooperative Extension, Madison, WI. *

1006. **Product Name:** Soybean Sprouts.

Manufacturer’s Name: LEASA Industries Company, Inc.

Manufacturer’s Address: 2450 N.W. 76th St., Miami, FL 33147. Phone: 305-696-0651.

Date of Introduction: 1989.

Ingredients: Soybeans.

How Stored: Refrigerated.

New Product–Documentation: Talk with Livingston George Yap, founder and owner. 1998. March 11. In about 1989 he started to make soy sprouts, but his market for soy sprouts was always small, and he no longer makes soy sprouts. Now he also makes lentil, wheat, azuki, etc.—about ten different types of sprouts.

1007. Blackman, Jackson F. 1989. Working chef's cookbook for natural whole foods. Morrisville, Vermont: Central Vermont Publishers. vi + 344 p. Illust. Recipe index by category. Alphabetical recipe index. 28 cm. [20 ref]

• **Summary:** This large-format book fills a gap in the world of natural foods. Contents: Foreword. Introduction. Part I: Information, philosophy, technique. 1. Healthy and unhealthy foods. 2. Getting started. 3. Meal design. 4. Directed diets for special occasions. 5. Philosophy, practice and tradition. 6. Charts and lists. 7. Ingredients description. At the end of Part I (p. 95) is a "Suggested reading" list of 20 references.

Part II: Recipes (each on 4x6 inch cards, with 2 cards per page).

The section on "Miscellaneous food description" includes brief descriptions of barley malt, Chinese white cheese (fermented tofu), daikon, gomashio, kuzu, mirin, miso, rice syrup, seitan, shoyu, soy milk (American style vs. Oriental style), soy cheese (American), tahini or tahinah (sesame butter), tamari, tempeh, and tofu. This section, and the book itself, shows the influence of macrobiotics.

Page 74: "Chinese white cheese: (Chin.) Tofu marinated and fermented in rice wine; taste and texture of Camembert cheese. Used as flavoring for noodles or vegetables, or served as a condiment."

The word "tamari" appears on 100 pages in this book, tofu on 92 pages, miso on 57 pages, brown rice on 48 pages, "sea vegetables" on 16 pages, nori on 13 pages, tempeh on 7 pages, kombu on 6 pages, shoyu and soybean on 5 pages each, adzuki beans and wakame on 4 pages each, and soybeans, soy cheese, and soy milk on 2 pages each.

About the author: "Jackson F. Blackman has lived and traveled extensively in Mexico, Belize, Guatemala, Europe, China, Egypt, Saudi Arabia, Libya, Lebanon, Jordan, and Syria. During his travels he studied local eating habits and their relationship to social customs, and the methodology of preparing natural whole foods. He was a sous-chef in a Houston [Texas] restaurant, and operated his own coffee shop in Houston. He then moved to Vermont, where he made and sold health food products to health food stores and co-ops. He is now a food service consultant and lecturer" (Back cover).

He favors plant foods over animal foods, but does include fish in his recipes. Address: Vermont.

1008. Long, J.; Lin, L.; Xushen, H.; Duan, H. 1989. [Edible bean crops]. Peking, China: Science Publishing House.

[Chi]*

1009. O'Rourke, Desmond. 1989. IMPACT: Biennial Report, 1987-89. Pullman, Washington: Washington State Univ. 18 p. See p. 6.

• **Summary:** In the section titled "Challenge: Developing new products or processes" (p. 6) we read: "IMPACT is helping Washington agriculture establish new products that are in demand in major foreign markets. WSU Agronomist, Dr. Thomas Lumpkin, leads our alternative crops program. Dr. Lumpkin is aware that you must lay very firm foundations to establish a new crop successfully. You must determine the most desirable varieties to plant; develop a complete agronomic program; have in place the needed systems for controlling weeds, insects, and diseases; know when and how to harvest; have adequate storage, packing, and processing facilities; and have a market at a price that will adequately reward the grower, packer, and processor. Many alternative crop efforts have failed because one of these key foundations was missing."

"Dr. Lumpkin's work is most advanced for azuki beans, a product used extensively in Japanese confectioneries. In 1989 there were 89 acres planted in farmers' fields... Twenty varieties of another crop, edamame (edible soybeans), are being evaluated under Washington growing conditions.

"Wasabi radish has been successfully grown in test plots."

Talk with Tom Lumpkin. 2001. July 13. IMPACT stands for "International Program for Agricultural Commodities and Trade." He first grew these 20 varieties of edamame in the summer of 1989. He recalls planting a few varieties the previous year in a garden of many mixed crops. Tom now has a large literature collection on edamame and someday soon he hopes to write a book on this one plant, similar in concept to his 1994 book titled *Azuki Bean*. Address: Pullman, Washington.

1010. Routhier, Nicole. 1989. The foods of Vietnam. New York, NY: Stewart, Tabori & Chang. 239 p. Foreword by Craig Claiborne. Illust. (Photos by Martin Jacobs, mostly color). Index. 29 cm.

• **Summary:** An excellent and graphically beautiful book, with more than 150 authentic, traditional Vietnamese recipes. The book is dedicated to the fond memory of her mother, Tran-Thi-Cuc. Vietnam's cooking has been influenced by the various nations that have occupied or conquered the country over the Centuries—and especially the Chinese and French. Yet the Vietnamese have been able to assimilate each of these imports to create their own unique cuisine.

Introduction (by the author): Vietnam "is shaped like an elongated letter S, with two wide river deltas, the Red River delta in the north and the Mekong River delta in the south, separated from each other by a long, narrow stretch of mountainous coastal land." The deltas are the country's most

fertile, agriculturally productive, and populous regions. The Monsoons (seasonal winds) produce a dry winter season and a wet summer. The north has a temperate climate and a cold winter, whereas the south is tropical.

Vietnam's land area is slightly smaller than that of Japan, and about three fourth's the size of California.

Vietnamese food and cookery owes much to the French colonialists, who ruled the country for almost a century (1859-1954). "In the old trading port of Cholon, the French built a new city as the central market for all of Indochina, and Saigon (now Ho Chi Minh City) was dubbed 'the Paris of the Orient'" (p. 8-9).

"The Vietnamese are quick to point out that their cuisine, like their country, is divided into three regions, each with a distinct culinary tradition." Yet these regional differences are not as important as they are in China. "In the north, the influence of China is most evident." One popular northern dish is stuffed bean curd (Dau Hu Nhoi). The main city in Central Vietnam is Hue, where cookery has been brought to a high level of sophistication. The cookery of the tropical south is simpler than that of the north and center, but also spicier, and the food consists of a wealth of tropical fruits, vegetables, herbs and spices. The French influence is best seen here.

Soy related recipes: Color photo of crisp fried bean curd in tomato sauce (p. 15). Color photo of Bean curd and Chinese chive buds soup (Canh dau phu he, with 6 ounces soft bean curd {tofu}, p. 50; recipe p. 55).

The chapter titled "Vegetarian recipes" (p. 167-89) contains many tofu recipes. Vegetarian stir fry (La han chay, with 2 squares {8 ounces} semisoft bean curd {tofu}, p. 168). Crisp-fried bean curd in tomato sauce (Dau phu soy ca chua, with 1 pound firm bean curd {tofu}, p. 171). Braised bean curd (Dau phu kho, with 1 pound firm bean curd {tofu}, p. 172). Stir-fried bean curd with lemon grass on crisp cellophane noodles (Dau phu xao xa ot chay, with 2 pounds firm bean curd, p. 179). Stuffed bean curd (Dau phu nhoi, with 2 pounds firm bean curd {tofu}, p. 185. Note: "This centuries-old recipe is a Vietnamese adaptation of a well-known Hakka dish; there was a mass migration to northern Vietnam by both Cantonese and Hakkas [from southern China] in the 17th century).

Desserts: Jellyed bean curd with ginger syrup (Dau hu nuoc duong, with ½ cup dried soybeans, ¼ cup rice flour, and 1 teaspoon gypsum {see p. 232; this calcined calcium sulfate is sold at Chinese pharmacies} dissolved in 1 teaspoon cold water in a small water to curd / coagulate the hot soymilk, p. 201).

Sauces: Sweet and sour dipping sauce (Soy chua ngot, with 2 tablespoons soy sauce and 2 tablespoons nuoc mam {Vietnamese fish sauce}, p. 214). Soybean and ginger sauce (Nuoc tuong, with ¼ cup tuong {fermented soy bean sauce, see p. 234} and 1 tablespoons nuoc mam {Vietnamese fish sauce}, p. 215).

Appendix (p. 228-36) includes a glossary of basic Vietnamese foods. Items marked with an asterisk are essential ingredients: Bean curd / tofu (dau hu. "You can do absolutely anything with bean curd,...") The three types are pressed, firm, and semi-soft). Chile paste (*tuong ot tuoi*. "A fiery hot mixture of mashed fresh red chilies, garlic, salt and soybean oil. Do not confuse this product with the Chinese hot bean paste). Fish sauce (nuoc mam. It is like Thai nam pla but stronger). Gypsum (*thach-cao*): "Chemically known as calcined calcium sulfate,...". Hoisin sauce (A "sweet, piquant brown paste made from soybeans, red beans, sugar, garlic, vinegar, chile, sesame oil and flour").

Oyster sauce (Made from oyster extract, soy sauce, sugar and vinegar). Soybeans, dried (Dau nanh. Sold in oriental groceries). Soybean sauce (*tuong*. This traditional fermented Vietnamese sauce is made from ground soybeans, water, roasted rice flour, and salt. "It is sold, bottled, only in Vietnamese groceries." Do not confuse *tuong* "with the saltier, thicker Chinese ground bean paste." Vietnamese vegetarians commonly use *tuong* in place of fish or shrimp sauces). Soy sauce (*si dau*. Where soy sauce is called for in this cookbook, use Japanese Kikkoman or "light" soy sauce. Regular Chinese soy sauce "is dark and stains food black").

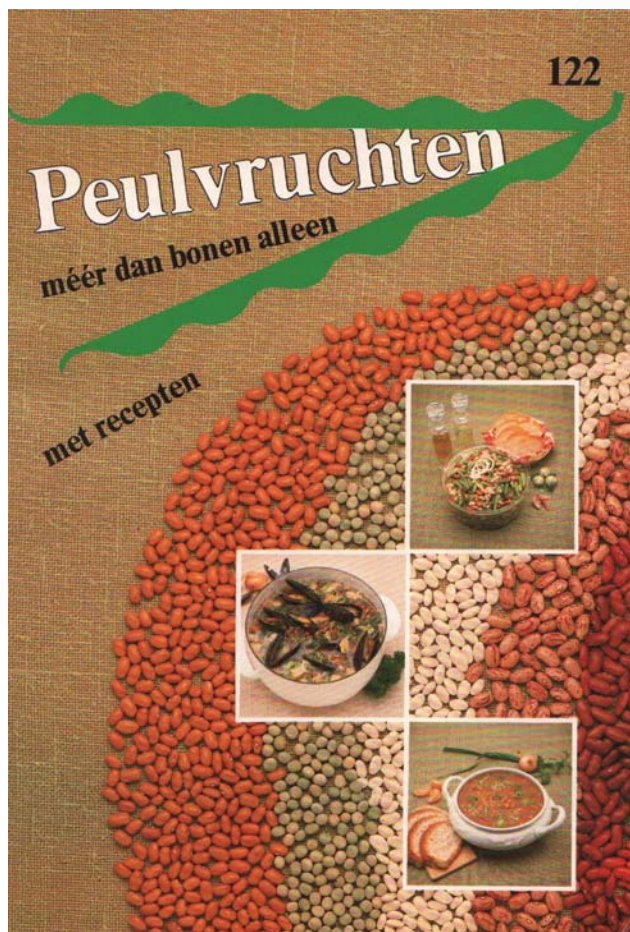
Concerning "red beans," Andrea Nguyen, food writer from Vietnam says (March 2012): Red beans are "more like Chinese *xiao dou* [than Japanese azuki beans]—and are called *dau do*. Typically seen in sweet soups. They're not as important as mung beans (*dau xanh* / green beans)."

About the author: Nicole "was born in Saigon to a Vietnamese mother and French father. At a very early age she developed a great interest in cooking from her mother, who owned a [small, French-Vietnamese] restaurant in Laos. As a teenager, Ms. Routhier lived in France and Belgium, where she became versed in European styles of food preparation" (with portrait photo, inside rear dust jacket). Although she had a formal French education, she spoke only Vietnamese with her mother and nanny at home. She learned about cooking from her nanny, a native of Hue, and her mother, from Haiphong, both home cooks of the first order. In Laos, when the chef let her help in the kitchen of her mother's restaurant, she knew what her true calling would be. She grew up during the Vietnam war, and experienced hard times, especially after her father left home. "During the war, food was scarce and we ate what we could. Sometimes we had to hide in the village bomb shelter for days if not weeks on end, and rice was often the only food available... I was hungry and terrified at the idea of lacking food. That childhood fear never abandoned me." Later she knew better times, traveling with her family in Europe and Asia, and learning about food. "In Vietnamese tradition (as in most of Southeast Asia), recipes are never written but simply taught to the children by letting them help in the family kitchen" (from the Preface, p. 5). In the mid-1980s she had the good fortune to meet Craig Claiborne. When they first met, she was a student

at the Culinary Institute of America in Hyde Park. She subsequently became a professional chef and cooking teacher (from the Foreword, by Craig Claiborne, written May 1989, p. 4) She is married to Anthony Laudin, and now teaches cooking in Manhattan, New York City. Address: Professional Chef and Culinary Teacher in New York City.

1011. Yamaguchi, Hirofumi. 1989. Weed azuki bean, an overlooked representative. *Bulletin of the University of Osaka Prefecture, Series B, Agricultural Biology* 41:21-27.
• Summary: “Two forms of prostrated and slightly branching Azuki bean (*Phaseolus angularis* W.F. Wight) grow naturally in the ruderal and cultivated fields in central Japan. These have larger leaves and a thick stem, like the cultigen, and have easily dehiscent black pods similar to the wild Azuki bean (*P. angularis* var. *nipponensis* Ohwi). Two forms have seeds intermediate in size between the cultigen and wild Azuki beans.” Address: College of Agriculture, Univ. of Osaka Prefecture, 593, Sakai, Osaka, Japan.

1012. Voorlichtingsbureau voor de Voeding. 1989? Peulvruchten: méér dan bonen alleen—met recepten [Legumes: More than just beans—with recipes]. 's-Gravenhage, Netherlands. 36 p. Undated. Illust. Index. 21 cm. No. 122. [Dut]



• Summary: Contains color photos of many types of legumes, including soybeans, plus many recipes including Soybean salad, and Soybean dish with egg-yolk sauce. Also adzuki beans. Address: Netherlands.

1013. Soejono, Irlan; Kagatsume, Masaru. 1990. Shifts and development in trade of various food crops in East Asia, 1960-1984. *CGPRT Working Paper* No. 5. xviii + 168 p. Feb. 28 cm.

• Summary: For each country discussed, this book gives information on: Production and supply of coarse grains, pulses, and root and tuber crops. Consumption and demand. Trade and trade elasticities. Forecast and policy implications: Prediction on import demand, indication of policy implications.

The countries are: Japan (p. 1-28). People's Republic of China (p. 29-42). Republic of Korea (p. 43-62). Taiwan (p. 63-79). The Territory of Hong Kong (p. 81-92). Appendixes (p. 95-165). References (p. 167-68).

Summary: As people in the East Asia subregion become more affluent and westernized, they consume less food grains directly and more livestock products.

Japan: Japanese rice production peaked in 1963 at 13.42 million tons, but surpluses have continued to grow. The government has tried various schemes to induce farmers to switch from rice other crops, including soybeans. Graphs show: (I-6, p. 6) “Soybean production, area and yield, 1960-1984.” Soybean production in Japan dropped from 418,000 tonnes in 1960 to 100,000 tonnes in 1976. Because of the Rice Farming Diversification Policy, soybean production since 1976 has increased, rising to 238,000 tonnes in 1984. The graph also shows harvested area and yield during this period.

(I-13a+b, p. 13, 14) “Total demand for soybeans its components [in Japan], 1960-1984.” The total demand has increased steadily from 1.517 million tonnes in 1960 to 4.814 million tonnes in 1984. About 80% of this demand (3.952 million tonnes in 1984) was for soybeans to be processed. About 90% of these (3.765 million tons in 1984) were crushed into oil and meal. Small and relatively static amounts were processed to make miso (182,000 tonnes) and soy sauce (5,000 tonnes) in 1984.

(I-21a, p. 21) “Volume of soybean (grain) imports, import values and import prices, 1960-1984.

(I-21b, p. 22) “Volume of soybean oil imports, import value and import prices, 1960-1984.

(I-22, p. 22) “Volume of soybean cake imports, import values and import prices, 1960-1984.

Table I-2 “Projected import quantities (1,000 tons) of selected CGPRT crops in Japan, 1984-1999.

For the People's Republic of China, Fig. II-6 (p. 33) shows soybean production, area and yield, 1974-1984.

For Korea, Fig. III-5 (p. 47) shows soybean production, area and yield, 1960-1984.

For Taiwan, Fig. IV-5 (p. 67) shows soybean production, area and yield, 1971-1984.

For the Territory of Hong Kong, Fig. V-5(a) (p. 87) the volume of soybean grain imports, import values and import prices, 1960-1984.

The various appendices (p. 95+) give the data lists for each country used in creating the previous graphs. Address: 1. Senior Agricultural Economist, CGPRT Centre, Jl. Merdeka 145, Bogor 16111, Indonesia; 2. National Research Inst. of Agricultural Economics and the Ministry of Agriculture, Forestry and Fisheries of Japan.

1014. Muso Co. Ltd. 1990. Muso product manual: Foods from Japan. Tanimachi 2-5-5, Chuo-ku, Osaka 540, Japan. 62 p. Catalog. April. 30 cm. [Eng]

• **Summary:** This English-language catalog describes Muso's natural-food macrobiotic products that are exported to the West. There are 8 pages of color photos at the front, and many flowcharts and recipes in the body of the catalog. Interesting color photos include: Shoyu fermentation room. Spreading moromi before pressing to make shoyu. Hatcho miso aging room. Drying kombu and cultivating nori on nets. Umeboshi and brown-rice vinegar. Shiitake mushrooms growing on logs and huge kudzu roots.

Contents: Shoyu (organic, low salt), tamari (wheat-free soy sauce), miso (Hatcho, barley, rice, white miso, brown-rice miso, awase miso [mixed miso], buckwheat miso, unpasteurized miso [nama miso]), seaweeds, Japanese pasta, wheat free pasta (incl. kudzu noodles), Japanese tea, other beverages, soymilk, amazake, ume/plum products (incl. umeboshi), Japanese pickles, dried foods (incl. kudzu root starch, shiitake mushrooms, koya tofu, fu [gluten cake]), condiments (incl. tekka miso, *nori no tsukudani*, natto miso [miso condiment]), seasonings, instant foods (incl. brown rice mochi, yomogi mochi, kibi mochi, yaki mochi, abekawa mochi with kinako, cooked brown rice, ramen [Chinese style noodles], instant miso soup), crackers and chips, barley malt syrup and rice malt syrup, food supplements (plum balls, kombu balls), adzuki beans, black soybeans, nigari. Address: Osaka, Japan. Phone: 06-942-0343.

1015. Gaiser, Klaus. 1990. Early history of Tofuhaus Belsen and Yamato Tofuhaus GmbH (Interview). *SoyaScan Notes*. May 8. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** The name of his first company was Tofuhaus Belsen, started as a "single man's company" in the village of Belsen near the small town of Moessingen. He started to make tofu commercially in the summer of 1982 (June or July). The company's main product was tofu (called Traditionelle Tofu, and coagulated with calcium sulfate), but it also made a lot of sprouts as a side business—from mung beans, azuki beans, lentils, and alfalfa seeds. It changed into Yamato Tofuhaus GmbH on 1 Jan. 1984 at the same address. The company moved from Belsen to Hirschau

near Tuebingen in March 1987. Address: President, Yamato Tofuhaus GmbH, Rittweg 11/1, D-7400 Tuebingen—Hirschau, West Germany. Phone: 7071-71094 or 95.

1016. **Product Name:** Azuki Brown Rice Tempeh.

Manufacturer's Name: White Wave, Inc.

Manufacturer's Address: 1990 North 57th Court, Boulder, CO 80301.

Date of Introduction: 1990 May.

Ingredients: Soybeans, rice, azuki beans.

New Product—Documentation: Talk with Alex Press. 1990. Feb. 28. He calls to ask how to spell azuki/adzuki/aduki on the product label. The product should be out by mid-April. Talk with Steve Demos, president of White Wave. 1990. May 20. This product was launched 1-2 weeks ago.

Ad in Natural Foods Merchandiser. 1991. Jan. p. 61. "Tempting tempeh sale." 15% off Azuki Brown Rice Tempeh.

1017. McLean, Norma. 1990. Edible lessons: children can help others while growing bean sprouts. *State (The) (Columbia, South Carolina)*. June 28. p. 62.

• **Summary:** "There are Muppets, Cabbage Patch dolls and Ninja Turtles, but who are the 'Wee' sprouts?"

"Melodie Engwersen of Creative Kids Inc. in Five Points said they are seed characters Alfie Alfalfa, Lucy Lentil, Mighty Mung, Addie Adzuki and Radical Radish found in the 'Wee' Sprouts Simple Salad Kit, a toy that teaches 'nutrition, science, responsibility and sharing,' the makers say. Plus, they're edible.

"The kit includes seeds and equipment for growing sprouts, a fork, shatterproof jars with screened lids and an illustrated book of Wee Sprout characters giving step-by-step instructions."

"By donating kits to others, children become members of 'Wee' Share Our Food Club, get a certificate suitable for framing and an annual bulletin that gives a report on efforts of the club to educate and feed other children."

Note: The rest of this long story is beautiful and inspiring. The company, "Wee" Share International, was started by James and Debbie Brown. Address: Staff Writer.

1018. **Product Name:** Aduki Rice Miso. Renamed Azuki Rice Miso in 1992.

Manufacturer's Name: South River Miso Co. Inc.

Manufacturer's Address: South River Farm, Conway, MA 01341. Phone: 413-369-4057.

Date of Introduction: 1990 October.

Ingredients: Deep well water, organically grown brown rice and aduki beans, sun-dried sea salt, koji culture. Organically grown and processed in accordance with Section 26569.11 of the California Health and Safety Code.

Wt/Vol., Packaging, Price: 1 lb plastic tub.

How Stored: Refrigerated.

New Product–Documentation: Talk with then Label sent by Christian Elwell. 1992. March 13. He started selling this miso in Oct. 1990. Label. 3.5 by 2 inches. Black on white. Self adhesive. “100% organic ingredients. Unpasteurized. Please refrigerate.” On the plastic tub is beige, with black and brown printing. A blue, brown, black, and white sticker (1 inch square) on one side says “Aduki Rice. Vintage 11/91.” There is a statement about traditional miso making signed by Christian and Gaella Elwell, a recipe for everyday miso soup, and an illustration of a silhouette of a mother handing a bowl of soup to her son seated across the table. This miso contains no soybeans.

Soyfoods Center taste test. 1992. March 18. Delicious. Has a little sweet taste like finger-lickin’ miso, and a non-pasteurized homemade miso flavor.

1019. Cederquist, Natalie; Levin, James. 1990. A vegetarians ecstasy: A healthy gourmet celebration of over 250 no cholesterol, no dairy, lowfat recipes devoted to long life and good taste. Glo, Inc., 2406 Fifth Ave., San Diego, CA 92101. 332 p. Dec. Illust. by Natalie Cederquist. Index. 28 cm. [13 ref]

• **Summary:** In this is innovative vegan cookbook, each recipe occupies 1 page and is accompanied by an illustration (line drawing). The glossary of ingredients mentions liquid aminos, miso, seitan, seaweeds, tamari, tempeh, and tofu. Page 28 is devoted to singing the praises of soy products. “Dairyless and eggless: With optimum health in mind, I have chosen to use soy products and egg replacer rather than dairy and eggs. Dairy is mucus forming, it contains cholesterol, fat and hormones, in addition to the pesticides and antibiotics used in the farming and dairy industry.

“Soy and seed cheeses, soy yogurts, soy cream cheese, soy sour cream, soy and rice based ice creams are delicious non-dairy products in the natural markets for you to try which are cholesterol free and low in fat.”

The book contains 28 recipes for tofu, and 12 for tempeh. Other interesting recipes are: Sprouted soy salad (with 3 cups soy sprouts steamed for 3 minutes, p. 76). Orange miso dressing (p. 99). Miso soup (p. 162). Miso sesame rice (p. 206). Aduki bean and brown rice pot (p. 212). Féjoada (with soy sausages, p. 213). Mushroom seitan in wine sauce with wild rice (p. 241). Seitan sauté (p. 267). Amazake carob pudding (p. 290). Address: 2. M.D., San Diego, California. Phone: 1-800-854-2587.

1020. McClary, Dean C. 1990. Azuki, *Vigna angularis* (Willd.) Ohwi and Ohashi: a literature review and agronomic evaluation for production in the Columbia basin. MSc thesis, Washington State University. 230 p. 28 cm. * Address: Dep. of Crop and Soil Sciences, Washington State Univ., Pullman, WA 99164-6420. Phone: 509-335-2726.

1021. Maesen, L.J.G. van der; Somaatmadja, Sadikin. eds.

1990. Plant resources of South-East Asia 1: Pulses. ESCAP CGPRT Centre, Jalan Merdeka 99, Bogor, Indonesia. 105 p. Originally published at Wageningen, the Netherlands, 1989. Index of scientific plant names. Index of vernacular plant names. 25 cm. [57* ref]

• **Summary:** This publication deals with pulses currently being used and those whose role could be expanded in South-East Asia. Pulses are defined here as the dry edible seeds of legumes, which are members of the family Leguminosae.

Contents: Editors and contributors. Prosea project personnel. Foreword. Introduction. Definition of pulses. Role. Botany: Taxonomy and wild relatives, morphology, growth and development. Ecology: Climates, soils. Agronomy: Place of pulses in cropping systems, sowing practices, management. Breeding and genetic resources. Prospects. Alphabetical [by scientific name] treatment of species: groundnut, pigeon pea, chickpea, soya bean, lablab (*Lablab purpureus*), grass pea, lentil, horse gram, tepary bean, runner bean, lima bean, common bean, pea, faba bean, moth bean, adzuki bean (*Vigna angularis*), a re (*Vigna dalzelliana*), black gram (*Vigna mungo*), mungbean (*Vigna radiata*), bambara groundnut [*Voandzeia subterranea* (L.) Thouras var. *subterranea*], rice bean and cowpea. Information on minor pulses. Legumes only occasionally used as a pulse. Literature [bibliography]. Glossary [extensive explanation of the terms used]. Acronyms of organizations. Acknowledgements. Sources of illustrations. The Prosea project.

The section on soya bean (p. 43-47) was written by S. Shanmugasundaram & Sumarno, under the following headings: Synonyms. Vernacular names. Origin and geographic distribution. Uses. Production and international trade. Properties. Description. Growth and development. Other botanical information. Ecology. Propagation. Husbandry. Diseases and pests. Harvesting. Yield. Handling after harvest. Genetic resources. Breeding (including wild soybeans and perennial *Glycine* species). Prospects. Literature.

“Prosea, short for ‘Plant Resources of South-East Asia,’ is an international project focused on South-East Asia. Its purpose is to make available the wealth of dispersed knowledge of plant resources for education, extension, research and industry through an illustrated multivolume handbook.”

Note: As of 1995 the spelling of Bambara/Bambarra has apparently not been standardized. The AGRICOLA database shows the following number of records containing various spellings: Bambara groundnut 40, Bambarra groundnut 23, Bambara groundnuts 5, Bambarra groundnuts 2. The plant’s scientific name is now *Vigna subterranea*. Address: 1. Netherlands; 2. Coordinator for Legume Crops, Central Research Inst. for Food Crops (CRIFC), Bogor, Indonesia.

1022. Morningstar, Amadea; Desai, Urmila. 1990. The ayurvedic cookbook: A personalized guide to good nutrition and health. Santa Fe, New Mexico: Lotus Press. 351 p. Foreword by Yogi Amrit Desai. Introduction by Dr. David Frawley. Illust. by Amadea Morningstar. Index. 23 cm. [40 ref]

• **Summary:** This is a lacto-ovo vegetarian cookbook based on Ayurvedic principles. Contents: Part I: General Information. History of Ayurveda. Nutrition from an Ayurvedic perspective. Discovering your constitution. Attributes and nutritional needs of each constitution. How to imbalance your constitution. Understanding Ayurvedic nutrition: Taste. Digestion. Food combining and preparation. Balancing *Agni*. The digestive organs. The *chakras* and dietary change. Eating with the seasons. Getting ready to cook. Planning balanced meals easily. Menus: *Tridoshic*, *Vata*, *Pitta*, *Kapha*. Part II: Recipes. Part III: Appendices. 1. Most frequently asked questions and answers. 2. Enlarged food guidelines for basic constitutional types (many soyfoods are included). 3. Some basic information about nutrients. 4. Glossary of English and Sanskrit terms. 5. Food name equivalents in Latin, Sanskrit, Hindi. 6. Bibliography. About the authors (autobiographical).

The three *Vatas* (*tridosha*, three doshas, constitutional or body types) are *Vata* (pure air, head/wisdom), *Pitta* (pure fire, action), and *Kapha* (pure water, love/heart). *Tridoshic* foods or herbs are suited to all 3 constitutions; these include ghee, basmati rice, and asparagus. Concerning soya: “Many *Vatas* handle certain well-spiced soy products well, like tofu or liquid soy milk. Some do not. Let your gut be your guide. Dairy is very calming to *Vata*, especially when it is warm” (p. 14).

“*Pittas* are often attracted to high-protein foods, and do seem to need a little more protein than other constitutions. Goat milk, cow milk, egg white souffles, tofu, tempeh, and the aforementioned cottage cheese are all effective in balancing *Pitta*. Most beans—with the exception of heating lentils—are excellent” (p. 16).

Anything which stimulates elimination tends to relieve *Kapha* (barley and beans being classic examples). Aduki beans are especially good, as are black turtle beans, though the latter are more difficult to digest. Soy beans and soy products are recommended less frequently. Over half of tofu’s calories come from fat, surprisingly, while only 4% of black beans’ do. Still, soy products like soy milk tend to be less *Kapha*-enhancing than dairy products” (p. 19).

“Examples of oily food include ghee, vegetable oils, animal fats, soybeans, many vegetables and citrus. Dry foods include corn, buckwheat, rye, millet, most beans and dark leafy greens, to list a few. These latter foods will need moistening of some sort to be more easily digested by most people” (p. 28).

In the menu section, under each constitutional type (*dosha*, such as *Vata*), recommended menus are given

by season for each meal. For example, soy-related foods included in *Vata* menus are: Summer: None. Fall: Dinner—Miso tofu, Amasake. Winter: None. Quick day: Breakfast—soymilk. Beverage—Amasake. Weekend day: Nothing. On the road (when travelling): Dinner’ Chinese vegetables and rice (with tofu, if well tolerated).

Each recipe in the recipe section tells which constitution type it suits, how long it takes to prepare, in what seasons it is most healing, and how many it serves. For example,—*Vata* means that it calms *Vata*, + *Vata* means that it aggravates or increases *Vata*, and 0 *Vata* means that it is neutral for *Vata*. For brevity, we will give only *Vata* examples in the following. Soy-related recipes: About tofu (p. 102): Tofu and liquid soy milk tend to be cool and heavy, yet oilier than most other bean products. This oily lubricating quality helps their digestion, as does the pre-processing they have undergone as legumes... Eaten in excess, they will increase *Kapha*. Warming preparation, in the form of heat or warming spices such as ginger, tamari, cumin, turmeric, cinnamon or mustard seeds, aid their healthy breakdown in the system. Beans can be idiosyncratic in effect though; if your experience doesn’t match the descriptions given here, trust your direct experience first. Some people have a hard time digesting tofu in almost any form; an allergy to soy may be present. It was popular in the sixties and seventies to serve tofu cold, cubed and plain at health food-type salad bars. This is about the most difficult way to try to consume an already chilling food. Try tofu marinated, spiced and cooked, then make up your mind about its digestibility for you.”

Miso tofu (p. 102,—*Vata*). Tofu mushrooms (p. 104,—*Vata*). Tofu pesto (p. 104,—*Vata*). Sautéed tofu and vegetables (p. 105,—*Vata*, but mildly + *Vata* with frozen tofu). East Indian lima beans (with tofu, p. 114). Spicy rice and yogurt (with soy milk, p. 131,—*Vata*; “Made with soy milk, which is lighter and cooler than yogurt, it is suitable for *Pitta* and *Kapha* as well”). Vegetable barley soup (with tofu, p. 188, 0 *Vata*).

About oils (p. 202-03): “Ghee is the highly preferred fat in Ayurveda, being light, easy to digest and potentiating to many of the foods with which it is served.” Sunflower oil is the next best choice, being agreeable to all doshas. “Sesame oil is specifically recommended when a warming effect is needed. It grounds *Vata*... The vast majority of oils are warming and heavy in quality, including...” soy oil. “Margarine is cold and difficult to digest and not often recommended by Ayurvedic physicians.”

About condiments: Salt, tamari, miso, and pickled ginger all heat up a meal and stimulate *agni* (fire). A detailed discussion is given of the medicinal function of sea vegetables in Ayurveda (p. 216-17).

About soy milk: Liquid soy milk can be a good alternative to cow’s milk, if you are sensitive to the latter. It is also less *Kaphagenic* (imbaling to *Kapha*) than cow’s milk, when properly prepared. Lighter than cow’s milk in its

effect on the body, it cooks up easily in recipes. Like most high protein foods it promotes building, not cleansing. It is best used in restorative and maintenance programs. It can be warmed with cinnamon, cardamom, nutmeg or ginger and black pepper. Some *Vatas* do not tolerate it well. Dried soy milk powder and soy protein powder are much more difficult to digest than the whole liquid soy milks. Only the most stalwart *Pitta* is likely to be able to consume them without gas, as they are cold, heavy and dry. Whole soybeans and tempeh are often gas-producing as well. For adequate digestion they require much cooking and spicing, good *agni*, and a *Pitta* constitution. Hot soy milk (p. 264).

Scrambled tofu (p. 281,–Vata).

In appendix II (p. 293). The following legumes, in moderation, calm Vata: Aduki beans, soy cheese, soy milk (liquid), tofu, black lentils, mung beans, red lentils, and tepary beans. But these aggravate Vata: Soy beans, soy flour, soy powder, tempeh, garbanzos and most other beans. Among beverages, icy cold drinks and many others aggravate Vata. Beverages that calm Vata are soy milk (well spiced and hot), miso broth, many herb teas. Tofu is calming to *Pitta* and mildly aggravating to *Kapha*. Cool in action, some *Vatas* tolerate it well, others do not.

Aduki beans are mentioned on p. 19, 106, 109, 116, 124, 293, 306. Address: 1. Faculty member, The Ayurvedic Inst., Albuquerque, New Mexico; 2. Wife of Yogi Amrit Desai, member of Kripalu Center for Yoga and Health, Lenox, Massachusetts.

1023. Lumpkin, Tom. 1991. Work with edamamé (green vegetable soybeans in the pods) in the state of Washington (Interview). *SoyaScan Notes*. Feb. 27. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** In about 1986 Tom founded the East Asian Crop Development Program at Washington State University (WSU), in Pullman, Washington. He is now full-time head of a team of 12 people in this program, all of whom except himself are working part-time, developing East Asian plants to be grown in Washington state. It is an interdisciplinary team with people from food science and marketing as well as agronomists and himself who is interested (among other things) in documenting the history of various East Asian crops. The program is designed to benefit Washington state farmers. One of these plants is edamamé, or vegetable-type green vegetable soybeans.

Tom has collected about 400 varieties of edamamé as part of his work; the germplasm is maintained at Pullman. He has lived in East Asia and speaks some Japanese and Chinese. His wife is Japanese. He obtained a National Science Foundation grant to study at Kyoto University in Japan, where for 18 months he did extensive research on edamamé at about the same time that his student, John Konovsky, was studying the same crop at Iwate University. Of the many Japanese-language citations in

their bibliography on edamamé (most previously uncited in English), John “discovered” about two-thirds and Tom about one-third. Tom ran his program at WSU from Japan and returned to Washington every 3 months to plant crops, check details, etc. Tom is collecting documents on edamamé, and has 60 from China. He has translated the titles of all of them and has translated ten entire documents. In addition he has about 150 Japanese journal articles on edamamé from 1920 to the present; many of the more recent ones have an English abstract. Some translators work with him. These documents are part of a growing library on East Asian crops, housed within Tom’s program. He is in the process of finishing a book on edamamé in cooperation with Dr. Sundar Shanmugasundaram and another scientist at AVRDC, which plans to publish it. The book should be ready in about 6 months. It will probably be titled *Edamamé: The vegetable soybean*, and will contain a very lengthy and original bibliography—one of the hallmarks of Tom’s work. Tom is also working on a book on the azuki (adzuki) bean, which will be published by CAB in the UK; soybeans are mentioned throughout this book. He is also very interested in wasabi. Tom prefers the term “edamamé” but AVRDC likes “vegetable soybeans.” This summer a woman named Hu Jia, who is a librarian at the Chinese Academy of Agricultural Sciences in Beijing, is coming to work on his project for about 1 year. Tom has been very close to her family for 12 years. She collects literature in China for him on all of the basic crops he is working on. He has known her father well for a long time. During the Cultural Revolution, she was sent out to be a barefoot doctor for 10 years. She is age 40, has a degree in library science, and speaks good English, in part because her father, a native Chinese, earned a PhD from a university in Minnesota, and is now a chairman emeritus in the Chinese in the Chinese Academy of Agricultural Sciences. Her father will be sending documents on Chinese crops to Tom’s program. She will be in the USA for at least a year, in part to learn more about computers, and in part to help on Tom’s project.

Edamamé are now being grown in Washington state. In 1990 two farmers grew 20 acres and in 1991 3-4 farmers are expected to grow about 100 acres. D&K Foods in Walla Walla, Washington, is shelling, freezing and packing the beans. Tom has never met a person who did not like them. The Japanese think they are the best they have ever tasted, probably because they are frozen so quickly after harvest. The seeds are a bit smaller than their Japanese counterparts. Dunn International in Waterloo, Iowa, is also growing edamamé.

One of Tom’s graduate students, named John Konovsky, is doing his thesis on edamamé, focusing on breeding and agronomy. They are working with D&K in Walla Walla, Washington on developing mechanical harvesting for edamamé.

Tom presented a paper at the INTSOY soybean

conference in China last summer. The focus of the conference was utilization. It was excellent. Address: Head, East Asian Crop Development Program, Dep. of Crops and Soil Sciences, Washington State Univ., Pullman, WA 99164-6420. Phone: 509-335-2726.

1024. Morse, Kitty. 1991. A taste for sprouts is budding all over. *Los Angeles Times (The)* (Los Angeles, California). March 14. p. 10-11. San Diego Edition.

• **Summary:** Rick Sokol owns the Gourmet Sprouting Company in Leucadia. He buys the best quality seeds (including beans) for sprouts from all over the world. Alfalfa sprouts is Sokol's biggest crop, and he ships all his sprouts nationwide.

"Gourmet Sprouting Co. also markets a bag of mixed bean sprouts containing red and green lentils, mung beans, whole peas, adzuki beans, and fenugreek sprouts."

1025. Sams, Craig. 1991. Pioneering macrobiotics and soyfoods in England, 1967-1979 (Interview) (Continued—Document part II). *SoyaScan Notes*. Aug. 24. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** (Continued): Harmony imported all of its miso from Muso in Japan. The packaging was initially a problem, because the miso was live (unpasteurized) and would cause some containers to burst. In the summer of 1971 many kegs of mugi miso blew their lids off and splattered miso—which has an unappetizing look. In about 1972 Miso started offering flat, rectangular pre-packs of miso in plastic bags. The labels were put on in Britain. In about 1975-76 Harmony started importing genmai [brown-rice] miso. Muso was always Harmony's only source of soyfoods from Japan.

At that stage, Greg was managing Harmony Foods and Craig was running the bakery and responsible for the store (which they had under management). At the bakery Craig developed the jams with no sugar added; apple juice was used as the natural sweetener. Craig was just about ready to start producing the jams in the bakery. They had another partner in the business, Jerry Sakura (Japanese-American), who bought in in 1974. Even though there was Ceres and Seed and Harmony Foods, they were all part of the holding company which was Yin-Yang Ltd., which was incorporated on 24 May 1967—very near the beginning of these many creative businesses. Somewhere is the plan for Brown Rice Puffies, a breakfast cereal based on brown rice. Its hard to describe now—Craig is sort of cynical today as he sees the rampant spread of hamburgers and Coke. But in 1967 Craig really believed that everybody was at least as clever, if not more clever, than he was, and that by 1971 or 1972 the whole world would be eating natural, whole foods.

Then a problem began to emerge. People would come to Harmony and buy 200 lb of brown rice, a bag of adzuki beans, and smaller amounts of this and that. They would go off to their part of the country, bag it up in 1-lb bags, sell it to local

stores and undercut the Harmony brand. By the late 1970s it had become a serious problem. Also, when we developed the flakes—wheat flakes, oat flakes, rye flakes, barley flakes—we did it exclusively with organic grain. Then one of Harmony's competitors came out with non-organic flakes. Suddenly all the contracts we had with farmers for organic raw material—it was very hard for us to honor them because we weren't selling as much because somebody had scooped out the bottom third of the market, if you like.

Then they went to the same supermarkets who stocked their peanut butter and said, "What about brown rice?" And they said, yes, your right, brown rice does look like a good idea, but we'll just get it from our white rice suppliers. Its all the same. There's no point in having two suppliers. As far as the supers were concerned, it was just a range extension on white rice. They didn't see that there's a difference.

"We began to see that we could never compete with branded, packaged products of the basic staples. We didn't have the capital or the management expertise. We were good at innovating and capitalizing on that, but once the going got tough, we got going, really. So we decided to move into added value foods, but of the same quality. The peanut butter was the first such product. Next came the sugar-free jams—like the "spreadable fruit" in the States. We launched them in the States and Sorrell Ridge picked up on the idea from us and called it "spreadable fruit." Polaner and Smuckers now dominate the market. We are still the leaders in Europe in that category. The jams were our first products under the Whole Earth brand. We are still Yin-Yang Ltd. The company names have changed over the years, to Harmony Foods Ltd. and then we changed the company name to Whole Earth Foods Ltd. but its still the same entity. Only Seed Publications was actually a separate business, not part of the parent company, Yin-Yang Foods.

"In 1977 the Whole Earth brand began. The peanut butter was sold under the Harmony brand. The sugar-free jams took off like a rocket. But we only got them into supermarkets about 2 or 3 years ago (1987-1988). The jams were sold in natural and health food shops in the UK. But export was very big. They really opened up our whole export business because it was a unique product. You could only get it from one place—from us. We appointed one importer in each European country and they've all done very well, because their customers could only get that jam from them. In the early 1980s we used to sell a lot to the States, but that died down through the '80s.

"On May 26, 1982 we decided to put the whole business into liquidation; we filed for bankruptcy—Yin-Yang, Harmony, everything. We were in financial difficulties. The jams were doing well. We had also started importing Health Valley; in 1980 we became the Health Valley distributors in Europe. Also in 1980 we had let in our outside investment, because of the cash flow problems of being a business with all this stock of rice and beans, etc. You can't make

a profit on it. Our business skills were not quite as sharp as our awareness of what the market wanted. The bank manager who had the debenture on the company's assets wasn't available until Tuesday of the following week. Over that weekend I learned what working capital and cash flow meant. I had to learn how to read a balance sheet, work out what the working capital of a smaller company would be. And I then worked out a scheme whereby, if the bank stuck it out with us, we could in fact get solvent. We never went into liquidation. We licensed, on a royalty basis, that part of the business to a man named John Guyon. He could use the Harmony trademark, because we were moving over to Whole Earth, which kept peanut butter, jam, and ginseng roots from the 300 product lines we had. And we made severe cutbacks in staff. In late 1981 the staff size had peaked at 45 employees. I forgot to mention that we opened a cash and carry business on July 4, 1978. This encouraged local retailers to come to our store. You have your warehouse set up like a supermarket, but they buy cases of everything. The peak days were Tuesday and Wednesday. Anybody who could buy by the case was allowed in. It was a walled-off section of the warehouse—in the same building but with a separate entrance. Harmony used other distributors, even in London. Harmony never owned more than two trucks so we were not a distributor. We imported, developed and packaged products."

Now, Craig runs Whole Earth Foods. "We control about 15% of the peanut butter market in the UK, and about 25% of the branded peanut butter market. We're the No. 2 peanut butter manufacturer in Britain. Our sugar-free jams have been in Safeway for two years. We're that dominant players now in that market; Robertson's has withdrawn. Finally, we are getting our jams into supermarkets. We also do organic canned baked beans, organic spaghetti sauce and ketchup, a range of nut butters and salad dressings. All of our products are made with organic ingredients, no added sugar, no artificial ingredients. We've got what I think are the highest standards of any food processor around. I own 99% of the company, Whole Earth Foods Ltd., so I can be as uncompromising as I want. On 14 Aug. 1981 the name of the parent company name was changed from Yin-Yang Ltd. to Harmony Foods Ltd. In Feb. 1984 the name of the parent company was changed from Harmony Foods Ltd. to Whole Earth Foods, Ltd.

In May 1982 my brother, Greg, was a little bit skeptical about the scheme. We (Harmony Foods) had just launched the VegeBurger in April of 1982 as part of our strategy to move into value added products. Greg left the business, doing everything properly financially, then in June 1982 started his own business called The Realeat Company.

Note: Three comments by Gregory Sams: 13 March 2017: (1) In about 1976 at 1 Earl Cottages, Earl Rd., London SE1, England, we moved Harmony Foods there, from west London and expanded it rapidly, going from 5000 to 15,000

sq ft. Our next move was to 55,000. (2) Craig holds dual passports for the USA and UK. (3) Greg has never become a citizen of the UK; he remains a citizen of the USA. Address: 269 Portobello Road, Notting Hill, London W11 1LR, England. Phone: 071-229 7545.

1026. Pickarski, Ron. 1991. *Friendly foods: Gourmet vegetarian cuisine*. Berkeley, California: Ten Speed Press. 277 p. Illust. Index. 23 cm. [23 ref]

• **Summary:** This is a stylish vegan cookbook, with a wealth of sophisticated and delectable soyfoods recipes. The author recommends only high-quality ingredients. Brother Ron grew up in Michigan and during high school spent time in the restaurant business flipping hamburgers. Later he became a Franciscan monk (OFM). A look at his own health revealed the need to change his diet. So Brother Ron changed to a natural vegetarian diet and experienced weight loss and renewed energy. Now he considers himself a food missionary—helping people transform their lives through food. Friendly foods are "foods that are friendly to our bodies, our pocket books, our busy schedules, and our environment."

In the section on dairy-like products, the author recommends soy milk and some "tofu ice creams." He recommends use of soy cheeses sparingly since they are high in fats (especially the softer types). He considers nondairy creamers to be a less healthful than their dairy counterparts, since they are high in saturated fats and artificial additives. "Typically, nondairy creamers contain corn syrup solids, partially hydrogenated vegetable oil (including coconut oil, cottonseed oil, palm oil, or palm kernel oil), sodium caseinate, sodium phosphates, mono- and diglycerides, sodium silico aluminate, and artificial color. I do not consider this type of product to be an example of a high-quality food."

Soy-related recipes include: Marinated vegetables with marinated tofu (p. 41). Shish kebabs (with marinated tofu, p. 42). Marinated tofu with scallions (p. 43). Gefilte tofu with horseradish and charoset sauce (p. 49-50). Zucchini bisque (with tofu, p. 66). Tofu wakame salad (p. 82). Tofu cottage cheese (p. 89). Vegan sour cream (with soy milk, p. 90). Soy mayonnaise (with tofu, p. 90). Silken tofu mayonnaise (p. 91). Lemon cream dressing (with tofu, p. 92). Oil-less miso dressing (with soy milk and white miso, p. 96).

In the chapter on entrees, there are detailed descriptions of tofu, tempeh, and seitan. Soysage (with cooked soybeans and soymilk, p. 105). "Meatballs" (with cooked soybeans, p. 107). American loaf (with silken tofu, p. 112-13). Tofu spinach pie (p. 120). Auberge Hanfield pie (with silken tofu, p. 121). Russian vegetable pie (with silken tofu and tofu cottage or ricotta cheese, p. 122). Greek moussaka (with tofu topping, p. 128-9). Sweet and sour tempeh (p. 133). Southern fried tofu (p. 134). Tofu Swiss steak (p. 135). Tempeh stew (p. 136). Thanksgiving day tofu (p. 137). Tofu Jamaican run down stew (p. 138). Tofu paneer (p. 139). Seitan (p. 140-

43). Seitan à la Normandie (p. 144). New England boiled dinner (with tofu or seitan, p. 145). Seitan Parmesan (with vegan cheese made with tofu, p. 147-48). San Francisco stir-fry (with seitan or tofu, p. 151). Berner platte (with protein accompaniments made with tofu and Soysage, p. 155-56). Vegan Béarnaise sauce (with silken tofu, p. 161). Miso sauce (p. 164-65). Tahini lemon sauce (with silken tofu, p. 165). Steamed kale with lemon miso sauce (p. 176).

In the dessert section, there is mention to tofu chocolate as an alternative to chocolate. Carob cake (with tofu chocolate, p. 217). Chocolate cream couscous cake (with filling made with silken tofu, p. 220). Silken tofu chocolate “cheesecake” (p. 221). Key lime shamrock torte (with silken tofu, p. 222). Raspberry sabayon sauce (with silken tofu, p. 232). Tofu chocolate “buttercream” icing (p. 234). Tofu chocolate ganache (p. 234-35). Mocha grain coffee (with any grain coffee substitute, cocoa, brown rice syrup, and soy milk, p. 238). Christmas soy nog (with soy milk and lecithin granules, p. 238).

The last section of the book, titled “The Culinary Olympics,” gives recipes that Brother Ron prepared while competing in these Olympics, starting in 1978. These Olympics are held every four years at Frankfurt, Germany, by the International Cooks Society. The American Culinary Federation is the U.S. organization that promotes the competition. “In 1978 I won a gold medal in the national competition, which qualified me to compete in the 1980 Culinary Olympics. In 1980 I founded the American natural foods team and, with this team, international competition to gain widespread competition for vegetarian cuisine. In that year, I became the first professional vegetarian chef to compete in the Olympics and win a medal for totally vegetarian foods. I also competed in 1984 and 1988... My team won bronze and silver medals in all three years that we entered the competition.” Soy-related recipes dominate this section, and include: Baked tofu pâtés (spinach, tarragon, or carrot, p. 241-42; won a bronze medal in 1984). Tofu and sea vegetable quenelles (beet, spinach, or carrot, p. 243-45; won a silver medal in 1988). New York cima roll (with tofu, p. 248-49; won a silver medal in 1988). Tofu seitan Wellington (p. 250-51; won a bronze medal in 1984). Vegan London broil (with seitan, miso, and tamari, p. 251-52; won a bronze medal in 1984). Southern blackened tempeh with tomato-apricot-ginger coulis (p. 253-54; won a silver medal in 1988). Carrot cream in squash shell (with soy milk and tofu, p. 255-56; won a silver medal in 1988). Chocolate squash confection (with Tofu Chocolate Ganache, p. 259-60; won a silver medal in 1988). Address: O.F.M., St. Anthony’s Shrine.

1027. *SoyaScan Notes*. 1991. The concepts of alkaline (*arukari-sei*) and acidic (*sansei*) foods in Japan (Overview). Sept. 20. Compiled by William Shurtleff of Soyfoods Center.
• **Summary:** It is common knowledge among most typical

Japanese that foods can generally be classified along a continuum that ranges from alkaline at one end to neutral (*chusei*) in the middle, to acidic at the other end. Alkaline foods (those with an alkaline ash) are generally considered to promote and protect health. It is widely believed that one should try to keep one’s blood a little on the alkaline side of neutral. According to E.C. Grey’s *The Food of Japan* (League of Nations, 1928) and *Inshoku Jiten (Encyclopedia of food and drink)* (Motoyama 1958; see *arukari*) and to discussions with numerous Japanese, well-known alkaline foods are as follows. Each food is followed by an “alkaline value” in parentheses taken from Grey (1928, p. 56-111; the “alkalinity is due to lime and magnesia”): sea vegetables including kombu (88.9), wakame (55.8), nori (35.3); black soybeans (40.2), yellow soybeans (38.1), soyfoods (and Soyfoods Center) including yuba (25.6), kinako roasted soy flour (25.2), Hamana natto (Hamanatto 24.8), natto (19.3), green soybeans (ao-daizu, dry; 17.8), Misozuke (vegetables preserved in miso, 16.3), shoyu (14.3); red miso (11.5), okara (9.0), white miso (8.1), edamamé (green vegetable soybeans, 5.8), aburage deep-fried tofu pouched (6.7), soymilk (3.8), tofu (1.1), shiitake mushrooms (41.0), azuki beans (27.0), umeboshi salt plums (3.1), dried fruits including dried fig (46.8), dried persimmon (21.3), raisins (15.3), cheese (18.0), most fresh fruits including yuzu (citron, 11.7), buckwheat (7.0), fig (6.3), lemon (5.9), banana (4.6), mikan (mandarin orange, 4.0); root vegetables including potatoes (13.9), tororo imo (11.5), daikon radish (5.0); most green vegetables such as komatsuna cabbage (11.3), or daikon leaves (10.9), pickled vegetables such as takuan (14.6). Alkaline beverages or liquids include tea, coffee, dairy milk (2.6), condensed milk (8.0), powdered milk (26.6), grape wines, and vinegar.

Acidic foods, which the Japanese believe should be used in moderation, include: white sugar (0), mizuame [rice syrup] (0), chocolate (3.0) and other sweet foods, eggs (2.8), flesh foods including chicken (5.2), pork (5.2), beef (5.1), fresh fish (avg. 5.3), alcoholic beverages including amazake (0), beer (0), sake (0); animal fats including butter (1.6), margarine (0.9).

Many Japanese find that acidic foods, when consumed in excess, give them acid indigestion. Neutral foods include rice (0.5-2.9), wheat (3.5-6.6), barley (2.7-4.6), and wheat gluten (1.0).

Note that this classification system is unrelated to the yin-yang continuum used by macrobiotics; most Japanese are unaware of macrobiotics. The latter, for example, considers meat to be yang (alkaline), whereas wines, fruits, and milk are yin (acidic).

1028. South River Miso Co. Inc. 1991. Catalog no. 10 [Mail order]. South River Farm, Conway, MA 01341. 8 p. Sept. 21. 28 cm. [3 ref]

• **Summary:** “Since 1979. Made by the Elwell Family. Authentic farmhouse style miso. Made from 100% organic

ingredients. Processed and packed entirely by hand. Unpasteurized, full of life.” Black ink on tan paper with many illustrations. Contains an introduction and 3 sections titled: What is miso?, What is koji?, and Amazing amazake. There is a recipe for Winter Day Miso Soup. The company now sells the following types of miso: 1. Hearty varieties: Three year barley, black soy barley, brown rice miso, dandelion-leek miso. 2. Sweet tasting, mellow miso varieties: Sweet tasting brown rice miso (formerly named Mellow brown rice miso), Chick pea miso. 3. More sweet tasting types: Golden millet miso, Aduki miso, Kasha (buckwheat) miso. Address: Conway, Massachusetts. Phone: (413) 369-4057.

1029. Smoky Mountain Natural Foods. 1991. Fall/Winter 1991. Natural foods price list [Mail order catalog]. 15 Aspen Court, Asheville, North Carolina 28806. 23 p. 28 cm.

• **Summary:** This is a “Catalogue of natural foods, body care and home products for a healthier, more natural way of life.” This mail-order company, which began operation in Jan. 1991, sells products made by other companies; it does not do any manufacturing and does not have its own brand on any products. Their specialty is macrobiotics products, and they buy their Japanese imports from Macrobiotic Wholesale Co. They sell miso (Miso Master American Miso, Mitoku Japanese miso, Traditional Foods domestic miso, and instant miso soups from Edward & Sons), black soybeans and azuki beans (organic are grown in the USA, non-organic from Hokkaido), sea vegetables, soy sauce (San-J shoyu and tamari, Mansan tamari, Sakae shoyu, Johsen shoyu), San-J teriyaki sauce and Szechuan sauce, Nasoya dressings and Nayonaise, Natto miso chutney, Sesame miso sprinkle, Tekka condiment (jar or bag), jinenjo tekka, MMB [Mitoku Macrobiotic, a premium brand] organic farmhouse tekka, seitan, MMB traditional dried tofu, Tofu burger, scrambler, and stroganoff, Sweet Cloud sesame miso munchie, Sweet life miso candy.

John Troy is not connected to this company, nor is John Belleme; John is the wizard, and now he makes sauces from the Wizard’s Cauldron. He also works with John Belleme at Traditional Foods making seitan. Address: North Carolina. Phone: 1-800-926-0974.

1030. Chilukuri, Anup; Swanson, B.G. 1991. Microstructure of adzuki beans (*Vigna angularis* cv. Express). *Food Structure* 10(2):131-35. [11 ref]*

• **Summary:** “Scanning electron microscopy (SEM) was used to study and compare the microstructure of adzuki, black and Mexican red bean seeds. The two cotyledons of the beans were separated by a deep fissure. A view of seed coat surface of adzuki beans revealed a characteristic pattern of convolutions and cracks, not observed on the seed coat surfaces of black or red beans.” Address: Dep. of Food Science and Human Nutrition, Washington State Univ.,

Pullman, Washington.

1031. Bray, Francesca. 1991. Essential techniques for the peasantry: An annotated translation of the 6th century Chinese agricultural treatise Ch’i Min Yao Shu. Unpublished draft copy. *

• **Summary:** Information on soybeans is given in the section on legumes. The many kinds of legumes are known collectively as *shu*. “Legumes belong to the family of *Leguminosae* (one of the largest families of flowering plants) and to the sub-family *Papilionoideae*; they are identified as having a fruit formed by a single carpel and dehiscent by both ventral and dorsal sutures so as to separate into two valves.” Peas, beans, lentils, and peanuts are all legumes.

“It is interesting that while legumes were among the earliest plants to be domesticated in West Asia and the Americas, there is no firm evidence that legumes were cultivated in China in prehistoric times, even though several species are native to China, and even though legumes played a very important role in Chinese agriculture from the late Chou onwards. Though remains of leguminous species have been found in one or two Chinese Neolithic sites, they have been identified as broad beans (*Vicia faba*) and groundnuts (*Arachis hypogaea*); since the former is believed to have been introduced to China from West Asia in Han times and the latter is a native American species, the authenticity of these identifications is doubtful, to say the least.

“There are apparently no references to legumes in the Shang oracle records, and the earliest uncontested evidence for the cultivation of leguminous plants in China is found in Chou bronze inscriptions and in the *Shih Ching*. Both these sources refer to a crop called *shu*, and the early form of the character clearly depicts the nodules on the roots of the plants. The term *shu*, though also used to refer to legumes in general, is primarily associated with the soybean *Glycine max* (L.) Merrill, and its presence in these writings is usually taken to signify the domestication of this crop. In later lexicographical texts the term *shu* is usually qualified when soybeans are referred to *jung shu*, *jen shu* and *ta shu* are mentioned, and this does suggest that even in pre-Han times *shu* was used as a generic term for legumes rather than a specific term for soybeans. The modern term for soybean is *ta tou*, ‘greater bean’, a term which first appears in the 1st century *Fan Sheng-Chih Shu*. In classical times the term *tou* was applied only to a type of ‘wooden vessel or dish for containing flesh sauces at sacrifices or feasts’, but by Han times it seems that it was also used as a general term for pulse crops, as it still is today.

“Whether or not the unqualified term *shu* in early texts and inscriptions should be understood to refer to soybeans or to legumes in general, there is no doubt that the soybean was domesticated in China some time around the beginning of the Chou, for texts describing 7th century events refer to soybeans (*jung shu*) as novel introductions to the Central

States, whereas by the time of Mencius they had already become a staple food of the common people. The presumed wild ancestor of the soybean, *Glycine ussuriensis* Regel & Maack or *G. Soja* L., is native to Northeast China and adjacent areas of Manchuria, Korea and Japan, and it may be significant that the cultivated soybean was called *jung shu*, for Jung was the name commonly given to the Tungusic tribes of Northeast China in Chou times. The *Kuan Tzu* states that in the 7th century Duke Huan of Ch'i led an expedition to the territory of the Mountain Jung and brought back 'winter onions and soybeans (*jung shu*) for dissemination throughout the various states.' An alternative gloss of *jung* and of its (then) homophone *jen* is that it simply meant 'large, luxuriant', for the soybean is a large, bushy plant growing up to 6 feet tall; its modern name of *ta tou* is attributable to its habit, and not to the size of its beans which are only about as big as a lentil.

"The soybean's rapid conquest of Chou China is a tribute to its superior qualities, qualities so outstanding that they frequently provoke outbursts of surprising lyricism in modern writers: 'that miracle, that noblest of crops, that wondrous plant, the soybean'. The ancient Chinese were distinctly more moderate in their praise: for them soybeans were simply 'one sort of legume'. However, we may pardon their reserve when we remember that without the benefits of modern nutritional analysis the Chinese were unaware of many of the qualities for which soybeans are most appreciated today... As far as the Chinese were concerned, the chief virtues of the soybean were that it produced good crops even on poor land, that it did not deplete the soil, and that it guaranteed good yields even in poor years, so that it made a useful famine crop. Soybeans, it was claimed, could be relied upon to yield between 5 and 10 bushels a *mu*, three or four times the yield from millet, and the *Fan Sheng-Chih Shu* says that in former times it was customary for peasants to plant 5 *mu* a head of soybeans to guard against famine. So soybeans were certainly useful, and they were widely grown in China from Chou times on, but they were not held in high esteem for their gastronomic qualities. When the irrigation works broke down in Ju-nan (modern Anhwei) in the 1st century, the local people composed a song complaining that all they had to eat was soybeans and yams, and in the 14th century Wang Chen writes: 'Black soybeans are a food for times of dearth; they can supplement [cereals] in poor years, and in good years they can be used as fodder for cattle and horses.'

"There were, however, several kinds of soybeans, and although some were thought to be fit only for fodder except in times of famine, others were considered to make wholesome porridges and gruels. But the form in which the Chinese most appreciated the soybean was fermented, made into sauces (*chiang*), relishes (*shih*) or beancurd (*tou fu*). These were generally made from the yellow variety of soybeans. The various fermentation processes were

discovered quite early. *Chiang* is mentioned in the *Lun Yü* and was produced on a large scale in Han times, as was *shih*; the earliest beancurd is reported to have been made in the Han. We shall not dwell on soybean products here, as they are treated at length in section 40; suffice it to say that as well as improving the soybean's palatability immeasurably, the various fermentation processes also considerably improve its nutritional qualities."

"The term *hsiao tou* can probably be identified with the adzuki bean, *Phaseolus angularis* (Willd.) Wight, which is native to China and Japan."

Note: Dr. H.T. Huang, expert on the history of Chinese food and agriculture, says (4/91) she is at UCLA in the Dept. of Anthropology. The book has not yet been published.

1032. Chelf, Vicki Rae. 1991. *Cooking with the right side of the brain: Creative vegetarian cooking*. Garden City Park, NY: Avery Publishing Group Inc. viii + 283 p. Illust. incl. many color plates. Index. 28 cm.

• **Summary:** This vegetarian cookbook, which contains over 500 healthful recipes, shows a strong macrobiotic influence. The extensive glossary of ingredients includes good descriptions of adzuki beans, many sea vegetables, amaranth, amasake, gluten, gluten flour, koji, kudzu, miso, mochi, natto, natto miso, okara, quinoa, seitan, shoyu, silken tofu, soybeans, tamari, tempeh, tofu, and T.V.P. (Textured Vegetable Protein). All of these ingredients are used in recipes. There are at least 26 tofu recipes, 6 seitan recipes, and 4 tempeh recipes.

The author, who also illustrated this book, has been a vegetarian for 16 years. While living in Quebec, Canada, she wrote several French-language vegetarian cookbooks. The right side of the brain controls thoughts and actions that are creative, intuitive, spontaneous, and artistic, whereas the left side controls more logical, concise, analytical, and scientific thinking. Conventional education encourages development of the left side of the brain. This book encourages creative experimentation and improvisation with the recipes given.

1033. Kofalk, Harriet. 1991. *The peaceful cook: more than a cookbook*. Summertown, Tennessee: The Book Publishing Co. 159 p. Index. 22 cm.

• **Summary:** In this vegetarian cookbook, the recipes are arranged by season, so fresh local produce can be used whenever possible. Earth-related comments and inspirational thoughts accompany each recipe. Contains many tofu recipes. This book was first self published by the author in 1991.

1034. Lumpkin, T.A.; Konovsky, J.C.; Larsen, K.J.; McClary, D.C. 1991. *Potential new specialty crops from Asia: Azuki bean, edamame soybean and Astragalus*. In: Jules Janick and James E. Simon, eds. 1991. *New Crops*. New York: John Wiley and Sons. xxi + 710 p. See p. 45-

51. Proceedings of the Second National Symposium, New Crops: Exploration, Research, and Commercialization. Indianapolis, Indiana, 6-9 Oct. 1991. [28 ref]

• **Summary:** For each of these three crops, the authors discuss the botany, production, and uses.

For Azuki uses: “Azuki has been consumed in East Asia for over 2,000 years in a myriad of ways that take advantage of the seed’s maroon color and delicate flavor; it is traditionally served on festive days such as weddings, birthdays, or New Year parties (McClary et al. 1989). Azuki is made into a sweet confectionery paste (*an*), candied whole beans (*amanatto*), a component of sweet soups (*zenzai* and *sarashi ame*), a mixture with rice (*azuki-mochi* and *sekihan*), sprouts (*moyashi*), or flour.

“The most common use of azuki is the sweetened paste form called *an*. Azuki *an*, either in a smooth or chunky form, is used in numerous East Asian foods and desserts such as cakes, *manju* (steamed *an*-filled buns), *yokan* (cold gelatinized *an* slices), *taiyaki* (*an*-filled waffle), ice cream, snow cone toppings, and as a base for a beverage served hot from vending machines (*Shiruko*). About 30% of all *an* is used by the Japanese and Korea ice cream industries. *An* can also be flavored with soy sauce or with sweet syrups. A white seeded azuki is also used to make high quality white *an* for specialty Japanese bakery products (Narikawa 1972).

“Azuki *an* is produced from seed by the following generalized steps: soaking, boiling, rinsing with water to remove antidiigestive compounds, crushing, removal of seed coats, drying, and then combined with sugar and various stabilizing ingredients such as agar agar (Duke 1981). Traditional *an* is composed of equal parts azuki paste and sugar. Rice beans and various common beans are occasionally substituted for azuki in Japanese *an* production, but azuki is the preferred seed for high quality *an* (McClary et al. 1989). *An* can substitute for other traditional Western-style fillings and flavorings in sweet rolls, donuts, and ice cream. Japanese azuki consumption is currently broken down into the following categories: *an* paste (68.9%), candied seeds (12.8%), boiled seeds (2.4%) and other (15.9%) (Japan Bean Fund Assoc. 1987). In the mid 1970s, 85% of Japanese domestic production and imports of azuki were being used in the production of *an*.”

The astragalus discussed in this paper, *Astragalus adsurgens* Pall, is also known as upstanding milkvetch, green great wall astragalus, or *sha da wang* (which means “flourished in sand storms” in Chinese). *Astragalus sinicus* (pronounced us-TRAG-uh-lus SIN-uh-kus), called *rengé* [or *genge*] in Japanese and also called Chinese milkvetch, is an annual forage crop grown during the winter.

Note: The Chinese herb known as *huang-qi*, sold in the USA as *Astragalus*, is *Astragalus membranaceus*. It is considered a superior tonic, used to “invigorate vital energy” or “qi,” strengthen the body’s resistance, promote tissue regeneration and diuresis, and disperse poisons. In China

it is used in conjunction with chemotherapy to treat cancer patients, and to enhance the immune system. Address: 1,3-4. Dep. of Agronomy and Soils, Washington State Univ., Pullman, WA 99164-6420; 2. East-West Seeds, 120 State NE, Suite 1183, Olympia, WA 98501.

1035. Lumpkin, Thomas A.; Dean, Bill B.; O’Rourke, D.A. 1991. IMPACT and the East Asian Crop Development Program. In: Jules Janick and James E. Simon, eds. 1991. New Crops. New York: John Wiley and Sons. xxi + 710 p. See p. 122-27. Proceedings of the Second National Symposium, New Crops: Exploration, Research, and Commercialization. Indianapolis, Indiana, 6-9 Oct. 1991. [9 ref]

• **Summary:** Contents: Introduction. History of the Impact Center (idea originated in 1983; established within the university in 1985). Funding: Uses of state funds, uses of federal matching funds, uses of other funds, challenges, specific approaches to alternative crops. The East Asian Crop Development program. Conclusion.

As traditional crops have become less profitable over the last two decades, Washington State’s agricultural industry has been forced to search for alternatives. Washington State is on the Pacific Rim, not far from the rapidly growing and industrializing countries of East Asia such as Japan, where there are markets for a wide variety of crops that could be grown in Washington. “Washington State University (WSU) has established an international marketing center to assist our producers in the development and export of agricultural products to these markets.” Address: Washington State Univ., Pullman, WA 99164-6420.

1036. Passmore, Jacki. 1991. The encyclopedia of Asian food and cooking. New York, NY: William Morrow. 320 p. Illust. by Jan Smith. Index. 24 cm. [44 ref]

• **Summary:** The most complete book of its type seen to date (May 2010), with many helpful cross references (although sometimes flawed). Soyfoods are mentioned throughout. Unfortunately, for Chinese foods, the author does not distinguish between Mandarin and Cantonese, or between pinyin (newer) and Wade-Giles (older) styles of romanization. For some of the “Also known as” it is not clear to which of several previous entries this refers (see “Soybean”). Sometimes she gives standard transliterations (azuki, miso, tofu, yakidofu) yet at other times she writes phonetically (ah meh)—as an aid to correct pronunciation.

Ame (ah meh, Japan): A sweet jelly made from millet.

Azuki bean (*Phaseolus angularis*). Native to China; used in China since the Han Dynasty (206 BC–AD 220): An [or anko] (Japan): A sweetened paste of ground azuki beans available in smooth (*koshi-an*) and crunchy [*chunky*] (*tsubu-an* or *tsubushi-an*). *Sarashi-an*: A flour of ground azuki beans. Also known as *hong dow* (China), dried red beans, red beans [*adzuki* beans, *aduki* beans]. See also: Red bean paste, sweet.

Bean curd: Also known as dou-fu, dow foo (China); tahu (Indonesia), momen tofu, tofu (Japan); ta hu, ta hua (Malaysia); tahure ([fermented tofu] Philippines); tauhu kau (Thailand); dau hu, dau hu chung (Vietnam); bean custard, soybean cake.

Note 1. This is the earliest English-language document seen (April 2013) that uses the term *ta hu* to refer to Malaysian-style tofu.

Illustrations of: Fried bean curd, pressed bean curd. Almond bean curd (non-soy). Bean curd “brains”: Also known as doufu nao (China); taho (Philippines). “Cotton” bean curd: Also known as momen tofu (Japan). Freeze-dried bean curd [dried-frozen tofu]: Also known as koya tofu (Japan). Fried bean curd: Also known as char doufu, doufu pok (China); agedofu, atsu-age, nama-age (Japan); tauhu tod (Thailand), dau hu chien (Vietnam). Fried bean curd pouches: Also known as aburage, usuage (Japan). Gan modoki. Grilled bean curd: Also known as doufu kan [sic], gone (China); yakidofu (Japan). Instant bean curd. Okara. Pressed bean curd: Also known as doufu kan (China), taukwa, tauhu kuning (pressed yellow bean curd) (Indonesia, Malaysia); tokwa (Philippines); tauhu leong (Thailand); dau hu ki (Vietnam). Silk bean curd: Also known as kinugoshi tofu (Japan), shui doufu (China), taho (Philippines).

Note 2. The author seems to be confused about “Silk bean curd.” Japanese kinugoshi is made from relatively thick soymilk, which is “set” using a coagulant but without any separation of curds and whey. Yet on page 26 we read: “In China the name [for silk bean curd] translates as ‘water bean curd,’ It has a very smooth, delicate texture achieved by straining the coagulated liquid through fine mesh, then allowing the strained curds to settle without pressing.” This is not a description of silken tofu, but rather of Japanese regular tofu (*momen-goshi*) made without any pressing weights.

Contains a recipe for homemade “Bean Curd” plus 3 bean curd recipes.

Bean curd by-products: Bean curd skin [yuba], bean curd sticks: Also known as fu jook pin, gee jook (China), yuba (Japan), forng ta ohu [tauhu] (Thailand); rolled bean curd, second bamboo.

Fermented bean curd: Also known as foo yu, fu-ru, narm yu (China), tahoe, tahu (Indonesia, Malaysia), tausi (Philippines), bean curd cheese, Chinese cheese, pickled bean curd, red bean curd, soybean cheese.

Moldy bean curd. Bean curd cheese: See bean curd by-products (fermented).

Bean pastes and sauces: Shih and jiang from China: (1) Bean sauce (jiang) also known as taucheo or tau sa (Malaysia, Nonya and Singapore cooking), mien see [mian shi] (China), taoco [Pron. = tao-cho] (Indonesia), tuong ot (Vietnam), bean paste, brown bean sauce, yellow bean sauce. (2) Black bean sauce (a recent addition to the family of Chinese sauces. A major ingredient is puréed fermented

black beans with a hint of garlic and star anise. It tastes best when freshly made). (3) Chili bean paste (in addition to chopped dried chilies, it sometimes contains fermented black beans): Also known as lat chu jeung, as lat chu jeung yau (Garlic) (China); kochujang (Korea); bean paste with chili; hot bean paste; Sichuan hot bean paste. (4) Dhwen-Jang (Korea). See also miso. (5) Hoisin sauce (China): A sweet, thick, reddish brown sauce. One ingredient is fermented soybean paste. Not to be confused with the Chinese barbecue sauce called sha cha jang. Also known as hoi sin cheung (China); barbecue sauce. (5) Soybean paste. Also known as mean see jiang (China). (6) Sweet bean paste. In this context it is not the sweet bean paste made from azuki beans, but rather a sweet, thick, dark brown sauce made of ground fermented soybeans and sugar. Its salty-sweet flavor is used in marinades and roast meats. Also known as tim mean jiang (China).

Bean sprout: Mung bean sprouts, silver sprouts (mung bean sprouts with the roots and seed pods removed), soybean sprouts (They “are large, up to 5 inches {12.5 cm} in length, a deep, almost yellow color and strong in flavor...”). Also known as: Daai dau nga choy (soybean sprout), ngunn nga choy (silver sprouts), nga choy, sai dau nga choy (mung bean sprout) (China); taugé (Indonesia); moyashi (Japan); kacang ijo, kacang djong, kacang padi (Malaysia); togue (Philippines); taun gawk (Thailand); gia (Vietnam); bean shoots.

Beijing duck sauce (recipe with ½ cup sweet bean paste). Vietnamese-style Beijing duck sauce (with ½ cup sweet soy sauce–kecap manis).

Black bean: See Fermented black bean. Black bean sauce: See Bean pastes and sauces. Fermented black bean sauce. Black soybean: See soybean.

Broad bean paste. Broad bean sauce: “The best is made in Pixian, a city in Sichuan province, where it is used instead of soybean-based seasoning sauces.”

Brown bean sauce: See Bean pastes and sauces.

Che hau sauce (Che how, China): See Bean pastes and sauces (Hoisin). Chick-pea.

China: Has the “oldest and most well-documented cuisine in the world.” Chinese cheese: See Bean curd by-products (fermented). Chinese hot bean paste: See Bean pastes and sauces.

Dau hu (Dow hoo, Vietnam): See bean curd. Dau hu chien (Dow hoo chee-ian, Vietnam): See Bean curd, fried. Dau hu chung (Dow hoo chee-ung, Vietnam): See Bean curd. Dau hu ki (Dow hoo kee, Vietnam): See Bean curd, pressed.

Dengaku (plus recipe).

Dhwen-jang (Dwen-jang, Korea). Similar to Chinese soybean paste or Japanese akadashi miso. Also known as Korean bean paste. Doufou Kan [doufu gan], China: Bean curd (grilled, pressed). Dou-fu (Dau-fu, China). See Bean curd. Doufu nao (Dau-fu-nou, China): See Bean curd “brains.” Doufu pok (dau-fu pork, China). See bean curd,

fried. Dow foo (dau fu, China): See Bean curd.

Edamame (e dah ma meh, Japan): See soy bean.

Fermented bean curd: See Bean curd by-products.

Fermented bean curd cake. See Bean curd by-products; tempe.

Fermented black beans (Shih, China). With recipe for “Fermented black bean sauce” (p. 106). Also known as dau see (China), black beans, dried black beans, preserved black beans.

Fermented red rice. Flours and thickeners: Kuzu (Japan). Mung bean flour. Soy flour (incl. kinako, which “is used in confections and to make noodles... In China, a thick, nutty-tasting noodle is made from soy flour”). Foo yu (Fu you, China). See Bean curd by-products (fermented). Fong Tao Hu (Fong tao huu, Thailand). See Bean curd by-products, bean curd sticks. Fu jook pin (Fu juk pin, China): See bean-curd by-products, bean curd skin. Fu-ru (Fu yue). Gee Jook (Ji Juk, China): Bean curd sticks.

Gluten: Kau fu, kohana fu, matsutake fu, mein jin pau, nama fu, su tang, yaki fu. Also known as: Kau fu, mianjin, mein jin pau, su tang (China), kohana fu, yaki fu (Japan).

Gochujang (Korea). See also: Chili paste, chili sauce. Korean barbecue sauce.

Grilled bean curd: See Bean curd, grilled.

Hatcho miso: See miso, Hatcho. Hot bean paste. Hot black bean sauce. Inaka miso: See miso.

Japan: “Japanese cooks revel in the artistry of their craft. The Japanese love of nature is a challenge to present each ingredient as reminder of its origins: to bring nature to the table...,” Regional cuisines are not of great importance in Japan; cooking methods (incl. Dengaku), salting (incl. Teriyaki), cutting and slicing techniques.

Kecap asin (Ket-chup a-seen, Indonesia): See Soy sauce, sweet and salty. Kecap cair (cha-ear, Malaysia): See soy sauce, light. Kecap hitam (Indonesia): See soy sauce, sweet and salty. Kecap ikan (Indonesia): See Fish sauce. Kecap manis (mah-niece, Indonesia): See Soy sauce, sweet and salty. Kecap petis (pet-is, Indonesia): See fish sauce. Kinugoshi tofu (Japan): See Bean curd, silk.

Kochujang (go-choo jang, Korea): See Bean pastes and sauces; chili pastes.

Koikuchi shoyu (Japan): See soy sauce. Continued. Address: Author of several books on Asian cuisine.

1037. Passmore, Jacki. 1991. The encyclopedia of East Asian food and cooking (Continued—Document part II). New York, NY: William Morrow. 320 p. [44 ref]

• **Summary:** Continued from p. 153: Korean bean paste: See Dhwen jang. Koshi-an (Japan): See Azuki beans (an). Koya tofu (Japan): See Bean curd, freeze-dried [sic].

Kuzu (Japan): See Flours and thickeners. Lentil (*Lens esculenta*): Red lentil, Red mung beans.

Light soy sauce: See Soy sauce.

Lu soy (lo shui, China): See soy sauce.

Maltose: Made by fermenting germinated grains of barley. When used to glaze foods, may have soy sauce and red food coloring added. Also known as: Malt sugar, [barley malt syrup].

“Ma-po” dofu [Mabo-dofu]: See beef.

Mean see jiang [mian shi jiang] (min see jiang, China): See Bean pastes and sauces.

Mein jin pau [mien jin pau] (China): See Gluten.

Mianjin (China): Gluten.

Mien see (mien-si [mian shi], China): See Bean pastes and sauces.

Miso (Japan): (1) Hatcho-miso. (2) Inaka miso or Sendai miso. Also known as Red miso. (3) Shinshu miso. (4) Shiro miso.

Mochi. Monosodium glutamate. Also known as: Mei jing (China); aji-no-moto (Japan); servuk perasa (Malaysia); ve tsin (Vietnam), M.S.G., taste essence, taste powder.

Moyashi (Japan): See Bean sprout.

Mung bean. Also known as moong ke dal (India); kacang djong, kacang eedjo [hijau, katjang idjo] (Indonesia); kacang hiau (Malaysia); tau ngok (Thailand); dau xanh (Vietnam); green gram.

Nama-age (nah-mah ah-geh, Japan): See Bean curd, deep fried.

Nama fu (Japan): Raw / uncooked wheat gluten.

Natto (Japan). See soybean.

Noodles: (1) Bean curd noodles (China). Also known as Soy noodles, soy vermicelli.

Oils and fats: Soybean oil. (2) Bean curd skin noodles (China) [yuba noodles].

Peanut (with many foreign names and recipes).

Preserved black beans: See Fermented black beans.

Pressed bean curd: See Bean curd (pressed).

Red bean paste, sweet: “An important ingredient in Chinese and Japanese cooking, sweet red bean paste is made by boiling the red azuki bean and mashing it to a paste with lard or oil, then cooking it until it is fairly dry or thick. In Japan, red bean paste is made in two textures: the smooth purée is koshi-an and the chunky version, with the beans only partly crushed, is tsubushi-an. It is a filling for cakes and sweet buns, and is used in several desserts.” Also known as hong dow sar (China), an (Japan). Contains a recipe for Sweet red bean paste.

Red rice: See Fermented red rice.

Rice: Many type of glutinous and non-glutinous.

Rolled bean curd: See Bean curd sticks [dried yuba].

Seaweed: Many different types. Seaweed gelatin or Seaweed jelly: See agar agar.

Sendai miso (Japan): See miso.

Sesame seed: Black sesame seed, sesame oil, sesame paste, white sesame seed.

Shinshu miso (Japan). Shui doufu (China): See bean curd (silk). Silk bean curd: See Bean curd (silk).

Soybean (*Glycine max*): (1) Black soybeans. (2) Fresh

soybeans [edamame]. (3) Yellow soybeans. Soybean cheese: See Bean curd, fermented [fermented tofu]. Soybean condiment: See Bean pastes and sauces. Soybean milk. Also known as tau cheing, tau ni (China). With homemade soymilk recipe. Soybean noodle: See Noodles, bean curd. Soybean oil: See fats and oils. Soybean paste: See Bean pastes and sauces. Soybean sprout: See bean sprout. Soy flour: See Flours and thickeners.

Soy sauce: “An ancient seasoning, first used in China more than 3,000 years ago. Known in its original form as *shih*, it was a thin salty liquid in which floated fragments of fermented soybeans.” “Soy sauce is to Chinese and Japanese cooking what the pungent, salty fish sauce known as *nam pla* or *nuoc mam* is to Thailand and Vietnam respectively.” (1) Dark soy sauce. Also known as *jang yau*, see *yau* (China); *koikuchi shoyu*, *tamari* (Japan), *kecap pekat* (Malaysia); mushroom soy. (2) Light soy sauce: Thinner, saltier, and lighter in color and flavor. It is used in cooking where its light color will not spoil the color of the ingredients. Also known as *sang chau*, see *yau* (China), *shoyu*, *usukuchi shoyu* (Japan), *kecap cair* (Malaysia), *toyo* (Philippines), *nam siew* (Thailand), *xi dau* (Vietnam), thin soy sauce. (3) “Lu soy (China) is a ‘master sauce’ based on soy sauce with sugar, ginger, and five-spice. It is used for simmering poultry and other meats to give a rich flavor and to color the food a deep brown. Also known as *lu shui* (China).”

Soy sauce, sweet and salty: (1) “Kecap asin (Indonesia) is a thick, salty, dark soy-based sauce used to impart a strong color and flavor. Its sweet counterpart is *kecap manis*. It is similar to, but thicker than, several dark soy sauces used in Chinese cooking.” (2) *Kecap hitam* (Malaysia) is a sweet dark soy sauce. Slightly less spicy than *kecap manis*. (3) *Kecap manis* (Indonesia) is a sweet, dark, thick, aromatic soy sauce, especially widely used with satay. “It is similar to, though finer in flavor than, Chinese sweet soy sauce” [*tian mian jiang*]. Also known as *kecap bentang manis* (Indonesia); sweet soy sauce. (4) “Sweet soy sauce (China) is a dark, sweet sauce combining soy sauce, sugar, and malt sugar. Its distinctive malt-like taste goes well as a dip for fried snacks, poultry, and seafood.” It appears frequently on the table in homes and restaurants in Fukien province, opposite Taiwan on the coast of south-eastern China. For a recipe, see Sweet soy sauce pork (p. 230). Note: This is not generally a commercial product. (5) *Tim cheong* (Malaysia) is a thick, sweet, black soy sauce, similar to that used in China. In Malaysia it is served with *poh pia*. Its flavor is closer to that of *kecap hitam* than to *kecap manis*.

Sprouts, soybean. See Bean sprout, soybean. Sushi (describes many types, with recipes). Sweet bean paste or Sweet bean sauce: See Bean pastes and sauces.

Taho (Philippine bean curd brains). Tahoe (Indonesia or Malaysia, fermented bean curd). Tahu (Malaysia bean curd). Ta hua (Malaysia bean curd). Tahure (Philippine bean curd).

Tamari (Japan): See soy sauce. Taucheo (Malaysia or

Singapore, bean pastes and sauces). Tauge (Indonesia bean sprout). Tauhu kao (Thailand bean curd). Tauhu kuning (Indonesia and Malaysia bean curd pressed). Tauhu leong (Thailand bean curd, pressed). Tauhu tod (Thailand bean curd, fried). Taukwa (Indonesia and Malaysia bean curd pressed). Tau sa (Malaysia bean paste and sauces). Tausi (Philippines, bean curd products [sic, fermented black soybeans], fermented).

Tempe (Indonesia, Malaysia): Fermented soybean cake [tempeh]. Oncom [Ontjom]. Tokwa (Philippine bean curd pressed).

Tosa soy sauce (Japan): The classic sashimi accompaniment. Recipe given.

Tsukemono: Takuan, umeboshi.

Usu-age (Japan): See Bean curd (fried) purses.

Winged bean. Yuba (Japan).

Brief biography: “For more than twenty years she has been professionally involved with Asian food as a writer, teacher, publicist, researcher, consultant, and, of course, cook. She has traveled extensively in Asia and lived in Hong Kong for more than ten years, working as a food writer on a number of newspapers and magazines, which led to a career as a food consultant. Her most recent book, *Asia the Beautiful Cookbook* was listed by *Publishers Weekly* as one of the best books of 1987.” Address: Author of several books on Asian cuisine.

1038. Putnam, Daniel H.; Oelke, E.A.; McCann, L. 1991. Center for Alternative Plant and Animal Products: Programs in information exchange and research. In: Jules Janick and James E. Simon, eds. 1991. *New Crops*. New York: John Wiley and Sons. xxi + 710 p. See p. 114-19. Proceedings of the Second National Symposium, New Crops: Exploration, Research, and Commercialization. Indianapolis, Indiana, 6-9 Oct. 1991. [7 ref]

• **Summary:** This Center has sponsored a number of symposia on alternative plant and animal products, including one titled “Soybean Utilization Alternatives” in Feb. 1988. Other symposia have discussed shiitake mushrooms, grain amaranth, prospects for lupins in North America, and herbs. The Center has also sponsored the first and second national symposia on New Crops (Oct. 1988 and Oct. 1991). The Center has compiled a comprehensive Alternative Field Crops manual, which contains chapters on 50 alternative field crops from adzuki bean to vernonia.

1039. Morgenroth, Lynda. 1992. Luisa Baranda: There’s more to macrobiotic cooking than brown rice, as this gentle, spiritual Boston woman can demonstrate. *Yankee* 56(1):88-92, 94. Jan.

• **Summary:** For Luisa (nicknamed Luchi) cooking is a meditation. Born in Chile, she spent years in Paris (France) and Spain, but now teaches macrobiotic cooking in Boston. When flavoring soup with miso, she would never just dump

a blob of miso into the soup. Instead, she lowered a ladle with a little miso into the pot, massaged some broth into the miso, then “eased the stock-thinned paste into the soup.” Also discusses adzuki beans and various seaweeds (kombu, wakame, dulse, and arame). Includes recipes for: Miso soup (with wakame). Hiziki (hijiki) with vegetables. Scrambled tofu. Steamed greens and tofu dressing.

1040. Roller, Ron. 1992. Work with and history of Eden Foods in Michigan. Part I. To 1980 (Interview). *SoyaScan Notes*. Feb. 25-26. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** Ron was born in 1953 and he first met Mike Potter in 1961. The Potter and Roller families both lived in a northern suburb of Detroit. Ron had some friends who were friends of the people who ran the macrobiotic natural food store named Joyous Revival. That store was started by Carl Weinstein, Scott Halizon, and Howard Tannenbaum. Mike Potter worked in the store and soon became its manager. Through that connection, Mike started to travel to Ann Arbor to sell food at the free rock and roll concerts. Ron started to go with him (for fun), and they would cook rice and vegetables. At this time, Ron met Tim Redmond and Bill Bolduc. At age 15, through Mike’s influence and interest in macrobiotics, Ron began to eat rice and vegetables as part of his daily diet.

Ron’s sister and Mike had taken a trip to visit Muramoto-sensei at Miramichi, near Fort Bragg, California. At age 16, Ron attended a macrobiotic summer camp for a few weeks there. That was his first educational contact with macrobiotics.

In early 1971, while Mike was working at Joyous Revival, he was married. A little later that year he moved to Ann Arbor and began working at the Eden Foods retail store. Several years later Ron moved to Ann Arbor. In the fall of 1972 Ron began to work part-time for Eden Foods while he was going to school at Eastern Michigan University at Ypsilanti, studying biology and chemistry. His first job was to get the store at 330 Maynard Street ready to move into—painting, building grain bins and shelves, etc. Ron worked part time at Maynard St. in the deli, stocking shelves, etc. Many of the other employees also worked part-time.

Ron dropped out of the University and began to work full-time for Eden Foods when the company moved out of the Quonset hut and into the warehouse (shared with Midwest Natural) on Ann Street. He now began to work in the wholesale operation. After a 10-month leave of absence doing woodworking in the suburbs of Detroit, Ron returned before the warehouse moved to Platt Road; he helped with that move in the spring of 1974. When Mike Gordon, Eden’s buyer at Platt Rd., decided to go back to school, Ron stepped into his job. It seemed like a very big responsibility since the company now had annual sales of about \$1.5 million.

In 1976 Ron (age 23) took his first trip to China and

Japan; he traveled with Mike Potter, who had taken his first trip there in 1973 or 1974.²³ They also visited Muso in Japan. Later Ron made several trips to China and Japan by himself. From 1976 until the fire in 1979, Eden was doing more business with China than with Japan. The main Chinese imports were ginseng (the most important), nigari, azuki beans, Chinese medicinal herbs, tea, bamboo cookware, arrowroot flour, etc. Ben Zarcot of Fmali Herbs in California was also a big importer of ginseng from China.

After the move to Platt Rd., Eden’s wholesale business (selling to natural/health food stores) continued to expand very rapidly. At that time, the full-line “super-distributors” came into being: Midwest Natural Foods, Health Food Inc. in Chicago, Tree of Life, etc. These companies, which tried to carry almost every product the industry offers, increased the number of products they carried to more than 2,000 from only several hundred, in order to provide natural/health food retail stores with “one-stop shopping” Many of these products were ones that Eden refused, on principle, to carry. Erewhon later tried to become a super-distributor and it was a major cause of Erewhon’s downfall.

Eden now started to sell a few products Eden brand to other distributors—especially their herbs imported from China, but also commodities such as nigari, bulk soybeans, etc. Their first customer was Gene Newman of Manna Foods, Inc., in Scarborough, Ontario, Canada. For a while Eden sold truckloads of Michigan-grown soybeans to tofu makers such as Nasoya. That business gradually fell off as tofu makers cultivated local sources for their soybeans.

Ron introduced Cliff Adler into Eden Foods. In the summer of 1976 Cliff started to work at Eden and invested some money in the company by buying shares. He had a lot talent in the area of sales—he was a real go-getter in marketing—and he soon made many close friends in the company.

At some point, probably shortly after the fire, a number of employees got stock in Eden Foods, including Ron Roller, Bill Swaney, Mark Cook, and several others who left the company before the move to Clinton.

In Nov. 1979, just before the fire, 55 people worked for Eden Foods, which had annual sales of about \$4 million. Sales were growing and the company was distributing about 2,300 items as they tried to compete with the “super-distributors.” Eden sold no refrigerated or frozen foods, and no dairy products. The company had two warehouses. The big one, about 12,000 square feet, held almost all the food, plus the mill, the main office, the roaster, and the packaging machines. The smaller one, 4,000 square feet located not far away, was a truck repair garage and storage place for mostly non-food items plus a bottling line and a little overflow food. The night of the fire, the big warehouse was as full as it had ever been. The fire burned for a week while Eden’s employees watched. It totally destroyed the big warehouse and the offices, and everything in them, sparing only the

smaller warehouse. The next day, all but 7 people had been laid off. There was nothing for them to do.

The remaining employees were Mike Potter, Tim Redmond, Cliff Adler, Ron Roller, Bill Swaney (warehouse manager), Chris Burnham (warehouse), and Bena Burda (sales). They cleared out the small warehouse, and trimmed their product line to about 300 items.

Within 2 weeks after the fire, operating out of the smaller warehouse that they were leasing, Eden was sending out food to customers. They contracted with People's Warehouse in Ann Arbor to mill the large amounts of flours (including soy flour) that Eden sold; a little later Quincy Milling in Quincy, Michigan, took over Eden's milling. Cash was very tight for along time, so there was little marketing or promotion. All 180 vendors to whom Eden owed money were put on a payment plan, and they were gradually paid off. The insurance company paid Eden only \$100,000 quickly. The space was also so tight that inventory had to be moved out of the warehouse each day and moved back in each night. Then they rented some additional warehouse space on Phoenix Drive in Ann Arbor, 6-7 miles away. About a year after the fire, Eden bought an existing warehouse in Clinton, Michigan and moved in during 1980 to get more space. They set the mill back up. By now sales were increasing slowly, but they were still feeling the pressure of the "super-distributors," as products proliferated in the natural foods market. Continued. Address: President, American Soy Products, 1474 N. Woodland Dr., Saline, Michigan 48176. Phone: 313-429-2310.

1041. Roller, Ron. 1992. The U.S. soymilk market (Interview). *SoyaScan Notes*. Feb. 26. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** During the past 3-4 years, the U.S. soymilk market seems to be growing at about 10% a year. Sales slowed during and after the Gulf War, but overall the current recession has had little effect on Edensoy, soymilk and on the natural foods industry as a whole. There has been a proliferation of new products and package sizes. Most of Edensoy's volume is sold in liters. The ASP plant is now nearing capacity. Many people who used to have no interest in soymilk are now showing a strong interest. Concerning the size of the market, American Soy Products does not try to keep statistics, but he doubts that it is any larger than Soyatech says it is.

In terms of market share by volume of soymilk sold, Ron thinks that Edensoy has the largest share, Vitasoy is second (including their sales to the Asian-American market), Westbrae is third, and Pacific Soy is a distant fourth. No other companies have significant sales.

One interesting product is a soy & azuki milk, which Marusan launched in about 1982; Ron is not sure if it is still on the market.

Ron has heard from a fairly reliable source that a

company has purchased soymilk equipment (he does not know from whom) to build a soymilk plant somewhere in the United States. It might be Vitasoy. Someone from Dr. Chung's in Korea (makers of Vegemil and Woorean) is planning to come to the USA to look for companies to market their Korean soymilk or for potential co-packers. Address: President, American Soy Products, 1474 N. Woodland Dr., Saline, Michigan 48176. Phone: 313-429-2310.

1042. Honda, Chiyo; Nanba, Toyohiko; Asaoka, Osamu; Yumoto, Kuniko; Hayashi, Toshio; Ikegami, Sachie; Takai, Yuriko. 1992. [Modification of methods for determination of dietary fiber in raw and processed pulses]. *Shokuhin Eiseigaku Zasshi (J. of the Food Hygienic Society of Japan)* 33(1):46-51. Feb. [17 ref. Jap; eng]*

• **Summary:** Foods analyzed include white kidney beans, kintoki beans, and soybeans (whole dry raw, boiled, kinako, natto). Address: 1-5. Japan Medical Foods Association, 5-3-11, Maesawa, Higashikurume-shi, Tokyo 203, Japan.

1043. Macdonald, Bruce. 1992. How Erewhon got involved in wholesaling and distributing natural foods (Interview). *SoyaScan Notes*. March 16. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** Erewhon went through three phases of selling: (1) Retail. (2) Wholesale, direct to natural food retail stores and restaurants. (3) Wholesale, to natural food distributors (such as Eden Foods). Bruce started phase 2, selling direct to natural food stores and restaurants, primarily in New York.

In the spring of 1969, during Bruce's tenure as general manager, Erewhon got into the wholesale business, running it initially out of their retail store at 342 Newbury Street. Paul Hawken was not involved in the wholesaling to other companies before he left for Japan. Their store was divided into 4 parts: The front half was the retail store, the back half contained the mill (a little 5-inch Meadows Mill later used for grinding whole-grain flours), a walk-in refrigerator, and packing tables (where Bruce recalls working with Jim Docker, packing little 1-5 lb paper bags of grains), an office, and the basement (connected to the ground floor by a dumb waiter), which was the warehouse for storage of commodities.

The wholesale business began in the basement. It started because Erewhon got a good deal on some sesame oil. A company named Sesame Products in Texas had developed the Egyptian salt method of naturally removing the hulls / husks of the sesame seeds. The company apparently went bankrupt, but actually they were a front for some illicit import dealings, such as electronic parts from Mexico. They got caught, and had to sell their high-quality oil. Bruce got the opportunity to buy (for Erewhon) all of their existing sesame oil for 10 cents on the dollar (90% discount). So he bought all the oil, most of which was in amber pint

bottles, but the rest of which was in about 5-8 large drums. He trucked it to Erewhon's retail store at 342 Newbury St., and helped to unload it. He and co-workers put Erewhon labels on the amber bottles (Bruce does not remember who designed these labels; Paul Hawken had them designed), bottled the bulk oil manually, labeled that as well, and moved it all to the basement. Erewhon was now ready to jump into the wholesale business, and natural sesame oil was their first wholesale product. Somehow Bruce / Erewhon had to sell 250-300 cases of natural sesame oil. But since he had bought it at a 90% discount, he was able to sell it at a profit below the price of other sesame oils on the market. In the spring of 1969, Bruce put the oil on a truck and drove it to Greenberg's (125 First Ave.) in New York City, Paradox Restaurant, Georgie Abehsera's restaurant, etc. He also took Erewhon's whole line of products, including their new imports from Japan. "Greenberg's took on the entire line of Erewhon products. Suddenly, it just took off. A month or two later Erewhon was sending a van down to New York City ever week."

Next Erewhon expanded its line of mechanically pressed, unrefined oils. Bruce had seen some expeller-pressed corn oil at Paul Keene's Walnut Acres, so he ordered it from Shawnee Milling Co. in Shawnee, Oklahoma. Erewhon considered hexane solvent extraction to be the "big bad method" of removing oils, expeller pressing to be so-so (because the temperature in the worm-screw reached 140-160°F), and hydraulic pressing to be the best since it kept the product coolest. This golden corn oil foamed upon being heated and tasted like butter in baked goods. Erewhon's third natural oil was a safflower oil. (In 1970 Paul Hawken wrote a pamphlet titled "The New Oil Story").

Next Erewhon added a line of grains. They got non-organic brown rice from Koda Brothers in Dos Palos, California. The company was owned by Japanese-Americans, who were the first to break out of the cooperative marketing scheme, in which all growers mixed their rice together. They had rubber rollers, which did not scratch the grain during dehulling. Their Kokuho-Rose white rice has been the rice of choice for 30 years among Japanese-Americans. Bruce thinks they may have first sold brown rice (in 100 lb peat bags) to Infinity in New York, then to Erewhon.

Then Erewhon added a line of products imported from Japan. These first arrived in about Nov. 1968, just as the Erewhon retail store at 342 Newbury St. was opening. All the Japanese imports came in bulk from Muso Shokuhin in Osaka, rather than individually packaged. Tamari (from Marushima) and miso (including bulk mugi [barley] and Hatcho miso), moromi, etc. came in wooden kegs, loose, rather than in containers, so there was lots of breakage. Most of these imported products were stored in the basement. Erewhon bought some noodles (soba and udon in 5 kg boxes) from Japan Foods, then from Nishimoto Trading

Co. and also from Muso. The product line was very simple, consisting of no more than 400 different items. The best-selling wholesale items were the oils, tamari, miso, rice, and imported kuzu, umeboshi (salt plums) and azuki beans. In the retail store there was no produce case or freezer, no vitamins or supplements, no potatoes or dairy products.

Initially, Erewhon's largest customer was the combined 4-5 macrobiotic study houses in Boston, Massachusetts, accounting for roughly 50% of sales. Erewhon had an old van that delivered the food to the study houses, initially at retail prices; this business kept the retail store afloat. By the late spring of 1969 the wholesale business began to take off, and the macrobiotic study houses were now allowed to buy at wholesale prices. Some additional delivery trucks were acquired.

The macrobiotic products, other than what Erewhon imported, were only available in health food stores, through Chico-San. Because of the high mark-ups at several stages in the process, these products were tremendously expensive for consumers. So Erewhon decided to sell direct to East Coast stores, cutting out the distributors, to keep prices down. Now things started to move very fast, and Erewhon soon achieved national distribution. "It was like introducing products into a vacuum. The whole natural foods industry was starting up, all these little places like Eden Foods in Ann Arbor [Michigan], Tom Swan in Chicago [Illinois], etc.

Bruce traveled to New York and lined up new wholesale customers among macrobiotic restaurants and food stores. Samsara, a macro restaurant in the lower east side run by George ("Georgie") Abehsera, was Erewhon's first customer and its biggest restaurant customer. (Michel Abehsera's younger brother, George later became the baron of the clay and soap business, Three Sheaves, Pierre Cattier, then Nature de France). Right around the corner was Arnie Greenberg, who had a deli on the lower east side, and was one of the first to merchandise macrobiotic foods; he rapidly became Erewhon's best customer. He was very busy selling a mish-mash of foods though he had no particular personal commitment to macrobiotics. Before him, Irma Paule in New York City had run "The Little Cupboard" but had gotten in trouble and was no longer in business at this time. Other good restaurant customers were the Paradox, and the Caldron (Gloria Bremmer at 308 E. 6th St.). The Good Earth, a retail store run by Townley, soon began to order; he was one of the original honest organic produce retailers. The restaurants and the food stores accounted for about equal sales volume for Erewhon. Erewhon shipped all its goods to New York (its sole market) via common carrier; Erewhon owned no delivery trucks of its own. There were no other natural food stores in Boston. One other unique customer was Jimmy Silver, who was macrobiotic, the manager of a rock band named Iggy Pop and the Stooges, and had hair down to his waist. He would drive down from New York with his cute little wife, Susie, and buy \$300.00 of food at a time for the

whole band. It was the biggest single order that Erewhon ever got in those days. Not long after that, Jimmy dropped out of the music scene and came to Boston.

Then Roger took over from Bruce as general manager in about Oct. 1969, right after Bruce married Maureen, his first wife, and left for Los Angeles to help start the branch of Erewhon there. The Erewhon store in Boston (at 342 Newbury St.) started with sales of about \$400 a day. The day of Bruce's wedding, on a Saturday in about Oct. 1969 was the first day that the Erewhon store's sales topped \$1,000 a day. It was a milestone day and in those days it seemed like big money. But two years later, Erewhon's sales were \$20,000 a day.

In Los Angeles, Bill Tara had opened the doors, and put the bricks and boards up for a new Erewhon store. But Bill was never comfortable doing business; he preferred to teach macrobiotics. So Aveline Kushi encouraged Bruce to come to Los Angeles (where she was living at the time) and to get the West Coast branch of Erewhon started. So Bruce and Maureen moved to Los Angeles.

How did Erewhon finance this growth? At the beginning Erewhon, the trailblazer, was extremely profitable, since they had essentially no competition, and had thriving retail stores in Boston and Los Angeles. The dollar was very strong (from 1967 to 1971 one dollar was worth 355 yen), so Erewhon could buy an item for \$1, sell it for \$3.50 and still be \$2 under any competition (mainly Chico-San). Erewhon invented the concept of a natural food store. Fred Rohe in San Francisco had developed a related idea, perhaps a little before and in parallel with Erewhon. His Sunset Health Foods, later named New Age Foods, was a modified health-food store that sold vitamins, whereas Erewhon was a pure natural foods store, that didn't sell vitamins. In addition, Erewhon had quality standards and a philosophy of foods that no one in the industry had.

After Bruce left, Erewhon moved into its first real warehouse on Farnsworth St. This represented the first real commitment to the wholesale business. A fleet of trucks was acquired. Eventually semis [semitrailers] were delivering all over New England. Address: P.O. Box 100, Cambridgeport, Vermont 05141. Phone: 802-869-2010.

1044. Israel, Fern. 1992. Early recollections of seitan in America (Interview). *SoyaScan Notes*. May 9. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** Fern first learned how to make seitan prior to the summer of 1974, probably from either Aveline Kushi or Tamara Uprichard, the wife of Stephen Uprichard. In the summer of 1974 Fern went to visit the Wiscovy Valley Community Farm in southern Minnesota. The farm was run communally by a group of macrobiotics who lived by farming the land, grew all their crops (they may have been the first macrobiotic group to grow aduki beans) organically, ground all their own flour, cooked on wood stoves, refused

to buy imported food products from Japan, etc. They wanted to Americanize macrobiotics. She may have also learned to make seitan there, but probably not.

She knew about seitan by 19 October 1974, for on that date she was married to Ron Israel in West Roxbury, Boston, and for the wedding she personally made sweet & sour seitan balls—starting with seitan she had made herself.

Fern clearly recalls the first commercial seitan product that she ever tasted, which was named the Tan Pup—and which she loved. It was deep fried in a breaded batter (with corn, sesame seeds, and spices), had a skewer through one end, and measured about 4 inches long, 3 inches wide, and 3/4 inch thick. It was sold at the Erewhon retail store at 342 Newbury St. in Boston, in a special non-refrigerated bakery case, behind glass doors, 5-10 feet from the cash register, together with baked products. Fern thinks the product may have been made by Cathy Creighton. She probably first tasted Tan Pups at about the time her first child, Kate, was born at home on 3 May 1975. It may have been at about that time that Johnny moved out to live with his girlfriend Annie, and that he and Sakee split up as partners. She is quite sure the product was not on the market before 1974.

Before Fern's first child was born, she taught her husband and John Weissman (who was living with them) how to make seitan. The two men formed a partnership (their business may have been named the Wheatmeal Company) and began to make seitan commercially. Soon they were selling it commercially in the Erewhon retail store in Boston under the brand name Wheatmeal. She does not remember Pat Murray ordering seitan, nor recall that the macro study houses ever ordered seitan. Then they began to make Tan Pops (a close relative of the former Tan Pups that Fern loved so much) in their home in West Roxbury and to sell them at Erewhon. (Sakee does not recall making Tan Pops). Fern has no recollection of the business named Baby Watson Cheesecake Co. Fern's second child, a boy, was born at home in December 1976.

Fern thinks (but she is not sure) that after she and Sakee stopped making seitan, Chris Lorensen Bailey started to make bulk seitan at her home in Boston, and to sell it in the Erewhon retail store.

Fern talked about this with her good friend Enid Strauss, and Enid's husband Andy; they made felafel balls at about the same time as Fern's husband and John Weissman were making Tan Pops. Enid thought that Fern and her husband made the first Tan Pups. For more information she suggested contacting Helen and Matthew Sandler, who founded Matthew's Bakery in Boston. They now live in Aspen, Colorado.

She also talked with Tamara Uprichard (in Heath, Massachusetts), who recalls that Hiroshi Hayashi at the Seventh Inn was the first to teach the fast way of making seitan from ground whole wheat. Hiroshi now has a natural foods restaurant named Latacarta in Peterborough, New

Hampshire (Phone: 603-924-6878). Address: 82 Buckingham Rd., Milton, Massachusetts 02186. Phone: 617-696-1665.

1045. Okada, Yuko. 1992. Re: History of Muso Co. Ltd. (Muso Shokuhin) in Japan. Letter (fax) to William Shurtleff at Soyfoods Center, July 2. 2 p. [Eng]

• **Summary:** Muso was formed as an establishment in February 1966, and Yuko has worked for the company since that time. His current title is president of Muso Co., Ltd. for Export and Import division, a position he has held for the last 6 years. Yuko first went to the USA in April 1970. First he worked at the Erewhon retail store and at the Erewhon warehouse as production manager and import manager. After 2 years he began to manage a macrobiotic restaurant [the Seventh Inn] for 2½ years as executive vice president. After the restaurant had paid off all its debts, he returned to Erewhon as import manager, and was also in charge of determining the cost of all production.

Yuko thinks that Muso began to ship foods to Erewhon in 1968. [Note: Kotzsch. 1984, Dec. *East West Journal* p. 14-21 states that Muso began to export foods in 1969.] The main food items shipped during the first year were shoyu (made by Marushima Shoyu Co.), several types of miso (made by Kanemitsu Miso Co. and Ohta Hatcho Miso Co.), black soybeans, azuki beans, many types of sea vegetables and teas, buckwheat noodles, umeboshi pickles, and takuan (daikon pickles).

The following Westerners have worked for Muso over the years: Paul Hawken (March-Oct. 1969), James Docker (several months), Jim Ledbetter (several months), Evan Root (several months), Tyler Smith (6 months), Steve Earle (4 years). Only Americans have worked at Muso.

Muso moved to their present address in the Kosei Building on 1 Dec. 1986. The company still maintains a domestic distribution company at its former address at Otedori 2-5-1, Higashi-ku, Osaka. Address: Muso Co., Ltd., Kosei Bldg., 2nd Floor, Tanimachi 2-5-5, Chuo-ku, Osaka 540, Japan. Phone: 06-942-0343.

1046. *SoyaScan Notes*. 1992. The remarkable food-related creativity that took place in Boston from the late 1960s until the late 1970s, especially within the macrobiotic community (Overview). July 13. Compiled by William Shurtleff of Soyfoods Center.

• **Summary:** A flowering of original food product development took place in Boston during this period. There were a number of reasons for this (1) The meeting of two food cultures, Japanese and American, together with new ideas related to diet and health, as embodied in the macrobiotic teachings of Michio and Aveline Kushi. Just as the meeting of two ocean currents leads to a region at the boundary of great biological activity and development, so does the meeting of two cultures. Young Americans were introduced to a host of new basic foods which they quickly

began to use and process in new ways. These included miso, tofu, seitan, amazake, umeboshi salt plums, sea vegetables, rice syrup, rice cakes, azuki beans, mochi, and many more.

To cite but four examples: (A) Seitan: Japanese had used seitan as a salty condiment or seasoning. By late 1972 Americans had transformed it into a succulent meat substitute. (B) Tofu: It had never occurred to Japanese to put tofu in a blender. By the mid-1970s Americans in Boston were combining it with a sweetener to make delectable dairyless tofu cheesecakes and cream pies, or to make low-fat, cholesterol-free salad dressings, dips, and spreads. (C) Amazake: Japanese serve this as a hot beverage like tea, most in teahouses; The only flavoring used is gingerroot. Americans transformed it into delectable ice creams (free of dairy products and sugar), or thick, sweet drinks resembling milk shakes sold refrigerated in plastic bottles. Americans also used amazake as an all-purpose natural sweetener in place of sugar, honey, or maple syrup. They also learned to make a rice milk resembling amazake using commercial purified enzymes instead of koji; at this point, the line separating amazake and rice syrup became somewhat blurred. (D) Rice Syrup: Japanese use *amé* or *mizumamé*, made from koji, as the basis for taffy-like candies or, in very limited ways, as a sweetener. Americans soon began to make rice syrup using commercial enzymes instead of koji and to use it as an all-purpose natural sweetener in place of sugar, honey, or maple syrup.

(2) The closely-knit, almost communal nature of the macrobiotic community in Boston, was one in which many people, mostly young people (including many women), were working closely together with a common vision. New ideas were shared more than guarded or patented. Joel Wollner notes that it was almost like the art community in Paris during the impressionist era of the late 1800s.

(3) The Erewhon retail store (opened in April 1966) provided a ready testing ground for new local products. Many got their start in one or more of these stores. The Erewhon Trading Co. (which started importing Japanese natural and macrobiotic foods in Aug. 1968), and which began wholesaling and distributing in the spring of 1969, greatly helped to expand the market for good products.

(4) The community was fortunate to have a number of exceptionally talented entrepreneurs in the food business, including Paul Hawken, Bruce Macdonald, Roger Hillyard, Bill Tara, and many others. Many of these individuals later left the area to start their own food companies.

(5) It was during this period that the natural foods, macrobiotic foods, organic foods, and vegetarian movements (all closely related, and often based on similar philosophical, ethical, and spiritual values) began to grow in the United States, in part in reaction to the overly-processed, overly chemicalized, unhealthful foods produced by big food companies, and the highly-chemicalized food growing techniques used by American farmers—and in part because of

the leadership and inspiration of the community in Boston.

1047. Jones, Grayden. 1992. Majoring in minor crops: State growers excel at specialty products. *Spokesman-Review (Spokane, Washington)*. Aug. 30. p. 53, 55.

• **Summary:** “At the same time, WSU [Washington State University] researchers are working to develop Washington production and overseas markets for edamame, a soybean; azuki beans; crimson lentils; and other products.” Address: Staff writer.

1048. Yamaguchi, Hirofumi. 1992. Wild and weed azuki beans in Japan *Economic Botany* 46(4):384-94. Oct.

• **Summary:** “Wild azuki bean, a progenitor of an Asiatic food legume (*Vigna angularis* var. *nipponensis*: Fabaceae), and its weed form are distributed widely in the Japanese Archipelago. The straggling or climbing wildform occurs in sleeve or mantle plant communities, and the weakly climbing or bushy weed form is found in relatively open human-disturbed habitats.” Address: College of Agriculture, Univ. of Osaka Prefecture, 593, Sakai, Osaka, Japan.

1049. Gold Mine Natural Food Co. 1992. Macrobiotic, organic and Earthwise products for you and your home (Mail order catalog and price list). San Diego, California. 48 p. 28 cm.

• **Summary:** A hefty catalog of macrobiotic and natural food products—is there a difference? Categories: Cereals. Beans (incl. organic Japanese “aduki” beans, organic Japanese black soybeans, organic yellow vegetable soybeans), seeds, kuzu, sea salt, miso (18 varieties, some made in America), food processing (nigari, koji, natto starter), soy sauces, sea vegetables, mochi, condiments, dried foods, sauerkraut, pickles, oil, vinegar, snacks, sweeteners & baking supplies, beverages (mostly teas), cookware, knives, utensils, custom saunas, skin and body care, The Pure Food Campaign: An International Boycott of Genetically Engineered Foods (full page ad), Austrian grain mills, books, Why buy organically grown food? What is macrobiotics: a principle and a diet.

Printed on recycled paper with soy bean inks.

Note: “Carlos and Jean Richardson began Gold Mine Natural Food Company in 1985 while living in an old gold mining town in the mountains of San Diego County. Beginning from a small, at-home business, Gold Mine has grown into a diverse and busy natural food distributing company” (from a 1988 leaflet). Address: 1947 30th St., San Diego, California 92102-1105. Phone: 1-800-475-3663.

1050. Pecjak, Marinka. 1992. Soja v kulinariki [Soybeans in cuisine]. *Bio Novice (Bio News, Ljubljana, Slovenia)* No. 3/4. Nov/Dec. p. 34-42. [Slv]

• **Summary:** The subtitle reads: “This is the title of a book published by the publishing house ‘Feniks.’ Mrs. Marinka Pecjak says: ‘In the beginning was the soybean...’”

Discusses: History of the soybean. Production worldwide. Uses—A chart shows food, feed, and industrial uses. Nutritional composition. Use of soya in cooking, including in vegetarian diets.

Note from Jan Krizstan to Soyfoods Center. 1995. “The book *Soja v kulinariki* is out of stock for some years, so I believe that the address of “Feniks” publishing house is of no use for your SoyaScan database. I visited and spoke with Mrs. Marinka Pecjak and asked her if there is any possibility to get 1 copy of her book for you. I said her that in the worst case I can send you my archive copy, but she gave me 1 copy of her book for you. The address of Mrs. Marinka Pecjak is: Poljanski nasip 30, 61000 Ljubljana, Republic of Slovenia. Phone: +386 61 311 831. She lived and still lives at that address. She has a status of free artist (author)—she has written a book about microwave oven cooking, “*Soja v kulinariki*” (Soy in the cuisine), some books about cuisine using meat and some articles against smoking in Slovenian magazines. Mr. Vid Pecjak—her husband—is a well known Slovenian psychologist and University professor. Mr. & Mrs. Pecjak often go to the USA during summer months, because Mr. Pecjak gives lessons about psychology in some USA Universities, most often in University of Hawaii.” Address: Slovenia.

1051. Arrowhead Mills, Inc. 1992. Arrowhead Mills: America’s organic company. Hereford, Texas. 32 p. 22 cm.

• **Summary:** A black-and-white brochure with photos of Deaf Smith farms and farming. on every page. Contents: (1) A great land-ocean of fertile earth, the heartland of America. (2) Organic farmer Ralph Diller of Hereford, Texas, farms 1,100 acres of wheat, corn and rye on the high plains of the Texas Panhandle. In the southwest corner of the Texas Panhandle lies Deaf Smith County. “Frank Ford, the founder and chairman of Arrowhead Mills, has a life-long love affair with this country. Sometimes when he stands on the rich soil of his own organic farm and looks around him toward the distant horizon, Frank feels like he is standing in the palm of God.” A long quotation from Ralph Diller begins: “I’ve sprayed in years past when it turned out to be a waste of money. Like everybody else, I was just doing it because I was scared. Now I’d rather give the beneficial insects a chance...” “To the people in the cities I say that it’s worth it to pay more for your food now because that’s cheaper than doctor’s bills later. We need to take a longer view of it—shortsightedness has got us in a whole lot of trouble.”

(3) A long quotation from Frank Ford describes the country and the water sources that have given birth to Arrowhead Mills in the High Plains. Doug Ragsdale farms 1,300 acres, also planting wheat, corn and rye. He adds fallowing to his crop rotation. He says: “But in any case, organic farming is best for preserving soil and planet together.”

(4) W.J. Brown Farms, Anahuac, Texas, grows 600 acres

of organic brown rice. Its a family farm owned and operated by two brothers, and two sons of one of those brothers. One of their grandfathers started farming here in the 1920s. "None of us was ever big with chemicals, but then we got interested in organic farming at an Acres USA convention in 1984, and went fully into it in 1985."

(5) "Frank Ford and Arrowhead Mills started Arrowhead Mills in 1960, with Frank as the active partner. In those days the facility consisted of an old tin-roofed building that housed a stone mill, and an old rail car for an office. Frank drove a pick-up truck and trailer from store to store, delivering the original Arrowhead Mills product line: two and five-pound bags of stone-ground whole wheat flour and corn meal.

"He also delivered a heart-felt message about organic agriculture: how agricultural chemicals harm both man and the environment, how organic agriculture is healthier for both... it took seven years for Arrowhead Mills to turn its first profit."

(6) In 1990, when Arrowhead Mills celebrated its 30th birthday, its reward for that persistence was: "a 20-acre complex of offices, manufacturing laboratory, and five warehouses; a phalanx of more than 60 steel storage bins; a fleet of tractor trailer trucks that promote whole and natural foods as they crisscross the country; 80 or so employees (a few more or less, depending on the season), including a full-time manager of Arrowhead's organic crop certification program." The original two products had now grown to over 220. The company "now ships more than 20 million pounds of food per year—over 80% of it certified organically grown."

(7) Dan Warren and Doug Ragsdale, neighbors and partners in Dove Creek, Colorado, farm more than 1,000 acres—all of it dryland farming (no irrigation). Other Arrowhead Mills farmers are in North Dakota. On the last 2 pages are portrait photos of 24 Arrowhead farmers and employees.

(8) "The word 'organic' as it applies to farming has its origin in the fact that it is an agricultural approach which seeks to increase, or at least preserve, the organic matter (called *humus*) in the soil. It is the humus in soil that hosts its living elements, including everything from microbes to earthworms. Humus also absorbs water." Organic agriculture is "a primary form of environmental stewardship."

"Arrowhead Mills has also been acutely aware of the another environmental issue: toxicity. For agricultural chemicals—chemical fertilizers, insecticides, and herbicides are now generally recognized to be toxic."

The two pages titled "Arrowhead Mills Certified Organic Products" include a section on "Beans" that includes Adzuki beans and soybeans.

This booklet, sent to Soyinfo Center by Lorenz Schaller (10 April 2012) was accompanied by the following undated brochures also from Arrowhead Mills in about 1992 or 1993. Kamut: Whole food, whole taste. All about organic

foods. The native Americans (quinoa, amaranth, anasazi beans). The story of spelt. The story of quinoa. The story of amaranth. The story of kamut. Address: Box 2059, Hereford, Deaf Smith County, Texas 79045-2059. Phone: (806) 364-0730.

1052. Crawford, Gary W. 1992. Prehistoric plant domestication in East Asia. In: C. Wesley Cowan and Patty Jo Watson, eds. 1992. *The Origins of Agriculture: An International Perspective*. Washington, DC: Smithsonian Institution Press. xvi + 224 p. See p. 7-38. [154* ref]

• **Summary:** Contents: Introduction. Environment. Chronology and prehistory: China, Korea, Japan. Initial speculations (Japan). Archaeobotany and recent research. Northeast spread of plant husbandry. The cultigens: Barley (*Hordeum vulgare*), barnyard millet (*Echinochloa utilis*), broomcorn or common millet (*Panicum miliaceum*), foxtail millet (*Setaria italica* ssp. *italica*), rice (*Oryza sativa* [*Oryza sativa*]), wheat (*Triticum aestivum*), adzuki and mung beans (*Vigna angularis* and *Vigna radiatus*), hemp (*Cannabis sativa*), melon (*Cucumis melo*), (), beefsteak plant and egoma (*Perilla frutescens*), other cultigens (incl. buckwheat, soybean, pea). Discussion and directions for future research. Acknowledgments.

The time span covered by this chapter ranges from about 8500 B.P. to 100 B.P. The origin of agriculture in China can be dated from about 7000 B.P. "The prevailing view is that agriculture began in Korea and Japan in the third millennium B.P. with the initiation of rice-based agrarian societies by both the diffusion of crops and ideas and the migration of people. Evidence is mounting, however, for earlier archaeological origins in these two areas" (p. 7).

In China, any site with ceramics and no evidence of metallurgy is considered Neolithic. Pottery-bearing sites before 8500 B.P. are termed early Neolithic (p. 13). During the Neolithic, dependence on food production gradually increased.

Illustrations show: (1) Map of 10 vegetation zones of East Asia. (2) Diagram summarizing Northeast Asian chronology in northern China, Korea, southwest Japan, and Northeast Japan, from 8000 B.P. to 500 B.P. Arrow width is roughly proportional to the degree of dependence on food production. (3) Map showing location of 59 East Asian sites [archaeological, in China, Korea, and Japan] mentioned in the text. Address: Assoc. Prof. and Chair of the Dep. of Anthropology, Univ. of Toronto, Canada.

1053. Harlan, Jack R. 1992. *Crops and man*. 2nd ed. Madison, Wisconsin: American Society of Agronomy, Crop Science Society of America. xii + 284 p. Illust. Author index. Subject index. 21 cm. [495* ref]

• **Summary:** Contents: Foreword. Preface. 1. Prologue: The Golden Age. 2. Views on agricultural origins. 3. What is a crop? 4. What is a weed? 5. Classification of cultivated

plants. 6. The dynamics of domestication. 7. Space, time, and variation. 8. The Near East. 9. Indigenous African agriculture. 10. The Far East. 11. The Americas. 12. Epilogue: Who's in charge here?

A table (p. 57) lists the world's 30 leading food crops in terms of estimated edible dry matter (million metric tons). The top 5 are: Wheat (468), maize (429), rice (330), barley (160), and soybean (88). These top 5 are all annuals.

Page 73 lists crops indigenous to the Chinese region. The pulses include soybean (northeastern China) and adzuki beans (*Vigna angularis*, southern China). Cereals and pseudocereals include Japanese millet (*Echinochloa frumentacea*, eastern China), buckwheat (*Fagopyrum esculentum*, western China) Tartar buckwheat (*F. tataricum*, western China), rice (southern China to India), proso millet or broomcorn millet (*Panicum miliaceum*, northern China), Italian millet or foxtail millet (*Setaria italica*, northern China). Oil crops include tung oil (southern China) and rapeseed (temperate China). More and more people are being fed by fewer and fewer crops. The human species is currently an eater of grass seeds—like canaries.

The section on “The gene pool system: Species” (p. 106-09) notes that in 1971 Harland & de Wet proposed three informal categories: Primary Gene Pool (GP-1), Secondary Gene Pool (GP-2), and Tertiary Gene Pool (GP-3). In the first edition of this book (9175) Harland claimed that soybean had neither GP-2 nor GP-3. Since then, soybeans have been bred with their wild perennial relatives, resulting in hybrids.

Tables on pages 152-53 list the major gene banks in the international system. The designated base collections for soybean are USDA (Beltsville, Maryland), and NIAS (National Institute for Agricultural Sciences, Tsukuba, Japan).

Recorded History in East Asia: “Chinese civilization, as distinct from previous cultures, can be said to have begun with the founding of the Shang dynasty sometime before 1500 BC. At about 1300 BC, the Shang capital was established at An-yang and the city was captured by the Chou tribe in 1027 BC... Essentially all of the Shang literature falls between 1300 and 1027 BC and consists of oracle bone inscriptions and writing on cast bronze objects... Among the earliest compilations of Chinese literature is the *Book of Odes* (*Shih Ching*) assembled from bits and fragments from the 11th century to the middle of the 6th century BC. Botanically, it is the most informative of early literatures and mentions about 150 plants as compared to 55 in Egyptian literature, 83 in the Bible, and 63 in Homer (Ho, 1969). In the *Odes*, *Panicum* millet is mentioned 27 times, the mulberry 20 times, and *Artemisia* is mentioned 19 times with some 10 varieties. The soybean is first mentioned in 664 BC in connection with tribute paid to the Chou by the Shan-Jung (Mountain Jung) tribe... Northern China: The agriculture that evolved in the north China uplands was based on the millets, soybean, and a suite of fruits and

vegetables” (p. 198-99).

“Soybean: The wild soybean is a small, slender creeping vine bearing a few small pods with small, black seeds. The plant is widely distributed from southern Siberia, through Manchuria, throughout the eastern coastal plain of China, and Westward to Szechuan. It is rather weedy and is often found in city parks under the shade of trees. Presumably, it was once a woodland or temperate forest plant before the natural vegetation was removed for agriculture. The changes under domestication have been enormous.

“Evolution of bush types from vines is common under domestication. It has happened in American beans, African cowpeas, oriental soybeans, and others. The viny ancestral types are usually retained as well, and trailing forms of soybean are still grown for fodder.” Address: Prof. of Plant Genetics, emeritus, Crop Evolution Lab., Dep. of Agronomy, Univ. of Illinois, Urbana, Illinois.

1054. Kawakami, Kozo. 1992. *Tsurezure Nihon shokumotsushi*. 2 v [Leisurely history of Japanese foods. Vols. 1-2].

Tokyo: Tokyo Bijutsu. Illust. 21 cm. [35+ ref. Jap]

• **Summary:** Vol. 1 (vi + 151 p.) contains chapters on: Ryokutô [ryokuto] (bundô, yaenari; p. 74-76, mentions tofu. Note: Kinch 1879 says *Phaseolus radiatus subtriloba* = bundô). Ganmodoki and hiryoju [tofu burgers] (p. 85-89; 9+5 ref.). Yose-dofu (p. 89-99; 13 ref.). Itoko-ni (p. 108-10; 13 ref.; with soybeans, azuki beans and tofu). Gomashio (p. 128-30; 7 ref.).

Vol. 2 (3 + 151 + 5 p.): A color illustration titled (*Nori-zukuri no zu*), by Katsukawa Shunsen (?) on the dust jacket shows women making nori in old Japan. They are chopping freshly collected nori and drying it in sheets. Another old 3-part illustration of making nori is printed on the cover. Contents (centered on foods and treats from the sea) includes: Nori and kawa-nori (from the sea and from rivers. p. 1-5; 35 ref. 1 illust.). Asakusa nori, Kassai nori, Shinagawa nori, and other nori from the Pacific Coast and Inland Sea (*Setonai-kai*) during the Edo Period (p. 8-16, 39 ref. 4 illust.). Nori from the Japan Sea (*Nihonkai*) No. 1: Izumo nori, Uppuri nori, and Kamoji nori. Uppuri is a place near Izumo, and Kamoji is a wig-like hair filler (p. 17-20, 21 ref.). Nori from the Japan Sea (*Nihonkai*) No. 2: Kuro nori, Yuki nori, Noto nori, and Kasashima / Kasajima of Echigo nori (p. 21-24, 21 ref.). The story of river nori, Shiba river nori, Nikko nori, and Kikuchi nori (p. 25-30, 26 ref. 1 illust.). Dried frozen tokoroten (*kôri tokoroten*), made from frozen seaweed (p. 98-102, 3 ref.). Mizukara (a spicy food made from kombu, p. 103-05, 16 ref.). Musubi kombu, musubi kanpyo, and musubi sayori (musubi means “tied up in like a bow in a special way;” p. 106-10, 25 ref. 2 illust.). Musubi yamaimo (mountain glutinous yam) and musubi tofu (both tied up in a special decorative way. p. 111-14, 14 ref.). Also contains other interesting illustrations and chapters. Address: Japan.

1055. Margen, Sheldon. 1992. *The wellness encyclopedia of food and nutrition: How to buy, store, and prepare every variety of fresh food*. New York, NY: Rebus. 512 p. Illust. Index. 26 x 21 cm.

• **Summary:** Soy-related information appears on the following pages: Soybeans, illustrated and described (p. 60). Sprouts, including soybean and adzuki bean sprouts (p. 158-60). “Soybean sprouts contain small quantities of toxins that can be harmful, if eaten in large quantities” [uncooked, see p. 356]. Legumes (p. 348-58), incl. soybeans, “soy nuts,” soy milk. Legumes are “by far the best plant source of protein...” Per half 3½ ounces (½ cup cooked) soybeans contain more calories, fat, protein, iron, and calcium than any other of the 15 legumes listed (p. 351). How to avoid the gas problem. Tofu, miso, and tempeh (p. 357, sidebar). Non-dairy frozen desserts (made from tofu, p. 461). Soy cheese (p. 469). Soybean oil and margarine (p. 497-98).

Concerning vitamin K, see p. 16, 27, 30. The RDA for adults is 45-80 mcg. The body stores this fat-soluble vitamin for a relatively long time. Without this vitamin, blood would fail to clot. Preliminary studies suggest it also plays a role in maintaining strong bones in the elderly. Bacteria in the body’s intestines manufacture about 80% of the vitamin K we need, and the rest comes from the diet. Deficiencies are almost unknown, and they are usually caused by an inability to absorb the vitamin, rather than an inadequate intake. Sources: Cabbage, cauliflower, spinach and other leafy vegetables, cereals, soybean oil and other vegetable oils. Address: School of Public Health, Berkeley, California.

1056. Sass, Lorna J. 1992. *An ecological kitchen: Healthy meals for you and the planet*. New York, NY: William Morrow and Company, Inc. xv + 492 p. Index. 26 cm. [35+* ref]

• **Summary:** This excellent vegetarian (actually vegan), ecological cookbook, proves that the most environmentally sound diet is also the healthiest and, for many, the most delicious and economical. It emphasizes whole grains, fruits and vegetables, focuses on unprocessed and minimally packaged foods, use of regional and seasonal foods, efficient menu planning, and creative recycling of leftovers. Delightful quotations relevant to the book’s subject are scattered throughout.

The author’s guiding principles for cooking ecologically are: “Eat a plant-based [vegan] diet; buy organic, regional, seasonal produce whenever possible; and use nontoxic products to keep your kitchen clean.”

The chapter titled “Tofu and tempeh” (p. 217-31) contains basic information and many recipes. Other soy-related recipes include: Thai vegetable soup (with tofu, p. 39). Ten-ingredient lo mien (with tofu, p. 165-66). Triple bean maybe it’s chili (p. 186-87). Black soybeans (p. 191-92; keep the skins on by adding salt). Curried mustard greens

with tofu (p. 255). Chinese-style stir-fry of kale, onions, and marinated tofu (p. 258). Tahini-miso spread (p. 315). Sun-dried tomato dip (with tofu, p. 318). Brilliant beet dip (with tofu, p. 319). Onion upside-down cornbread (with tofu, p. 323-24). Tofu whip (like whipped cream or whip topping, p. 398).

The very fine chapter / glossary “Ingredients A to Z” (p. 399-468) includes: Adzuki / azuki beans, agar, almond butter, almonds, amaranth, amasake (incl. koji), arame, barley malt syrup.

Black beans—fermented (salty black beans): “Black beans, fermented (Salty black beans): A little of this Chinese specialty—small black soybeans preserved in salt—goes a long way. About 1 tablespoon adds a deliciously complex flavor to stir-fries. Chop the beans finely to disperse their flavor. If you like the taste but want to reduce the salt, soak the beans briefly in water before using. Fermented black beans last for about a year in a well-sealed jar under refrigeration.

“Bragg Liquid Aminos: This is a very tasty soy-sauce-like condiment made by extracting amino acids from organic soybeans. Its flavor is more winelike and complex than most soy sauces. It is salty, so sprinkle sparingly. (There is no added salt, but 125 milligrams of sodium per ½ teaspoon come from the natural sodium in the soybeans.)

“Unlike soy sauce, Bragg Liquid Aminos is not fermented, making it an ideal seasoning for those who suffer from yeast sensitivities. Delicious added to stir-fries or plain-cooked grains. It is readily available in health food stores.” Also in natural food stores.

Daikon, dulse, gomashio, hijicki / hizicki [sic, hijiki], job’s tears, kombu, kuzu (kudzu), kuzu kiri, lupins, miso, mochi, natto, nigari, nori, peanut butter, peanuts, quinoa, rice—brown, rice cakes, rice syrup, sea vegetables, tamari-roasted seeds, seitan (wheat gluten), sesame butter (tahini), sesame oil, sesame seeds, shoyu, soybeans, soybeans—black, soy cheese, soy flakes, soy flour, soyfoods, soy grits, soy ice cream, soy milk, soynuts, soy oil, soy powder (powdered soy milk), soysage, soy sauce, soy yogurt (fermented), tahini, tamari soy sauce, tempeh, tofu, umeboshi plums, wakame, wasabi, winged beans. Note: Also contains recipes for many of these glossary items.

A color portrait photo on the inside rear dust jacket shows Lorna Sass—with a brief biography; she is a culinary historian, cookbook author, and food writer. Address: Box 704, New York City, NY 10024.

1057. Yamuna Devi. 1992. *Yamuna’s table: Healthy vegetarian cuisine inspired by the flavors of India*. New York, NY: E.P. Dutton / Penguin Books USA Inc. xv + 335 p. Index. 25 cm.

• **Summary:** This book won the 1993 James Beard Award for the best international cookbook. In the “Entrees” chapter, the author uses tofu as an alternative to cheese in a number of recipes. She notes (p. 187): “In recent years,

creative restaurant and spa chefs have been redesigning the parameters for tofu use. Inspired by their work, I tried tofu for the first time last year. Today I have devised scores of recipes for it.” The recipes include: Cheese cutlets with pineapple-ginger glaze and basmati rice (p. 190). Almond-crusted cheese sticks with lime-horseradish mayonnaise (p. 192-93). Cheese fricadelle with two chutneys (p. 193-95). Vegetable and cheese ramekins with yellow pepper-tomato sauce (p. 196-97). Tex-Mex cheese tostadas with ancho chili-tomato salsa (p. 197-98). Herb cheese galette with cashew crust and papaya-cilantro chutney (and optional soya milk, p. 199-200). Cauliflower and cheese croquettes with horseradish potatoes (p. 200-02). Four-vegetable tart with two pepper sauces (p. 202-05). White cheese-vegetable pipérade (p. 204-05). On page 295 is a recipe for Maple Cream in which silken tofu can be used in place of low-fat cottage cheese. Address: Washington, DC.

1058. Leneman, Leah. 1993. 365 plus one vegan recipes: Delicious meals and ideas for every day of the year. Hammersmith, London, England: Thorsons—An imprint of HarperCollins Publishers. 144 p. April. Index. 24 cm.

• **Summary:** Chapter 1 of this book, titled “The Vegan Dairy,” gives recipes for homemade soya milk, mock cream (from soya milk), soya flour cheese, yogurt cheese (from soya yogurt). There are also recipes for cashew or almond milk, cashew cream, and cashew cottage cheese.

Chapter 11 (p. 85-100), titled “Tofu and other Soya Foods,” contains a long introduction plus the following recipes: Home-made tofu. Tofu and onions. Sweet and sour tofu and vegetables. Sea-flavored crisp tofu slices. Mushroom stroganoff. Tofu kebabs. Tofu casserole. Warming winter stew (with tofu). Korean-style kebabs (with tofu and miso). Tofu and green pea bhajia. Tofu ‘scrambled eggs.’ Scrambled tofu and mushrooms. Tofu piperade. Spicy tofu scramble with red pepper and tomato. Tofu knishes. Tofu and pea curry. Tofu burgers. Swiss steak (with frozen tofu). Savoury tofu ‘mince’ (with frozen tofu). Crispy fried sea-flavoured frozen tofu. Tofu goulash. Smoked tofu stew. Smoked tofu, courgette and sweetcorn risotto. Smokey duvec (with smoked tofu). Pease pudding and smoked tofu bake. Smoked tofu pasties. Steamed savoury smoked tofu pudding. Smoked tofu charlotte. Lek and smoked tofu au gratin. Smoked tofu and mashed potato cakes. Tempeh croquettes with mushroom sauce. Tempeh hash with potatoes. Indonesian-style tempeh. Tempeh stroganoff. Japanese-style tempeh kabobs. Tempeh burgers. Tempeh chilli. Mock ‘ham’ (with dried bean milk sheets [yuba]). Mock ‘chicken’ (with yuba). Mock chicken cooked Indonesian style.

Chapter 13 is entirely about sea vegetables, and a number of the recipes contain tofu, tempeh, miso, or soya milk. A number of other recipes throughout the book also use soyfoods as an ingredient. Address: 19 Leamington Terrace, Edinburgh EH10 4JP, Scotland.

1059. Goh, H.G.; Choi, J.S.; Uhm, K.B.; Choi, K.M.; Kim, J.W. 1993. [Spatial distribution pattern of beet armyworm, *Spodoptera exigua* (Hubner), larvae in the Welsh onion field]. *Korean J. of Applied Entomology* 32(2):134-38. June. [9 ref. Kor; eng]

• **Summary:** Host plants include soybean, adzuki bean, and peanut. Address: 1, 3-4. Agricultural Science Inst., RDA, Suwon 441-707, Korea.

1060. Kushi, Michio; Kushi, Aveline; Jack, Alex. 1993. Macrobiotic diet: Revised and enlarged edition. Tokyo and New York: Japan Publications. 400 p. June, Illust. Index. 21 cm. [67 ref]

• **Summary:** Edited by Alex Jack, this is the revision of a book with the same title first printed in 1985. The table of contents of this edition is identical to that of the 1985 edition. However, this edition has been “expanded to include information on natural foods that have recently become available; the latest research on cancer and diet; AIDS and diet; the U.S. government’s landmark report on Diet and Health, and the China Study; as well as a wealth of information on the impact of our dietary choices on the earth’s environment” (from the back cover).

Since the physical dimensions (21.2 cm tall) are smaller, the text is on different pages. For example, Japanese black beans (see below).

The chapter on “Beans and bean products” has the following contents: Daily use. History. Quality. Varieties: Azuki beans, black-eyed peas (sometimes known as yard-long beans), black turtle beans, broad beans, chick-peas, great northern beans, kidney beans, lima beans, lentils, mung beans, navy beans, peas, pinto beans, soybeans (p. 195-99) (introduction, miso, natto, okara, soy flour, soy grits, soy milk, soy oil, shoyu, tempeh, tofu {incl. nigari, fresh tofu, soft tofu, firm tofu, deep-fried tofu, pickled tofu, fermented tofu, frozen tofu, dried tofu}), viilia, soy yogurt, yuba.

For information on cooking soy, see p. 204-07. Note: Natto is not usually made with koji (p. 207). For “Health benefits” and for “Soy foods and cancer research” (p. 208-09).

Black soybeans (also known as “Japanese black beans”) are mentioned as follows: “The smaller varieties of azuki beans, lentils, chick-peas, and black soybeans contain less fat and oil and are preferred for daily use” (p. 60). “Bean rice: Besides azuki beans, other beans and legumes such as lentils, chick peas, yellow or black soybeans, and [common] black beans can be cooked together with brown rice in a proportion of 10 to 15 percent beans and 85 to 90 percent rice” (p. 121). The chapter titled “Beans and bean products” (p. 189) begins: “In the standard macrobiotic diet, whole dried beans and bean products are usually eaten daily or several times per week and comprise about 5 to 10 percent of the volume of total food consumed. Beans that are more northerly in

origin, smaller in size, and contain less fat and oil than other varieties, such as azuki beans, lentils, chick peas, and black soybeans are eaten most frequently.” In the same chapter, the section on “Cooking methods” (p. 200). “In general, chick peas, black soybeans, and other hard beans should be soaked 6 to 8 hours or, preferably overnight, if boiled, and a minimum of 2 hours if pressure cooked.” “In order to allow the inside and outside of the beans to cook evenly, beans are usually seasoned toward the end of cooking... In the Far East, a small strip of kombu is traditionally added to the bottom of a pot of beans. The mineral-rich sea vegetable adds flavor to the beans... and improves their digestibility.” “Shocking is a traditional method of preparing beans in the Far East.” It is described in detail (p. 201). In the section titled “Soybeans” (p. 204) black soybeans are also discussed.

“Natto is a fermented soybean product that resembles baked beans connected by long sticky strands. Its strong odor takes some adjusting to but once appreciated natto is enjoyed regularly as a small side dish or condiment” (p. 196). Address: 1-2. Brookline and Becket, Massachusetts.

1061. Atlas, Nava. 1993. *Vegetariana: A rich harvest of wit, lore and recipes*. Revised and updated. Boston, Massachusetts: Little, Brown and Co. [xii] + 233 p. Illust. by Nava Atlas. 23 cm. [62 ref]

• **Summary:** A new and expanded edition of the original 1984 classic vegetarian cookbook with quotes on vegetarianism and historical anecdotes. Featuring over 80 new recipes.

One chapter (p. 117-26) is titled “Tofu and tempeh.” Contains 20 recipes that call for tofu, 6 that call for tempeh, and 5 that call for miso. Also contains recipes for adzuki beans, seitan, and soy sauce. Address: Adam Enterprises, 65 Prospect St., New Paltz, New York 12561-1143.

1062. Matsumoto, Valerie J. 1993. *Farming the home place: A Japanese American community in California, 1919-1982*. Ithaca, New York: Cornell University Press. ix + 262 p. Illust. (photos). Index. 24 cm. [100+* ref]

• **Summary:** A very interesting look, spanning three generations, at the Cortez Colony, in Cortez, Merced Co., San Joaquin Valley, central California, the last Japanese Christian farming community formed by Kyutaro Abiko in 1919. It is written from a feminist perspective.

In the lean early years at Cortez, “the settlers’ diet was limited; meals often consisted of *miso* soup and rice,...” (p. 47).

New Year’s was the major holiday of the year. Everyone would partake of carefully prepared traditional Japanese dishes such as chicken *teriyaki*, *ozoni* (a soup containing mochi, symbolizing prosperity), *mame* ([soy] beans, symbolic of good health), and sushi (vinegared rice “rolled in sheets of toasted seaweed or stuffed into soybean wrappers [deep-fried tofu pouches]) (p. 78).

A glossary of terms (p. 231) includes: an (sweetened red bean paste), azuki (red beans), kinako (soybean flour), mame (beans), miso (fermented soybean paste), nori, shoyu (soy sauce), sushi, teriyaki (broiled meat cooked with soy sauce, wine, and ginger).

Photos show: Abiko family portrait, 1925 (p. 27). Address: UCLA.

1063. Pitchford, Paul. 1993. *Healing with whole foods: Oriental traditions and modern nutrition*. Berkeley, California: North Atlantic Books. xxii + 656 p. Illust. Index. 26 cm. 2nd ed. 1996. 3rd ed. 2002 (both by same publisher). [536 ref]

• **Summary:** Contents: 1. Origins. Part I: The roots of diagnosis and treatment. 2. Yin-yang and beyond. 3. Qi vitality. The six divisions of yin and yang: 4. Heat/cold—The thermal nature of food and people. 5. Exterior/interior: Building immunity. 6. Excess and deficiency.

Part II: Essentials of nutrition. 7. Dietary transition. 8. Water. 9. Protein and vitamin B-12.

10. Oils and fats. 11. Sweeteners. 12. Salt. 23. Condiments, caffeine, and spices. 14. Vitamins and supplements. 15. Calcium. 16. Green food products. 17. Survival simplified. 18. Enjoyment of food. 19. Food combinations.

20. Fasting and purification. 21. Food and children.

Part III: The five element and organ system. 22. Five elements: Seasonal attunement and the organs in harmony and disease. 23. Therapeutic use of the five flavors. 24. Wood element. 25. Fire element. 26. Earth element. 27. Metal element. 28. Water element.

Part IV: Diseases and their dietary treatment. 29. Blood sugar imbalance [diabetes]. 30. The stomach and intestines. 31. Blood disorders. 32. Cancer and regeneration diets. 33. Other degenerative disorders.

Part V: Recipes and properties of vegetal foods. 34. Vibrational cooking. 35. Grains. 36. Breads. 37. Legumes—Peas, beans, and lentils: Healing properties of legumes, improving the digestibility of legumes, techniques for cooking legumes, miso (incl. miso soup and natto miso), tempeh, tofu. 38. Nuts and seeds. 39. Vegetables.

40. Sprouts. 41. Salads. 42. Seaweeds: Agar-agar, dulse, hijiki and arame, kombu and kelp, nori, wakame, Irish moss and Corsican (*Alsidium helminthocorton*; it is sold as a tea and discharges worms. 43. Soups. 44. Sauces. 45. Condiments: Chutneys and relishes. 46. Spreads and patés. 47. Pickles. 48. Grain and seed milks (incl. sesame seed milk, almond milk, almond milk shake, sprouted grain milk {oats, rice, millet, barley}, cooked grain milk). 49. Rejuvelac and yogurt.

50. Fruit. 51. Desserts. Appendixes: Recipe locator. Bibliography (180 references, mostly alternative; Oriental philosophy. Chinese medicine: Theory and foundations. Chinese dietary therapy. Ayurvedic and Tibetan medicine.

Western approach to nutrition. Healing the spirit and mind. Chinese herbology. Western herbology. Healing with food. Green foods. Amaranth. Seaweeds. Vegetarian, macrobiotic, vegan. Children. Ecology, politics, and ethics of food. Degenerative diseases and immunity. Toxins and radiation. Cookbooks. Food catalogs, guides, and references. Sources of data for tables, charts, and nutritional statistics). References and notes (356 refs, mostly scientific). Resources index (Incl. Soyfoods Center).

The following are listed in the index (f = most important pages): Acid-forming foods (p. 235f, 240). Aduki [azuki] beans (p. 26, 34, 50, 60, 68, 77, 178, 273, 305, 307, 319, 362, 467f). Amaranth (lots, 419-20f). Amasake (p. 98, 152-53, 155, 160, 163, 275, 287, 592f). Animal products (lots). *Aspergillus oryzae* (p. 592). Ayurveda (lots). Black sesame seed (lots, 492f). Black soybean (60, 68, 288, 317, 324, 327, 468). Bran (p. 332) and its role in relieving constipation (345-46). Buckwheat (lots, 422f). Buddha. Calcium (lots). Cancer. Cheese (but no soy cheese). Cholesterol. Cigarette smoking. Coldness, bodily. Dampness, bodily. Deficiency. Digestibility (Improving the digestibility of legumes, p. 471-73). Five elements system. Free radicals. Gerson, Max and cancer therapy (p. 41, 126, 162, 365-66, 381). Goiter. Gomasio [sic, gomashio]; sesame salt (p. 272, 566f). Heart / Heart/mind. Heat (lots). Hijiki. Ice cream (p. 291, 305 [no soy]). Job's tears (p. 381, 383). Kasha (buckwheat, p. 422). Kelp. Kloss, Jethro (p. 366, 381). Koji (p. 479). Kudzu (p. 22, 25, 29, 60, 289, 299, 309, 317, 414f). Lecithin (lots, p. 127, 470, 414f). Legumes (lots, p. 466-471, 473f). Macrobiotics (p. 3-4). Marijuana (lots). Menopause (p. 181-82, 362-364f, 441, 468, 497). Microwave cooking (p. 20). Milk). Mind, Chinese Zen concept of. Miso (p. 33-34, 60, 72-74, 78, 81, 90, 92, 98, 101, 105-06, 150, 159, 164, 195, 221-22, 272, 275, 315, 376, 479-82f; natto miso p. 482). Mochi (p. 436-37f). Mother's milk—to increase. Mucus. Nails, dry and brittle (p. 285). Oils (incl. soy oil, p. 138-41). Omega-3 fatty acids. Nori. Protein (lots). Qi [chi, p. 16-17]. Quinoa. Rice syrup. Schweitzer, Albert (365). Sea palm (p. 541). Seaweed (lots, p. 540-55f—see also Agar, alaria, arame, bladderwrack, Corsican, dulce, hijiki, Irish moss, kelp, kombu, nori, ocean ribbon, sea lettuce, sea palm, wakame). Seitan (p. 446-47). Sesame butter (p. 81, 492). Sesame seed (lots, 492f). Soybean (p. 52, 56, 60, 105, 124, 161, 178, 232, 235n, 250, 300, 466, 470f; children and soy products 253-54; soy sprouts p. 22, 34, 122, 291, 470f; see also miso, soy sauce, tempeh, tofu).

The section titled “Soybean” (p. 470) begins: “Cooling thermal nature; sweet flavor; strengthens the spleen-pancreas; influences the colon; moistens conditions of dryness; supplements the kidneys; cleanses the blood vessels and heart, improving circulation; helps restore pancreatic functioning (especially in diabetic conditions); promotes clear vision; diuretic; lowers fever; highly alkalizing and eliminates toxins from the body; boosts milk secretion

in nursing mothers. Also used as a remedy for dizziness, childhood malnourishment (especially in the form of tempeh and soy milk), skin eruptions, constipation, edema, excessive fluid retention and toxemia during pregnancy, and food poisoning. For the imbalances during pregnancy and for food poisoning, drink soybean juice (prepare as ‘aduki juice’ above). Soybeans are a natural source of lecithin—a brain food.

“Unless well-cooked, soybeans inhibit the digestive enzyme trypsin, making them [sic] difficult to digest. The fermentation process, such as used in tempeh, tofu, miso, and soy sauce, also eliminates the beans’ trypsin-inhibiting effect.

“Soybean sprouts are cooling with a sweet flavor. They are diuretic and used to treat spasms, arthritis, food stagnation, *heat*-type coughs and other heat conditions marked by one or more signs such as yellow tongue coating, yellow mucus, and scanty, dark yellow urine.”

Soy sauce (p. 34, 78, 81, 98, 105-06, 150, 159, 164, 195, 222, 272, 277, 315, 414f, 480). Spirulina. Sprouting (p. 232-33). Sprouts (lots, p. 528-30f). Steiner, Rudolf (p. 19-20, 504). Stomach (beneficial foods, stomach/duodenal heat and, strengthening food). Stress. Sugar (lots). Superoxide dismutase (SOD). Sweating—night sweats (p. 24, 117, 441). Sweeteners. Sweet rice (p. 433f). Tahini (sesame, p. 106, 225, 493). Tempeh (p. 22, 34, 56, 60, 96, 99, 105, 124, 216, 221, 242, 250, 290, 307, 310, 482-86f; vitamin B-12 and p. 98). Thirst. Tobacco. Tofu (p. 22, 25, 34, 55-56, 60, 68, 81, 105, 124, 242, 250, 290-91, 300, 303, 307, 310, 317, 327, 486-89f). Tomato. Tongue coating and digestion (p. 399). Umeboshi plums (p. 78, 159, 222, 272, 307, 414, 583f). Umeboshi vinegar (p. 414). Urinary incontinence and deficiency of kidney qi (p. 318-19). Urination, frequent, from kidney qi and yang deficiencies (p. 318). Valerian root. Vegan (p. 5, 95, 137, 261, 389, 502). Vegetarianism (p. 81-82, 95). Vitamin B-12. Vitamin E. Vitamin K. Wakame. Warming foods (p. 18-20, 26-27). Warts. Watermelon. Wind, bodily (foods which quell, 286-89; incl. black soybean, p. 468). Yang. Yin.

Talk with Heartwood Institute. 1997. Nov. 12. This is basically a massage school that also offers retreats. Paul's background is in the martial arts and massage. He graduated from a college after 4 years but the name of the college is not available. He also did 2 years of graduate work at an institution whose name is not available. The Institute sent their catalog/brochure. Address: Director, Heartwood Inst. Wellness Clinic and Oriental Healing Arts Program, 220 Harmony Lane, Garberville, California 95542. Phone: 707-923-5000.

1064. Shimizu, Kay. 1993. Tsukemono: Japanese pickled vegetables. Tokyo: Shufunotomo / Japan Publications. 112 p. Illust. (color). Index. 27 cm. [Eng]

• **Summary:** Tsukemono are Japanese pickled foods, primarily vegetables. Drying and pickling were two of

the earliest ways of preserving food. If you've never tried Japanese tsukemono, get ready for a delicious surprise. This excellent book is a good place to start. We would start with takuan and umeboshi (p. 22).

Soy related recipes: Basic *miso-zuke* (p. 36-37). Spicy pickled celery (*Celery miso-garame*) (p. 37). *Koji / miso / kasu* tsukemono base (p. 39). Amazake (p. 40-41). Daikon radish pickled in koji (*Bettara-zuke*) (p. 41). Scallions in shoyu (*Rakkyo shoyu-zuke*) (p. 43). Garlic with soy sauce (p. 64). Garlic with bean paste [miso] (p. 64). Okra and onion pickles (*Okra shoyu-zuke*) (p. 70). Soy-flavored daikon pickle (*Daikon shoyu-zuke*) (p. 82, 84). Asparagus with bean paste (*Asparagus miso-zuke*) (p. 87). Spicy cabbage tsukemono (*Cabbage shoyu-zuke*) (p. 88). Cooked and pickled kelp (*Nori tsukudani*) (p. 97). Soy sauce pickled vegetables (*San-bai-zuke*) (p. 98).

A 2-page glossary includes: "Age (abura-age)—deep-fried soybean cake (*tofu*). An—sweetened red *azuki* beans prepared as a paste for confections. Amazake—non-alcoholic creamy-thick hot drink prepared from rice fermentation with the addition of rice koji.

"Drop lid. A necessary item for Japanese pickling. A wooden cover which is smaller in diameter than the pot opening, so lid will lay flat on top of food, and weight can be placed on top of lid."

Dou-ban-jiang—spicy Chinese brown bean paste, contains chili. Koji—a yeast-like rice mold that works primarily to convert starches into sugars during a fermentation process.

Mirin—a thick sweet wine made from glutinous rice, used primarily for cooking. Miso—fermented soybean paste. Mochiko—glutinous rice flour. Mochi—glutinous rice that has been pounded until soft and sticky, then formed into cakes. Mochi-gashi—a confection made from glutinous rice.

Natto—fermented soybeans with sticky texture and strong aroma. Nori—edible seaweed, laver. Shoyu—Japanese soy sauce, considerably lighter than Chinese soy sauce, which should not be substituted for shoyu.

Suribachi—Japanese pestle and mortar (earthenware bowl with ridged edges). Tsukudani—food simmered with shoyu, sugar, mirin and water until almost all liquid evaporates.

Ume—Japanese plum; technically a species of apricot, but usually translated as plum. Umeboshi—pickled plum. Wakame—an edible seaweed, thinner and softer than konbu kelp. Wasabi—Japanese green horseradish, most familiar in the west as a mound of pungent green paste served with sushi or sashimi.

Note: Real wasabi is very expensive, and is a completely different plant from horseradish, from a different genus and species. Real wasabi is rarely found outside Japan and is much more potent than its imitation, "western wasabi"—a mixture of horseradish, mustard, and green food coloring. Address: Saratoga, California.

1065. So, Yan-kit. 1993. Yan-kit's classic Chinese cookbook. London: Dorling Kindersley Ltd., London. 239 p. Illust. (color photos). Index. 24 cm. [1 ref]

• **Summary:** This is a remarkable Chinese cookbook.

Although the text of this book was copyrighted in 1984, the photographs, layout and design have been updated to 1993. The first 192 pages of the book are printed in full color on glossy paper. The author is a woman—lovely, cultured, and centered.

In the section on "Ingredients" is a two-page spread titled "Beans and bean products" (p. 12-13) of 12 fine color photos, each with a caption and Chinese characters. They are: (1) Bean curd, fresh [fresh *tofu*]. (2) Bean curd, puffed [deep-fried *tofu* puffs], used to absorb tastes and juices. (3) Bean curd sheet [thin dried *yuba* sheet]; must be moistened before use. (4) Black beans, fermented [fermented black soybeans]. "Whole soybeans preserved with salt and ginger." (5) Red beans (*azuki*). (6) Red bean paste: a thick paste made from puréed, sweetened *azuki* beans, often used a filling for sweets.

(7) Bean curd "cheese," red fermented [Fermented *tofu* with *ang-kak*], with salt and rice wine. (8) Bean curd "cheese," white fermented [Fermented *tofu*], with or without chili. (9) "Crushed yellow bean sauce: purée of fermented yellow soybeans, wheat flour, salt and water" [with fermented black soybeans]. (10) "Szechwan [Sichuan] chili paste: spicy hot paste of dried chili and crushed yellow bean sauce." (11) "Soybean paste: paste of crushed soybeans combined with chili, sugar and salt." (12) "Yellow beans in salted sauce: Whole yellow soybeans fermented with salt, wheat flour and sugar" [with fermented black soybeans].

Also in the section on "Ingredients" is another two-page spread titled "Sauces, oils, fats, wines and vinegars" (p. 26-27) which states: "Soy sauce is the most basic but also the most important seasoning. Used with salt, it helps to turn simple ingredients into Chinese cuisine." Shallow, round "viewing" dishes contain: (1) Thin soy sauce. (2) Thick soy sauce. (5) "Hoisin sauce: soybeans, wheat flour, salt sugar, vinegar, garlic, chili, and sesame oil. (6) "Sweet bean sauce: Made from crushed yellow bean sauce combined with sugar. Note: The four vegetable oils shown are corn oil, sesame oil, peanut oil, and hot chili oil.

Soy related recipes (the page with recipe appears before the page with the photo): Bean curd soup (p. 58, 57). Steamed prawns in mixed bean sauce (with "1 tablespoon fermented black beans," p. 78, 77). Bean curd soup with fish stock (with "2 cakes bean curd, drained," p. 81, 83). Stir-fried clams in black bean sauce (with "1½ tablespoons fermented black beans, rinsed, mashed with 1½ teaspoons sugar," p. 88, 87). Steamed trout with black beans and garlic (with "2 tablespoons fermented black beans, rinsed and partially mashed with ½ teaspoon sugar," p. 95, 93). Willow chicken in black bean sauce (with "3 tablespoons fermented black beans, rinsed and mashed," p. 106, 109). Soy sauce

chicken (with “½ pint thick soy sauce,” p. 116, 115).

Green pepper beef in black bean sauce (with “2½ tablespoons fermented black beans, rinsed and mashed with ¼ teaspoon sugar and 1 teaspoon oil,” p. 142, 141). Bean curd puffs (deep-fried tofu, p. 152). Eight-treasure vegetarian assemblage (with “1 tablespoon fermented red bean curd cheese, mashed with 1 teaspoon own juice or water” and “8 bean curd puffs, halved,” p. 153, 151). Wheat gluten (homemade, p. 156-57). Red-braised gluten (p. 157, 155). Pi pa bean curd (The “pi pa” is a celebrated Chinese musical instrument, p. 158-59). Pock-ma bean curd (“This internationally famous Szechwan dish was the creation of the wife of chef Ch’en Shen-fu, who worked in the [provincial] capital, Ch’eng-tu [Chengdu] during the 2nd half of the 19th century. If pockmarks on her face earned her this rather derogatory nickname, ‘Pock-ma’ or ‘Pock-woman,’ they also immortalized her bean curd dish” [Mapo doufu]. Ma stands for “mazi” which means a person disfigured by pockmarks. Po translates as “old woman,” p. 159, 161).

Deep-fried bean curd in earthen pot (with “4 cakes bean curd, drained,” p. 162, 161). A vegetarian menu (of the six dishes shown, 2 contain tofu, p., 168-69). Deep-fried bean paste sauce with noodles (with “1½ pounds ground yellow bean sauce,” p. 185, 181).

Deep-fried five-spice rolls (from Fukien, with “1 package dried bean curd sheets [yuba] {usually 8 ounces, containing 8 sheets, each 13 by 6 inches},” p. 195). Eight-treasure bean curd (“The 18th-century poet and official Yüan Mei, wrote a cookery book called Sui-yüan Recipes, a unique legacy of his times from a Chinese man of letters. In the recipe called “Prefect Wang’s Eight-Treasure Bean Curd,” Yüan Mei briefly outlined how the dish traced its origin to the Imperial kitchen.” Includes “2 cakes bean curd, drained,” p. 215, 149). Bean curd in simple sauce (p. 219). Stir-fried spinach in bean curd “cheese” sauce (with “2½ to 3 cakes white bean curd ‘cheese’ with chili,” p. 220).

A Glossary (p. 227+), which starts with a page of definitions of “Beans and bean products,” defines the same items whose photos appear on pages 12-13. Likewise for the glossary page on sauces (p. 231). Address: England.

1066. Tamura, Linda. 1993. *The Hood River Issei: An oral history of Japanese settlers in Oregon’s Hood River Valley*. Urbana and Chicago, Illinois: University of Illinois Press. xli + 337 p. Foreword by Roger Daniels. Illust. Index. 23 cm. [605* endnotes]

• **Summary:** A superb book, carefully researched and well. By telling, in depth, the story of one small community of Issei in Hood River, Oregon, from their youth in Japan until their return home after the brutal internment camps, she captures the exquisitely the story of the ordeals faced by the first generation of Japanese (such honest, hard-working people) in racist America. Through her many interviews, the Issei are able to speak for themselves, in their own words,

throughout this book.

Soy-related passages: funyu = fermented bean cake = 59! miso = p. 65, 67, 77. Soy sauce = 25, 26, 66, 75, 138. soybean = p. 26.

Page 58: Sekihan (steamed rice mixed with red beans [azuki]). Page 134: O-hagi (sweetened bean jam filled with mashed rice).

Linda Tamura is a native of Hood River and a third-generation Japanese American. Address: Prof. of education and chair of the Education Dep., Pacific Univ., Forest Grove, Oregon.

1067. Lumpkin, Tom. 1994. Work with azuki beans in America of Washington (Interview). *SoyaScan Notes*. March 1. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** Tom is just finishing a book on azuki beans, which will be at the publisher (CAB in the UK) in April. He has more than 1,000 documents and citations on azuki, many of them Japanese and Chinese. It is estimated that 2,000 to 3,000 acres of azuki beans will be planted in the state of Washington, about 1,000 acres will be planted in Nebraska, and North Carolina and Minnesota will have quite a bit. The reason for this new interest is that during the summer of 1993 extremely cold weather in Japan and northern China dramatically reduced the production of many summer crops—including rice and azuki beans. So prices are now very high. Address: Head, East Asian Crop Development Program, Dep. of Crops and Soil Sciences, Washington State Univ., Pullman, WA 99164-6420. Phone: 509-335-2726.

1068. Konovsky, John. 1994. Work with edamamé. Part II (Interview). *SoyaScan Notes*. March 3 and 11. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** A Chinese woman, who is a student in Tom Lumpkin’s program, gets a few articles set to her from China every month on edamamé. Her father is the former head of the Chinese Academy of Agricultural Science. She was a librarian in China. Tom is close friends with their family. Getting articles from China in this way is a slow process, but Tom’s program probably now has about 100 such articles. Tom will probably include citations for these documents in one of his future publications on edamamé—probably the book titled *Edamamé—The Vegetable Soybean*. John was the sole author of first draft of this book.

Dean McCleary did most of the work on the azuki book and he wrote the final draft, but he will probably not be listed as the main/first author.

John’s new company is mostly focused on edamamé variety development, i.e. breeding, then supplying those seeds to local growers. Now he is brokering edamamé seeds, importing them from East Asia. He also has other jobs, related to agriculture but not to soy, which support him financially while he is building his company.

John speaks very highly about the program at WSU; it

is a very unique program that offers opportunities not found in any other graduate program in the country. It is still fairly well funded.

For edamamé to succeed in America, some organization (probably a company) will have to be willing to invest considerable money and time in the product. It has great potential and Americans like it, and now that production problems have basically been solved, introducing edamamé to the USA is basically a marketing problem. The subtle appearance problems that Japanese had would probably not be problems for most Americans who have not developed the fine level of discrimination that the Japanese have. John thinks it will take some time to solve the appearance problems for the Japanese.

Concerning the question: How does one say in Japanese—“Large-seeded, vegetable-type soybeans?,” John does not think there is such a Japanese term. Most soybeans grown today in Japan are large seeded and most of these are used for edamamé or seed production the next year. He did not hear the term *Nihon daizu* (“Japanese soybeans”) very often. The introduction of true “field-type” soybeans is relatively recent. Summer-type and autumn-type soybeans refer more to maturity groupings than to seed size. The Japanese have their system, which is more complex than the maturity group system.

While in Japan, John heard the terms *natsu-daizu* (summer type soybeans) and *aki-daizu* (autumn type soybeans) used frequently. This is a fundamental distinction, although there are gradations in between. Summer soybeans correspond to U.S. Maturity Groups 000 through II, from northern latitudes. Maturity Groups V and greater correspond to autumn soybeans. Currently in Japan, almost all green vegetable soybeans (edamamé) are produced using summer type soybeans, because all the farmers want to get to market as early in the year as possible and summer soybeans are a short-season crop. Traditionally in Japan, edamamé were harvested later in the year (September or October) for *mame-meigetsu* (the bright moon of edamamé). Japanese would go outside to view the moon while enjoying freshly harvested edamamé and beer. But nowadays the peak of the edamamé season is in August, around the time of *O-bon*. So there has been a major historical shift toward an earlier harvest.

The Japanese word *dadacha-mame* is a vernacular term from Yamagata prefecture that refers to a specific type of edamamé which, when, mature have a brown seed coat and a much stronger taste (perhaps higher sugar content). It sells for a premium price.

John is still interested in the scholarly side of edamamé but he doesn't have the time for it. He now needs to earn money, which he hopes to do via his new company East-West Seeds. He is tired of school and is no longer very interested in finishing his degree program at Washington State Univ.

Two Chinese scholars who are very interested in the

history of the soybean in China are GAI Junyi (of the Soybean Research Institute, Nanjing Agricultural University) and SUN Huan (head of the Soybean Institute, Jilin Academy of Agricultural Sciences, Gongzhuling). Address: East-West Seeds, 728 33rd Lane N.E., Olympia, Washington 98506. Phone: 206-754-2423.

1069. *SoyaScan Notes*. 1994. Foods of East Asian origin that the macrobiotic movement/community has played a leading role in introducing to America, starting in about 1960 (Overview). May 10. Compiled by William Shurtleff of Soyfoods Center.

• **Summary:** These include brown rice, rice cakes, miso (many types), shoyu (traditional Japanese-style soy sauce), tamari (Japanese soy sauce containing little or no wheat; prior to about 1980 many practitioners of macrobiotics referred to natural shoyu as “tamari,” thus inadvertently popularizing real tamari, which now may be better known in the USA than it is in Japan), natto (fermented soybeans), seitan (wheat gluten seasoned with a soy sauce broth; this word was coined by George Ohsawa), amazake (thick rice beverage), umeboshi salt plums, sea vegetables (kombu, wakame, hijiki, nori, etc), tofu, soymilk, alternatives to dairy products (macrobiotics do not consume dairy products), buckwheat noodles (*soba*), kuzu, rice syrup, barley malt syrup, azuki beans, sesame seeds, sesame salt (*gomashio*), daikon (white radish) and daikon pickles, kabocha (Hokkaido pumpkin), shiitake mushrooms (also known as Chinese black mushrooms, they have a firm “meaty” texture), burdock, jinenjo (glutinous yam).

They have done this by starting and running many natural food companies to import, distribute, manufacture or grow these foods; by writing cookbooks and other books about these foods; by teaching classes (including many cooking classes in which these foods are used); by influencing other people to do all of the above.

The Japanese names of many of these foods have become anglicized and are now the standard English-language names.

The macrobiotic movement also played a major role in introducing “tahini” or sesame butter (a Middle-Eastern food) to America, starting with George Ohsawa's book *Zen Macrobiotics* in 1960. Of the first 20 records in the SoyaScan database that mention “tahini,” 14 are associated with macrobiotics. Likewise, 22 of the first 50 records are associated with macrobiotics.

1070. Melina, Vesanto; Davis, Brenda; Harrison, Victoria. 1994. *Becoming vegetarian: A complete guide to adopting a healthy vegetarian diet*. Toronto, Canada: Macmillan Canada. x + 262 p. Foreword by Louise Lambert-Lagacé. Index. 26 cm. [20 ref]

• **Summary:** An excellent vegan sourcebook and cookbook by three registered dietitians. For the Contents and details,

see the 1995 revised American edition.

Talk with Vesanto Melina. 1996. July 22. This book has presently sold about 25,000 copies in Canada alone. A revised U.S. edition was published in Nov. 1995 by The Book Publishing Co. in Summertown, Tennessee. Address: Canada.

1071. Andoh, Elizabeth. 1994. Where Tokyo's young crowd likes to eat: Choice tables. *New York Times*. Sept. 18. p. 165.

• **Summary:** A look at popular restaurants in Tokyo. "One sampler is made up of five rolls of sushi—one each of tuna, omelet, natto (sticky fermented [soy] beans), mentaiko (spicy cod roe) and fresh ama ebi (shrimp).

Also mentions: "chilled cubes of silky bean curd," "miso-thickened broth with wakame, or sea tangle," "fried bean curd," and "sweet adzuki beans."

1072. Lickteig, Greg. 1994. Re: Scoular Grain Company. Letter to William Shurtleff at Soyfoods Center, Sept. 21. 1 p. Typed, with signature on letterhead.

• **Summary:** Scoular is a supplier of organic certified soybeans with OCIA and OGBA certification. It is also a supplier of azuki red beans, black soybeans, and pinto beans. Note: Greg's surname is pronounced LIK-tai. This company was founded in 1892. Address: The Scoular Building, 2027 Dodge St., Omaha, Nebraska 68102. Phone: 1-800-488-3500.

1073. Gold Mine Natural Food Co. 1994. Macrobiotic, organic and Earthwise products for you and your home (Mail order catalog and price list). San Diego, California. 64 p. 28 cm.

• **Summary:** Soy-related products include organic black soybeans, organic yellow vegetable soybeans, organic aduki beans, Ohsawa soy sauce, Ohsawa tamari, South River miso, Junsei Yamazaki miso, Ohsawa yuba, Ohsawa organic dried tofu, and kuzu.

Note: An earlier catalog appeared in June 1994, also 64 pages. Address: 3419 Hancock St., San Diego, California 92110-4307. Phone: 1-800-475-3663.

1074. Lumpkin, Thomas A.; McClary, Dean C. 1994. Azuki bean: Botany, production and uses. Wallingford, Oxon, England: CAB International. xv + 268 p. Illust. Author index. Subject index. 24 cm. [1009* ref]

• **Summary:** This is a superb book, the first comprehensive work ever written on azuki. It contains hundreds of illustrations and photos, plus a 67-page bibliography containing 1,009 references—many of them from East Asian sources, which are hard for many researchers to obtain and to understand. Dr. Lumpkin speaks Japanese and Chinese. Hu Jia, who was a librarian in China's National Agricultural Library, is working in Tom's program; she has been able to locate most of the early Chinese literature on the azuki

beans, which is now cited in the bibliography of this book. Tom's program is continuing to breed and select azuki beans.

Contents: Foreword. Acknowledgements. About the authors (autobiographical). 1. Introduction: The plant's name, the crop and world literature. 2. Botany of azuki: Taxonomy (the subgenus *Ceratotropis*), Morphology and phenology (seed, vegetative features, reproductive features). 3. Physiological characteristics. Growth and development, biochemistry of growth, growth regulator effects, mineral nutrition, water use requirements, environmental responses (temperature experiments, planting time effects, plant destiny and configuration effects, the cultivation environment).

4. Production: Initiation of cultivation, production areas (China, Japan, Korea, United States, India, New Zealand), production practices (rotations and field selection, field preparation and planting, fertilization, weed control, water requirements, harvest). 5. Insects and nematodes. 6. Diseases: Fungal, bacterial, viral, and mycoplasma diseases. 7. Breeding and genetics: Centers of origin and diversity, interspecific hybridization, chromosomes, germplasm resources (Table 7.1 shows institutional and national azuki germplasm collections in Australia, Belgium, China, Costa Rica, Germany, India, Japan, Korea, Netherlands, Philippines, Taiwan, and USA), breeding programs, breeding objectives, heritability, mutation and tissue culture techniques, cultivar releases.

8. Food chemistry and processing: Seed characteristics (seed structure, water imbibition, color, pesticide residues), food chemistry (an production, starch and sugar, starch granules and processing, protein, lipids, fiber, aromatic compounds), sprouts. 9. Uses and marketing: History, uses (food products, other uses), marketing (consumption patterns, grading, international trade). References.

On the cover of this book is the word "azuki" written with the standard Japanese characters, small + bean. Note that the character for "red" is not part of the word. Table 1.1 (p. 2) shows the many Chinese character names for azuki along with their romanization by the Hanyu Pinyin system, and their translation / meaning in English. The earliest set of characters used in China is red + small + bean, which appears in the *Shen-nung pên ts'ao ching* [Classical pharmacopoeia of Shen Nung, the Heavenly Husbandman] which was reconstructed in its final form about A.D. 100.

Note 1. This fine book could be improved in several ways: (1) The information on the introduction of azuki to the USA and other countries, and its early history worldwide and in these countries is not discussed clearly. In this respect, quite a few of the important early bibliographic references to azuki in the USA and China are missing; (2) The steady increase in the use of azuki beans as food in the USA, and the key role of the macrobiotic and natural foods movements in that development, is largely omitted.

Note 2. Soybeans are also discussed at many places in this book. Address: Dep. of Crop and Soil Sciences,

Azuki Bean

Botany, Production and Uses

T.A. Lumpkin
D.C. McClary

小豆



CAB INTERNATIONAL

Washington State Univ., Pullman, WA 99164-6420. Phone: 509-335-2726.

1075. Franke, Adrian A.; Custer, L.J.; Cerna, C.M.; Narala, K. 1995. Rapid HPLC analysis of dietary phytoestrogens from legumes and from human urine. *Proceedings of the Society for Experimental Biology and Medicine* 208(1):18-26. Jan. [40 ref]

• **Summary:** Discusses: Soybeans (dry, U.S., Japan), soybeans (roasted, Japan), soybeans (fresh, raw), soybeans (boiled, U.S., Taiwan), soy flour (U.S.), tofu, black soy beans (raw and boiled), red bean [probably azuki] seeds (dry), daidzein, genistein, coumestrol, formononetin, biochanin-A. Address: Molecular Carcinogenesis Program, Cancer Research Center of Hawaii, Honolulu, Hawaii 96813.

1076. Cheney, Susan Jane. 1995. Taking the mystery out of miso: Flavor soup, stew, sauce and more with this versatile seasoning. *Vegetarian Times*. March. p. 90, 92-94.

• **Summary:** Contents: Introduction. How miso is made. Good health helper. A little dab'll do ya. A color photo shows Savory adzuki beans and vegetables with miso. Address: Former Moosewood cook.

1077. Kawakami, Kozo. 1995. Tsurezure Nihon shokumotsushi: Dai 3 kan [Leisurely history of Japanese foods. Vol. 3]. Tokyo: Tokyo Bijutsu. 195 + 3 p. Illust. Index. 21 cm. [Jap]

• **Summary:** As the title implies, the author is writing about 50 foods he finds particularly interesting.

Entries containing an asterisk (*) are about or mention soy. About Mr. Kawakami (sensei) by TANAKA Seiichi. Dengaku tofu * (p. 1+). History of dengaku tofu * (p. 3+). Yuba * (p. 8+). Summary of "History of Tofu" * (p. 13+). Abura-age of tofu (Deep-fried tofu pouches) * (p. 17+). Itohiki natto * (p. 21+). Tororo (Grated tororo imo—glutinous yam—is often served atop dishes such as soba = buckwheat noodles) (p. 24+).

Oroshi daikon (Finely grated juicy raw daikon = Giant Japanese white radish) (p. 30+). Oroshi-gane (Grater) (p. 33+). Mentori daikon (One method of cutting the daikon root to keep the shape during the simmering) (p. 37+). Owari daikon and miyashige daikon (Names of daikon varieties) (p. 39+). Gobo (Burdock root) (p. 43+). Sasagaki gobo (burdock root) and sasagaki daikon (Sasagaki is a special shaving/cutting method. End result: the cut vegetables look like bamboo leaves) (p. 48+). Yataru-zuke (A kind of pickles) * (p. 52+). Kaku-ae (p. 55+). Asa-zuke (pickled asa) (p. 57+). Takuan-zuke (Pickled radish) (p. 62+). Osaka-zuke (p. 67+).

Fu, ki-bu, and shofu / sho-fu (Types of baked wheat gluten) (p. 70+). History of the development of fu (Part 1) (p. 76+). History of the development of fu (Part 2). Kanso-fu (dried) and Kaki-fu (Broiled) (p. 81+). Awase-fu and Yose-fu * (p. 86+; tofu is mentioned). Chirimen-fu (p. 88+). Tosa-fu (p. 91+). Shian-fu * (p. 94+; tofu is mentioned). Yamakawa-

fu and Chiyo-fu (p. 97+).

Azuki beans and Aka (red) azuki beans (p. 101+). Dainagon azuki (a special variety of azuki beans) (p. 106+). Azuki no suri-jiru (Soup of pureed azuki) (p. 109+).

Hishio—the other name is shoyu no mi (Moromi mash & shoyu presscake) * (p. 115+). Suri-Hishio (ground hishio) * (p. 121+). Ume-bisho and Yubi-hishio * (p. 125+). Hishio and shishi-bishio * (p. 130+) Azuki Kai (Azuki porridge), Aka-kai (Porridge), Uncho-juku (Porridge) (p. 133+) Unzo-kai (Porridge) and Unzo (p. 138+). Kowaii and Seki-han (Rice recipes; Sekihan is red azuki rice) (p. 141+). History of shiso (Shiso leaves are translated as "Beefsteak leaves") (p. 148+).

Asazuki (p. 150+). History of Karashi and Keshi (p. 153+). What is Araragi? (p. 158+). Tade / Tadé (p. 163+). Itachi hajikami and Inu sansho (p. 167+). History of sansho (Sansho seeds are one type of spice) (p. 170+) Hajikami and Shoga (Ginger) (p. 174+). History of myoga (A Japanese leafy plant with a strong flavor that is often used for a topping for Hiyayakko Tofu) (p. 178+). Myoga-take (p. 181+).

Sai? Seki (Chinese name) and Niragi * (p. 184+). Kawakami sensei and the Rikagaku Kenkyujo (Note: *Rikagaku* means physics and chemistry), by MATSUSHITA Sachiko, Honorary Professor of Chiba University (p. 190+). 96 Years of my father's life by Kozo Kawakami's eldest son (Tadashi? / Tsutomu?) (p. 192+). My father, Kozo Kawakami,—A view from his 2nd son (p. 194+).

A photo (p. 191) shows the members of the Rikagaku Kenkyujo seated together on tatami mats in a room. A separate outline sketch and legend shows the name of each member.

The section titled "Kawakami sensei and the *Rikagaku Kenkyujo*," by Prof. Matshita states (p. 190): I was able to receive his guidance for 20 years ever since I became a member of the Ryôrisho Genten Kenkyu Kai, a study group that started in 1994. They met at Keio University's old wooden classroom. These people studied old culinary documents together. I listened to his lecture on the *Ryôri Monogatari*. I could not do my present work that involves Edo period culinary literature without his influence.

I also saw him at the members meeting, visited his home, listened to his talks, and took a look at his sketchbooks on many occasions. On those occasions, he enjoyed talking about his experience at Riken (Rikagaku Kenkyusho) before the war and his teacher Dr. SUZUKI Umetaro. His work on the history of Japanese Food History got started after he retired. His work before his retirement was on agricultural chemistry (*nogei-kagaku*). He worked mostly on Vitamin A at Dr. Umetaro SUZUKI's Lab. in Rikagaku Kenkyusho until he moved to Manshu Kokuritsu Tairiku Gakuin in 1937. He received his PhD in Agriculture.

I first met him at a funeral of the late TSUJI Michiyo sensei in June 1989 held at Enmeiji Temple in Urawa. The

late TSUJIMURA Michiyo sensei was in the same lab as Kawakami sensei.

The photo on the next page shows the golden age of Riken group who worked under Dr. Suzuki. I made a copy of one of the 3 photos from late TSUJIMURA Michiyo Sensei's album. He didn't have any photos from our days in Manchuria, so I was very happy and drew the picture below. The man in the center in the dark suit is Kawakami sensei.

Letter (e-mail) from Naomichi Ishige, Japanese food historian. 2008. May 18. KAWAKAMI Kozo, who passed away in 1994, was the foremost philologist on Japanese food culture. Thus, his writing is reliable enough. Continued. Address: Japan.

1078. Product Name: Black Bean Sauce.

Manufacturer's Name: Kame / Ka Me.

Date of Introduction: 1995 April.

Ingredients: Water, fermented black soy beans [soy nuggets], sugar, salt, caramel color, flour, dehydrated garlic, food starch modified, sodium benzoate.

Wt/Vol., Packaging, Price: 8 oz jar.

How Stored: Shelf stable.

New Product–Documentation: Dana Jacobi. 2005. *12 Best Foods Cookbook*. Emmaus, Pennsylvania: Rodale Press. xv + 336 p. April. See p. 201. A recipe calls for "1 tablespoon black bean sauce."

Letter (e-mail) from Dana Jacobi, cookbook author and food writer. 2005. "Black bean sauce: There is a savory product used mainly in stir-frys. It's been around for years, more than 10 for sure, and there are different brands available. Mainstream supermarkets have it in their Asian section, plus Chinese markets and possibly some Japanese, too.

"Sweet black bean sauce does not sound familiar and I've tracked Chinese condiments since the 1970s. The only sweet bean stuff I know is sweet adzuki, aka red bean paste, for Chinese and Japanese desserts."

Note: "Black bean sauce" is made from *douchi* (fermented black soybeans).

1079. Great Eastern Sun. 1995. Pricelist. Effective June 5, 1995 [Mail order]. Asheville, North Carolina. 37 p. 28 cm.

• **Summary:** Contents: Catalog information. Miso Master organic miso (traditional, mellow, or sweet). Sweet cloud organic sweeteners. Haiku organic Japanese tea. GES organic English tea. Emerald Cove sea vegetables. Emperor's Kitchen condiments (soy sauce, vinegars, ume plum products, toasted sesame oil, mirin, dried vegetables, shiitake mushrooms, beans, seeds, grains, dry condiments, Atlantic sun-dried sea salt). Traditional Japanese macro pasta. Traditional Japanese specialty items (misos, candies, seaweed and ume, organic pasta, liquid condiments, specialty products {snow-dried tofu, HamaNatto, Zenryu fu (round cakes of wheat gluten), shonai fu (flat sheets), organic brown

rice koji, organic nuka rice bran, organic brown rice dinner with azukis [azuki beans], or with vegs, mochi (4 types), noodles (some or bifun rice noodles), ume products, teas, pickles (incl. natto miso chutney)}, personal care products, kitchenware, knives). Address: 92 McIntosh Road, Asheville, North Carolina 28806. Phone: 704-252-3090.

1080. Natural lifestyle magazine and mail-order market. Spring. 1995. Asheville, North Carolina: Natural Lifestyle Supplies. 55 p. Catalog. 28 cm.

• **Summary:** A macrobiotic mail-order catalog with several nice articles, it sells many types of soyfoods and related products, including the full line of Kushi Cuisine, organic soybeans (yellow and black), Rice Dream soymilk (p. 27), Edensoy soymilk, Westbrae Malted, Nasoya Vegi-Dressings, Nayonaize, Farmhouse Tekka, organic soy sauce, fresh tofu, snow-dried tofu, organic miso (from Miso Master and Japan-Onozaki, and Hatcho Miso), instant miso soups (Mitoku and Fantastic Foods), South River American Miso, and tamari roasted nut mix.

Plus: Mochi, kuzu, sea vegetables, shiitake mushrooms, umeboshi and ume "plum" products, azuki beans, amazake, Corona hand mill, water filters, organic cotton clothes, cookbooks, etc.

Publisher: Tom Athos. Editor and graphic design: Debbie Athos.

On page 5 is a nice ½-page article, "Dr. Spock goes macrobiotic." It begins: "I've been practicing transcendental meditation twice daily since my late seventies. I swim every day, and I try to take short walks after meals. I go to bed at 9 p.m. and get up at 5 or 6 a.m. I do 50 minutes of Yoga stretches each morning. Mary gives me daily massage for my weakened legs. I've been eating a macrobiotic diet for two years. It includes practically no fat, no meat, no sugar and no dairy products. I lost fifty pounds in the first few months and I was eating as much food as I wanted.

"Turning point: Until a few years ago, my health had gradually deteriorated, beginning with a heart arrhythmia at age 65. In 1987 my heart stopped altogether, long enough to drop me face first on the marble floor of the Copley Plaza Hotel in Boston. So they sewed a pacemaker under my skin, with an electric wire into my heart to keep it beating adequately. Three years ago I had a brief stroke-like episode that reduced my talk to gibberish for 15 minutes, and I was put on a blood thinner to prevent a more serious stroke. My legs were gradually getting weaker and less coordinated; the neurologist said it would be progressive. For a year I had repeated attacks of severe bronchitis that required antibiotics; that scared my internist. In 1991, I was introduced to a Belgian-trained physician who had become a macrobiotic counselor. He put Mary and me on a macrobiotic diet." His health improved steadily. "I feel much more alive and alert. After dropping 50 pounds, I lost all my subcutaneous fat, so I get cold easily,... My cholesterol level has gone from over

200 to 123; Mary's was 285 and is now 124. We found that our annual pharmacy bill went from \$5,000 to \$780."

"Once you decide to take your healing into your own hands, any sense of powerlessness and hopelessness ebbs away." Address: 16 Lookout Drive, Asheville, North Carolina 28804-3330. Phone: 1-800-752-2775.

1081. *Organic Food Business News (Altamonte Springs, Florida)*. 1995. Organic commodity prices. Sept. 2 p.

• **Summary:** In this fax bulletin, commodities are listed in three basic categories: (1) Fresh fruits; (2) Vegetables & herbs; (3) Grains, beans & oilseeds. For each commodity the following wholesale prices are given: Low, high, sales unit (e.g., bushel, pound, each), current average, current farmgate average.

Among the grains, beans & oilseeds we find: Soybeans, clear hilum (cleaned); Soybeans, clear hilum (uncleaned; least expensive at \$13.75/bushel); Soybeans, transitional, hilum/Vinton; Soybeans, Vinton (cleaned; most expensive at \$22/bushel); Soybeans, Vinton (uncleaned).

Other commodities include: Adzuki beans, blue corn, quinoa, spelt.

1082. Kushi, Michio. 1995. Guide to standard macrobiotic diet: Kushi Macrobiotics Corp. edition. Becket, Massachusetts: One Peaceful World Press. 64 p. Nov. Illust. No index. 22 cm.

• **Summary:** Introduction. Part I—Basic principles of standard macrobiotic diet. Part II—Summary of daily dietary recommendations. Part III—Standard macrobiotic dietary practice: Whole grains, soup (incl. miso soup), vegetables, beans (incl. azuki beans, black soybeans, tofu, dried [frozen] tofu, tempeh, natto, okara), sea vegetables, fish and seafood, fruit, pickles, nuts, seeds snacks, condiments, seasonings, garnishes, desserts, beverages, modifications, helpful eating hints. Part IV—Proposed one week meal planner. Macrobiotic resources: The Kushi Institute, The One Peaceful World Society. Kushi Macrobiotics Corp. background (formed in May 1994 to market a line of natural, macrobiotic foods). Michio Kushi: Brief biography (Age 69, he is Chairman of the Board and Director of Research of Kushi Macrobiotics Corp.). On the back cover is a portrait photo of Michio Kushi with his autograph in both English and Japanese.

Note: This book is designed to promote the Kushi Cuisine line of macrobiotic foods. A half-page black-and-white photo of that line of foods is shown facing the inside back cover. The slogan is: "Perfect replacements for imperfect foods." Kushi Macrobiotics Corp. is located at Three Stamford Landing, Suite 210, Stamford, Connecticut 06902. Phone: 203-973-2929. Address: Becket, Massachusetts.

1083. Melina, Vesanto; Davis, Brenda; Harrison, Victoria. 1995. *Becoming vegetarian: A complete guide to adopting a*

healthy vegetarian diet. Summertown, Tennessee: The Book Publishing Co. x + 262 p. Foreword by Suzanne Havala. Index. 26 cm. [20 ref]

• **Summary:** An excellent vegetarian and vegan sourcebook and cookbook by three registered dietitians. Contents: Acknowledgements. Foreword. Introduction. 1. What is a vegetarian? 2. The evidence is in. 3. Without meat—exploding the myths. 4. Without dairy products. 5. Veganism: More food for thought. 6. Fats and oils: A balancing act. 7. Fiber: The gift from plants. 8. The vegetarian food guide: Putting it all together. 9. Vegetarian nutrition in the growing years. 10. Vegetarian diplomacy. 11. From market to meals. 12. Recipes: Simple treasures. Appendixes: 1. Glossary. 2. Nutrition recommendations.

This book contains a wealth of accurate, positive information about many different types of soyfoods (especially tofu) and related subjects, including tofu, soymilk, tempeh, miso, soy yogurt, soy cheese, soy sauce, tamari, and soy oil (incl. omega-3 fatty acids). Plus wheat gluten, seitan, rice milk, sea vegetables, adzuki beans (p. 66, 162), quinoa, amaranth, macrobiotics, phytochemicals, plant estrogens found in tofu and other soy products (p. 75; they may contribute to positive calcium balance and have a protective effect on the bone health of Chinese and Japanese women), dietary fiber.

Talk with Vesanto Melina. 1996. July 22. This book was originally published in Canada in May 1994 by Macmillan Canada in Toronto. A revised U.S. edition was published in Nov. 1995 by The Book Publishing Co. in Summertown, Tennessee. Address: Canada.

1084. McGill, J.A., Jr. 1995. Michigan-Japan and azuki beans. *Michigan Dry Bean Digest* 19:4-7. [2 ref]*

1085. Herbst, Sharon Tyler. ed. 1995. *The new food lover's companion: Comprehensive definitions of over 4000 food, wine, and culinary terms*. 2nd ed. Hauppauge, New York: Barrons. xvi + 715 p. 18 cm. 1st ed. published 1990. Barron's Cooking Guide. [325* ref]

• **Summary:** This carefully researched and well written dictionary of food terms also contains 21 useful appendixes and a good bibliography. All enquiries should be directed to: Barron's Educational Series Inc., 250 Wireless Blvd., Hauppauge, New York 11778.

Soy and related entries can be found under the following headings: Adzuki bean (also azuki), agedashi, cheese—imitation cheese (generally includes tofu and lecithin), fermented black beans (also called Chinese black beans and salty black beans), flour—gluten flour, kecap manis / ketjap manis, kudzu, milk (see soy milk), miso, natto, okara, queso fresco (also called queso blanco), quinoa, seitan, shoyu (Japanese for soy sauce), soybean, soybean oil, soy flour, soy milk, soy pea (see soybean), soy sauce (light soy sauce, dark soy sauce, Chinese black soy, tamari), tempe or tempeh, tofu

(also called soybean curd and bean curd).

1086. Lawn, R.J. 1995. The Asiatic *Vigna* species—*V. radiata*, *V. mungo*, *V. angularis*, *V. umbellata*, and *V. aconitifolia* (Leguminosae—Papilionoideae). In: J. Smartt and N.W. Simmonds, eds. 1995. Evolution of Crop Plants. Second edition. Harlow, Essex, England: Longman Scientific & Technical. 531 p. See p. 321-26. Chap. 65. [16 ref]

• **Summary:** Contents: Introduction. Cytotaxonomic background. Early history. Recent history. Prospects. A table (p. 322) lists (in order of economic importance) the cultivated Asiatic *Vigna* species, putative wild progenitors, and centers of domestication.

Species: *V. radiata*. Common names: Mungbean, green gram. Wild progenitor: Var. *sublobata*. Center of domestication: India.

Species: *V. mungo*. Common names: Black gram, urd. Wild progenitor: Var. *silvestris*. Center of domestication: India.

Species: *V. angularis*. Common names: Adzuki bean [azuki]. Wild progenitor: Var. *nipponensis*. Center of domestication: Northeast Asia.

Species: *V. umbellata*. Common names: Ricebean. Wild progenitor: Var. *gracilis*. Center of domestication: Southeast Asia.

Species: *V. aconitifolia*. Common names: Moth bean, mat bean. Wild progenitor: -. Center of domestication: South Asia.

Species: *V. trilobata*. Common names: Phillipessa bean, jungli bean. Wild progenitor: -. Center of domestication: South Asia.

Species: *V. glabrescens*. Common names: -. Wild progenitor: *V. radiata* x *V. umbellata* (?). Center of domestication: Southeast Asia.

Adzuki bean is popular in Japan, China, and Taiwan as a sweetened paste or in a porridge. Mung bean and black gram are believed to have been domesticated in the Indian subcontinent; archaeological evidence suggests they have been used there for at least 3,500 years. Adzuki bean is believed to be of much more recent origin than either mungbean or black gram. It is thought to have been domesticated in eastern Asia through selection from the wild form *V. angularis* var. *nipponensis*, which occurs in Japan, Korea, Taiwan, China and Nepal. Most adzuki bean production takes place in northern China, Japan, and Taiwan, and most world trade is into Japan, where it is used as a sweetened confection and occasionally for sprouting. It has the largest seeds of all the cultivated *Vigna* species (80-160 mg). In Japan, production is located mainly on the northernmost island of Hokkaido, where it is grown as a summer crop. However annual production varies from about 80,000 to 160,000 tonnes because cold spring or autumn temperatures frequently reduce seed yields. Small areas of adzuki bean are grown in Australia, using mechanized

agriculture, for export to Japan.

“Prospects: Major constraints to the broader utilization of the Asiatic *Vigna* species are their relatively low seed yield potentials, photoperiod sensitivity, and susceptibility to insect pests and diseases.” Address: CSIRO Div. of Tropical Crops and Pastures, The Cunningham Lab., St. Lucia, Queensland, Australia.

1087. Lo, Eileen Yin-Fei. 1995. From the earth: Chinese vegetarian cooking. New York, NY: Macmillan. 326 p. Illust. (calligraphy by San Yan Wong; illustrations by Claudia Karabaic Sargent; instructive diagrams by Jackie Aher). Index. 24 cm.

• **Summary:** The first chapter, “Foods of the earth” begins (p. 1): “Two days of every month, the first and the fifteenth, were special in the Cantonese household of my grandmother, the small and autocratic woman I always knew as Ah Paw, which means ‘my mother’s mother.’ She was a Buddhist, and on those days she would eat only vegetables, then retire to the couch in her salon to finger her wooden beads and pray to her ancestors,...

“This was not only a monthly ritual. In the time of the Lunar New Year she would follow her practice of not eating meat, not consuming anything that had lived, for the first fifteen days of the New Year. And she would honor all of the birthdays in our family the same way.”

Page 4: At Chinese weddings, “small, round, flat cakes of dough, filled with either sweetened lotus seed paste, black bean paste, or red bean paste, were presented by the groom’s family to that of the bride. These cakes are called *lo paw*, which translates as ‘wife’s cakes’...” “Small steamed buns filled with sweet black bean paste and shaped like peaches are given to people observing their 65th birthdays.”

Page 5: “It is also believed that foods have innate characters, ranging from hot to very cold. Soybeans are considered sweet, with a warm character, but when cooked they are said to become hot... Many people to this day eat foods that they believe balance their bodily systems between heat and cold, dryness and moisture, sweetness and sourness.”

The Chinese kitchen (glossary) (p. 7-20) includes: Bean curd, fresh (doufu, tofu). Bean curd, dried [dried bottom yuba]. Bean curd cakes [doufu-gan]. Bean curd skins, fresh [fresh yuba]. Bean sprouts (mung or soybean). Black beans, fermented (fragrant, preserved in salt). Five-spice seasoning (Often used to flavor dried soybean cakes). Hoisin sauce (“A thick, chocolate-brown sauce made from soybeans, garlic, sugar, and chilies”). Oils (Peanut oil is the favorite of the Chinese kitchen). Red beans [azuki]. Sesame oil. Sesame seeds, black or white. Sesame seed paste (tahini). Soy sauce (“This comes in light and dark varieties. The light soys are usually taken from the top of the batches being prepared, the darker soys from the bottom. Both are made from soybeans, flour, salt and water.” Her favorite brand is Yuet Heung Yuen,

made in Hong Kong).

Recipes for fermented black [soy] beans: Romaine lettuce with black beans (p. 70-71). Vegetarian chicken with black bean sauce (p. 190). Steamed clams with black beans (Buddhists are allowed to eat clams, mussels, and oysters, p. 231). Sole with black beans (p. 238). Fresh rice noodles with black beans (p. 258-59).

One very interesting chapter is titled “Daufu and the traditions of Buddha” (p. 169-233). Surprisingly the next chapter, “The occasional fish,” includes fish or shellfish in every recipe!

About the author (from inside rear dust jacket): “A former IACP-award winner, Eileen Yin-Fei Lo was born in a suburb of Canton, China, called Sun Tak, and later lived in Hong Kong. In 1959 she moved to the United States and in the early seventies began teaching Chinese cooking. Since 1976 she has worked on the cooking and nutrition staff of the China Institute of America in New York City, where she teaches regional Chinese cuisine.

“The author of several cookbooks, she also frequently writes on food and restaurants for publications including The New York Times, Gourmet, and Travel & Leisure. She has developed recipes for Food & Wine; is the Asian Authority on the masthead of Food Arts, for which she writes Master Class articles; and has consulted with Four Seasons Hotels and also Shun Lee restaurants in New York. Eileen lives in Montclair, New Jersey.” Address: Teacher of Chinese cooking and cookbook writer, Montclair, New Jersey.

1088. Sass, Lorna J. 1995. Lorna Sass’ complete vegetarian kitchen: Where good flavors and good health meet. New York, NY: Hearst Books. xiv + 492 p. Index. 26 cm. [35+* ref]

• **Summary:** First published in 1992 as *An Ecological Kitchen: Healthy Meals for You and the Planet* (William Morrow—which see). This innovative vegan cookbook offers 250 cholesterol-free recipes. It features a complete glossary of wholesome ingredients for stocking the vegan pantry (no meat, dairy, or eggs). Address: New York City.

1089. Smartt, J.; Simmonds, N.W. eds. 1995. Evolution of crop plants. 2nd. ed. Harlow, Essex, England: Longman Scientific and Technical. 531 p. Illust. Index. 26 cm. [500* ref]

• **Summary:** This is a significantly expanded and improved second edition—a superb book. The 101 chapters are by various authors. Most chapters have the following contents: Introduction. Cytotaxonomic background. Early history. Recent history. Prospects. References.

Chapters 48-67 are devoted to the Leguminosae: 48. Groundnut—*Arachis*. 49. Pigeon pea—*Cajanus*. 50. Centrosema. 51. Chickpea—*Cicer*. 52. Soybean—*Glycine* (by T. Hymowitz, Univ. of Illinois, Urbana, Illinois). 53. Grasspea—*Lathyrus*. 54. Lentil—*Lens*. 55. Leucaena.

56. Lupins—*Lupinus*. 57. Alfalfa—*Medicago*. 58. Beans—*Phaseolus*. 59. Pea—*Pisum*. 60. Winged bean—*Psophocarpus*. 61. Stylos—*Stylosanthes*. 62. White clover—*Trifolium*. 63. Faba bean—*Vicia faba*. 64. Narbon bean—*Vicia narbonensis*. 65. The Asiatic *Vigna* species = Grams—*Vigna radiata* [mung bean], *V. mungo*, *V. angularis* (azuki), *V. umbellata*, and *V. aconitifolia*. 66. Cowpea—*Vigna unguiculata*. 67. Other temperate forage legumes—Various genera (clovers are *Trifolium*; also *Lotus*, *Melilotus* {The three agriculturally important species of *Melilotus* are *M. alba* (white meliot or Bokhara clover), *M. officinalis* (yellow meliot), and *M. indica* (Indian or small-flowered melilot)}, *Lespedeza*, *Hedysarum*, etc.).

Chapters on other crops of interest: 3. Grain amaranths. 9. Hemp. 12. Quinoa. 14. Sunflower. 30. Finger millet. 31. Barley. 33. Pearl millet. 36. Foxtail millet. 74. Olive. 79. Sesame. Address: 1. School of Biological Sciences, Univ. of Southampton [England]; 2. Formerly Edinburgh School of Agriculture, Edinburgh [Scotland].

1090. Kushi Macrobiotics Corp. 1996. Kushi Cuisine order form. Stamford, Connecticut. 2 p. Revision #3. Jan. 19.

• **Summary:** This 1-page (back-to-back) photocopied order form lists 26 meals, seasonings, and snacks, which range in price from \$4.39 to \$0.99. Soy-related items include: Buckwheat noodles (soba style) + soy-ginger sauce (4 servings, \$4.39). Quick brown rice + red azuki beans & onions (4 servings, \$2.59). Instant miso soup + garden & sea vegetables + shiitake mushrooms (12 servings, \$3.99). Instant chicken-free vegetarian noodle soup + tofu & mushrooms (6 servings, \$3.99). Traditional premium (shoyu style) soy sauce (10 oz, \$2.99). Wheat-free premium (tamari style) soy sauce (10 oz, \$3.59). Postage for \$0 to \$10.00 is \$4.95. Address: P.O. Box 1434, Stamford, Connecticut 06904. Phone: 1-800-200-4184.

1091. Mountain Ark Trading Co.; Macrobiotic Company of America. 1996. The “new” Mountain Ark consumer direct catalog—spring 1996 [Mail order]. 799 Old Leicester Hwy., Asheville, NC 28806. 37 p. March 15. 28 cm.

• **Summary:** This is a very comprehensive mail order catalog, with an excellent index, for macrobiotic whole foods, specialty cookware, cookbooks and books on natural healing, futons, furniture, etc. Soy-related products include: Aduki beans—precooked, amaranth, amazaki concentrate, amazaki [amazake] pickles, arame (sea vegetable), barley malt, black soybeans, brown rice malt, brown rice syrup, cookbooks, dulse (sea vegetable), fu (dried wheat gluten), green nori flakes, hamanatto, hijiki, Hokkaido azuki beans, Hokkaido black soybeans, Japanese plums (*umeboshi*), jinenjo soba, Job’s tears, kamut, kanten bars, kelp granules, kinako, kombu cha, kuzu, miso, mochi, natto miso, natto starter spores, nigari, nori, quinoa, sea palm—California, seaweed sesame shake, seaweed cookbook, seitan, shoyu,

soy sauce, tamari, tofu making kit, tofu-dried, wakame. Many of these products are imported from Japan.

Bruce Macdonald of Macrobiotic Company of America acquired the company from Frank Head of Fayetteville, Arkansas, on 1 Feb. 1996. The entire catalog can be viewed on the Internet at <http://www.mountainark.com>. Address: Asheville, North Carolina. Phone: 1-800-643-8909.

1092. Robertson, Robin. 1996. 366 healthful ways to cook tofu and other meat alternatives. New York, NY: Penguin/Dutton. 406 p. Index. 24 cm. A Plume book. Nutritional analyses provided by Ed Blonz, PhD.

• **Summary:** Contents: Introduction. 1. Appetizers, hors d'oeuvres, and sandwiches. 2. Stews and hearty soups. 3. Pasta dishes. 4. Casseroles, gratins, and risottos. 5. Stir-fries. 6. Burgers, loaves, and savory pies. 7. Under wraps, stuffed, and skewered. 8. Sautéed, seared, and grilled. 9. Main-dish salads. 10. One-dish meals.

The three main meat alternatives used in the recipes in this book are tofu, tempeh, and seitan. Other soy and related foods are used in recipes are: Adzuki beans, soy milk, and TVP. The author is a woman. Address: Professional chef and cooking instructor, Virginia Beach, Virginia.

1093. Tyler, Jim; Neville, Jan. 1996. Wellspring Natural Food Co. Mail order catalog. Amherst, Massachusetts: Wellspring. 32 p. 28 cm.

• **Summary:** This is the first issue of this catalog, and Wellspring started in 1996. Soy-related products include: Miso, shoyu, black soybeans (from Hokkaido, Japan), yellow soybeans (organic), azuki beans, snow-dried tofu, kuzu, miso ramen, kinako, natto miso chutney, tekka miso, soymilk, and amasake.

Jim has been a macrobiotic teacher and counselor since 1975-76 and Jennifer was a chef at the Kushi Institute. Main competitors include Gold Mine and other such companies. This catalog is service oriented, easy to use, and more than 80% of the products have lower prices than the competition. Address: P.O. Box 2473, Amherst, Massachusetts 01004. Phone: 1-800-578-5301.

1094. DeAngelis, Lissa; Siple, Molly. 1996. Recipes for change: Gourmet wholefood cooking for health and vitality at menopause. New York, NY: Dutton Signet. A Div. of Penguin Books USA Inc. xvi + 400 p. May. Index. 25 cm. [34* ref]

• **Summary:** In the upper right corner of the front cover we read: "Feel great without hormone replacement therapy!" This is a book, with a natural foods and macrobiotic slant, about using foods in place of hormone therapy to help deal with nine problems that occur around the time menopause: Premenstrual syndrome, hot flashes, fatigue, heart palpitations, memory lapses, mood swings, irritability and depression, weight gain, waning interest in sexuality,

hypothyroidism. All menu suggestions are divided into two choices: Vegetarian and non-vegetarian (but with many vegetarian dishes). Pages 4-5 note that science has found active ingredients in foods that promote good health during menopause. Soybeans and soy products are "rich in phytohormones... sometimes called phytoestrogens." Four types of food are "off the menu" = should not be consumed: Refined sugars, caffeine and coffee, processed oils, and refined white flour and refined grains. The subsection titled "Phytohormones" (p. 16) lists ten foods, including tofu and brown rice, as good sources. The benefits of phytohormones and soyfoods are also discussed in the section on "Breast cancer" (p. 55-56).

Soy-related recipes include: Miso soup (p. 90). Bean basics (p. 120-23). Tofu teriyaki with vegetables (p. 123-24). Tempeh, green beans, and carrots with mustard sauce (p. 132-33). Tempeh slices for sandwiches (p. 148-49). Tofu alfredo sauce (p. 303).

The recipes also call for: Adzuki beans, almond butter and tahini, almond milk, kudzu, and plums (umeboshi). The last page is titled "About the authors." Photos of Lissa DeAngelis and Molly Siple appear on the inside rear dust jacket. Address: 1. Private nutrition consultant, North Edison, New Jersey; former Assoc. Director of the Natural Gourmet Cookery School in New York City for 10 years; 2. Registered Dietitian, Los Angeles, California.

1095. Natural lifestyle magazine and mail-order market: Spring-summer '96. 1996. Asheville, North Carolina: Natural Lifestyle Supplies. 63 p. Catalog. 28 cm.

• **Summary:** A macrobiotic mail-order catalog with several nice articles, it sells many types of soyfoods and related products, including the full line of Kushi Cuisine, organic soybeans (yellow and black), azuki beans, amazake, Rice Dream soymilk, Edensoy soymilk, Westbrae Malted, Nasoya Vegi-Dressings, Nayonaise, Farmhouse Tekka [miso], organic soy sauce, fresh tofu, snow-dried tofu, kuzu, and miso. Publisher: Tom Athos. Editor and graphic design: Debbie Athos. Address: 16 Lookout Drive, Asheville, North Carolina 28804-3330. Phone: 1-800-752-2775.

1096. *Ontario Soybean Growers' Marketing Board Newsletter*. 1996. Profile: Gord Pryde of Hensall District Co-operative (Ontario, Canada). Dec. p. 7.

• **Summary:** "Ontario's newest soybean exporter is planning to expand contract production of white hilum soybeans northward through Huron and Perth Counties.

"Hensall Co-op contracted with over 100 growers in 1996 to produce 10,000 tonnes of food quality soybeans, mainly for export to Japan and Hong Kong. For 1997, the cooperative will offer contracts for 150 farmers as it makes more inroads into the Pacific Rim market. "'Quality is the key,' says Gord Pryde, marketing manager for the cooperative, which has invested \$4.5 million in processing

equipment at its Hensall site within the last three years. Pryde says that in 1990, the cooperative faced a pivotal choice. Either it had to undertake a major upgrade in facilities to ship high-quality edible beans, or it had to quit that business.

“Very early in the discussions, directors saw the potential to enhance the return on their investments in equipment and human resources by expanding into soybeans. Now, the cooperative has world class receiving, cleaning and drying equipment, matched with a flexible high-quality storage network that lets it segregate beans and soybeans for distinct markets. Pryde says the equipment achieves precise size, colour and cleanliness standards, and allows them to ship soybeans in bulk or in poly or jute bags.

“Hensall Co-op has total sales over \$100 million a year, with nine locations from Ilderton in Middlesex County to Londesborough in north Huron County. The cooperative markets farm inputs such as seed, fertilizer and feed, together with fuels and hardware. Hensall Co-op operates five elevators at Hensall, Seaforth, Exeter, Ilderton and Londesborough. The cooperative is a prominent player in Ontario’s white bean industry, and also contracts a dozen kinds of edible beans, ranging from familiar kidney beans to two kinds that most Ontario consumers have probably never seen. These are otebo [*Phaseolus vulgaris* L.] and kintoki [azuki] beans, grown especially for Japan, and they’re another reason that Hensall Co-op believes that it can sell food quality soybeans in the Pacific Rim.

“‘We’ve already established a presence as a high quality niche market supplier in the region,’ Pryde explains.

“Pryde says Hensall Co-op is building on the efforts of pioneers including John Thompson of W.G. Thompson & Sons, and Nap and Paul King of King Grain, and more recently Peter Hannam of First Line Seeds.

“‘They have established a reputation for quality,’ Pryde says. ‘We don’t see ourselves as competitors. We think we can complement their efforts by identifying our own niches.’ He adds, ‘We believe we are expanding Ontario’s share of overseas markets.’

“Pryde says the co-op expects steady growth in contract production, especially with identity-preserved varieties. For its 1996 contracts signed last winter, the co-op offered a 20 cent at-harvest premium for white hilums, and 30 cents for identity preserved, rising to 60 cents for January delivery.

“Most current growers are in north Middlesex county, but Pryde sees potential for growth throughout its trading area as growers gain experience. Hensall Co-op lays out a production program, including weed control. Quality at the receiving platform, however, is heavily influenced by critical harvest decisions, including combine settings and harvest timing.

“‘We see our involvement in soybeans five years from now to be completely different than today,’ Pryde says. ‘We’re always going to have a base of regular white hilum

soybeans, but the future is to source customers who have unique requirements that demand a niche approach.’ That means more identity-preserved production. In fact, Pryde foresees the growth of unique niche marketing becoming so precise, buyers who live half a world away will want to know they’re receiving beans grown by specific producers.

“‘We built our edible bean business on niche marketing,’ Pryde says. ‘We will use the same approach in soybeans. We’re definitely in this market for the long term.’”

A photo shows Gord Pryde of Hensall District Co-operative standing next to a large truck. Address: Box 1199, Chatham, ONT, Canada N7M 5L8.

1097. Uwaegbute, A.C. 1996. Adzuki bean (*Vigna angularis* (Willd.) Ohwi et Ohashi). In E. Nwokolo and J. Smartt, eds. 1996. Food and Feed from Legumes and Oilseeds. Boston, MA: Springer. *

• **Summary:** “The crop is a bushy annual that is variously referred to as adzuki bean, atsuki bean or azuki bean. Several varieties have been cultivated for centuries in Japan, Korea, India and China (Doughty and Walker, 1982). It is believed that the bean originated in the Far East probably in India, China or Japan. Unlike other beans in the genus *Vigna*, it is cultivated in the cooler regions of the subtropics.”

1098. Danival. 1996. Danival: The environmental approach. Mezin, France. 7 p. 30 cm. Lay-flat comb bound. [Eng]

• **Summary:** Contents: Introduction. Map of France (showing Danival in the southwest near the Garonne River valley, in the historical region of Gascony). Danival, Daniel Gevaert and the Pruneaux d’Agen (plums). Danival Atlantic sea salt (incl. nutritional analysis).

“The jury of the ‘Enterprise and Environment’ competition organized by the French Ministry of the Environment has awarded the Special *Ecoproduit* 1992 prize to Danival for their overall approach to environmental questions.

“The range of organic foods which Danival presented to the jury are manufactured in strict conformity with *Nature et Progres* specifications through the whole production process.

“All packing materials can be re-used and recycled. Preserves are bottled in glass jars with tinplate caps.

“A small hydro-electric generator is powered by the old water mill. In this way, part of the factory’s power supply is produced from a renewable source of energy.

“Danival’s originality also lies in their know-how in the manufacture of miso and shoyu. These two products are obtained from fermented soya beans and are very rich in easily digested vegetable protein.” For the past ten years Daniel Gevaert, the son of Pierre Gevaert, has been farming 60 hectares in the fertile Garonne Valley—also known as the Valley of the Four Seasons. His agricultural methods are exclusively organic. “The farm is Danival’s main supplier of raw materials—and this is where Danival has the edge!”

"The company is housed in the Andiran water-mill buildings and employs nine people full time. Today Danival's range of organic products includes 9 varieties of jam, pureed prunes, semi-rehydrated Agen prunes, peach and apple compotes, concentrated tomato puree, ratatouille, tomato ketchup, tomato sauce, bolognaise sauce, spaghetti sauce, sweet-corn, chick peas, azuki beans, lentils, haricot beans, Japanese pumpkin puree, seitan, gluten powder, miso, shoyu, and Atlantic sea-salt from the Ile de Ré."

"All packaging materials can be re-used and recycled. Preserves are bottled in glass jars with tinplate caps.

"A small hydro-electric generator is powered by the old water mill. In this way, part of the factory's power supply is produced from a renewable source of energy.

"Danival's originality also lies in their technical know-how in the manufacture of miso and shoyu. These two products are obtained from fermented soya beans and are very rich in easily digested vegetable protein." Address: Moulin d'Andiran, 47170 Mézin, France. Phone: +33 5 5397 0023. Fax 5 5397 0010.

1099. Gelles, Carol. 1996. 1,000 vegetarian recipes. New York, NY: MacMillan. [vii] + 598 p. Index. 24 cm.

• **Summary:** In the Introduction, a section titled "Soy products" (p. 17-18) includes brief definitions of soybeans, bean curd (tofu), miso, seitan, soy flour, soy milk, soy nuts, soy sauce and tamari, soy sprouts, tempeh, and textured vegetable protein (TVP).

In the chapter on "Entrees" is a section (p. 217-27) is titled: "Tofu, tempeh, seitan, and textured vegetable protein (TVP)."

The index contains 20 entries for tofu, 5 each for tempeh and soybeans, 4 for textured vegetable protein (TVP), 3 for seitan, and 1 for miso.

A table (p. 14) gives the time to cook various types of beans (that have been soaked overnight, the soak water discarded, and fresh water added) in a pot or saucepan (not in a pressure cooker); the adzuki bean takes the shortest time (45 to 90 minutes) while the soybean takes by far the longest time (2½ to 3½ hours [which is not nearly long enough]). Herein lies one key reason that Asians strongly prefer soyfoods to whole soybeans. Address: Author, food stylist and recipe tester, New York City.

1100. Hsieh, Huei-Mei. 1996. Processing of azuki beans to ama-natto and an: physico-chemical and structural characteristics. PhD thesis, Washington State University. xii + 161 leaves, bound. Illust (some color). 29 cm. [30+ ref]*
• **Summary:** "Ama-natto" is sweetened azuki beans; "an" is sweetened azuki-bean paste. Hsieh, Huei-Mei was born in 1962. Address: Washington state.

1101. Spahn, Mark; Hadamitzky, Wolfgang; Fujie-Winter, Kimiko. 1996. Kanji jukugo jiten The Kanji dictionary.

Rutland, Vermont; Tokyo, Japan: Charles E. Tuttle. xviii + 1748 p. See p. 666, 667, 787, 1391. 24 cm. [Eng; Jap]

• **Summary:** On page 666, under the character *tô* or *zu*, meaning bean or pea or (as prefix) miniature, are the following (with diacritics) related to soybeans: *tônyû*—soybean milk.

"mame(no)ko—soybean flour [*kinako* or "roasted soy flour"]].

"tôfu—tofu, bean curd.

"mamema(ki)—bean-scattering ceremony [using soybeans].

"daizu—soybean.

"kôridôfu—frozen tofu.

"yakkodôfu—tofu cut into cubes.

"edamame—green soybeans.

"i(ri)mame—parched / popped beans.

"nattô—fermented soybeans.

"kuromame—black soybean.

"yudôfu—boiled tofu.

"ya(ki)dôfu—broiled tofu.

"nimame—boiled beans [usually soybeans].

"i(ri)dôfu—bean curd boiled dry and seasoned.

"shiomame—salted beans.

"mitsumame—boiled beans with molasses.

kôyadôfu—frozen tofu.

Also: "amanattô—adzuki-bean candy.

"nankinmame—peanuts.

On page 667, under the character *mi* or *aji*, meaning taste or flavor, are miso—miso (fermented soybean paste). miso shiru—miso soup.

On page 787, under the character *kô*, *ô*, *ki* or *ko*, meaning yellow is: *ki(na)ko*—soybean flour.

On page 1391, under the character for *fun*, *kona*, or *ko* meaning flour or powder are: "mame(no)ko—soybean flour.

"ki(na)ko—soybean flour.

On the cover: "Over 47,000 Japanese character compounds." "Find any compound using any of its component characters."

A brief biography of the three authors, with photos of Spahn and Hadamitzky, appears on [unnumbered] p. 1750.

1102. Kourebanas, Maria. 1997. Less is more: Dining on the light side—International bean soups. *Gourmet* 57(2):112, 143-45. Feb.

• **Summary:** Contains a recipe (p. 145) for Adzuki bean miso soup (from Japan), using ¼ cup white miso.

1103. Witt, Barbara. 1997. Pan-Asian express: Quick fixes for Asian food fans. New York, NY: Bantam Books. xiii + 194 p. Index. 24 x 14 cm.

• **Summary:** The author, who grew up in Connecticut, loved Chinese food and Mott Street in New York City. An excellent writer, she won the James Beard award in 1993. The section on "Seasonings" (p. 8-13) gives descriptions

of: Hoisin sauce, sesame seeds, soy sauce (Kikkoman is a good brand; tamari is darker and stronger), soy sauce—dark (sometimes called “black soy”; Koon Chun is a good brand), soy sauce—mushroom (flavored with straw mushrooms; Pearl River Bridge is a good brand). Soy sauce—shrimp (The Chinese equivalent of Thai and Vietnamese fish sauce. Pearl River Bridge is a good brand), soy sauce—Indonesian (*Ketjap manis*; not to be confused with the less subtle Chinese sweet soy sauce).

The section on “General packaged goods” (p. 15-18) gives descriptions of: Black beans—Chinese salted (Chinese salted black beans: “The ancient and original soyfood that produced miso and soy sauce looks kind of pitiful...” Good brands are Mee Chun and Pearl River Bridge. Avoid those flavored with five-spice powder), coconut milk (canned is excellent), coconut cream, tofu (“innocuous”).

Soy-related recipes include: Seared corn, tomato, and black bean relish (with “chopped Chinese black beans,” p. 40-41). Silky tofu walnut dip (p. 50-51). Bean paste soup (*miso shiru*, with red bean paste, p. 91). Romaine salad with lemon soy dressing (with soy sauce, p. 95-96). Tropical fruit, avocado, and tofu salad (p. 110-11). Scallops with pork and black beans (with “Chinese fermented black beans,” p. 146-47). Curried mushrooms, peas, and potatoes (p. 171-72). Address: Washington, DC.

1104. Danival. 1997. Price List—Danival: 1 March 1997. Mezin, France. 21 p. 30 cm. [Eng]

• **Summary:** Contents: Unrefined Atlantic sea salt. Tomato preserves. Vegetable preserves (incl. azuki with hijiki sea weed). Mushroom preserves. New condiments. Fruit purees with no added sugar (but 35% corn syrup for sweetness). Cereal sweeteners (barley malt, wheat syrup, corn syrup, rice syrup, apple syrup). Desserts and fruit juice. Fruit desserts. Agen prunes. Danival’s macrobiotic food range: “Europe’s leading manufacturer of organic macrobiotic food products. Produced in France, traditional Japanese manufacture. Non genetically engineered soya, grown by Mr. Berjon from his own seed beans since 1991.” Brown rice miso* (unpasteurized, 4 sizes), barley miso* (unpasteurized, 4 sizes), young shiro miso* (unpasteurized, 2 sizes), shoyu* (unpasteurized; 5 sizes), tofu*, smoked tofu*, tempeh with shoyu and wakame*, seitan with shoyu and hijiki*, gluten powder*. * = Organically grown, certified by AB-Ecoconcert.

A 4-page French-language color insert (dated March 1997) contains color photos of many of these products, sealed in glass jars—incl. “Bio Miso (*Orge/Gerst*), Sauce Bolognaise Seitan, Raviolis (*Farcies au Seitan*), and Bio Shoyu.” Address: Moulin d’Andiran, 47170 Mézin, France. Phone: +33 5 5397 0023. Fax 5 5397 0010.

1105. Pirello, Christina. 1997. *Cooking the whole foods way: Your complete, everyday guide to healthy, delicious eating*

with 500 recipes, menus, techniques, meal planning, buying tips, wit & wisdom. New York, NY: Berkeley Publishing Group (HPBooks). xii + 525 p. March. Illust. Index. 24 cm. In 2003 a CD was made in Princeton, New Jersey by Recording for the Blind & Dyslexic. [38 ref]

• **Summary:** This is basically a macrobiotic cookbook. It is largely vegetarian, but has one long chapter of fish recipes (p. 189-220). No red meat or sugar is used. One long chapter, titled “Tofu, tempeh, & seitan” (p. 157-88) contains many recipes. Other soy-related recipes include: Basic miso soup (p. 38). Miso millet stew (p. 78). Minute miso soup (p. 102). Black soybean relish (p. 136; as black soybeans are simmered, they create their own gravy). Baked beans with miso & apple butter (p. 143). Tofu cheese (with miso, p. 162). Lemon miso sauce (p. 422). Also contains recipes for amasake, azuki beans, and sea vegetables.

The recipe for “Tofu cheese” (p. 162), which is very creative and delicious, was developed by Christina many years ago, but the method was kept a secret—until now! Basically extra firm tofu is fermented / pickled in white miso. This recipe is for those who can’t stand to give up cheese, and the resulting fermented soy cheese can be used in place of dairy cheese in many recipes, ranging from creamy white sauces to thin squares on a cracker. The tofu can be fermented in the miso anywhere from 12 hours to 4 days—depending on how strong you would like the flavor to become.

1106. Dale, Don. 1997. Arizona soybeans: Former Missouri grower expects 80-bu/acre yields. *Soybean Digest*. Oct. p. 16-17.

• **Summary:** Monte Kennedy is growing over 600 acres of Pioneer 9391 soybeans in Arizona, and his may be the only soybeans in the state. Some 495 of the acres are being grown under one center pivot irrigation system. Kennedy lives in Kansas Settlement, a small high-altitude community in southeastern Arizona. Soybeans have been tried in Arizona before, but there were shattering problems. For three years he has also grown test plots of adzukis (which did very well) and black tobas—both edible beans. In 1996 Kennedy also grew three test plots of soybean varieties.

Elsewhere in the state, Arizona Grain, Inc., a grain marketing company in Casa Grande, planted 107 soybean varieties in test plots this year, in hopes of finding varieties that will encourage local growers to plant as an alternative to cotton or grain.

1107. Emmons, Didi. 1997. *Vegetarian planet: 350 big-flavor recipes for out-of-this-world food every day*. Boston, Massachusetts: The Harvard Common Press. xii + 564 p. Illust. by Melissa Sweet. Index. 24 cm.

• **Summary:** This hefty vegetarian cookbook contains 350 new and exciting innovations on recipes from around the world. Didi is described as “a bold new talent!” and her

book is a Beard Award nominee. Soy-related recipes include: Miso soup (p. 113-14). Thai tofu with red curry sauce over coconut-scallion rice (p. 213-15). Frozen soybeans [green vegetable] (p. 263). Many Chinese markets sell these in their freezer sections. “Packaged in Taiwan, they look a lot like lima beans, but they are delicate in flavor and especially high in protein. I keep them in my freezer and add them by the handful to various dishes, just as I would add peas or snow peas.” The names and pages of recipes to which they can be added are given.

Mu shu tofu (p. 360-63). Cooking with tofu (p. 361, including description of varieties and serving suggestions). Cooking with legumes (incl. azuki beans and soybeans, p. 368-69). Tofu and pumpkin seed burgers. Also contains many recipes using sea vegetables. Address: Chef at Pho République (a French-Vietnamese Bistro), Cambridge, Massachusetts.

1108. Klingel, Brigitta. 1997. Soja und Tofu: 100 koestliche und gesunde Rezepte—Mit den Wirkstoffen der Sojabohne; Erkrankungen natuerlich vorbeugen; mit einfachen, schmackhaften Rezepten [Soya and tofu: 100 tasty and healthful recipes. With soybean phytoestrogens. Prevent illnesses naturally. With simple, delicious recipes]. Munich, Germany: München Südwest Verlag GmbH & Co. 95 p. Illust. (color photos). Recipe index. Subject index. 20 x 18 cm. [Ger]

• **Summary:** A small but attractive book, containing many color photos on glossy paper. Soya, the food of the future? Favorable use of land using soya. New industrial uses of soybeans (paints, lacquer, soap, etc.). History of the soybean: East and West. World soybean production, yesterday and today. Soy in modern times: Henry Ford, two basic ways of using soybeans (as food or as livestock feed and oil), the sad story of genetically engineered (*genmanipuliertes*) soybeans. Soya: The power packet: Nutritional composition, a source of B-vitamins, magnesium, calcium and fiber, the world’s best source of protein. Soya in medicine: Preventing cancer, plant estrogens, isoflavones, prostate cancer, fiber and stomach cancer, effect on female hormones, men, medicine and soya, lowering cholesterol, help with diabetes, healthy nutrition.

Food products and buying tips: Yellow soybeans, black soybeans, green mungbeans (dehulled and not), azuki beans, glossary of soyfoods (miso, okara, soy flakes, dry soymilk powder, soy lecithin, Sojamarck {TVP}, soy flour, soymilk, soy oil, soy protein, soy sauce, soy sprouts, tempeh, tofu, dry tofu, yuba).

Cooking with tofu—for a healthy kitchen, cooking with soy is easy. Infant and child nutrition. Recipe ideas: Basic recipes. Cooking whole soybeans. Homemade soymilk. Homemade soy cream. Soy mayonnaise. Homemade soy sprouts. Soya butter. Classical meat alternative with soya. Okara specialties. International tofu cuisine. Quick and easy

recipes with soy and tofu. Healthy recipes for two. Desserts. Baked recipes. Address: Germany.

1109. Rombauer, Irma S.; Becker, Marion Rombauer; Becker, Ethan. 1997. The joy of cooking. New York, NY: Simon & Schuster / Scribner. xiv + 1136 p. Illust. Index. 24 cm.

• **Summary:** Soy-related subjects include (* = recipe): Soy sauce butter* (p. 77). Asian black bean sauce* (with “3 tablespoons preserved black beans” [fermented black soybeans], p. 83). Japanese wasabi soy sauce* (p. 83-84). Ginger soy sauce* (p. 84). Soy and sherry marinade* (p. 85). Description of miso soups and their role in the Japanese diet (p. 107-08). Light-colored miso soup with simmered vegetables and dark-colored miso soup with sautéed vegetables and Mongolian Hot Pot—a miso soup based dish* (p. 108). Ginger soy vinaigrette* (p. 238).

One long chapter is titled “Beans and Tofu” (p. 270-294). Lentils with spinach and soy sauce* (p. 280). The section titled “soybeans” (p. 287) discusses their nutritional value, health benefits (“They contain substances thought to help prevent breast and other cancers, as well as Omega-3 fatty acids, which reduce the risks of heart disease”), how to cook yellow and black soybeans, how to dry-roast [to make soynuts], many ways of processing, soy milk, okara, fermented black beans, soy sauce, tamari, miso, soy cream cheese, soy sour cream, and soy cheese. There are also substantial subsections describing the following soyfoods: (1) Soy milk, including a recipe for making it at home (p. 287-88). (2) Tofu, including silken tofu, cottage tofu, frozen tofu, sautéed or fried tofu, and smoked tofu (p. 288-89). Recipes containing tofu include: Szechuan spiced tofu, Southeast Asian curried vegetable stew, Smoked tofu burgers, and Brown rice tofu salad with orange sesame dressing (p. 289-90; the latter recipe calls for toasted sesame oil and adzuki beans, with smoked tofu being optional). (3) Tempeh, including recipes for Moo shu tempeh and Szechuan-style “hacked” tempeh. (4) About soy protein, describing textured vegetable protein and textured soy concentrate, with recipes for Dinner loaf Tex-Mex style and Lion’s head (p. 292). This is followed by a subsection describing seitan and with recipes for Root vegetable and seitan stew, and Seitan kibbe (p. 293-94).

Asparagus with mustard miso* (p. 343-44). Baby bok choy with soy ginger sauce* (p. 349). Steamed scallops or shrimp with soy sauce* (p. 513). Grilled or broiled whole red snapper with ginger soy vinaigrette* (p. 548-49). Small fish, fillets, or steaks poached in soy sauce* (p. 555-56). Chinese soy-braised chicken* (p. 601-02). The chapter titled “Know your ingredients” (1059-87) includes short descriptions of bean sauce, Hoisin sauce, miso, nori, salted and fermented black beans, sesame oil, sesame paste, soy sauce, tamari, tonkatsu sosu (dark spicy sauce based on soy), wakame, wasabi, vinegars from fruit and grains, margarines (mentions

trans fatty acids, but not from soy), and shortenings (p. 1065-69).

Subjects related to vegetarianism include: Discussion of vegetarian diets (positive and accurate, in Chapter 1, p. 3). List of vegetarian side-dishes and main courses in this edition (27 recipes, p. 20). Vegetarian chili* (p. 283). Dairy-free chocolate cake* (vegan, p. 932). Ultra-orange cake* (vegan, p. 932-33).

Irma Rombauer (the grandmother of Ethan Becker) first wrote the *Joy of Cooking* in 1931, “when domestic help was fast becoming a thing of the past and women all over the country were once again heading to the kitchen.”

Note: This cookbook was written by a committee of experts, put together by Maria Guarnaschelli. Many controversies and clashes of opinion arose out of this arrangement. Address: 3. Cockaigne, Cincinnati, Ohio.

1110. Shintani, Terry. 1997. Hawaii diet cookbook. Honolulu, Hawaii: Health Foundation Press. xxii + 266 p. No index. 22 cm. [15 ref]

• **Summary:** This weight-loss book advocates a vegetarian diet but allows small amounts of fish. But Dr. Shintani “encourages a whole-food plant-based diet as ideal for optimal health, except under unusual circumstances” (p. xxix). Dr. Shintani, being a Japanese-Hawaiian professional, is naturally very positive about soyfoods. In the glossary of this book, the following soyfoods are defined (alphabetically):

“Aburage: Japanese deep-fried tofu skin that is often used as a ‘cone’ sushi wrap.”

“Black Bean Paste: Salty fermented [soy] beans used in Chinese cooking.”

“Miso: A thick, fermented soybean paste product which has a savory flavor, often used in soups and sauces.”

“Soy Milk: Whitish creamy drink is made from soybeans. “Tamari: Genuine tamari is soy sauce made naturally without wheat as a by-product of miso making. However, it is commonly used as a term simply describing naturally brewed soy sauce.”

“Tempeh: A whole soybean food that is a good meat substitute. It is fermented, which minimizes its ‘beany’ flavor and gassiness.”

“Texturized Vegetable Protein (TVP): Usually referred to by the abbreviation of ‘TVP.’ A textured soy product made from extruded soy flour. Used for making sauces, it has the texture of ground meat. Available at natural food stores in minced, granule, and chunk form.”

“Tofu: Fermented [sic] soybean curd.”

The glossary also includes: Arame, azuki beans, hijiki, konbu, ogo, seitan, umeboshi, wakame, vegan diet [eliminates all animal products].

About the author: Terry Shintani, M.D., J.D., M.P.H., received his Master’s degree in nutrition at Harvard University [Massachusetts], and both his medical degree

and law degree from the University of Hawaii. He is on the clinical faculty at the University of Hawaii School of Medicine and School of Public Health, and is the Director of Preventive Medicine at the Waianae Coast Comprehensive Health Center. His award-winning program has been featured in Newsweek, CNN, CBS, NBC and in the Encyclopedia Britannica. A color portrait photo shows Dr. Shintani.

Note 1. He published several popular weight-loss books in the mid-1990s.

Note 2. This book is crippled by lack of an index, Address: M.D., Hawaii Health Foundation.

1111. Vavilov, Nicolay Ivanovich. 1997. Five continents. Translated from the Russian by Doris Löve. Rome, Italy: International Plant Genetic Resources Inst. xliii + 198 p. Illust. No index. 24 cm. [10 ref. Eng]

• **Summary:** This book, about the life and work of N.I. Vavilov (1887-1943), was published long after his death as a political prisoner. Unfortunately, the book has no index. The excellent introductory chapter titled “The Russian scientist Nicolay Vavilov,” by Seymon Reznik and Yuri Vavilov (p. xvii-xxix) is a frank biography, including details of his conflict with arch-enemy Trofim Lysenko, his fall into disgrace by 1935, his arrest by the KGB on 7 Aug. 1940, and his death in prison in 1943.

In “The basic principle behind the expeditions” (p. 1-4) Vavilov notes that the seven basic geographical centers of origin, which cover only about 7% of the world’s land area, are: (1) The tropical centre, in tropical India, IndoChina, and southern China. (2) The East Asiatic Centre, includes the central and western parts of China, Korea, Japan, and the major portion of Taiwan. (3) The Southwest Asiatic Centre. (4) The Mediterranean Centre, along the coast of the Mediterranean. (5) The Abyssinian Centre. (6) The Central American Centre, and (7) The Andean Centre. Maps show Vavilov’s travels in each center. These centers were first outlined in his book *Centres of Origin of Cultivated Plants* (1926, Leningrad).

In the chapter titled “Expedition to Japan” (p. 58-61) he expresses his surprise at “the endless variety of plant types” including the “various preparations of soya beans and ‘adzuki’ beans (*Vigna angularis* [Willd. Ohwi & H. Obashi]).” “There is perhaps no other country where the love of trees and flowers is so strongly expressed as in Japan. The care of flowers and plants has become a national characteristic of this country.” “There is not a single weed in the fields or in vegetable gardens.” In Japan he found “a multitude of dishes made of soyabeans (substituting for fat and including a cheese called ‘tofu,’ a soya product)...” He was impressed by the work of Ekiken Kaihara [Kaibara; 1630-1714]. A philosopher, man of letters, physician, geographer, historian, agronomist and naturalist, he wrote 270 volumes on 60 different themes, including a 5-volume work on garden plants and a 3-volume work on vegetable

plants. In 1638 two gardens of pharmaceutical plants were established in Edo (Tokyo) and in 1720 another one in Komada.

In the chapter titled “Expedition in Korea” (p. 69-71) he again mentioned soyabeans and ‘adzuki beans,’ and noted: “Dozens of different foods are made from soyabeans, including the special cheese, tofu. Sprouts of soyabeans are rich in vitamins and are available in large amounts in all markets in Japan. Soya is used for seasoning meat and rice and of course, it produces an excellent oil, used for making margarine and for technical purposes. Although it is a crop exceptionally well suited to a monsoon climate, the soyabean has become the most important technical crop worldwide during the last couple of decades. Owing to the effect of European and American demands an enormous area has become planted to soyabeans. During the past two decades the plantations of soya in Manchuria have reached 7 million hectares and the world-wide area has exceeded 15 million hectares. It is difficult to imagine a more flexible plant in respect of the variation of both biological and other characteristics. The varieties of soyabeans can be counted by the thousands. The present American industry has introduced even more variety.”

In Seoul, Vavilov unexpectedly met two colleagues, P.H. Dorsett and William Morse, known to him from Washington, DC. “Dr. Morse is the co-author of a well-known monograph on soyabeans, written by him and Dr. Charles Piper, another plant introducer from Vancouver, Canada. Morse was fanatically devoted to soyabeans throughout his life. In the course of some years, Piper studied in China, Korea, Manchuria and Japan on behalf of the U.S. Department of Agriculture, investigating crops of soyabeans, collecting seed material and forwarding it to the USA.” Also discusses the agricultural explorations of Frank Meyer and Mark Carleton. Swingle “organized an extensive utilization of Chinese research, including the building up of a valuable library of Chinese literature and a whole staff of translators, who revealed the treasures of ancient Chinese agronomical science. The results of this endeavour have become obvious during the past couple of years. The similarity between the conditions of extensive parts of the territories of the USA and China make possible a wide utilization of soyabean crops, which during the last couple of years have amounted to as much as 1.5 million hectares.”

“Quietly and modestly, Morse, who traveled with his family, wife and daughter, went from one city to another while staying in the best hotels.”

Note: Soyfoods Center has a copy of the “Translator’s Foreword” (p. xxx-xxxvi) which was typeset but later deleted from the book. Only the last two paragraphs were used. It tells the real story of Vavilov’s work, his downfall at the hands of Trofim Denisovich Lysenko, several moving petitions by Vavilov asking that he be able to finish writing unfinished books, and details of his case history and death.

Address: Head, All-Union Inst. of Plant Industry (VIR), Russian SSR.

1112. Takesue, K.; Shibaoka, H. 1998. The cyclic reorientation of cortical microtubules in epidermal cells of azuki bean epicotyls: the role of actin filaments in the progression of the cycle. *Planta (Berlin)* 205(4):539-46. Aug.

• **Summary:** “The orientation of microtubules (MTs) was examined in epidermal cells of azuki bean (*Vigna angularis* Ohwi et Ohashi) epicotyls. The orientation of MTs adjacent to the outer tangential wall of the cells, which has a crossed polylamellate structure with lamellae of longitudinal cellulose microfibrils alternating with lamellae of transverse cellulose microfibrils, differed from one cell to another.”
Address: 1. Dep. of Biology, Graduate School of Science, Osaka Univ., Japan.

1113. Hutcheon, Robin. 1998. High-rise society: the first 50 years of the Hong Kong Housing Society. Hong Kong: Chinese University Press; Hong Kong Housing Society. ix + 117 p. Illust. (some color). 22 x 30 cm. [8 ref]

• **Summary:** This is the story of a remarkable, pioneering experiment in affordable public housing designed to meet the needs of people. The idea can be traced back to a woman in Victorian England: Octavia Hill (p. 50-51). In 1945 Hong Kong emerged from 3½ years Japanese war-time occupation in a state of destitution, aggravated by damage caused by shelling and air-raids. Out of a population of 60,000, one in four were homeless.” “With the end of World War II another followed on its heels—civil war in China. An influx of former residents and refugees flooded into Hong Kong, more than doubling its population in a few years. The impact this had on housing was devastating.

“Huge settlements of makeshift huts sprouted on the bare hillsides, stripped of trees for use as fuel. In the crowded tenements of the urban areas, large numbers of newcomers squeezed in. At night, streets were filled with shanties and shelters which were bundled up like parcels during the day. To accommodate the mass of humanity, Hong Kong landlords divided tenement floors into cubicles, most lacking windows or ventilation of any kind and having few basic amenities...” (p. 3).

The Housing Society in Hong Kong was proposed in 1948 by Bishop R.O. Hall (see timeline p. 82-90).

In Part II, “Snapshots,” the section titled “The estates” notes (p. 63): “Hawkers also appreciated the open balconies of the older estates. They could trundle their carts of delicacies to the entrance and announce their presence and their snacks: red bean soup, grilled octopus, pigs’ tripe, “tofu fa” (soyabean junket [curds made from soymilk]), “stinky tofu”, dough sticks and special congee. Each hawker had his own special call which was sung or chanted rather than shouted. Tenants living in top floors would then call out their order, lower baskets on ropes with money, and collect their

snacks without having to walk down six flights of stairs. Many hawkers made their fortunes from nightly visits to the estates.”

Note: This is the earliest English-language document seen (Oct. 2011) that contains the term “stinky tofu.”

1114. Ling, Kong Foong. 1998. *Food of Asia: authentic recipes from China, India, Indonesia, Japan, Singapore, Malaysia, Thailand and Vietnam*. Singapore: Periplus. 160 p. Illust (color). Index. 31 cm.

• **Summary:** A very attractive book printed on glossy paper with at least one color photo on almost every page. The introduction and essays are by Kong Foong Ling. The index, which is poor, makes the book hard to use if you are looking for particular foods found throughout Asia such as soybeans, soy sauce, miso, salted / fermented black beans, yuba [bean curd skin], etc.

Contents: The flavors of Asia. Ingredients. The Asian kitchen. China. India. Indonesia. Japan. Malaysia & Singapore. Thailand. Vietnam. Appendix.

The “Ingredients” section includes: Bean curd (incl. cotton or momen tofu, silken bean curd, deep-fried bean curd or aburage, grilled bean curd or yakidofu, fermented bean curd or nam yee). Bean curd skin [yuba]. Black beans, salted (and fermented). Hoisin sauce (“A sweet sauce made of soy beans, with spicy and garlicky overtones”). Miso (incl. red miso and white miso). Salted soy beans (incl. “yellow bean sauce”). Soy sauce (incl. light soy sauce, black soy sauce, red soy sauce, Kikkoman, tamari, thick sweet soy sauce (kecap manis—Indonesian)). Tempeh. Also: Red beans (dried azuki). Seaweed (incl. dried kelp, golden kelp, mozuku, salted dried kelp, laver or nori, wakame). Sesame (black and white seeds, tahina {tahini}). Sesame oil. Sesame rice crackers.

Beancurd or bean curd is mentioned on pages 12, 29-30, 34, 36, 88, 94, 101, 155.

Fermented bean curd: p. 25.

1115. Solomon, Charmaine; Solomon, Nina. 1998. Charmaine Solomon’s encyclopedia of Asian food. Boston, Massachusetts: Periplus Editions. xiv + 480 p. Color illust. ([28] p. of plates). 29 cm. [67* ref]

• **Summary:** An outstanding book; the color illustrations of many ingredients are spectacular and very informative. The author has an insatiable curiosity.

Contents: List of illustrations. Introduction. How to use the *Encyclopedia of Asian Food*. Acknowledgements. A-Z of Asian Food. Bibliography. Illustrated index of selective ingredients. Index of recipes. Index of alternative words and main entries.

Soy related entries: Bean curd (p. 26-28, incl. all the different types, yuba, deep-fried tofu types, fermented tofu incl. ch’ou doufu [chou doufu]: “Despite its overpowering aroma, slimy texture, unappetizing color and the unfortunate odor it leaves on the breath, those brave enough to partake of

it consider it a delicacy”).

Bean paste, sweet (p. 29. The three colors and types are red {from adzuki beans}, yellow {from mung beans, husked and split}, or black {from black soy beans}. “The pastes are usually available ready-made sweetened in cans. It is possible to make your own, starting out with dried beans.” Name in Chinese: dow sa, tau sa {sweet bean paste}).

Bean paste, yellow (p. 29. Despite what the label says, this thick, salty condiment is brown, not yellow, in color).

Bean sauces (p. 29. “Made from fermented soy beans,” they range in color from yellow to brown to black [sweet black bean paste]. Their consistency is more like pastes that must be spooned from the jar than pourable tomato ketchup).

Beans, salted yellow (p. 31. Canned yellow soybeans which have been salted and fermented).

Beef (p. 31-37 incl. Teriyaki steak, Sukiyaki, Beef with black bean sauce, incl. “2 tablespoons canned salted black beans [fermented black soybeans]).

Black bean (p. 43-44. Black soy beans which are fermented and salted. “Some are sold in cans in a salty liquid, others in plastic bags, covered with salt crystals.” Also called “preserved black beans”).

Flours & starches (p. 157-61). Incl. soy flour. “A high protein, low starch flour... used mostly in Japan [where it is called kinako] and China. In Korea roasted soy bean flour and fermented soy bean flour are used to make a variety of bean pastes.”

Note. This is the earliest English-language document seen (Sept. 2021) that uses the term “roasted soy bean flour” to refer to kinako.

Legumes & pulses (p. 206-18). A long and interesting section. All entries have a scientific name. Many have an illustration. Those found in many Asian countries (e.g., green bean, green pea) have the name in each country. Includes: Introduction, adzuki bean, asparagus bean (see winged bean), asparagus pea, black-eyed pea (a variety of cowpea), black gram, blue pea, broad bean, butter bean (see lima bean), chick pea, cowpea (see yard-long bean), fenugreek, green bean, green pea, hyacinth bean (see lablab bean), lablab bean, lentil, lima bean, long bean (see yard-long bean), moong bean (see mung bean), moth bean, mung bean, parkia, peanut, pigeon pea, red bean (see adzuki bean), red kidney bean, rice bean, sataw bean (see parkia), snow pea, soy bean (short entry), sugar snap pea, tamarind, white gram (see black gram), winged bean (China: su-ling dou; India: Goa bean; Indonesia: kecipir; Japan: shikakumame; Malaysia: kacang botor; Philippines: sigarilyas; Sri Lanka: dara-dhambala. Thailand: thua pu). Yard-long bean (this is the fresh bean known by a host of names). Recipes: Adzuki bean soup.

Master sauce (p. 232). “Also known as ‘flavour pot’ or ‘lu,’ this sauce has a base of soy sauce, water, sugar and Chinese wine or sherry, with a few variable additions...” Cooking with it is similar to ‘red-cooking.’

Miso (see soy bean products). Mushrooms & fungi (p. 237-40, incl. recipe for Braised bean curd, cloud ear and vegetables, and Braised soy mushrooms). Natto (see soy bean products).

Oils (p. 258-59, incl. coconut oil, gingelly oil [sesame oil], mustard oil, palm oil, palm kernel oil, peanut oil, perilla oil, sesame oil). Note: Soy oil is not mentioned here! Okara (see soy bean products). Salads, incl. recipe for Indonesian vegetable salad (gado-gado), that calls for 4 oz. fried bean curd. Shoyu (see soy sauce).

Soy bean, dried (349). China: da dau, wong dau, hak dau, tai dau. Indonesia: kacang kedelai. Japan: daizu. Korea: jaa jang. Malaysia: kedelai. Philippines: utaw. Thailand: thua lueang.

Soy bean, fresh. China: mao dau. Indonesia: kacang soja. Japan: edamame. Malaysia: kacang soja. Recipe: Fresh soy beans with bean curd.

Soy bean products (p. 350): Miso (incl. recipe for miso soup). Natto. Soy bean paste (go). Soy milk (including okara). Tahuri (Philippine fermented tofu). Tokwa (tokwan; very firm square tofu).

Soy bean sprouts, with recipe for soy bean sprout salad. China: dai dau nga choi. India: bhat. Indonesia: kacang kedele, taugheh. Japan: daizu no moyashi. Korea: Kong namul. Malaysia: kacang soja, taugheh. Philippines: utaw. Thailand: thua-lueang.

Soy sauce (p. 351-52). Chinese soy sauce: Dark soy sauce. Light soy sauce ("Usually labeled 'superior soy'"). Mushroom soy sauce (Dark soy sauce that has been flavored with straw mushrooms). Japanese soy sauces: Koikuchi (regular shoyu), tamari, usukuchi. Korean soy sauce ("About the same colour as Chinese light soy sauce, but not as fiercely salty and with a sweet malted aroma"). Thick and flavoured soy sauces: Kecap asin ("A dark, salty soy sauce, from Indonesia, a little thicker than the dark soy of China"). Kecap manis (A thick, sweet soy sauce from Java, Indonesia). Kicap cair: "The Malaysian equivalent of light soy sauce." Kicap pekat: "The Malaysian equivalent of dark soy sauce, though thicker than the Chinese version, but not as thick as kecap manis." Ponzu shoyu. Toyo mansi (p. 352): "A soy sauce used in the Philippines soured with kalamansi juice."

Note: This is the earliest document seen (April 2012) that uses the term "Kicap cair" or the term "Kicap pekat" to refer to light and dark Malaysian soy sauces, respectively.

Tempeh (p. 386). Incl. recipes for Savoury Tempeh and Thai style tempeh. Tofu (see bean curd).

Also discusses: Adzuki bean, agar-agar (incl. almond bean curd, awayuki), almond, amaranth, cowpea, crab in black bean sauce (recipe at crab), daikon, millet, monosodium glutamate ("I would strongly recommend omitting it"), Nonya (pronounced 'Nyonya.' The unique cookery found in Malaysia and Singapore resulting from the fusion of Malay and Chinese cuisine during the last century),

peanut, peanut sauce, sago (this palm flowers only once in its life, at about age 15. Just before flowering, it builds up a large reserve of starch in the pith. The tree is felled, the pith scooped out, ground and washed to make sago starch), seaweed (incl. agar-agar, hijiki, kombu / konbu, mozuku, nori / laver, wakame), sesame paste, sesame seed, vegetarian meals ("By far the most important vegetarian food in the Far East... is bean curd"). Address: Australia.

1116. Wise, Victoria. 1998. *The vegetarian table: Japan*. San Francisco: Chronicle Books; London: Hi Marketing. 156 p. Illust. (color photos by Deborah Jones). 22 x 21 cm. Series: *The Vegetarian Table*.

• **Summary:** Contents: Introduction. Basic ingredients and seasonings for the Japanese table. 1. Appetizers and condiments. 2. Soups. 3. Rice. 4. Noodles. 5. Vegetables. 6. Sweets. Table of equivalents.

Ingredients include: Soybeans, soy sauce, tofu (incl. silken tofu, tofu puffs, grilled tofu), miso (red, white, yellow, brown, barley), fresh soybeans, dried soybeans (incl. black soybeans), soybean sprouts, freeze-dried tofu, soybean milk skin (yuba), and soybean curd pulp [okara]. Azuki beans, sea greens [sea vegetables incl. agar, kombu, nori, wakame], sesame seeds, umeboshi (pickled plums), wasabi, saké.

Contains too many soy-related recipes to list them all. The color photos and food styling are superb—perhaps the most beautiful we have ever seen in a cookbook.

Note: Other books in this series (all published by Chronicle Books) are: France, India, Italy, Mexico, and North Africa. Address: Oakland, California.

1117. Jack, Alex. 1999. *Let food be thy medicine: 750 scientific studies, holistic reports, and personal accounts showing the physical, mental, and environmental benefits of whole foods*. 3rd ed. Becket, Massachusetts: One Peaceful World Press. 304 p. Index. 23 cm. [8 ref]

• **Summary:** This book, organized alphabetically by subject, is a very original and creative source of information, with hundreds of interesting bibliographic references. The author believes in a natural, whole-foods diet. Includes the following subjects: Alternative medicine, amasake (amazake), Asia Diet Pyramid, azuki beans, bovine growth hormone, cancer, cholesterol, coffee, complex carbohydrates, dairy food, estrogen, evolution, exercise and fitness, fats, fiber, genetically engineered food, genetic model of health and disease, genistein, global warming, heart disease, hiziki, hunza diet, isoflavones, Japanese diet, kombu, kuzu, lignans, longevity, macrobiotics, Mad Cow Disease, meat, menopause, microwave cooking, miso, mochi, natto, nori, osteoporosis, Paleolithic diet, phytochemicals, phytoestrogens, polyps, potatoes, Price–Weston, prostate cancer, protein, rice, Schweitzer–Dr. Albert, sea vegetables, seitan, sesame, shoyu, soy foods, tempeh, tofu, umeboshi plum, vegans, vegetarians, wakame, wartime restricted

(diets, incl. World War I and II), whole grains. Resources. About the author. Address: Box 10, Becket, Massachusetts 01223. Phone: (413) 623-5742.

1118. Kushi Institute. 1999. Kushi Institute store: Food, books, kitchenware, bodycare, video, audio. Spring/summer 1999 (Mail-order catalog). Becket, Massachusetts. 40 p. 28 cm. [8 ref]

• **Summary:** A good new source of macrobiotic supplies. Includes: Amazake (from Kendall Food Co.), arame (sea vegetable), azuki beans (from Hokkaido {Japan} and organic), barley malt, black soybeans (from Hokkaido and USA), dulce, fu (dried wheat gluten), hato mugi [hatomugi], hijiki, kanten flakes, koji, kombu, kuzu, mirin, miso, mochi (organic, Kendall), natto (organic, Kendall), natto miso, nori, rice syrup, sea palm, sea vegetable kit (8 varieties), shoyu, suribachi, tamari, tekka, tofu—dried, tofu kit, umeboshi, umeboshi concentrate, wakame, yuba. Address: P.O. Box 500, Becket, Massachusetts 01223-0500. Phone: 1-800-645-8744.

1119. *River Currents: News from South River Miso Company (Conway, Massachusetts)*. 1999. South River Miso Company: Price list—March 1, 1999. Spring. p. 5.

• **Summary:** Varieties of miso—all certified organic: (1) Three year dark miso (aged for a minimum of three full summer seasons): Hearty brown rice (with black soybeans & brown rice), Three-year barley, Black soy barley, Chick pea barley (with barley & chick peas). (2) One year light miso (aged for a minimum of one summer or three months): Sweet tasting brown rice, Chick pea, Azuki bean (with brown rice & azuki beans), Golden millet (with millet and soybeans). Special miso: Dandelion leek, Sweet white miso. Also: Miso tamari, Brown rice koji, Miso samplers.

Beautiful color labels for the 16 oz. package of eight of these miso varieties were sent with the newsletter by Robin Cole of South River.

1120. Schinner, Miyoko Nishimoto. 1999. *Japanese cooking: Contemporary & traditional—Simple, delicious, and vegan*. Summertown, Tennessee: Book Publishing Co. 176 p. Illust. Index. 21 cm.

• **Summary:** Contents: Introduction (incl. Japanese attitudes towards nutrition, vegetarianism and animal rights, the recipes, the Japanese meal). Sample menus (by season). Glossary: Ingredients, kitchen concepts, and tools. Rice dishes. Soups and stews. Cooking with tofu. Fried dishes. Salads and cold vegetables. Noodles. Meals in a pot. Stewed and braised dishes. Meals in a bowl. Everyday favorites. Nouvelle Japanese cuisine.

Terms in the Glossary include: Abura-age, agar agar, atsu-age, azuki, fu (made from wheat gluten), goma (sesame seeds), goma-dofu (a tofu-like cake made from sesame butter), hijiki, Inari-zushi (sushi), kanten, konbu,

kuzu & kuzu-ko, miso, mochi, natto, nori, okara, sesame oil (goma abura), shoyu, soba, soy sauce, tofu (“Perhaps the most misunderstood food in Japan... Americans might call it bland; the Japanese prefer to think of it as delicate in flavor”), umeboshi, wakame, yaki-dofu, yuba.

This vegan cookbook is filled with many soy-related recipes, both traditional and new. Examples of new: “Fishy Tempura Tempeh. Crispy Fried Tempeh (Kara-Age).

“Trying to dine out in a strictly vegan fashion in Japan can present challenges. Although dairy products are not found in traditional Japanese cuisine, fish-based stocks appear in a range of dishes from appetizers to soups to entrees... My advice to vegan or vegetarian visitors to Japan: find a temple or restaurant that serves traditional *kaiseki*-style *shojin-ryori* (Buddhist vegetarian cooking)—and splurge big time. You won’t regret it” (p. 10).

On the back cover is a biographical sketch of Miyoko. “She was born in Yokohama, Japan, and graduated from St. John’s college in Maryland. Her bilingual bicultural background has endowed her with the creativity and originality of the West and the aesthetic sense of the East.” She has been a vegetarian since age 12. Address: Owner, Now and Zen Bakery and Vegetarian Restaurant, San Francisco.

1121. Rust, Bob. 1999. The two basic types of sprouts: Bean sprouts and green sprouts (Interview). *SoyaScan Notes*. Aug. 16. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** Bob is the owner of International Specialty Supply (ISS), which sells sprouting equipment; he is an expert on sprouts and sprouting. ISS sells two types of equipment: For bean sprouts (mung, soy, azuki; grown in the dark) and for green sprouts (alfalfa, chia, etc.; grown with the lights on to produce chlorophyll).

For more information: Website: www.ucbd.com/iss/sprouts.htm. E-mail: sprouts@infoave.net. Address: Owner, International Specialty Supply, 820 E. 20th St., Cookeville, Tennessee 38501. Phone: 931-526-1106.

1122. Belleme, John. 1999. The story of how the Oak Feed Miso, Inc. was established, and its relationship to the Erewhon Miso Co. Part III. 1981 (Interview). *SoyaScan Notes*. Aug. 22. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** Continued: 1981 Jan.—When it comes time to buy equipment and build buildings, the new company finds it has little or no money. It needs about \$40,000. The person constructing the building, Doug Ashley, threatens to put a padlock on the building because John is unable to pay him. He also threatens to sue John. The project comes to a complete standstill for months as Barry and Sandy are trying to settle their conflict in Miami. During this time, when John has nothing else to do, he starts to write articles about his miso apprenticeship in Japan. And Jan corrects her dyslexic

husband's multitude of misspelled words and prepares the stories for publication. Eventually he and Jan wrote over 100 published articles about Japan, Japanese foods, and miso. They contain some 400 of John's photographs.

During the conflict between Sandy and Barry, John finds himself in a very difficult position—in the middle and torn. At one point Sandy, who had been John's longtime close friend and macrobiotic mentor, decides that he no longer wants to be involved with Barry Evans and the miso company. Michio Kushi and Mr. Kazama of Mitoku go along with Sandy, dropping their crucial support for the project. John barely knows Barry, but now he finds himself trying to convince Barry not to abandon the miso project. Barry asked John: "If I'm going to trade my ownership in Oak Feed Store for the miso factory, what value does that factory have? It's a piece of land and part of a building, but can you make miso? How are we going to sell it? Is it a business with potential?" John has to answer all questions with a convincing "yes!" even though he has not yet made miso by himself and has no idea what the market was. But by building up the value of the miso and downplaying the value of Oak Feed Store, John strains his relationship with Sandy. If Barry had abandoned the miso project, all of John's work in Japan might have been in vain. Moreover it would have left the land and the new building unpaid for—a total mess.

Soon John finds that his role had changed from potential miso maker to miso promoter and educator. His articles must put the wind in the sails of a ship that has stalled in the doldrums. "Every one of those stories had all kinds of intricate purposes to it." And each is written for various audiences with different goals. John has to convince: (1) All his readers that he is an expert on miso and that his miso would be unique—the best available. (2) Potential macrobiotic customers that the lighter, sweeter misos are good tasting and good for health. He could never build a company solely on long-term salty miso. (3) Michio Kushi, and macrobiotic counselors and teachers, not to say bad things about his miso. "I kept putting pressure on them until some were afraid of me—the miso mafia." (4) Barry Evans that the company would succeed and be a good investment. John sent Barry a copy of everything he wrote. John was not sure that Barry was completely committed until about 1984.

1981 Jan.—John Belleme's first article about his miso studies in Japan, titled "The Master of Hoops," is published in *East West Journal*.

1981 April—John Belleme's second article, titled "The Miso Master's Apprentice," is published in *East West Journal*.

1981 July—John Belleme's third article, titled "The Miso Master with a Big Heart: Making Miso in a Japanese Village," is published in *Soyfoods* magazine.

1981 early spring—Increasingly, the much-needed money starts to arrive from Barry. At about this time, and perhaps again earlier, "Barry Evans' money saved the company—there

is no doubt about it."

1981 May—All of the miso-making equipment has arrived in North Carolina.

1981 July—The two groups meet at the newly constructed Erewhon Miso Co. plant to have an opening ceremony and celebration. About 25 people are present. The Shinto ceremony is conducted by Michio, with salt, daikon, azuki beans, etc. He goes from door to door, putting Japanese symbols on each door. Evan Root, who was there, was deeply moved by this ceremony. The Kushi's stay on the land for 3-4 days. John remembers that there was a lot of stress during this time. Barry and Sandy were in the middle of resolving their problem.

1981 Aug.—John and Jan start full-time, large-scale production of Erewhon Miso. They have not made any miso on a large scale for more than a year. Erewhon Trading Co. contributed the soybeans, grains, and Lima seasalt (from Belgium); they probably arrived a month or two earlier. Money is still in short supply.

1981 Nov. 10—Michio Kushi files a petition for Erewhon for protection under Chapter 11 of the Bankruptcy Act at the federal in court Boston. This is a disaster for the new miso company. The Bellemes' paychecks and the miso ingredients stop arriving from Erewhon. The miso company's name is soon changed to Oak Feed Miso Inc., but the company now has no means of packaging or marketing its products. None of the Belleme's miso is ever sold under the Erewhon labels or the Oak Feed label. Address: Honto Press, P.O. Box 457, Saluda, North Carolina 28773. Phone: 704-749-9537.

1123. Qiu, Lijuan; Chang, Ruzhen; Sun, Jianying; et al. 1999. The history and use of primitive varieties in Chinese soybean breeding. In: H.E. Kauffman, comp. 1999. World Soybean Research Conference VI: Proceedings—Invited and contributed papers. Champaign, Illinois: Superior Printing. xxxix + 746 p. See p. 165-72. [29 ref. Eng]

• **Summary:** Contents: Abstract. Introduction. Origin and distribution of soybean. The history of primitive soybean varieties and soybean breeding. Genetic base and diversity of Chinese soybean cultivars. Soybean cultivar development in China.

"Abstract: Soybean (*Glycine max* (L.) Merr.) originated in China and has been cultivated for more than 5000 years."

Note 1. The authors provide no evidence at all for this antiquity of 5000 years.

"Soybean is a crop of importance in China and is distributed in almost all the Chinese provinces. The oldest description of soybean can be traced back 3000 years ago in the Zhou Dynasty of China. The variety names such as 'Wu yue huang,' 'Liu yiu bao,' and 'Dong huang' from the Ming dynasty can still be found in the present soybean germplasm collection in China. Since 1949, more than 23,000 soybean germplasm accessions have been collected in China and maintained in the National Gene Bank in Beijing. Through

large-scale evaluation, many elite primitive varieties (or landraces) were identified and extensively used in soybean production, and a few of them are still planted in southern China. Modern soybean breeding began in 1913 in China. Before 1960, many cultivars were developed primarily by selection from landraces. Thereafter, hybridization with elite landraces and breeding lines as parents was used as the main approach to soybean breeding.” From to 1923 to 1995 some 651 soybean cultivars were released in China. And 348 ancestral lines were employed in the development of these cultivars.

Origin and distribution: Today, soybean is one of the most important crops in China. It ranks fourth in terms of hectareage and tonnage after rice, wheat, and maize. The Yellow River [*Huang Ho*] region of [northern] China is generally considered as the soybean’s center of origin based on the existence of a great number of wild soybeans and the earliest documentary records (Hymowitz and Kaizuma 1981; Wang and Wang 1992). In the agricultural book *Guan Zi* [sic, *Guangzhi*] written during the Han dynasty (approximately 200 A.D.) [often dated 390 A.D. by Western scholars], soybean was classified into two types, small and large, based on seed size. Note 2. This statement is confusing. The “small bean” or *xiaodou* referred to the azuki bean, whereas the “large bean” or *dodou* referred to the soybean.

In the 6th century, the names of soybean varieties such as ‘Huang luo dou,’ ‘Chang shao’ and ‘Niu jian’ were recorded in the famous agricultural book *Qi Min Yao Shu*. This may be the oldest reference to a soybean variety name that still exists in China. “‘Huang luo dou’ referred to the abscission [cutting off, removal] of leaves in maturity, ‘Chang shao’ indicated tall plants, and ‘Niu jian’ described seed shape.” Soybean varieties in ancient China were usually named based on the characteristics of the seeds / beans. During the Song dynasty (10th century AD), the book *Tu Jing Ben Cao* [*Tujing Bencao*, 1061 AD] “described soybean varieties that differed in seed coat colors, maturity date, and seed size. At that time soybean varieties had some of the same classifications as modern soybean cultivars.” In the Ming dynasty (16th century) the book *Tian Gong Kai Wu* [*Tiangong Kaiwu*, 1637 AD] “described the variety ‘Gao jiao huang’ that was planted after harvesting early rice in the Yangtze valley and could mature in 90 days. This indicated that there were fall-planted soybeans after rice in the cropping system of that time. Variety names such as ‘Wu yue huang,’ ‘Liu yue bai’ and ‘Dong huang dou’ were also recorded in that book and these varieties can still be found in the Chinese soybean collection. The description and classification of soybean evolved from the simple to the complex. Soybean cropping systems changed from single to double or multiple cropping systems.

“The history of primitive soybean varieties and soybean breeding: Thousands of soybean landraces with great genetic diversity were selected and preserved by Chinese farmers

during a long history of cultivation. The small-scale farming systems, the tradition of saving seeds and geographical isolation were the major factors in the formation of various soybean landraces. Organized soybean genetic improvement in China began with the founding of the Gongzhuling [W.-G. Kungchuling] Agricultural Experiment Station in Jilin in 1913.” The scientists at that station were the first to start collecting soybean varieties in the northeast region. Other agricultural experiment stations opened soon after that in northeastern China. By using the pure line selection method, soybean varieties such as ‘Huang bao zhu,’ ‘Feng di huang,’ and ‘Xiao jin huang No. 1’ were developed from the landraces and released in the northeast region. The University of Jinling in Nanjing was also involved in the early collection and evaluation of soybean landraces. Prof. Shou Wang from the University of Jinling was the first recorded soybean breeder in China. He released the first soybean cultivar ‘Jin da 332’ for the lower Yangtze valley in 1923. These early institutions mainly focused on soybean breeding research. Between 1923-1943, 13 cultivars through selection of naturally occurring variants and 3 cultivars through hybridization were developed. Among those cultivars, ‘Huang bao zhu,’ ‘Man cang jin,’ ‘Xiao jin huang No. 1,’ and ‘Zi hua No. 4’ were widely grown and used as parents in northeastern China (Zhang 1985).

“Since 1949 when the People’s Republic of China was founded, three major collecting expeditions, covering all provinces, have added more than 23,000 soybean accessions to the National Gene Bank in Beijing. Primitive varieties account for most of this collection. Each provincial institute also maintains a local collection.

“There are four types of parental lines: landraces, cultivars, breeding lines, and foreign introductions.” The relative importance of the four types has changed over time. For cultivars released before 1960, almost all the parents were landraces. For those released between 1961 and 1980, 33% of the parents were landraces, 45% were cultivars, 19% were breeding lines, and 3% were foreign introductions. For those released between 1981 and 1995, 22% of the parents were landraces, 21% were cultivars, 48% were breeding lines, and 9% were foreign introductions (Cui et al. 1999). Address: 1-3. Inst. of Crop Germplasm Resources, Chinese Academy of Agricultural Sciences, Beijing, China.

1124. Kuda, Takashi; Tanaka, Chieko; Yano, Toshihiro. 1999. [Fermentation of autoclaved beans by *Bacillus subtilis* (natto)]. *Nippon Shokuhin Kagaku Kogaku Kaishi* (J. of the Japanese Society for Food Science and Technology) 46(10):669-71. Oct. [6 ref. Jap; eng]

• **Summary:** “We investigated the fermentation of six autoclaved (121°C, 20 min) beans—soybeans (yellow and black), kidney beans (*taisho-kintoki* and *uzura-mame*), peas, azuki beans, and lotus seeds by *Bacillus natto* strain TF 1. During the fermentation, colony numbers of TF 1, the sticky

material, called *itohiki* in Japan, ammonia and L-glutamic acid increased clearly in soybeans, particularly yellow soybeans. The increase in *itohiki* and ammonia concentration was observed in kidney beans, pea and lotus seeds, but not shown in azuki beans” (from journal@rchive). Address: Ishikawa Agricultural College, 1-308, Suematsu, Nonoichi-machi, Ishikawa 921-8836, Japan.

1125. Great Eastern Sun. 1999. Pricelist. Effective November 15, 1999 [Mail order]. Asheville, North Carolina. 24 + 6 p. 28 cm.

• **Summary:** Contents: Catalog information: I Ching reading (hexagram #43), ordering, billing, shipping. Miso Master organic misos (traditional, mellow, sweet, miso tamari). Sweet cloud organic sweeteners. Haiku organic Japanese teas. One world organic classic teas. Mandala organic herbal teas. Organic planet pasta. Emerald Cove sea vegetables. Emperor’s Kitchen condiments (Organic Oriental sauces, condiments in bottles, condiments in jars, condiments in bags, Japanese kitchenware). GES variety packs. Also sells coarse nigari in 44 lb or 440 lb lots. Address: 92 McIntosh Road, Asheville, North Carolina 28806. Phone: 704-252-3090.

1126. Pukel, Sandy. 1999. History of interest in macrobiotics and miso. Part I. 1945-1974 (Interview). *SoyaScan Notes*. Nov. 20. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** Sandy was born on 10 Sept. 1945 in Queens, New York City. In 1967 he graduated from the University of Wisconsin, majoring in political science, then went to law school at the University of Tulsa in Oklahoma. After two years he realized he did not want to be a lawyer, and dropped out—at a time when many other young Americans were also dropping out of college or “straight” jobs. For the next two years he passed his leisure time like many other young Americans. In August 1969 he was at Woodstock and appears in the movie—naked. Knowing he wanted to be an entrepreneur, he worked on Wall Street for a while.

In April 1970 a childhood friend from Queens, Willy Rosenfeld, introduced Sandy to macrobiotics. Willy had gone to Harper College (SUNY) at Binghamton, New York, where he met Michel Abehsera. Sandy went to a lecture in New York City by Rebecca Dubawsky. “From that night on I became macrobiotic; I went ‘cold turkey.’” He stopped using psychedelics and quickly got interested in the philosophy of macrobiotics; he wanted to “turn the world on” and saw this as one way to do it. That summer he went to a macrobiotic summer camp / retreat at Awosting in upstate New York with 30-50 other people. There he first met Michio Kushi, who was in short pants and knee-sox. This deepened his interest.

In August 1970 Sandy and five of his closest friends decided move to the island of Jamaica, where they would live a simple life and practice macrobiotics—in paradise. They

stopped by Greenberg’s Natural Foods at 125 1st Ave. in New York City. Located on the lower east side of Manhattan, it probably had the largest selection of macrobiotic foods in America. There they bought provisions for the trip: a 100-lb sack of brown rice, a keg of Hatcho miso, aduki beans, and soba noodles. They got non-tourist visas, and settled down in a lovely rural spot. The dentists in the group had hoped to open a clinic. But it didn’t work out; the local people saw them as white hippies so they kept trying (unsuccessfully) to sell them drugs. The local people just wouldn’t let them alone, so after about 6 months, one by one, they returned to the United States. Sandy was the last to leave. He went to Coconut Grove to stay with one of his roommates in law school, Roger Schindler, who happened to live there. But there was no place to eat or to buy macrobiotic foods. So in Nov. 1970 Sandy and two of his close friends started Oak Feed Store. One partner was Leon Matsil, a dentist and Sandy’s boyhood friend from Queens; the other was Joel Magazine, an attorney and public defender in Miami, who also went to law school with Sandy in Oklahoma and who Sandy turned on to macrobiotics. They just wanted to have food available. They did not go into it thinking it would be a business—Sandy’s father lent them \$4,000 to start the store. It was named Oak Feed Store because the law library was on Oak Avenue. The word “Feed” was used because the purpose of the store was “to feed the people the good food.” They name came spontaneously; no one person thought of it. This was the first of many enterprises that Sandy would help to finance. It was located on the second floor walk-up of the law library of the lawyer of one of his friends. The room was about 10 by 15 feet. This was the first macrobiotic food store or organization in the greater Miami area. They ordered their foods via common carrier (truck) from Akin, a distributor in Jacksonville, Florida. Akin distributed many Erewhon products. They also ordered quite a bit of food via mail order direct. They carried relatively few foods: Bulk brown rice, almonds, miso, noodles, noodles, apple juice, plus one cosmetic (Oregene shampoo). “It was really a strict, strict macro kind of place.” There was a commune in Coconut Grove named the Maya House, and its members were regular workers at Oak Feed Store. Sandy also worked there regularly.

Also in about 1970 Sandy and his two friends started another communal affiliation that they called LJZ Enterprises—Leon, Joel, and Zuni; Sandy’s nickname was Zuni. Everything went into one pool and they shared everything 100%—totally. All money from Joel’s law salary, all money from Leon’s dental practice and investments, all money Sandy earned from the store went into this pool, and each person took whatever they needed. This included purchases of houses, cars, clothing—everything. This lasted for the next 7 years and worked very well. To this day, they are all still close friends.

Oak Feed Co. became increasingly popular. After about

one year they moved to a street-level retail store in the same building. Then in late 1971 or early 1972 they moved around the corner to a bigger store at 3030 Grand Avenue—where they stayed for the next 20 years. By this time they were running a real business—in spite of themselves.

Sandy recalls: “Once I got into macrobiotics I was a zealot about it—preaching, teaching, everything.” In 1972 he began to give the first macrobiotic cooking classes in the area out of a rented home in Coral Gables, where he and Leon lived. A macrobiotic community began to evolve, with Sandy at its center. Sandy got to know Neal Loeb, who had studied macrobiotics in Boston, Massachusetts, and was Michio Kushi’s driver. He was planning to bring Michio to Florida for a seminar, but he “flaked out” and couldn’t get it together, so in about 1973-74 Sandy organized the weekend seminar. Michio’s students in Boston sent Sandy detailed information about how Michio was to be treated, where he was to stay (hotel or motel only), what he was to eat, his detailed schedule, etc. “They were incredibly protective.” The seminar was very successful, with a good turnout at a local church or private school auditorium. Michio stayed at Sandy’s house and did individual consultations. Sandy and Michio got along very well, and Sandy gave Michio all the money they collected—in part because he didn’t care about the money. Soon he and Michio became lifelong very close friends, and Michio started to give seminars in the Miami area on a regular basis.

In about 1973 LJZ bought a very nice house, communally, in Pinecrest a very nice neighborhood of Miami; there the three friends continued living together for a year. Macrobiotic visitors and friends stayed in the guest house on the property. In 1974 Sandy bought his own house (with a lake in his back yard) on 63rd Avenue in Miami, about 4 miles from Oak Feed Store.

In about 1974 Sandy started the Macrobiotic Foundation of Florida. Its purpose was to spread macrobiotics. Edmund Benson was on the board of directors. The cooking classes continued at Sandy’s house in Coral Gables. Anyone passing through Florida who knew macrobiotic cooking was invited to be a guest teacher at the cooking class. Tim Redmond taught the first class on macrobiotic desserts—featuring apple pie. Sandy’s repertoire didn’t include desserts, except perhaps those made from agar or kuzu. Jay Pinsky, from Philadelphia, Pennsylvania, asked if Sandy had any apple butter, peanut butter, or sesame butter; he didn’t. “We still ate basically rice, vegetables, miso soup, and aduki beans. We were as close to a Number 7 diet as you can imagine.” Continued. Address: Owner, Oak Feed Store and Restaurant, 4500 S.W. 63 Ave., Miami, Florida 33133. Phone: 305-446-9036.

1127. Bladholm, Linda. 1999. *The Asian grocery store demystified: A food lover’s guide to all the best ingredients*. Los Angeles, California: Renaissance Books. 234 p.

Foreword by Jonathan Eismann. Illust. Index. 23 x 13 cm. Series: A Take it With You Guide.

• **Summary:** An original, well-researched and well-written book—though some of the terminology (such as “beancurd”) is outdated. Soyfood products include: Beancurd noodles (p. 38). Kinako (p. 47. “A Japanese soybean flour, that is a light tan powder made by roasting and grinding soybeans. This flour is mixed with sugar and used to coat mochi (pounded rice cakes), ohagi (rice balls), and wagashi (a type of confection [Japanese confections]). Look for the Shirakiku brand and Assi roasted soybean flour, both in 1-pound bags”). Soy sauce, mushroom soy sauce, kecap manis (p. 53). Hoisin sauce (p. 54).

Chapter 10, titled “Soybean products” (p. 93-99) includes: Black bean sauce, dried soybeans, tempeh, beancurd (pressed beancurd, deep-fried beancurd, savory grilled beancurd {yaki-tofu}, freeze-dried beancurd [sic] {koyadofu}, bean curd sheets {fu pei, yuba, fu jook; the latter are “rolled-up, long, rumpled, cream-colored sticks of bean curd skin, bent in two”}), fermented beans (preserved black beans {fermented black beans, tau see}, bean sauce, toon-jang, chili/hot bean sauce, fermented beancurd), okara, edamame, soybean sprouts, soy milk.

Note: This is the earliest English-language document seen (March 2009) that uses the word “toon-jang” (or “toon jang”) to refer to Korean-style soybean jang (miso).

Concerning preserved black beans: “Also called salted or fermented black beans or ‘tau see,’ this is made by steaming small black soybeans, then fermenting them with salt and spices. Used in a variety of dishes to add a pleasant rich aroma and salty taste... Crush or mash beans slightly to release more flavor or mix with garlic, fresh ginger, or chilies. Available in small glass jars, cans, and plastic bags. They should feel soft and not be dried out... Look for Pearl River Bridge brand labeled ‘Yang Jiang Preserved Beans’ in a 1-pound yellow canister, and Koon Chun Sauce Factory, Double Parrot, and Zu Miao Trademark brands all in 8-ounce bags.” Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “tau see” to refer to Chinese-style fermented black soybeans (preserved black beans).

Concerning bean sauce: “Varieties of this Asian staple include yellow bean sauce, brown bean sauce, bean paste (tau jeong), or sweet bean condiment. All are made from yellow or black soybeans, fermented with salt and in the sweet Northern Chinese type, with sugar-sweetened crushed yellow [soy] beans. Two forms are found: whole beans in a thick sauce and bean paste, which is mashed, ground or pureed beans. The whole bean type has a rounder flavor and adds texture, while the pastes are very salty and should be used sparingly... The yellow bean paste is tau cheo... Sold in glass jars and cans. Look for Koon Chun Sauce Factory, Kon Yick Wah Kee bean sauce, Amoy, or Yeo’s.

Chapter 18, titled “Japanese food products” (p. 168-

81) includes: Tsukemono (pickled in miso), miso paste, shiromiso, akamiso, mamemiso, natto, miso soup, noodle dipping sauce base (memmi), tamari sauce, teriyaki sauce, tonkatsu sauce.

Interesting non-soy products include: Sesame paste (p. 57). Satay sauce (with peanuts), gado-gado-dressing (p. 58). Peanut oil (p. 64). Sesame oil (p. 65). Amaranth (vegetable, p. 72). Winged beans (p. 76). Pickled wheat gluten (p. 108). Sesame seeds, peanuts, roasted peanuts (p. 118). Red/azuki beans, agar-agar (p. 121). Wheat gluten (p. 127). Sesame candy, peanut roll (p. 136). Sesame seed and peanut cookies (p. 137). Sweet red bean paste (azuki *an*, p. 139). Coix seed (Job's tears, p. 165). Japanese seaweed and kelp (p. 169-70). Umeboshi (p. 171). Fu (dried wheat gluten cakes), mochi (p. 177).

Note: Although angkak / ang-kak is not mentioned by name, under "red yeast rice" part of the description is "Did you ever admire those glowing red ducks and spare ribs in Chinese restaurants? The red color comes from powdered red yeast rice which is an ingredient in the marinade and barbecue sauce." Since this product is made with a mold (*Monascus purpureus*) and not a yeast, we prefer the term "red rice koji" in English. Address: Writer, designer, illustrator and photographer, Miami Beach, Florida.

1128. Davidson, Alan. 1999. The Oxford companion to food. New York, NY and Oxford, England: Oxford University Press. xviii + 892 p. Illust. by Soun Vannithone. Index. 29 cm. [1500+* ref]

• **Summary:** The 2,650 alphabetical entries in this excellent encyclopedia and cornucopia represent 20 years of Davidson's work. The 175 illustrations by Laotian artist Soun Vannithone are superb. There are 39 longer entries about staple foods such as rice, noodles, and apples. A comprehensive bibliography provides access to further information. The book does not contain recipes.

Soy-related entries include: Bean sprouts (p. 64). Black beans, fermented (*chi*, p. 79). Kecap (Indonesian soy sauce, made "basically from soya beans and palm sugar only." "The word 'kecap' has passed into the English language as catchup or catsup and then as Ketchup, which now means something quite different." p. 429). Ketchup ("probably via the Malay word *kechap*, now spelled *kecap*, which means soy sauce. The word was brought back to Europe by Dutch traders who also brought the oriental sauce itself. The sauce has changed far more than has the word, although the name has appeared in a large number of variations such as catchup and catsup."

Tomato ketchup is now the best known and widely used—in fact almost the only ketchup left. Whereas tomato ketchup contains much sugar and vinegar, mushroom ketchup contains neither, and is basically a salted mushroom extract with a liquid, transparent consistency. The British food historian, C. Anne Wilson (1973), believes that mushroom ketchup was the first kind of ketchup in Britain;

she argues that people used to pickle mushrooms, intending to use the mushrooms, but then started using the pickle too, and finally began using the pickle by itself.

"Oysters, mussels, walnuts, and many other ingredients have been used to make ketchup, and could be blended with spices, garlic or onions, wines and spirits to vary the flavour" p. 430-31). Koji (p. 435). Lecithin (p. 447). Miso (p. 509). Natto (p. 530). Soybean (p. 739). Soy milk (p. 739-40). Soy sauce (p. 740). Tempe (or tempeh, p. 788). Tofu (p. 798-99), including plain tofu (dofu in Chinese), pressed tofu (*doufu-kan*, sic, *doufu-gan*), *wu-hsiang kan*, cotton tofu or momendofu, kinugoshi or silk tofu, sui-dofu, freeze-dried tofu [dried frozen tofu], smoked tofu. Cooked forms of tofu: Deep-fried tofu, dofu pok, cha-dofu, abura agé or deep-fried thin slices which can be opened to make Inari-zushi, ganmodoki or deep-fried tofu balls, yaki-dofu or tofu which has been grilled. Fermented tofu: The generic term is dofu-ru. The most popular type is white dofu-ru, and there is red dofu-ru, tsao-dofu, ch'ou dofu [chou dofu], chiang dofu. In the Philippines fermented tofu is called tausi [sic, tahuri, tahuli; tausi is fermented black soybeans]. Miscellaneous: A specialty of Japan is *umesutsuke*, "tofu pickled in plum vinegar with a purple exterior." Note: As of Oct. 2011 not one hit / result for umesutsuke can be found on Google. Nor have we ever heard of such a Japanese tofu product.

Dofu nao (literally "bean brain") or smooth curds, yuba or "bean curd skin" or "tofu skin," okara or "presscake" (pulped skins of soya beans) (p. 798-99). Yuba (p. 860-61).

Also discusses: Alfalfa (p. 10). Almond (p. 12-13, incl. "almond milk"). Amaranth (p. 13). American cookbooks, history (p. 15-17). Azuki beans (p. 44-45). Barley, barley breads, and barley sugar (p. 58-60). Beef—BSE (mad cow disease, p. 68). Chia (p. 166). Cowpea (p. 230-31). Chufa (p. 185). English cookery books, history (p. 276-80). Five grains of China (p. 305). Gluten (p. 341). Groundnuts (or peanuts, p. 356-57). Hemp (p. 377-78). Hydrogenation (p. 391). Japanese culinary terms (p. 415-17). Kudzu (p. 437). Linseed (p. 454-55). Lupin (p. 463). Margarine (p. 478-79). Mung bean (p. 518). Nori (p. 534). Noodles of China (p. 537, incl. "Gan si {soya bean noodles}" and "Fen si {also fen-szu} {mung bean vermicelli}"). Oncom (p. 553-54). Quark (p. 644). Quinoa (p. 645). Seaweeds (incl. hijiki, kombu/konbu, nori, wakame, etc., p. 712). Sesame (p. 713). Shortening (p. 721-22). Sprouts (no listing). Tahini (p. 779). Toast (p. 797, incl. Melba toast). Ume and umeboshi (p. 817). Winged bean (p. 849).

The entry for "Fermentation" states that the two main reasons for subjecting a food to fermentation are: (1) To "convert it from a form that will not keep, such as milk, to one which will, such as cheese." (2) To "make foods which are indigestible in their original state, such as wheat or soya beans, digestible by turning them into products such as bread or tempe." Other benefits include improvements in flavour.

Many do not realize that fermentation is part of the process of making coffee, cocoa, vanilla, and many kinds of sausage. A brief biography and nice portrait photo of Alan Davidson, a man of extraordinary knowledge in the world of food, appear on the rear dust jacket.

Note: The paperback edition of this book (2002) is titled *The Penguin companion to food*. Address: World's End, Chelsea, London, England.

1129. Moosewood Collective (The). 1999. Moosewood Restaurant daily special: More than 275 recipes for soups, stews, salads & extras. New York: Random House; Clarkson Potter. xi + 404 p. Illust. Index. 23 cm.

• **Summary:** Contents: Recipes by Chapter. Introduction. About the Recipes. Tips for Lowering Fat. Transforming Leftovers.

Soups: Homemade Stocks, Vegetable Soups, Bean & Grain Soups, Creamy Dairy Soups, Chilled Soups, Seafood Soups.

Salads: Main Dish Salads, Simple Vegetable & Side Dish Salads, Seafood Salads.

Accompaniments: Dressings, Breads & Biscuits, Tempting Extras.

Glossary of Ingredients & Techniques. Special Lists.

Introduction: Moosewood Restaurant is located in the cosmopolitan little city of Ithaca, in the beautiful Finger Lakes Region of central New York State, known for its vineyards, wineries, and dramatic gorges. Established in 1973, Moosewood has served natural foods with a vegetarian emphasis from a variety of international, ethnic, and regional cuisines for more than twenty-five years now. Moosewood is owned by the nineteen members of the Moosewood Collective and is staffed and operated by Collective members along with a dedicated and gifted crew of employees. Over the last few years, the restaurant has more than doubled in size, and although it looks less rustic than it did in the '70s, our approach to food is the same. We serve generous portions at moderate prices and see ourselves as part of an important movement toward cultivating more healthful diets based on the creative use of the freshest high-quality ingredients and natural whole foods. So at Moosewood, the focus is on preserving the integrity of the basic ingredients and paying careful attention to all aspects of preparation. We use lavish, exciting seasonings and make simple but beautiful presentations. And one of the main ways we do all of this is with the ever-changing Daily Specials that grace our restaurant's blackboard each day. At most restaurants, the daily special is a sandwich or a main dish offered in addition to the fixed menu. What's unique about Moosewood's menu is that it changes every day; the only selection that's always on the menu is the Daily Special—a cup or bowl of soup, a salad, and a thick slice of bread.

“And it's the most inexpensive meal we offer. We have loyal customers who have ordered the Daily Special as

their ‘usual’ for twenty years. This may sound monotonous, but it's not, because the choice of soups is continuously changing, and our customers can vary their salads with different dressings and toppings...”

Note: This book is not vegetarian; it uses fish and seafoods, but no meat or poultry.

Concerning soyfoods: The index lists: 13 recipes for tofu, 4 for miso, and 1 for tempeh.

The Glossary includes entries for azuki beans, beans (table of many varieties, incl. soybeans), rice wine, seaweed (sea vegetables: hijiki, kombu, nori, wakame), seitan, tempeh, tofu (incl. frozen tofu, silken tofu, tofu-kan [doufu-gan]), worcestershire sauce (vegetarian), list of vegan recipes. Address: Ithaca, New York.

1130. Young, Grace. 1999. The wisdom of the Chinese kitchen: Classic family recipes for celebration and healing. New York, NY: Simon & Schuster. xxii + 282 p. Illust. (some color photos by Alan Richardson). Index. 24 cm.

• **Summary:** On the front cover is a large color photo of the three generations of women Grace's grandmother, Fung Tong Lai Lan, her mother (Mama), and Grace herself. On the first page of every chapter is an old family photo. The food and their names are Cantonese. Both of her parents were born in China. Growing up in San Francisco, Grace “observed that the principles of yin and yang—a balance of opposites—were integrated into our everyday fare. For example, vegetables considered cooling, such as bean sprouts, were stir-fried with ginger, which is warming” (p. xii). And she “ate Cantonese home-style food every day” (p. xiii).

The name of each recipe is written three ways: (1) In English. (2) In light-orange Chinese characters, vertically to the left of the English name. (3) In Cantonese phonetics (in small black letters).

Soy related recipes: Stir-fried asparagus with shrimp (and black bean sauce, p. 29). Beef chow fun (with black bean sauce, p. 31). Steamed spareribs with black bean sauce (p. 41). Steamed sole with black bean sauce (p. 43). Sandpot braised lamb (with dried yuba sticks {foo jook}, p. 42-43).

Sprouting soybeans (gives a good introduction to bean sprouts and describes how to make soybean sprouts at home) (p. 80-81). Includes many recipes for soybean sprouts: Grandfather's stir-fried soybean sprouts (p. 82). Soybean and sparerib soup (p. 212).

Stir fried clams in black bean sauce (p. 111). Buddha's delight (with fried tofu, dried yuba and red fermented tofu, p. 126-27). Soy sauce chicken (p. 174-75). Foxnut soup (with dried yuba sheets, p. 198). Homemade soymilk (from ½ cup dried soybeans, p. 209). Savory soy milk (p. 210). Gingko nut porridge (with dried yuba sticks, p. 222-23).

The excellent Glossary (p. 246-68) includes entries for: Adzuki beans (*zeck siu dul*). Barley, Job's tear (*ye mai*): A different variety than Western barley. Bean curd: See Fried bean curd, Sheet dried bean curd, Stick dried bean curd,

Tofu, and Wet bean curd [fermented tofu].

Bean sprouts (*gna choy*): The two varieties of Chinese sprouts are mung bean sprouts (*gna choy*), which are more commonly available, and soybean sprouts (*dai dul gna choy*), which are more nutritious, being rich in protein. The head is the most nutritious part of the sprout. "Don't eat raw soybean sprouts, as they are toxic."

Chinese dried black beans (*dul see*): Also known as salted black beans, fermented black beans, or preserved beans. Note: These are soybeans. "Before being used, the beans must always be rinsed in several changes of cold water." They are usually crushed with the handle of a cleaver or a wooden spoon and combined with soy sauce, garlic, or ginger before cooking. Her favorite brand is Yang Jiang Preserved Beans.

Fried bean curd (*dul foo gock*): Also known as bean curd puffs, or fried tofu. "They are triangles, squares, or cubes of tofu that have been deep-fried." Sold refrigerated. Green mung beans, dried (*look dul*):

Ground bean sauce (*meen see*): "This chocolate-colored sauce is also known as brown bean sauce, bean sauce, brown bean paste, or yellow bean sauce." It is sold in cans and jars. She prefers the Lee Kum Kee brand. It is made from naturally fermented soybeans, flour and sugar. Refrigerate.

Hoisin sauce (*hoisin zheung*): Made from sugar, soybeans, garlic, sesame seeds, chili peppers, and spices. A chocolate-brown sauce, mildly sweet and smoky. She prefers the Lee Kum Kee brand.

Red beans, dried (*hoong dul*): Not to be confused with the elongated adzuki beans. These red beans are used in soups, red bean paste, and desserts.

Seaweed (*see choy*): Also known as nori, roasted seaweed, or kizunori. Note: Many other types of seaweed / sea vegetables are used as food in East Asia.

Sheet dried bean curd (*bien foo jook*): Also known as dehydrated bean curd, dried bean thread [or dried yuba].

Soybeans, dried (*wong dul*): Also known as yellow soybeans.

Soy milk (*dul cheung*): Although it looks like dairy milk, it has a completely different taste and consistency. To learn how to make it at home, see p. 208. The soy milk sold in Western health-food stores is generally different from that sold in Chinatown (which is available sweetened or plain).

Soy sauce (*see yul*): Of the many varieties, the two are most essential for cooking are: (1) Black soy (*low zul*): Also known as soy superior sauce or dark soy sauce. It is darker, thicker, richer in color, and slightly sweeter in taste. (2) Thin soy (*sang zul*): Also known as superior soy, premium soy sauce, or light soy sauce. It has the most flavor but is saltier than Black soy. This soy is most often used in cooking. "The soy sauce sold in Western markets is generally thin."

Stick dried bean curd (*foo jook*): Also known as dehydrated bean curd, dried bean thread [or dried yuba sticks]. The pieces are "ivory colored, about 12 inches long,

and shaped like a giant horseshoe."

Sweetened red bean paste (*dul sah*): To make it at home, see p. 139.

Tofu (*dul foo*): Also known as bean curd. "Tofu is high in protein, cholesterol free, low in saturated fats, and rich in phytochemicals." The important types of tofu are: (1) Firm tofu (*dul foo*): Comes in 3-inch squares, ½-inch thick. (2) Five spice tofu (*nmm hueng gul foo gawn*): Also known as spiced tofu or flavored bean curd. (3) Silken tofu (*wat dul foo*): "This is custardlike and more delicate"

Wet bean curd (*fu yu*): Also known as fermented bean curd [or fermented tofu]. Sold in a brining liquor in jars (typically 1 pint). A favorite brand is Chan Moon Kee. The two basic types are (1) Wet bean curd, white (*bock fu yu*): Often spiced with dried red chilies. (2) Wet bean curd, red (*nom yu*): One-inch red cubes fermented in a thick red sauce.

Yellow mung beans, dried (*look dul hoy pay*): "Also known as peeled mung beans," these look like small yellow split peas. "They are green mung beans that have been hulled." They are used in Savory rice tamales. Address: A native of San Francisco, she currently lives in Manhattan with her husband Michael. For 16 years she has been the Test Kitchen Director and Director of Food Photography for Rebus, Inc., a New York Publishing Company.

1131. Schlieske, Ingrid. 2000. Soja, Tofu & Co.: Vom Fleisch, das auf dem Felde waechst [Soya, tofu & company: From meat that grows in the fields]. Bietigheim, Germany: Turm Verlag. 231 p. April. Illust. Recipe index. 25 cm. [Ger]

• **Summary:** A very handsome book, with a full-page color photo on almost every other page, printed on glossy paper. Contents: Foreword. General information: What is healthful eating?, vegetarian diets taste good and are good for you, making food look attractive, textured soy protein, introduction to ingredients (incl. azuki beans, seitan), which fats are suitable for cooking, vegetables, sea vegetables, herbs and salt, pumpkins and squash, nuts, avocados, and mushrooms, brief glossary of foods.

Recipes: Tofu (p. 30-105). Textured soy protein (Soja-Hack, p. 106-31). Soja-Ragout (p. 132-65). Soja-Schnitzel (p. 166-71). Sojetten (p. 172-85). Chickpea meal (Kichererbsenmehl, p. 188-209). Azuki beans and mung beans (210-19). Seitan (*Saitan*, p. 220-21). Tempeh (p. 222-23). Salad dressings (p. 224-25). Address: Germany.

1132. Kushi Institute. 2000. Kushi Institute store: Food, books, kitchenware, bodycare, video, audio. Spring/summer 20009 (Mail-order catalog). Becket, Massachusetts. 32 p. 28 cm. [8 ref]

• **Summary:** Glossy cover with a photo of a lotus flower blooming on a turquoise background. A good new source of macrobiotic supplies. Most of the foods in the 1999 catalog are still available. "The renowned Kushi Institute offers year-round programs on the macrobiotic approach to health and

healing at its 600-acre educational center.”

The store now has a website: www.macrobiotics.org. Place your order by e-mail at store@macrobiotics.org or kushi@macrobiotics.org. Or you can order by fax. Address: P.O. Box 500, Becket, Massachusetts 01223-0500. Phone: 1-800-645-8744.

1133. Smil, Vaclav. 2000. Magic beans: the Japanese invader that's good for you. Millennium essay. *Nature (London)* 407(6804):567. Oct. 5. [9 ref]

• **Summary:** The magic beans are (of course) soybeans. And this is a 1-page overview of the history and importance of soybeans—worldwide! A color print (property of the British Museum) is here titled “Soy ahoy: the beans reached the West via Perry’s ‘black ships,’ shown here arriving off Tokyo in 1853.”

“Mission accomplished, Perry returned bearing samples of Japanese products. As well as the predictable silks, lacquer boxes and exquisite porcelain, these included white and red soy beans. Several months later the US Patent Office was offering the seeds to American farmers, but there were few takers. Three decades later, Lewis Sturtevant noted in his exhaustive survey of edible plants that soy beans had begun to appear as a novelty item in US seed catalogues.”

Note 1. The so-called red soy beans were probably azuki beans—which are naturally red.

Note 2. Samuel Bowen actually brought the earliest known soybeans to North America (Savannah, Georgia) in 1765 (Hymowitz and Harlan 1983). Address: Univ. of Manitoba, Winnipeg, MB R3T 2N2, Canada.

1134. South River Miso. 2000. South River Miso (Website printout—complete). www.southrivermiso.com Retrieved Dec. 16.

• **Summary:** Contents: Home page (Welcome, two photos, quotation about miso from Dr. Tatsuiichiro Akizuki). 1. About us (Our mission, our story, history; 3 p., 3 photos, 3 illustrations). 2. About miso (1 year miso, sweet-tasting brown rice miso, chick pea miso, azuki bean miso, golden millet miso, mellow barley miso, quotations from two satisfied customers; 2 p.) 3. Miso recipes (Contains no actual recipes, but the viewer can download 26 recipes using acrobat reader; 2 p.). 4. Our products (Same as section 2, “About miso”; 2 p.). 5. Order (Order form, bulk order, order sampler, Tee shirts; 3 p.). Address: 888 Shelburne Falls Rd., Conway, Massachusetts 01341. Phone: (413) 369-4057.

1135. Huang, H.T. (Hsing-Tsung). 2000. Science and civilisation in China. Vol. 6, Biology and biological technology. Part V: Fermentations and food science. Joseph Needham series. Cambridge, England: Cambridge University Press. xxviii + 741 p. Illust. Index. 26 cm. [200+ soy ref]

• **Summary:** This is the most important book on soyfoods in China ever written, and it is especially good on their origins

and early history in China. It is also one of the best books seen on food in Chinese culture and history. For Chinese words, the book uses Joseph Needham’s modification of Wade-Giles romanization rather than the standard pinyin—unfortunately. Thus *tou fu* rather than *doufu* for tofu.

The section titled “Soybean processing and fermentation” (p. 292-378) comprises 14.3% of the book’s text, and has the following contents: Introduction. Soybean sprouts. Soybean curd and related products: The origin of bean curd, transmission of *tou fu* to Japan, products associated with *tou fu* (soymilk {*tou fu chiang*}, tofu curds {*tou fu hua* or *tou fu nao*}, pressed tofu sheets {*ch’ien chang* or *pai yeh*}, yuba {*tou fu i* or *tou fu p’i*}, deep-fried tofu {*yu tou fu* or *tou fu p’ao*}, pressed tofu {*tou fu kan*}, five-spice pressed tofu {*wu hsiang tou fu kan*}, plain dried tofu [pressed tofu] {*pai tou fu gan*}, smoked tofu {*hsün tou fu*}, dried tofu soaked in brine and fermented {*ch’ou tou fu kan*}, frozen tofu {*tung tou fu*}, making fermented tofu (*fu ju*), comparison of *tou fu* and cheese, addendum. Fermented soybeans, soy paste, and soy sauce: *Ferments* for food processing, fermented soybeans—*shih*, fermented soy paste—*chiang*, fermented soy sauce—*chiang yu*, soy fermentations in China and Japan.

Soybeans or soyfoods are also mentioned on pages 2, 7 (soymilk), 18-20, 22, 25, 27-28, 66, 96, 192, 292-378, 388-89 (soybean jiang), 408-410 (jiang), 414 (soy sauce), 450, 452 (soy oil), 456, 519n, 582 (jiang), 592-94 (chhü. koji, fermented black soybeans; a culture of molds, particularly species of *Aspergillus*, *Rhizopus* and *Mucor* and yeast, mainly *saccharomyces* spp. grown on a cooked grain medium, 595-598 (tofu, soymilk, soy sauce, rotary quern), 604-05 (soymilk, soy sprouts, tofu, tofu curd with calcium, yuba, fermented black soybeans, soy paste, soy sauce).

Going through the General Index (p. 675+) on soy and soy-related entries: Bean 23, See also soybeans, adzuki, bean sprouts, broad beans. Bean curd see *tou fu*. Bowen Samuel (Savannah, Georgia, p. 292). Buddhists, p. 596, 597n. Chhih you (aduki bean) 40n. Chhing chiang (clarified sauce) 347n, 359, 362, 363-64, 371. Chhü: ferment [koji]; Chhü shih (ferment / koji powder). Chiang / jiang (fermented soy paste), etc.

There are also long sections on the history koji (*chhü = qu*) and of red rice koji (*hong qu*) in China (p. 192-203).

Note: This is the earliest English-language document seen (April 2013) that uses the term “*hsün tou fu*” [pinyin: *xun doufu*] to refer to smoked tofu. Address: Alexandria, Virginia.

1136. Berley, Peter; Clark, Melissa. 2000. The modern vegetarian kitchen. 1st ed. New York, NY: ReganBooks. An imprint of HarperCollinsPublishers. xi + 450 p. Illust. (Photos by Beth Galton; illustrations by Laura Hartman Maestro). Index. 24 cm. 2nd ed. 2004. 464 p. [27 ref]

• **Summary:** Contains many recipes using tofu, tempeh,

miso, soybeans, soy sauce, soy sour cream, black soybeans, sea vegetables, adzuki / azuki beans, seitan (incl. homemade seitan), etc. For specifics, see Index.

During his seven years at Angelica Kitchen, a strictly vegan restaurant, he “learned a great deal about coaxing out the maximum flavor and concentrating on the essence of foods without the use of dairy products or eggs.” A color photo on the back cover shows Peter Berley.

From the book jacket: “Peter Berley’s mission is to show how the simple act of cooking food can enliven your senses and nourish your life—from going to the farmers’ market and outfitting your kitchen with the simplest, most useful tools to learning techniques and sharing meals with friends and family. The former chef of Angelica Kitchen, one of New York City’s finest restaurants, Berley takes you through the seasons, with more than two hundred sumptuous recipes that feature each ingredient at its peak... A cooking teacher for many years, Berley has kept the needs of his students continually in mind in this book. The recipes are written to feature the basic techniques and background information needed to create wonderful meals with fresh vegetables, fruits, and grains. He truly inspires both novice and experienced cooks to understand what they are doing and why, to learn to work with the ingredients, and to apply their skills creatively.” Address: New York City.

1137. Corum, Ann Kondo. 2000. *Ethnic foods of Hawai’i*. Revised ed. Honolulu, Hawai’i: The Bess Press. vi + 234 p. See p. 53-54, 74, 88. Illust. Recipe index by category. Recipe index by ethnic group. 23 cm. 1st ed. 1984. [73 ref]

• **Summary:** The semi-Japanese recipe for Microwave azuki mochi (p. 74) concludes: “Roll in katakuriko (potato starch) or kinako (soybean flour).”

The Okinawan recipe for “Nantu: Steamed Okinawan mochi” (p. 88) calls for “kinako (soybean flour) as an ingredient.

The ethnic groups whose recipes are represented in this collection are (listed alphabetically): Chinese, Filipino, Hawaiian, Japanese, Korean, Okinawan, Portuguese, Puerto Rican, Samoan, Thai, and Vietnamese.

The section titled “Soybean and bean products” (p. 53-54) discusses miso, tofu, and shoyu, sukiyaki, aburage, okara, miso soup, teriyaki, and kuromame (black soybeans).

About the author: On the back cover, with a portrait photo, we read: “Ann Condo Corum was born in Honolulu and graduated from Punahou School. She has a degree in English from California State University at Long Beach and a Master of Science degree from the University of Southern California.” Address: Author.

1138. Dobic, Milenka ‘Mina.’ 2000. *My beautiful life: “How macrobiotics brought me from cancer to radiant health.”* Forres, Scotland; Tallahassee, Florida: Findhorn Press. 188 p. Illust. (some color). No index. 23 cm. [21 ref]

• **Summary:** From the publisher: “The story of a woman who fought and won the battle against fourth stage ovarian cancer with a diagnosis of two months to live, 12 years ago. The book tells how to recover from cancer and how to prevent it through diet and a simple lifestyle. It is also a book about the importance of relationships.”

Contents: Foreword. Preface. Introduction. 1. “The Year of Hope: The Year of Salvation.” Roots of a Cherished Life. 2. Loving What I Do. 3. Private Bliss and Disappointment. 4. My Cancer is a Blessing. 5. Choosing the Macrobiotic Way. 6. Home from the Hospital. 7. First Trip to U.S.: A Celebration of Life! 8. Michio Kushi. 9. Macrobiotics in Yugoslavia: The Phoenix Rises. 10. Becket: Training for Future Career. 11. California Dream. 12. Healing Stories (eleven stories). Appendix A: Back to Basics.

Appendix B: Menu Used by Mina Dobic to Heal Her Cancer (includes Medicinal drink: Ume-Sho-Kuzu. Black soy bean tea/juice. Black soybean stew. Black soybeans. Tempeh; with recipes). Glossary. Bibliography. Directories. Acknowledgments.

Glossary (p. 184-86): Amasake, azuki bean, brown rice, gomashio, hiziki, kombu, kuzu, miso, mochi, natto, nori, rice syrup, seitan, shiitake, shoyu [soy sauce], tamari, tempeh, tekka (made from Hatcho miso), tofu, umeboshi, wakame.

Recipe for “Black soy bean tea (p. 180):

1 cup black soybeans.
1 large shiitake mushroom
6 cups water
2 inches burdock root
1/3 cup dried daikon
2 inches sliced lotus root
1 umeboshi plum

“Simmer 45 minutes with cover ajar. Strain juice. Add umeboshi plum, chopped. Simmer 5 min.

About the author (inside rear cover): At the top is a color portrait photo of Mina. “In 1987 Mina was diagnosed with stage IV ovarian cancer with metastases to the liver and lymph system: she was given two months to live. She declined the doctors recommendation for chemotherapy and radiation, and decided to adopt the macrobiotic way of life and healing diet. Six and a half months later she was cancer free.

“Milenka ‘Mina’ Dobic, Ph.D. was born in former Yugoslavia in October 15, 1942. She became a professor of Linguistics and World Literature, and later Director of Art and Education for Radio Indjije, Radio Belgrade, and Radio Navi Sad. She was honored with the highest award given in journalism, The Truth (equivalent of the Pulitzer Prize).

“Mina and her family arrived in the USA in 1987 where she became a teacher and counselor at the Kushi Institute. She later organized the first macrobiotic support group for cancer survivors in Hollywood and has been leading seminars in Nutritional Sciences, Food Sciences and Human Nutrition. In 1998 she was appointed by the Kushi Institute

to serve as its Representative at The First Annual Whole World Health Forum. She is currently lecturing nationally and conducting monthly Macrobiotic Cooking Classes for Executive Chefs and others at The Ritz-Carlton Hotel in Dana Point, California.”

From the back cover:

“Mina Dobic is an intuitive woman committed to the liberation of humanity and One Peaceful World. Growing from patient to healer and motivated by a sincere desire to fulfill her goal, she taught thousands how to transform their sicknesses and misery into health, happiness and peace.

“Michio Kushi acknowledged leader of the International Macrobiotic Community and Natural Foods Movement

“Mina’s story of her life is moving as well as amazing. Her journey from Yugoslavia to California and how she overcame her own cancer, has inspired others who are sick to seek her help. Her healing advice has seen me through many of my illnesses with her love, compassion and insights.

“Dr. Benjamin Spock, Pediatrician and Author

“Five years ago, in good health I became macrobiotic. Four years ago, I met Mina and through her precise and caring guidance I began to finally really live, not only exist. God Bless you, Mina.

“Monty Montgomery, Hollywood Producer, Writer, Director

“I am overwhelmed by the beauty, insight, and courage of this book. Mina is a special kind of healer. This book will give you a wonderful tool for maintaining your health. It will also give you a refreshing and insightful way of looking at any health challenge.

“Bill Duke, Hollywood Director, Actor, Author

“Mina Dobic is widely considered L.A.’s most expert macrobiotic health consultant.

“*Vogue Magazine*, May 1997

“Mina truly is in the business of saving lives through changes in lifestyles and healthy eating. The results are dramatic and indisputable.

“Ashley Goodwin, Manager of Special Events, The Ritz-Carlton, Laguna Niguel.” Address: Yugoslavia; Massachusetts and Los Angeles (USA).

1139. Kornfeld, Myra. 2000. *The voluptuous vegan: more than 200 sinfully delicious recipes for meatless, eggless, and dairy-free meals*. New York, NY: Three Rivers Press. [xi] + 305 p. Illust. (by Sheila Hamanaka). Index. 24 cm.

• **Summary:** A vegan cookbook with some macrobiotic flavor. The excellent glossary includes: adzuki beans, agar-agar, almond butter, barley malt, barley miso, carob powder, edamame, gluten, haricots verts, Hass avocado, hijiki, Hokkaido pumpkin (kabocha squash), kanten, koji, kombu, kudzu, maple sugar (crystallized maple syrup), mirin, miso, MSG, nori, oden, Rice Dream, rice syrup, sambal (Indonesian word for chutney), sea salt, seitan, shiitake, shoyu, soybean, soy milk, Sucanat, tahini, tempeh, umeboshi

paste, wakame, wheat gluten, Yannah coffee. The index contains 29 entries for tofu, 9 for seitan, 5 for tempeh, 2 for miso, 1 for “Cheese”—tofu (p. 214), “Sour cream”—tofu (p. 25), and teriyaki vegetables. Note: Soy milk is called for in many recipes. Address: Professional Chef, New York City.

1140. Shahidi, Fereidoon; Ho, C.T. eds. 2000.

Phytochemicals and phytopharmaceuticals. Champaign, Illinois: AOCS Press. viii + 431 p. Illust. 24 cm. *

• **Summary:** Chapters include: 1. Plants as medicine: The role of phytochemicals in optimum health. 2. Research incentives for functional foods and phytochemicals: U.S. policy and industry preference. 3. New opportunities to bring nutritionally superior food products to the market. 4. Conceptualization of the prooxidant and antioxidant actions of food plant chemicals. 14. Dietary intake of flavonoids and isoflavonoids by the Japanese and their pharmacokinetics and bioactives. Includes a discussion of tea and adzuki beans.

1141. *Fine Cooking (Newton, Connecticut)*. 2001. The ancient art of making miso, practiced in New England: Artisan foods. No. 44. April/May. Back cover.

• **Summary:** About South River Miso Co. The text briefly tells the company’s history and how they make miso in the traditional Japanese way. Four excellent color photos show: (1) Christian Elwell stirring steamed grains in a large wooden crib. (2) Elwell scraping finished koji from wooden trays. (3) Elwell blending the koji with cooked soybeans by treading them underfoot in a large, rectangular metal container. He says its like a message for the beans. While treading, he wears two pairs of organic cotton socks and plastic foot coverings. (4) Six varieties of South River Miso in glass jars stacked to form a triangle: Azuki Bean, Sweet-Tasting Brown Rice, Three-Year Barley, Special Edition, Chick Pea, and Sweet White. At the top of each colorful label are the words “Since 1979.”

1142. Daniels-Zeller, Debra. 2001. Fantastic frozen soy desserts. *Vegetarian Journal* 20(4):6-10. July/Aug.

• **Summary:** About how to make the following such desserts at home: Very vanilla soy treat (with “10 ounces firm silken tofu, drained”). Creamy frozen maple-peach tofu (with “10 ounces firm silken tofu, drained”). Banana-pineapple frozen soy pudding (with “5 to 6 tablespoons soymilk”). Strawberry soysicles. Frozen chocolate red bean delight (with adzuki beans and “1 cup vanilla soymilk”). Cherry-adzuki bean delight. Piña colada frozen dessert (with “One 10-ounce package silken tofu, drained”). Frozen mocha soy latte (With “10 ounces firm silken tofu, drained”).

1143. Geiskopf-Hadler, Susan; Toomay, Mindy. 2001. The complete vegan cookbook: Over 200 tantalizing recipes plus plenty of kitchen wisdom for beginners and experienced cooks. Rocklin, California: Prima Publishing. xvi + 318 p.

Illust. Index. 22 cm.

• **Summary:** Contains more than 200 vegan recipes, including many recipes for miso (3 recipes), soy cheese (9), tempeh (7), tofu (regular, 22), tofu (silken, 6), and soy yogurt (2). The “Glossary of special ingredients” contains definitions of miso, soy mayonnaise, soy milk, tempeh, and tofu—as well as of adzuki beans, dark sesame oil, quinoa, rice milk, sesame tahini, shiitake mushrooms, etc.

For nutritional information about soy foods, see p. 20-21. Tamari soy sauce is frequently used as a seasoning.

Contents: Acknowledgements. Introduction. 1. Cooking fundamentals. 2. Stocking the vegan pantry. 3. Menus for entertaining and everyday meals. 4. Appetizers. 5. Salads. 6. Soups and stews. 7. Vegetable side dishes. 8. Pasta dishes. 9. Grain and bean dishes. 10. Sautés and stir fries. 11. Baked and grilled entrées. 12. Sandwiches and wraps. 13. Morning meals. 14. Deserts. 15. Frequently used ingredients. Appendix: Nutrition fundamentals. Glossary of Specialty ingredients. Address: Northern California.

1144. Hepinstall, Hi So Shin. 2001. *Growing up in a Korean kitchen: A cookbook*. Berkeley, California: Ten Speed Press. 254 p. Illust. Index. 26 cm.

• **Summary:** The best book seen to date for information and recipes on soyfoods in Korea. The author grew up in Cheongju, South Korea, in her ancestral home. Families made sauces in earthenware crocks (p. 7). A list of ingredients with descriptions includes: Bean curd (Tubu [tofu]). Beans, dried (K’ong, incl. yellow and black soybeans, mung beans and red [azuki] beans). Koch’ujang (Korean hot red pepper paste [with soybeans]). Kudzu (Ch’ik). Meju (Korean fermented soybean paste block [soybean koji]). Piji (Bean curd dregs [okara]). Red bean paste (P’at komul). Soy sauce (Kanjang). Soybean powder (K’ong karu; a yellow powder sold in 1-lb plastic bags). Soybean sprouts (K’ong namul). Toenjang (Korean fermented soybean paste).

Essential sauces and pastes: Recipe for: “Homemade soy sauce and fermented soybean paste: Kanjang and toenjang.” It makes 10 gallons and takes about 2 months to prepare. Unusual ingredients include: 3 pieces oak wood charcoal, 1 gallon white grain syrup (choch’ung), 10 toasted jujubes, and 5 dried hot red peppers. For about 60 days, let the crock stand in the open without a lid; cover when it rains. At the end of 60 days the mash is filtered through a bamboo basket lined with a fine-mesh cloth into a crock to yield two products: The fermented soybean paste (toenjang) remains in the strainer, whereas the soy sauce filters through into the crock. Store the paste in a sterilized crock; sprinkle a thin layer of coarse salt on top. “Pour the soy sauce liquid into a caldron, bring to a boil, and allow to simmer over low heat until it is reduced to one-third of its original volume.” Adjust saltiness. The paste and the sauce or now ready to be aged, but we are not told for how long.

Soy sauce at this stage (unaged) is called *ch’ongjang* (clear soy sauce) or *Choson kanjang* (Korean soy sauce). A plain and somewhat salty brown sauce, it is used mostly in base seasonings and clear soups. To make *chin kanjang*, a superior thin, syrupy, jet-black soy sauce, similar to the dark soy sauce sold in today’s markets, submerge a large-mesh cloth pouch containing black soybeans, p’yogo mushrooms, and strips of kelp (*Miyok*) in the clear, unaged soy sauce and simmer over low heat for about an hour. The longer it is aged, the mellower it becomes, and the more intense the flavor.

Homemade hot red pepper paste (*Koch’ujang*, with 1 cup fine meju powder and ½ cup soy sauce). Instant fermented soybean paste (*Makjang*; uses 5 cups powdered meju and takes 10 days to mature). Vinegar soy sauce (*Ch’o kanjang*). T’ang soybean paste (*T’anggukjang*; “the best tasting soybean paste among all toenjang”). Fermented soybean paste with garlic and bean curd (*Ssamjang*; “Probably the tastiest soybean paste made in the Korean kitchen,” p. 32).

Main dishes: Five grain rice (*Ogkpap* or *Chapgokbap*, with ½ cup dried black soybeans, p. 41). Koreans traditionally eat this dish on the 15th day of the 1st month of the lunar year). Soybean sprouts with steamed rice (*K’ongnamulbap*, p. 44). Ceremonial soup (*T’ang*, with medium firm tofu, p. 62). Seaweed soup (*Miyokguk*, with tofu, p. 65). Kimchi soup (*Kimchiguk*, with tofu and soybean sprouts, p. 67). Soybean porridge (*K’ongjuk*, with 1 cup soybean powder, p. 78). Noodles in chilled soybean milk (*K’ong kuksu*, with 1 quart soy milk, p. 86). Stuffed dumplings (*Mandu*, with medium-firm tofu, p. 90-91). Soy sauce kimchi (*Chang kimchi*, p. 103).

Side dishes: Seasoned soybean sprouts (*K’ong namul*, p. 122, incl. Chilled soybean sprouts, and Soybean sprout soup). Sauteed cabbage kimchi with beancurd and pork (p. 130). Bean curd and vegetable stew with fermented soybean paste (*Tubu toenjang tchigae*, p. 138). Bean curd and vegetable hot pot (p. 152). Soybean pancakes (p. 163). Stuffed pan-fried bean curd (p. 167). Stuffed pan-fried p’yogo mushrooms (with bean curd, p. 168). Stuffed pan-fried peppers (with bean curd, p. 169).

More tofu recipes are on pages 170, 171, 172, 196-97, 199, 200, 204-05, 217. Many recipes call for kelp, kim (laver, nori) or seaweed (see index). Address: Washington, DC.

1145. Hsiung, Deh-Ta. 2001. *The Chinese kitchen*. New York, NY: St. Martin’s Press. 240 p. Foreword by Ken Hom. Illust. (color). 29 cm. [30 ref]

• **Summary:** This book focuses on ingredients and essential kitchen tools used in Chinese cooking. For each it gives all or most of the following: Name romanized in Mandarin Chinese and Chinese characters. A glossy color photo of the item. A basic description. Appearance and taste. Method of

manufacture. Buying and storing. Culinary uses. 1-2 recipes. The many color photos are very useful, but the index is hard to use

Soy related: Black bean sauce recipe (p. 33). Soy (soy sauce; *jiang you*, p. 64-67; Recipes are Soy chicken and Soy duck. Mushroom soy sauce is a Cantonese specialty. Chili soy sauce is sold in small bottles).

Seasonings section: Oyster sauce (*haoyou*, p. 79. Soy sauce is a typical ingredient).

Salted black beans (*douchi*, p. 88-89. “They are very popular all over China, especially in rural households in the South.” They are also the oldest recorded soy food in Chinese history, and the ancestor of soy sauce. Indeed the water in which salted black beans has been soaked is often used as a substitute for soy sauce by low-income people, to save money. To make *douchi*: Boil black soybeans until soft, then soak in water overnight. Steam them for 3 hours the next morning. Inoculate them with *Aspergillus oryzae* mold and ferment for 15-21 days. Then cover beans with a brine solution and alcohol, and allow to mature for at least six months. Then spread them out to dry in the sun. Steam them again until soft and spread in the sun to dry. Repeat the last step one more time. The product is, at last, ready to use).

Black bean sauce (*chizhiang*, p. 90-91. “I have a strong suspicion that commercial black bean sauce {liquidized, salted black beans seasoned with soy sauce, salt, sugar and spice} is a Hong Kong invention concocted mainly for the convenience of Westerners. I cannot remember ever seeing it in China, nor can I find any mention of its existence in any Chinese publication, past or present.” “Commercial black bean sauce is less aromatic than the fresh paste one makes oneself... Some varieties also include added orange peel, ginger, chilies or garlic.” A number of different brands are available. The author uses this only for convenience. “One of the most popular variations is black bean and garlic sauce.” Recipes include: Steamed spareribs with black bean sauce).

Yellow bean sauce (*huang jiang*, p. 92-93. “Sometimes labeled brown bean sauce or ground bean sauce {*mochi jiang*}, this is the soybean paste made from crushed or ground, salted and fermented yellow soybeans, which are sweeter and less salty than black beans.” Spices and other seasonings can be added to this basic bean sauce giving many varieties. In different regions of China, seasonings and spices are added in different proportions. Hoi Sin sauce {p. 94} is one example. Guilin chili sauce {p. 95} and Peking Duck sauce {p. 93} are others. To make: Soak soybeans for 16 hours. Then steam until soft. Ferment beans for about 5 days, stirring and turning every other day. Blend into beans salt, sweet glutinous rice wine, and dark brown sugar. Fill a pottery jar with them—not too tightly, nor too loosely. Seal opening tightly then let jar stand for 2 days. Turn jar upside down in a cool, dry place and ferment beans for 3 more months. The beans are now ready to be used as is, or to be ground and blended with additional seasonings).

Hoi Sin Sauce (*haixian jiang* in Mandarin or *hoisin jaiing* in Cantonese, p. 95. This very popular Cantonese specialty, also known as “barbecue sauce,” has become almost as popular as soy sauce in most households. To make: Season yellow soybeans with sugar, vinegar, salt, chili, garlic, sesame oil, and red coloring; thicken with flour and water. The author believes that Hoi Sin sauce should not be used with Peking Duck).

Guilin Chili sauce (*Guilin lajiao jiang*, p. 95. Guilin is the capital of Guangxi, located just north of Guangdong {Canton}. To make: Mix fermented and salted beans with fresh red chilies. Then stir in the lesser ingredients: garlic, salt, sugar, and starch. The author’s favorite authentic brand, Mount Elephant, is sold in a rustic brown earthenware pot. Recipe: Chicken cubes with chili bean sauce).

Chu Hou bean paste (*chuhou jiang*, p. 96. To make: Use yellow soybeans, wheat flour, sugar, lard or vegetable oil, and sesame. Recipe: Chu Hou chicken).

Sweet bean paste (*dousha*, p. 97. Although there are red and black sweet bean pastes, they are both made from red beans [azuki beans]. “I discovered this unexpected fact only very recently, while researching this book.” To make basic red bean paste: Gently boil red [azuki] beans in water until soft. Grind to a pulp, then clean and strain them to get rid of the hull / skin; filter and press. To this basic unsweetened paste, mix in crushed rock sugar. For “sweet black bean paste, add additional sugar with lard or vegetable oil, then heat while stirring until the color turns black. Essence of fragrant flowers, such as roses or sweet-scented osmanthus {*Osmanthus fragrans*; cassia} is usually blended with the black paste, which is shiny black. Sweet bean paste is widely used as a filling for steamed buns {*baozi*}, cakes and other desserts. “In China, sweet black bean paste is far more popular than the red variety, and as a child, I always preferred the sweeter taste of the former.” Recipe {served in most non-Cantonese restaurants}: Red bean paste pancakes).

Chili bean paste (*toban jiang*, p. 98. This is distinguished from other thick seasonings in that it is made from broad beans rather than soybeans. The most delicious product comes from Pixian County, in the Chengdu Plains near Chengdu—the capital of Sichuan province. Recipe: Home-style braised bean curd).

Fermented bean curd (*doufu nai*, literally “bean-curd milk,” p. 102-03. It has often been compared with a strong cheese and is definitely an acquired taste: “you either love it {as does almost everyone in China} or hate it {as does almost everyone else}. But everyone loves it when it is disguised as a seasoning. Also called *jiang doufu*. A legend of its origin states that two immortals told a street bean-curd seller how to make it, starting with molded bean curd. “Since the 15th century Fengdu fermented bean curd has held an excellent reputation.” Today the two leading brands are The Immortals and The Two Immortals. To make it: (1) Make bean curd [tofu]. (2) Lay cubes of bean curd on beds of rice

straw for about 5 days in spring or 7 days in winter. (3) Dry the mouldy [moldy] bean curd in the sun, then marinate with salt, sorghum spirit and spices. Mature in brine in sealed earthenware urns for at least 6 months. The two basic types are red and white. The red type, which has the milder flavor of the two, has ground red rice added to it instead of spice. In China, it is most widely consumed for breakfast with rice congee. Recipes: Pork chops with red fermented bean curd. Sichuan-style fried green beans).

Vegetables section: Soybean sprouts (*Huang douya*, *Glycine hispida*, p. 150-51. Soybean sprouts are much more widely used in China than mung bean sprouts. For how to grow at home, see p. 148. Soybean sprouts are almost twice as large as mung bean sprouts both in length and diameter. Soybean sprouts are the main ingredient in Vegetarian stock {p. 71}. Neither soybeans nor their sprouts should ever be eaten raw. Recipes: Soybean sprouts salad {with parboiled soybeans}. Assorted vegetable soup).

Note. This is the earliest English-language document seen (Jan. 2013) that uses the term “Huang douya” (regardless of capitalization) to refer to soy sprouts.

Under Lotus root (p. 144) is a recipe for Braised pork with lotus root that calls for “dried bean curd sticks.”

Under Ginkgo nut (p. 167) is a recipe for Vegetarian casserole (A slightly simplified version of Buddha’s Delight, p. 193) that calls for “3 8 inch long pieces (1 oz.) dried bean curd sticks, soaked.”

Note 1. This is the earliest English-language document seen (June 2011) that uses the term “dried bean curd skin sticks” to refer to dried yuba sticks. The recipe intends to call for “Three 8-inch long dried bean curd sticks.” Later, we are instructed to “Cut the bean curd sticks into short sections,…”

Preserved and processed foods section: Pickles (*Jiang cai*, p. 185, are vegetables pickled in soy sauce-based hydrolysate).

Bean curd (tofu, doufu, p. 196-99. Bean curd was invented in China “and is regarded as the country’s national dish…” Proof exists that bean curd, made from soybeans, was sold in markets during the Tang dynasty {618-907}. Until the 17th century, bean curd was eaten exclusively by the poor until Kung Xi {1662-1722}, a Qing dynasty emperor, “discovered it while visiting Suzhou in Jiangsu province when he ventured out incognito to mingle with the people in the streets. When he returned to Peking, the Emperor ordered the chefs of the Palace kitchen to produce bean curd dishes. Overnight, humble bean curd became nobleman’s fare and is now popular worldwide.” It is off-white in color. Under “Medicinal uses: The nutritional benefits of bean curd cannot be exaggerated.” Free of cholesterol, it is ideal for combating heart disease and high blood pressure. It is also extremely easy to digest, so it is very good for infants, the elderly and invalids. Recipe: Sichuan spicy bean curd {*Ma po doufu*}. Fish and bean curd casserole. Stir-fried shrimp with bean curd. Stuffed bean curd {Popular in Canton and with the

Hakka people}).

Deep-fried bean curd (*youzha doufu*, p. 200. Sold in the form of small cubes, large squares, or triangles. Used in soups, stews, casseroles, braised dishes or stuffed triangles).

Pressed bean curd (*doufu-gan*, p. 201. After being pressed it is typically seasoned with soy sauce and a little five-spice, or star anise, or cinnamon).

Dried bean curd skins (*fuzhu*, *fupi*, p. 202-03. One kind is a thin flat sheet; the other is rolled into a stick. The sticks require much more soaking before use—several hours or overnight. Recipes: Bean curd skin and asparagus soup. Vegetarian bean curd skin roll).

Tofu (in recipes only): p. 75, 139, 189.

Non-soy: Gluten (p. 34). Cooking oils (p. 58; soy oil is not mentioned). Sesame seed oil (p. 60). Sesame paste (p. 61). Peanut (p. 164-65).

Note 2. This book was first published in Great Britain in 1999 by Kyle Cathie Limited. This is the first U.S. edition. Address: Author and chef, London.

1146. Nakamura, Yumiko; Kaihara, A.; Yoshii, K.; Tsumura, Y.; Ishimitsu, S.; Tonogai, Y. 2001. Content and composition of isoflavonoids in mature or immature beans and bean sprouts consumed in Japan. *J. of Health Science (Japan)* 47(4):394-406. [26 ref]

• **Summary:** Isoflavones comprise a class of organic compounds, often naturally occurring, related to the isoflavonoids. [1] Many act as phytoestrogens in mammals. Some are termed antioxidants because of their ability to trap singlet oxygen. [2] Some isoflavones, in particular soy isoflavones, when studied in populations eating soy protein, have indicated that there is a lower incidence of breast cancer and other common cancers because of its role in influencing sex hormone metabolism and biological activity through intracellular enzymes, protein synthesis, growth factor actions, malignant cell proliferations, differentiation and angiogenesis. [2] Isoflavones are produced almost exclusively by the members of the Fabaceae (i.e., *Leguminosae*, or bean) family. (Source: Wikipedia, at isoflavones, Jan. 2013).

Thirty four samples of mature legumes, 7 samples of immature legumes and 5 of legume sprouts, obtained in Japan, were analysed by HPLC (high-performance liquid chromatography) for contents of total isoflavonoids and 9 individual isoflavonoids.

Mature legumes tested included yellow soybeans, black soybeans, green soybeans, kidney beans, scarlet runner beans, lima beans, butter beans, saltapia beans, peas, adzuki beans, black mappé [*Vigna mungo*], green gram, chick peas, broad beans and peanuts.

Immature legumes included soybeans (edamamé), black soybeans, broad beans, green peas, green pea pods and kidney bean pods. Sprouts were from soybeans, green peas, black mappé and green gram.

Individual isoflavonoids [isoflavones] tested were daidzein, glycitein, genistein, formononetin, biochanin A, coumestrol, daidzin, glycitin and genistin.

Content and composition of isoflavonoids varied greatly between soybean sprouts, immature soybeans and mature beans of the same type but from a different source. Isoflavonoid content was highest in mature soybeans, but the relative proportions of isoflavonoids present varied at each stage of growth. In samples other than soybeans, highest isoflavonoid content was found in mature chick peas, but this value was much lower than that in mature soybeans. It was concluded that the contribution of legumes other than soybeans to daily intake of isoflavonoids in a typical Japanese diet is negligible.

Table 5 gives the “Compositions of isoflavonoids” and the total. For whole dry mature soybeans of various colors and from various countries (11 samples), the total content ranges from 1.3 to 13.0.

For immature soybeans (2 samples), the total ranges from 10.3 to 12.0.

For soybean sprouts (2 samples) the total ranges from 16.2 to 34.3, compared with 27.6 for black mame sprout (1 sample) and 27.7 for green gram sprout. Address: Div. of Food Chemistry, National Inst. of Health Sciences, 1-1-43 Hoenzaka, Chuo-ku, Osaka 540-0006, Japan.

1147. Pulmuone USA Inc. 2002. Pulmuone, a plate full of nature. South Gate, California. 16 p. Each page: 18.3 x 26 cm.

• **Summary:** Brochure (glossy color) sent by Patricia Smith from Natural Products Expo West. 2002. March. On the cover are five small rectangular photos of foods (including whole dry soybeans) against a white background.

Contents: 1. An Asian approach to natural food. 2. Pulmuone foods bring out the nature to your meals. 4-5. Tofu: Better protein source than meats. A photo shows the company's tofu products: Four types of basic tofu (each 18 oz. / 510 gm, regular, firm, silken, and soft). Two types of extra soft (10 oz / 300 gm) in round tubes. Tofu broth seasoning (1.6 oz / 45 gm). Two private label types of tofu for Japanese markets (firm and soft). Egg tofu (4.3 oz / 122 gm).

6-7. Fresh noodles (uncooked). Ten different types, incl. 2 Ramen and 1 udon.

8-9. Dry noodles / Instant rice noodles. Twelve different types (5 cup type, 3 bowl type, and 4 traditional straight types).

10-11. Traditionals. 4 sizes of hot pepper paste, 3 sizes of soybean paste, 2 sizes of hot bean sauce, 1 cho jang (sashimi sauce), 1 chungkukjang [Korean natto], 9 types of grains and beans, including soybean, red bean, black soy bean, mung bean, sweet brown rice, brown rice, etc.

12-13. Other. Three types of tea, 4 flavors of farm pudding, 2 types of sauce (black bean sauce, and curry sauce

mix). Three types of vinegar. 3 types of pickled radish. Imitation crab meat [vegetarian]. Sesame oil.

14. Frozen foods. Beef dumpling and Kimchi dumpling. Frozen udon in tubs (3 types). Buns & pancakes (5 types).

Page 16. Important dates in the history of Pulmuone: (actually chronology).

1981 May—Pulmuone Organic Foods opened to sell organic vegetables from its own farm.

1984 May—Pulmuone Foods Co., Ltd. incorporated.

1984 June—Tofu and Bean Sprout Plant: Yangju, east of Seoul.

1986 Nov.—Mineral spring water plant opened in Chungju, South of Seoul.

1987 May—Pulmuone Kimchi Museum opened in Seoul.

1988 Dec.—Natural House opened (Natural foods chain stores) in Korea.

1989 Jan.—Pulmuone Food Standards Committee started to work (To set up standards for food formulas, ingredients and manufacturing processes): Korea.

1990 Jan.—Soybean paste [jang] plant opened in Doan, south of Seoul.

1991 Jan.—Pulmuone USA Inc. founded.

1991 June—Fresh noodle plant opened in Chuncheon, northeast of Seoul.

1993 Aug.—Ilseong Food Ltd., Korean-Chinese joint venture, opened in China.

1995 June—Tofu Plant opened in Los Angeles.

1995 Sept.—ISO 9002 certificate obtained.

1997 Sept.—Fresh Noodle Plant opened in Los Angeles, USA.

1999 Sept.—Tofu plant opened in Shanghai, China.

Below the chronology small photos show: (1) Inside of the Pulmuone Tofu Plant in Los Angeles. (2) Inside the Pulmuone Fresh Noodle Plant in Los Angeles.

“Pulmuone was founded in 1981 with 40 employees. It has grown to become a multinational company of 2,000 employees with annual sales volume of \$250 million.” “The secret to success lies in uncompromising commitment to better foods and better life.” Address: 4567 Firestone Blvd., South Gate, California.

1148. Charney, Ken. 2002. The bold vegetarian chef: Adventures in flavor with soy, beans, vegetables, and grains. New York, NY: John Wiley & Sons. vi + 313 p. Illust. Index. 23 x 19 cm.

• **Summary:** Contents: Acknowledgments. Introduction: Vegetarian delights. 1. Starting off right: Appetizers and snacks. 2. Soups and stocks: Warm beginnings. 3. Breakfast, lunch, and brunch: From scrambles to sandwiches. 4. Burgers, fritters, and loaves: Stars of vegetarian cuisine. 5. Outrageous soy: Tempting tofu and tempeh. 6. A bold way with beans: Powerhouse dishes. 7. Pasta, risotto, and polenta: Comfort carbs. 8. Seitan: The power of wheat meat. 9. Vegetables and grains on the side: All the best

accompaniments. 10. Green salads: Crisp and well dressed.
11. Just desserts: Sweetness and light.

On the back cover is a brief bio of Ken Charney; on the front cover is a color portrait photo. Address: Seattle, Washington.

1149. Emi, Kazuko. 2002. Japanese cooking: The traditions, techniques, ingredients and recipes. London and New York: Hermes House. 256 p. Illust. (color). Index. 31 cm.

• **Summary:** A beautiful book, with many old color woodblock prints and creative color photos. With recipes by Yasuko Fukuoka. Contents: Introduction. The development of Japanese cuisine. Foreign influences. The impact of isolation. Sushi: a national favourite. The tea ceremony. Traditions and festivals. Seasonal and regional foods. Cooking and eating. Equipment and utensils. Utensils for cooking with rice. Cooking at the table. Crockery and cutlery. Drinking vessels. The Japanese kitchen: Rice and rice products,... dried beans (incl. soya beans, boiled soya beans, dried yellow beans, dried green beans, black soya bean, soya bean products, kinako, natto), fresh beans (incl. eda-mame), tofu and tofu products (incl. fresh tofu, okara, silken tofu, koya-dofu, yuba, fried tofu, abura-age, atsu-age, ganmodoki, home-made ganmodoki), gluten products, mushrooms, seaweeds, fish, shellfish, fish roes, fish products, fish pastes, meat and chicken, sauces for flavouring and dipping, ready made sauces,... Japanese cooking (recipes). Glossary. Acknowledgements. Shopping information.

The index mentions: Abura-age (tofu), atsu-age (tofu), azuki beans (incl. *an* {sweet bean paste}), eda-mame, gammodoki, kinako (yellow soya bean flour), koya-dofu, miso, miso soup, shoyu (soy sauce), soya beans, silken tofu, sukuyaki (with tofu), tofu, yuba, vegetarian tempura.

Concerning kinako [roasted whole soy flour]: A photo (p. 65) shows kinako made from soybeans with three different color seedcoats: black, yellow, and green. The kinako made from the black soybeans is the darkest of the three—a medium brown—but not at all black. The kinako made from the yellow soybeans is the lightest of the three—yellowish brown. The kinako made from the green-coated soybeans is intermediate between the other two in darkness—light brown—but with no trace of green in its color. When kinako is mixed with an equal volume of sugar and a pinch of salt, it is rolled in lightly-boiled, soft mochi cakes which make tasty confection. Kinako, which is also used to make *wagashi* (Japanese cakes / confections), is sold at most Japanese grocery stores or supermarkets. Address: Japan.

1150. Ling, Kong Foong. 2002. Food of Asia: authentic recipes from China, India, Indonesia, Japan, Singapore, Malaysia, Thailand and Vietnam. Singapore: Periplus. 192 p. Illust. (color photos). Index. 31 cm.

• **Summary:** This oversized paperback book, loaded with glossy color photos, is an expanded version of the original

1998 edition. The introduction and essays are by Kong Foong Ling. The index, which is poor, makes the book hard to use if you are looking for particular foods found throughout Asia such as soybeans, soy sauce, miso, salted / fermented black beans, yuba [bean curd skin], etc.

Contents: The flavors of Asia. Ingredients. The Asian kitchen. Burma. China. India. Indonesia. Japan. Korea. Malaysia & Singapore. The Philippines. Sri Lanka. Thailand. Vietnam. Appendix.

The “Ingredients” section (p. 10-17) includes: Bean curd (incl. cotton or momen tofu, silken bean curd, deep-fried bean curd or aburage, grilled bean curd or yakidofu, fermented bean curd or nam yee). Bean curd skin [yuba]. Black beans, salted (and fermented). Hoisin sauce (“A sweet sauce made of soy beans, with spicy and garlicky overtones”). Miso (incl. red miso and white miso). Salted soy beans (incl. “yellow bean sauce”). Soy sauce (incl. light soy sauce, black soy sauce, red soy sauce, Kikkoman, tamari, thick sweet soy sauce (kecap manis—Indonesian)). Tempeh. Also: Red beans (dried azuki). Seaweed (incl. dried kelp, golden kelp, mozuku, salted dried kelp, laver or nori, wakame). Sesame (black and white seeds, tahina {tahini}). Sesame oil. Sesame rice crackers.

Korea (p. 109+). Page 110: There are also many fermented pastes and sauces for dipping, called *chang*. Every restaurant and home has its own formula for making *chang*. Based on a fermented mash of soy beans, the three most common varieties are *kan chang* (dark and liquid), *daen chang* (thick and pungent), and *gochu chang* (fiery and hot).

Soybean is mentioned on pages 8, 11, 68, 89.

Beancurd or bean curd is mentioned on pages 8, 10, 11, 26, 32, 33, 35, 36, 40-42, 68, 70-71, 74, 89, 90, 92, 93, 94, 96, 100, 102, 104, 107, 111, 112, 113, 119, 120, 127, 133, 158, 172, 175, 185, 189, 190, 191, 192.

Bean curd skin [yuba] is mentioned on pages 11, 35, 36.

Bean paste and bean paste sauces, p. 8, 32.

Fragrant soy sauce is mentioned on page 128.

Also: Red bean paste, p. 46 (canned, azuki).

1151. Neff, Cary. 2002. Conscious cuisine: a new style of cooking from the kitchens of Chef Cary Neff. Naperville, Illinois: Sourcebooks, Inc. xix + 331 p. Illust. (many color photos by Brooke Slezak). Index. 28 x 24 cm.

• **Summary:** This is basically a non-vegetarian cookbook. The “Special ingredients list” includes: amaranth, arame, azuki beans, bean curd sheets (yuba), kombu, miso paste, nori, quinoa, seitan, soybeans (including soy oil, soy protein, soy flour), tahini, tempeh, and tofu.

Soy related: The 4-page (short) index states that there are 6 tofu, 2 tempeh, 1 miso, 1 edamame (p. 254), 1 tamari-ginger sauce, 1 yuba (p. 258).

Cary is a man. Since this book contains a great many recipes calling for beef, chicken, turkey, lobster, tuna, red snapper, salmon, black bass, fish sauce, etc. in what sense

is it a “conscious” cookbook? Address: Executive Chef of Miraval, Life in Balance Resort and Spa, Tucson, Arizona.

1152. Sass, Lorna J. 2002. Lorna Sass’ complete vegetarian kitchen: Where good flavors and good health meet. New York, NY: William Morrow. An imprint of HarperCollins Publishers. xiv + 494 p. Index. 26 cm. [35+* ref]

• **Summary:** First published in 1992 as *An Ecological Kitchen: Healthy Meals for You and the Planet* (William Morrow). This innovative vegan cookbook offers 250 cholesterol-free recipes. It features a complete glossary of wholesome ingredients for stocking the vegan pantry (no meat, dairy, or eggs). Address: New York City.

1153. Sugimoto, Takashi; Iwatate, Marcia. 2002. Shunju: new Japanese cuisine. Sensational recipes from Tokyo’s most famous restaurant. Singapore: Periplus Editions. 271 p. Foreword by Charlie Trotter. Illust. (chiefly color, by Masano Kawana). Index. 26 x 23 cm.

• **Summary:** Contents: Foreword. The Shunju way: The Shunju philosophy (history, architecture, bar, lighting, *zashiki* {dining room floor}, *chashitsu* {tea room}, hospitality {*motenashi*}). The seasonal kitchen. Spring. Summer. Autumn. Winter. Appendixes: Step by step preparation techniques (incl. Fresh soymilk, Green bean soymilk yuba {*Ryokuto nama yuba*}). Chefs (profile of head chef at each restaurant). Glossary of ingredients. Mail-order sources of ingredients. Acknowledgments.

“The history of Shunju began in 1986 in Mishuku, Tokyo.” Today, Shunju has five different outlets in Tokyo—Mishuki, Hiroo, Torizaka, Bunkamura Dori, and Tameiki Sanno (p. 14).

“The most important element in Shunju’s cuisine is to be able to truly appreciate the four seasons and the abundant blessings which mother nature has bestowed upon us...—Marcia Iwatate” (p. 24).

At the recipe for Green and lavender tofu squares (*Masu-dofu*) we read (p. 53): Tofu is undoubtedly one of the most representative dishes of Shunju. Our tofu is made daily—soymilk is curdled with *nigari* (bittern)—in different ware unique to each of our five restaurants; in this case in *masu* (traditional square, wooden measuring boxes).” To make green soymilk, see p. 255.

The glossary of ingredients (p. 258+) includes azuki (*koshi an*, *ogura an*), edamame, miso (many types), okara, sake (incl. koji {molded steamed rice}), shoyu (incl. koikuchi shoyu, usukuchi shoyu, shiro shoyu, tamari shoyu), tofu, ume, umeboshi, wasabi, yuba (famous as a Kyoto delicacy).

Tamari is mentioned on 98 pages of this book, miso on 67 pages, soy sauce on 54 pages, shoyu on 51 pages (incl. “koikuchi shoyu” on 34 pages, “usukuchi shoyu” on 13 pages and “shiro shoyu” and “tamari shoyu” on 2 pages each), tofu on 18 pages, soymilk on 14 pages, yuba on 7

pages, koji on 5 pages, nigari and edamame on 4 pages each, black soybeans on 2 pages (p. 53 and 84).

Natto and kinako are not mentioned. Address: Creators and founders, Shunju restaurants, Japan.

1154. Netzer, Corinne T. 2003. The complete book of food counts. 6th ed. New York, NY: Dell Publishing. 911 p. 18 cm.

• **Summary:** Contains tables of food composition, by product. Tofutti is mentioned on pages 61, 94, 181, 260, 265, 301, 342, 437-440, 444, 446-48, 483, 587, 642, 787. The section titled “‘Cheese,’ substitute and nondairy” (p. 181-82) includes nondairy cream cheese. Also an entry for “Cream, sour—nondairy.”

Under “Edamame” we find values for fresh (in pod or shelled) and frozen (in pod). The section titled “‘Ice cream,’ nondairy” (p. 437-40) gives values for many flavors of the following brands: Rice Dream, Rice Dream Supreme, Soy Delicious, Soy Delicious Purely Decadent, Tofutti, Tofutti Premium, Tofutti Lite Tofutti Low Fat Supreme.

The section titled “‘Ice cream’ bar, nondairy” (p. 444) gives values for many of the same brands.

The section titled “‘Ice cream’ sandwich, nondairy” (p. 447-48) gives values for many of the same brands.

There are entries for “‘Meatball’—vegetarian,” “Miso,” “Natto,” “Soy beverage,” “Soy beverage mix,” “Soy flour,” “Soy meal,” “Soy nuts,” “Soy protein concentrate,” “Soy sauce” (incl. shoyu, tamari and tamari—wheat free), “Soy spread” (incl. soy butter—roasted), “Soybean” (raw, boiled, or canned), “Soybean—dried,” “Soybean kernels,” “Soybean spread / dip,” and “Soybean sprouts.”

The section titled “Tofu” (p. 827-28) identifies the following types: fresh, fresh—extra firm, fresh—firm (incl. vacuum pack and reduced fat), fresh—silken, fresh—soft, fresh—flavored, fresh—baked (incl. smoked and teriyaki), salted, smoked. Tofu, ground. Tofu pudding. Tofu sauce (Westbrae sauce for tofu). Tofu seasoning mix. “Yogurt,” soy

There are also entries for: Adzuki beans. Seaweed.

There are no entries for: Seitan, Yuba.

1155. Belleme, John. 2003. From Woodstock to wellness. *Macrobiotics Today* (Chico, California). July/Aug. p. 5-7.

• **Summary:** “If Sandy looks familiar, it may be because he has appeared many times in south Florida newspapers, natural foods magazines, and even on national television. If you are a Miami Marlin fan you may have seen him on TV throwing out the first ceremonial pitch during the last game of the 2002 season. However, if you are a member of the hip generation, you may remember Sandy in his starring role as one of the flower children who were interviewed, naked, in the film classic Woodstock. Sandy’s transformation from a junk food hippie to the motivating force behind macrobiotics in Florida and one of this country’s most influential advocates for healthy eating has been a spiritual quest of epic



proportions.

“A law school dropout in the late 1960s, Sandy shunned his middle class Jewish Brooklyn roots for a Bohemian Manhattan [New York] lifestyle. Disillusioned with his lack of purpose in life in 1970, Sandy had a profound, life altering, ‘born again’ experience.

“He happened to take a macrobiotic cooking class. ‘Immediately I had a purpose,’ says Sandy, ‘everything I was ever interested in came together for me. Macrobiotics included everything. My interest in mind-altering substances vanished. I have never looked back.’

“Later that year, at a macrobiotic summer camp in upstate New York, Sandy met a man that would set the direction of his life for the next thirty years. It was macrobiotic world leader Michio Kushi, dressed in shorts, knee socks, dress shoes, and white shirt. Michio and Sandy really hit it off and became instant friends. The balancing principles of the macrobiotic way of life seemed to be a perfect antidote to Sandy’s lack of direction, and soon he was focused not only on changing his life but also on helping Michio change our nation’s attitudes towards food and health.

“Fired up from summer camp and from meeting Michio, Sandy and a few of his fledgling macrobiotic friends went to tropical Jamaica for a macrobiotic getaway. They took 44 pounds of hacho miso, 50 pounds of brown rice, and 66 pounds of azuki beans. That’s right, hold the veggies, these guys were hardcore.

“After the Jamaica experience Sandy moved to Coconut Grove, Florida and become the first macrobiotic cooking teacher in that part of the country. (By this time he had widened out his diet to include a few root vegetables.) With a \$4,000 loan from his father, Sandy opened a natural food store, called Oak Feed, in the law office of a friend. Before long he moved to a larger location, and by the 1990s, Oak Feed was doing two million dollars in annual sales and occupied one of the swankiest addresses in South Florida. What’s more, as Coconut Grove grew and became a Mecca for everything chic, the Oak Feed store and Oak Feed restaurant became the place to rub elbows with the elite of film and sport. However, Sandy’s good financial fortune and growing notoriety did not deter him from his bigger dream. With resources from his business Sandy helped to establish the Macrobiotic Centers of Florida, with locations in Miami, Tallahassee, Sarasota, Orlando, Palm Beach, and Tampa. Soon he began sponsoring conferences featuring macrobiotic leaders Michio Kushi and Herman Aihara. As interest in macrobiotics, Oriental medicine, health and natural food grew, Sandy’s workshops and conferences expanded to include nationally known teachers and speakers who attracted thousands of attendees in Florida, California, and Colorado. Many of Sandy’s conferences are sponsored by his non-profit educational foundation, A Taste of Health, and have featured respected authorities such as Benjamin Spock, M.D., Bernie Siegel, M.D., Deepak Chopra, M.D., Dean Ornish, M.D., and Keith Block, M.D. Other notable featured speakers have been John Robbins, Raffi, Cesar Chavez, Harvey and Marilyn Diamond, and Hollywood celebrities such as natural foods enthusiast and bionic woman Lindsey Wagner, five time Emmy Award winner Ed Asner, Emmy Award winner Ted Danson, and Academy Award Winner Mary Steenburgen.

“On several occasions A Taste of Health has sponsored large, open-air health festivals in Coconut Grove, Florida. These events are supported by the local media and attended by up to 30,000 people. These festivals have been instrumental in introducing tens of thousands of people to the benefits of a healthier lifestyle. Proceeds from many of these events were used to educate school children about the benefits of good nutrition. John Robbins, author of *Diet for a New America*, is one celebrity who has attended several of Sandy’s conferences. ‘Sandy is one of the brightest minds in the natural healing movement,’ says Robbins about his friend. Michio counts Sandy as one of his ‘best friends’ and credits him for helping to establish macrobiotics in the United States. ‘Sandy has guided many people toward a healthier lifestyle and to make their lives happier and more enjoyable. His seminars have been a major influence in creating public awareness about the importance of diet in the prevention of disease,’ said Michio in a recent interview. Senior macrobiotic teacher and author Lino Stanchich, who has been helping Sandy with macrobiotic events for almost

thirty years, comments, ‘Sandy is a pioneer in the natural foods and macrobiotic movement and has helped bring health and balance to countless people worldwide. He is a visionary who makes the impossible possible and does it with chutzpa and humor.’” Author of *Man in the Kitchen*, Warren Wepman, says of his old friend: ‘In his unassuming, yet assertive manner, mostly in the background, Sandy Pukel is the linchpin of macrobiotics in Florida.’ In Sandy’s own words, ‘My life is an expression of what I think is important. ‘You are what you eat’ is really true. Food creates the body and has a great influence on our mind and spiritual life. My dream is a peaceful, ecologically sane world, which I feel must begin with balanced eating.’ True to his ideals, Sandy refuses to sell products that have processed sugars and preservatives.

“Sandy is a macrobiotic evangelist, and many of his business associates have advised him to spend less time promoting macrobiotics and more time worrying about his business and finances. In fact, when Erewhon, the natural foods company owned by Michio and Aveline Kushi, got into financial trouble many years ago, Sandy got a second mortgage on his house to help save the firm, which finally went bankrupt.

“I am one of Sandy’s early macrobiotic recruits and was drawn into the powerful vortex of his life over twenty-five years ago. Depressed about my work and life, I happened into the Oak Feed store and asked Sandy a simple question about food. I do not remember the question, but his answer changed my life. The next thing I knew I was living in a macrobiotic study house in Boston [Massachusetts], where I met my wife Jan. Just a few years later Jan and I found ourselves sitting on the floor in a 300-year-old house in rural Japan getting miso making lessons in Japanese from a miso master. So it is for thousands of people who have been directly or indirectly changed by the power of Sandy’s karmic destiny.

“Although Sandy is widely known in North America as the owner of the landmark Oak Feed store and for his far-reaching efforts to promote food quality and macrobiotics through education, he is also a certified nutritionist and has a macrobiotic consulting practice in Florida. Sandy has also been involved in several important macrobiotic businesses. He was the motivating force behind the American Miso Company in North Carolina. With the help of Michio Kushi, Sandy was also one of the first to import Japanese foods from Mitoku Company in Japan. This grew into an import company called Granum East, which was eventually sold to Great Eastern Sun in Asheville, North Carolina” (Continued). Address: North Carolina.

1156. Comis, Don. 2003. Moon Cake, anyone? Supersize vegetable soybean makes its debut. *Agricultural Research (USDA)* 51(9):8-9. Sept.

• **Summary:** A new soybean variety named Moon Cake,

developed by geneticist Thomas Devine, will be ready for the Chinese Moon Cake Festival this autumn. The seed will be distributed to companies that are awarded licenses to market it. Growing 6 feet tall—under the right conditions, this is the first vegetable soybean to be released by the Henry A. Wallace Beltsville Agricultural Research Center, in Beltsville, Maryland.

“Moon Cake is named for an annual Chinese harvest festival during which people eat sweet cakes, often made partly with lotus or sesame seed and bean paste [usually made from cooked, ground azuki beans and sugar], and generally shaped like the full moon the festival celebrates.” “The festival is held sometime in Aug. or Sept.”

Color photos show: (1) Thomas Devine standing beside one soybean plant, which is taller than he is. (2) A person’s hand behind well-developed pods of Moon Cake vegetable soybeans on a living plant. Address: USDA ARS.

1157. Emmons, Didi. 2003. Entertaining for a veggie planet: 250 down-to-earth recipes. Boston, Massachusetts: Houghton Mifflin. viii + 470 p. Illust. Index. 23 cm.

• **Summary:** A friendly vegetarian cookbook. The index contains 35 entries for tofu, 19 for tempeh, 5 for edamame, 4 for seitan, 3 for miso

Recipes also call for: Adzuki beans, sesame seeds, and tahini.

The section titled “A friendly guide to unfamiliar ingredients” is a glossary with entries including: Adzuki beans. Asian fish sauce (not vegetarian; usually made of an extract of fermented anchovies. Can be replaced by Lee Kum Kee’s Vegetarian Stir-Fry Sauce). Barley miso (See Miso). Black beans, Chinese fermented (See Chinese fermented black beans). Black sesame seeds. Brown miso (See Miso). Chinese fermented black beans (“They are often very salty; do not rinse them, just salt your dish less... They keep indefinitely in the fridge”). Edamame (“Young, blanched soybeans.” They are commonly eaten in the pods as a snack; the pod is inedible. Also sold podless for cooking). Hatcho miso (See Miso). Miso: The five types are: Barley miso (*mugi miso*), Brown miso (*genmai miso*), Hatcho miso (made from soybeans only), Red miso (*aka miso*), White miso (*shiro miso*). Sesame seeds. Sesame tahini. Tempeh (see also p. 231, “Tempeh: the next great frontier”). Tofu (see also p. 217, “Tofu: the other white meat”). TVP (texturized vegetable protein). Vegetarian oyster sauce (Amoy brand). Vegetarian stir-fry sauce (not as sweet as vegetarian oyster sauce. Look for the Lee Kum Kee brand). Address: Author of the book *Vegetarian Planet* and the chef of Veggie Planet, a restaurant in Cambridge, Massachusetts.

1158. Kingsley, Farina Wong. 2003. Asian. New York, NY: Simon & Schuster–Source. 119 p. Illust. (color photos by Maren Caruso). Index. 24 cm. Series: Williams-Sonoma collection.

• **Summary:** Facing each recipe is a full-page glossy photo. Soy-related recipes: Udon with tofu and egg (with “4 blocks deep-fried tofu (page 107) each 3 inches (7.5 cm) square,” p. 14-15). Miso soup with tofu and seaweed (with “3 by 3 by 5-inch (7.5 by 7.5 by 13-cm) block soft tofu” and “6 tablespoons (3 oz / 90 gm) white miso paste,” p. 40-41).

Stir-fried pork in black bean sauce (with “1½ tablespoons fermented black beans, well rinsed,” p. 65) has a sidebar titled “Fermented black beans” which states: “Sometimes called salted or preserved black beans, fermented black beans are soybeans that have been dried, salted, and allowed to ferment until they turn black. They are distinctly pungent, have an almost smoky character, and are used mainly in Chinese cooking such as in this simple pork stir-fry. Before using the beans, gently rinse them in a fine-mesh sieve to remove excess salt... Sold in plastic bags, fermented black beans will keep for a year in a cool, dry place.”

The “Ingredients” section (p. 106-08) has an entry for tofu. The “Basic recipes” section has a recipe (p. 110) for Ginger-soy dipping sauce.

The Glossary (p. 112-15) contains entries for azuki beans, hoisin sauce, soy sauce, white miso paste.

Note: Recipes and text by Farina Wong Kingsley. General editor: Chuck Williams.

1159. McEachern, Leslie. 2003. *The Angelica Home Kitchen: recipes and rabble rousings from an organic vegan restaurant*. Berkeley, California: Ten Speed Press. xix + 268 p. Illust. Index. 23 x 18 cm. [23 ref]

• **Summary:** Founded in 1976, Angelica Kitchen is located at 300 East 12th St., New York City 10003—between 1st Ave. and 2nd Ave. This is a wise and very warm-hearted book that bridges the gap between farmers and a restaurant. The index contains 22 entries for tofu, 19 for tempeh, 9 for seitan, 4 for miso, and 1 each for soy milk and soy sauce.

The book shows a strong influence from macrobiotics through the use of sea vegetables, aduki [azuki] beans, umeboshi, etc. Address: New York.

1160. Hiromi, Otani. 2004. Shiruko: Sweet bean soup to warm you up in cold weather (Web article). *Nipponia* No. 28. March 15. [Eng]

• **Summary:** “Shiruko is a sweet soup made from adzuki beans boiled in a mixture of water and sugar, with grilled pieces of mochi rice cake floating in the bowl. The soup is served hot, and is one of Japan’s best-known traditional sweet dishes. It is eaten as a snack, generally during some hungry moment between lunch and supper.

“There are two variations—the beans can be left whole, or they can be strained when soft, to mash them and remove the skins. In western Japan, the former variety is often called zenzai. Shiruko is eaten throughout the year, but because it is served piping hot, it is considered a special treat for the cold

winter months.

“Adzuki beans were introduced to Japan from China. Archaeologists have discovered traces of them in sites in Japan dating back about 2,000 years, so we can assume the Japanese were growing them at least that long ago. An old document written in the 6th or 7th century, called *Keiso Saijiki*, tells us that the Chinese ate adzuki beans on the day of the winter solstice, the shortest day of the year, to ward off evil. Soon after this, the custom spread to Japan, and before long it was common to eat this type of bean on special occasions at other times of the year as well, such as annual events and ceremonies.

“It was not until much later that it became common to use adzuki beans in recipes for some sweet foods. This was after Japanese farmers began producing sugar in large quantities, starting around the end of the 1700s. In a book on customs called *Morisada Manko*, completed in 1852, we read, ‘In Edo [present-day Tokyo] the skins of adzuki beans are removed, and the beans are boiled with white or unrefined sugar and a cut slice of mochi rice cake. The soup is called shiruko. In the Kyoto and Osaka areas, soup with the bean skins removed is called shiruko or koshian-no-zenzai.’ This indicates that shiruko was being eaten all over Japan at least as far back as the mid-1800s, and that even at that time there were different variations with different names. Adzuki beans and sugar are readily available and fairly cheap, and this may explain why shiruko became a popular, traditional homemade snack. But making it is somewhat complicated and time-consuming, so since around the mid-1800s it has also been sold as a ready-to-eat soup to take home. In the past, people were sure to find it served in tearooms called *kanmi-dokoro*, which were like the coffee shops of today. And peddlers used to carry it in wooden boxes on their backs, doing a brisk trade in the evening.

“We see, then, that shiruko has been popular for a long time. These days, it is even sold in a number of instant varieties—with some, you just put it in a bowl and pour on boiling water; with others you open the container and heat up the soup.

“If you cook shiruko you have to be willing to follow a number of time-consuming steps. Adzuki beans contain a bitter substance called tannin, and if you do not remove it you will find the soup rather unpleasant. After the beans have boiled long enough, drain and rinse them well. Then place them in a fresh batch of water and remove the scum that floats to the top with bubbles. Next, boil them again and remove any more scum. This takes time, but the result is a delicious soup.

“Before serving, we add some grilled mochi rice cake. The fragrance of the grilled mochi goes well with the taste of the beans, and the mochi gives a soft yet solid texture to the liquid soup, making for an interesting culinary experience. Adding mochi gives substance to the soup, making it quite filling—an ideal snack! Although the preparation takes time,

I highly recommend this traditional dish.” Address: Food journalist (woman).

1161. *St. Cloud Times (Saint Cloud, Minnesota)*. 2005. Eat well. Jan. 27. p. 15.

• **Summary:** Source: IVillage.co.uk.

“Five foods to give your year a jump-start are kale, quinoa, adzuki beans, almonds and white tea.

“So recommends Mary Kent Hearon, Columbia, South Carolina, nutrition counselor and editor of *The Weekly Beet*, a health and nutrition newsletter.”

“Hearon said adzuki beans are a must because of their high protein and fiber content. She noted the beans have been useful in weight-loss efforts...”

1162. The Craig Sams story (Website printout) (Continued—Document part II). 2005. www.macrobiotics.co.uk 2 p. Copyright The Macrobiotic Guide, Dec. 2005. Retrieved 11 May 2006.

• **Summary:** (Continued): “In 1971 we worked with Andrew Kerr and Arabella Churchill on the first Glastonbury Festival. We did all the food and invited Infinity Foods to join us. We had garnered some experience of catering at rock festivals the previous year at Plumpton (National Jazz and Blues Festival) and at the Isle of Wight Festival.

“We were the only food suppliers at Glastonbury and all the festivalgoers either ate our food (muesli, brown rice, red bean stew, porridge, unleavened bread with tahini/miso spread) or brought their own. We also supplied some food to Sid Rawles, who led the Diggers, who gave out free food from the cowshed near the farmhouse up on the hill.

“On the Sunday afternoon the local hot dog and ice cream vendors discovered there was a crowd at the farm and drove down to the site. They were met by the festivalgoers who blocked their route and rocked their vans, shouting ‘Out, Out Out’ until they turned around and disappeared.

“Also in 1971 my father Kenneth started Seed The Journal of Organic Living which was a thinly-disguised macrobiotic monthly of 32 pages that was humorous, witty, energetic and pushed a broad macrobiotic/ecological/vegetarian/natural lifestyle message. It was way ahead of its time, had a healthy circulation and still reads well all these years later.

“It ran until 1977, monthly, a total of 74 issues. Michio Kushi made the cover in 1975 and Terence Stamp was on the cover of Issue No 2 in 1971. We interviewed rock stars, actors and other people who had interesting and healthy lifestyles and sold a lot of ginseng, grain mills and water filters through our mail order pages. It was supported by monthly ads from Harmony, Ceres Grain Shop and Ceres Bakery that covered the basic costs and Kenneth gave his time for free. He had publishing experience and this was an ideal way to spend his retirement.

“In 1970 we also had the first visitors from Boston

[Massachusetts], who included Eric Utne (later founded Utne Reader), his girl friend Peggy Taylor (later founded New Age Journal), the ex-editor of the Boston macrobiotic newspaper Ron Dobrin, Bill Tara and his wife Renee and Paul Petrofsky (who founded Baldwin Hill Bakery).

“We rented them a house in Lancaster Road, just off Lad Broke Grove, where they had cooking classes, shiatsu classes and other activities. We were very busy with Harmony Foods and Ceres and the restaurant was becoming a managerial burden on Gregory’s and my limited resources. So we suggested that they take over and run the restaurant and use it to leverage interest in macrobiotics and the cookery classes and other activities at the house.

“We gave them a few thousand pounds to refurbish the place and it reopened after being closed for 5 weeks. Gone were the low tables, cushions on the floor, bedouin tent atmospherics and in were bare floors and tables, white walls and a serene, clean atmosphere.

“The food was more austere but well prepared and presented. But the lively vibes of the old Seed were gone. When people laughed or talked too loudly a member of staff would approach them and suggest they tone it down and the whole atmosphere became reverential and studious compared to the rather carefree and raucous atmosphere that had prevailed.

“I remembered Paul Petrofsky once saying that he felt, on entering Seed, that he ‘might get stabbed or something’ but had taken it as a joke. Gregory and I got personal phone calls from friends and long-standing customers complaining about the changes but we were both very busy on our other businesses and couldn’t turn back the clock.

“After about 6 weeks sales were down to 1/3 of what they had been and we had to close the place to stem the losses. We handed it over to a guy who renamed it ‘Magic Carpet’, broadened the menu away from macrobiotics but kept it vegetarian. After 4 months he gave it to a garage owner in payment of the restoration bill on his Jaguar S type and it then reopened as ‘Pasture.’ A few months later we opened a ‘macrobiotic workingman’s café’ called Green Genes in the old Ceres premises in All Saints Road—it was smaller than Seed but recaptured the friendly and slightly rambunctious atmosphere of the original

“Because Harmony Foods was growing fast we needed larger premises to pack and store our produce and we were about to sign a lease on a building near Ladbroke Grove when Bill Tara sat with me and Gregory in a car in Bayswater and broke the bad news to us.

“He had been Vice President of Erewhon Foods and he felt he should tell us, before we signed the lease, that Michio and Paul Hawken had sent him over to England to set up Erewhon Europe, there would be no role for us in that business (we hadn’t asked) and that we should consider carefully as he would be sorry to see us in financial trouble because we hadn’t realised what was happening.

“Gregory found a great greeting card with a picture of a sword-waving Samurai on a horse being speared by a samurai on the ground, stuck the Harmony logo on the samurai on the ground and the Erewhon logo on the horseman and sent it to Paul Hawken. As it happened, Erewhon hit one of its first cash flow crises and couldn’t even offer Bill a ticket home.

“In May 1972 we offered him the opportunity to manage our shop, Ceres—I had been managing it since the manager, Pam Donaldson, had fallen ill with brucellosis from drinking the milk on Michael Eavis’ farm in Glastonbury and now I was opening a bakery in the premises next door to the shop.

“Bill Tara and Peter Bradford then did a complete refit and redesign of the shop, opening it up in the back and putting in a herbs and specialities section in a little space in the middle. It was an ambitious redesign, cost us £7000, but we now had the sprouciest and most well-appointed shop in Europe.

“However, it required a lot of people to keep it all going, we packed lots of stuff in premises rented from a nearby church, stock was all over the place, shoplifting got out of hand as there were lots of blind spots and we had to hire private security people and the ultimate indignity was that one of the staff, a member of the English (Maoist) Communist Party organised a group of staff and threatened to take the business over and run it as a worker’s commune.

“So we had to fire most of the staff after a rather acrimonious meeting in which we explained that property law and the lease on the property all stood in our favour and we also told Bill that we would have to get in a manager who could run the shop more effectively and with less revolutionary activity going on.

“We got a burly Irishman who had managed a delicatessen in Dun Laoghaire and he closed down the back section of the shop and squeezed all the activity into the front, put in a counter and reduced the staff while keeping sales up.

“Bill and Peter had, meanwhile, found premises in Old Street for the Community Health Foundation, which was to be the macrobiotic centre par excellence. I urged them not to move out of Notting Hill as that was still where the concentrated core population who understood macrobiotics lived, but they were seduced by the size and cheapness of the building and moved there, despite the availability of smaller and more easily manageable premises in Notting Hill.

“The CHF was a success, but was dogged by management and financial problems, became the East West Centre and also the home of Peter Bradford’s Freshlands shop that became the ‘Fresh’ in ‘Fresh and Wild.’

“Harmony Foods continued (and continues) to prosper and its peanut butter became the number 2 brand in the UK, now known as Whole Earth, a name change we brought in in 1962 as we found that Harmony didn’t work for our export business as the trademark belonged to other people in

Denmark and in Germany.

“In 1990 my kids launched Gusto, the world’s first energy drink, based on guarana, ginseng, Siberian ginseng and ‘Free and Easy Wanderer’, a Taoist herbal formula dating back to the 12th C. It was the spiritual descendant of the macrobiotic ‘beer’ that Ohsawa was working on for the 1966 Spiritual Olympics and which his wife Lima thought reactivated the filariasis he contracted at Albert Schweitzer’s Lambarene institute [hospital, in Gabon] and killed him.

“In 1991 my partner (now wife) and I founded Green & Black’s chocolate. We were looking for organic peanuts for the peanut butter and found some from Togo, West Africa, but they failed our aflatoxin tests. The same organic growers also produced cocoa beans and we made a 70% solids chocolate from them that led to a very successful chocolate brand.

“The 70% is still the best seller but the rest of the range all do well. I eat the others rather sparingly but have outgrown the illusion that there is a difference between brown rice glucose, apple juice glucose and sugar cane glucose—there’s no escape from simple sugars, so might as well be realistic and keep all forms of intake as low as possible.

“People ask how we managed to create a new confectionery brand in a sector where there have been no new brands in decades and I often think it’s because of being macrobiotic—I understand guilt about sugar consumption so know how to market a product that addresses that in a mature way.

“Our earliest packs contained a sugar warning on the wrapper: ‘Please note: This chocolate contains 29% brown cane sugar, processed without refining agents. Ample evidence exists that consumption of sugar can increase the likelihood of tooth decay, obesity and obesity-related health problems.’

“If you enjoy good chocolate, make sure you keep your sugar intake as low as possible by always choosing Green & Black’s, the chocolate with the least sugar, the most cocoa solids, and organic too!’ Nobody in their right mind in the sugar confectionery business would ever put something like that on their labels, but it worked and we have 5% of the chocolate bar market in the UK to prove it!

“Whole Earth and Gusto were sold to Kallo Foods in 2002—I have since bought back the Gusto brand from Kallo and it was relaunched as a fully organic energy drink in April 2004.

“I am also working, with my son Karim (who produces Soma organic smoothies) on a new range of unique and yummy macrobiotic products so I hope there are still a lot of macrobiotics out there—watch the—The Macrobiotic Guide www.macrobiotics.co.uk website for advertised details.”

1163. The Craig Sams story (Website printout). 2005. www.macrobiotics.co.uk 2 p. Copyright The Macrobiotic Guide,

Dec. 2005. Retrieved 11 May 2006.

• **Summary:** “In October 1966 I arrived in England, with plans to open a macrobiotic restaurant similar to the Paradox, a restaurant in New York’s East Village that was the first macrobiotic restaurant in the US.

“I visited it the same day I visited the macrobiotic bookshop—the day it was investigated by the FBI and told not to sell any books until they had reviewed their content (they contained illegal statements such as that poor diet could cause cancer and healthy diet could help cure cancer).

“Eventually all the books were taken away and burned and Prof. Frederick Stare of Harvard University wrote an article in *Reader’s Digest* calling macrobiotics ‘the hippie diet that’s killing our kids.’ I was graduating from university in June, my mother lived in London, so I came here to start a restaurant.

“I prepared macrobiotic food at home and then sold it through the snack bar at the UFO club in Tottenham Court Road, where the Pink Floyd, the Soft Machine and The Crazy World of Arthur Brown all played.

“I also imported the books and pamphlets published by The Ohsawa Foundation in Los Angeles [California] and sold them through the Indica Bookshop (part owned by Paul McCartney and also by Barry Miles, who wrote the definitive McCartney biography a few years ago). The books sold well and I had an insert in them with my phone number so that gradually a small core developed.

“In 1966 the only people in London (apart from Mrs. Takagi) who had heard of macrobiotics were a lady called Diana who had studied in Boston [Massachusetts] and Yoko Ono, who had been macrobiotic in Japan. However, we formed a group who promoted the ideas at the UFO club and other gatherings.

“In February 1967 I opened a small restaurant in the basement of The Centre House at 10a Airlie Gardens and it was an overnight success. Our supplies came from Mikadoya, a Japanese foods distributor that operated from a house in Crystal Palace, from Katsouris, the Greek foods wholesaler and from Prewett’s who supplied wholewheat flour for our unleavened bread and erratic quality brown rice, which was ‘cargo rice’, i.e. rice that was bought from Thames Rice mills before it could be turned into white rice.

“The restaurant only lasted for 3 months; the Centre House was in a residential neighbourhood and the comings and goings aroused the neighbours and the owner of Centre House received a solicitor’s letter about what appeared to be a commercial activity and so we had to close down. However, we had a solid group of customers who wanted us to open another place.

“I went to Belgium a month later to visit Lima, where I met Pierre Gevaert and his sister Marie (‘Mimi’). There were a few macrobiotic restaurants in Paris which I also visited—I was a bit surprised to see chicken with brown rice as the most popular dish at the Guen Mai restaurant. The owner

scolded me for arriving at 8 *Nous sommes macrobiotiques et nous dormons tot* (‘We are macrobiotic and we go to bed early’). No great feelings of solidarity there—I looked much too young and long-haired to these serious practitioners of the art.

“In August I found new premises, in the basement of the Gloucester Hotel on Westbourne Terrace. My brother Gregory joined me in the business and the restaurant, known as ‘Seed’ was opened in early 1968.

“Seed had two rooms, in a big rambling basement of the hotel. One had cushions on the floor set around tables made out of the 45 ft diameter reels that mains electrical cable was wound around, so customers met one another as there were no reservations and no exclusivity of tables in that room. In the other room there was a tent style hanging from the ceiling and normal square wooden tables with bentwood chairs.

“The kitchen was small, but we had an outside yard where we stored organic vegetables that were delivered by Ivan Seruya or Michael van Straten, both of whom also supplied Wholefood, the Soil Association’s shop in Baker Street. Gregory struck up a good relationship with Lilian Schofield, who managed Wholefood and we regularly took their surpluses of vegetables to use in the restaurant.

“Mary Langman, one of the Soil Association’s founders, grew vegetables for Wholefood on a smallholding in Beckenham, Kent but anyone who was a Soil Association member felt they could just put a few boxes of organic cabbages on the train to Paddington, tell Wholefood it was on the way and that it would be dealt with. Gregory also found a supplier of fresh laver (nod) from Wales and we would collect it once a week from Paddington and use it to make laver bread.

“Our basic menu (called ‘Tomorrow’s You’) was Rice and Vegetables for 4 shillings (20p). Then there were two specials, differentiated by the size of the earthenware bowl it was served in, Light Special (7/6) and a Heavy Special (10/- or 50p), which was brown rice, vegetables nituke, and then two other portions that might be vegetable tempura, a bean dish, fefafel, tabouli, hummus or whatever was special that day.

“We also supplied, as part of our outreach and education mission, a free meal, which comprised the Brown Rice and vegetables plus a cup of kukicha from the always-on-help-yourself tea boiler. You could order an umeboshi plum, a mu tea, a seaweed dish or vegetable tempura as side orders. The tape recorder belted out the latest sounds and grooves from a wide variety of rock genres, but mostly psychedelic rock and mellow blues.

“Marc Bolan of Tyrannosaurus Rex walked to Seed to get the free meal and it was at Seed that he met Mickey Finn, an event that rock historians cited when calling for a blue plaque for historical buildings to be put up on the site many years later. Regular visitors included John and Yoko, Terence Stamp, most of the Stones as well as vegetarian/macrobiotic

activists and enthusiasts and most of the denizens of the Underground alternative culture that was springing up all over the country.

“Eventually the free meal became an embarrassment as some people would ask for it, then order dessert, which was not part of the free meal and then offer to pay for the dessert with a five pound note (which was a lot of money in those days). It had become a tourist thing, and we were in a lot of guidebooks to ‘swinging’ or ‘alternative’ London. Gregory also published a magazine called Harmony, which was printed on the old Gestetner mimeographing machine on which we also printed our daily menus. It saw 3 editions and is a collector’s item.

“In 1969 we opened shop called Ceres Grain Shop in All Saints Road, Notting Hill, that set the pattern for the new generation of natural food stores. It was an instant success, despite selling none of the health food lines such as vitamins, brown sugar, honey, dairy products or anything made with sugar or refined flour. We provided a mail order service across the UK and were open on Sunday mornings for people who had to come from Norfolk, Wales, Cornwall and other far-flung places.

“In 1970 we decided to move to Wales and buy a 27 acre farm in the hills near Welshpool. Unfortunately I was outbid at the auction (it sold for £4400 and we only had £4250) so we decided to set up a wholefood wholesale business instead. Gregory produced packaging using Letraset paste down black lettering, different coloured papers, duplicated and heat sealed into plastic bags. We splashed out and printed Harmony Whole Rice 2 lb paper bags this was our flagship product, but we also had buckwheat, millet, aduki beans, tamari, tahini, hiziki, umeboshi, Dentine, miso and patchouli oil on our first price list.

“The Harmony trademark that an artist friend of Gregory’s had designed showed a yin-yang symbol with two stylised leaves on the upward side and a two roots on the downward side. By now there were half a dozen shops modelled on Ceres (Infinity, Arjuna, Community, Harvest, Acorn, On The Eighth Day and Sesame) and we also sold into the conventional health food shops.

“Jay Landesman, who first published the works of Jack Kerouac and Allan Ginsberg and John Clelland Holmes in 1948 in the ground-breaking periodical *Neurotica* and subsequently ran a beat night club in St. Louis [Missouri] and produced *The Nervous Set* which contained songs by his wife Fran which are still jazz standards, was our salesman. Under the monicker ‘Stan Stunning’ he would telephone health food shops (there was a long running postal strike at the time) and sell them either the ‘Down to Earth’ or ‘Traditional’ package which were bundles of our range that enabled a health food shop to have an instant macrobiotic offering.

“His opening line would run along the lines of ‘Good afternoon, this is Stan Stunning of Harmony Foods, have

you heard of us, no?, well, tell me, do you get young people coming into your shop asking for things like miso, tamari, brown rice and aduki beans? You do? Well, we have the answer in our range of prepacked foods.’ He would then run through the list and make a sale at least 50% of the time. As the products sold through, we got reorders and the business was up and running. In the meantime we had moved Ceres Grain Shop to much larger premises on the Portobello Road, where it thrived and represented nearly half the turnover of Harmony Foods” (Continued).

1164. Vaughan, D.A.; Tomooka, N.; Kaga, A. 2005. Azuki bean [*Vigna angularis* (Willd.) Ohwi & Ohashi]. In: R.J. Sing, ed. 2005. Genetic Resources, Chromosome Engineering, and Crop Improvement: Grain Legumes. Boca Raton, FL: CRC Press. [2 ref]

1165. Fu, Peimei. 2005. Peimei shi pu. Di er ce [Pei Mei’s Chinese cook book. Vol. II]. Taipei, Taiwan: Ju zi wen hua shi ye you xian gong si. 386 p. Illust. (color). No index. 22 cm. [Chi; Eng]

• **Summary:** Fu Pei Mei is considered by many Chinese to be one of the best Chinese chefs alive today. This book, which first appeared in July 1974, contains 110 recipes categorized by ingredients under 11 separate headings, such as chicken, duck, pork, beef, fish, shrimp and seafood. The majority of the recipes in this book are based on meat, poultry, fish or eggs (animal products). Contents: Foreword. Introduction. About the Chinese menu. About Chinese condiments and spices: Glossary includes: 1. Soysauce (made from fermented soybeans, comes in light, medium, and dark colors. Kikkoman is a good example of medium). 9. Hot bean paste (“Made from red hot peppers, flour, soybeans, salt, and other condiments”). 11. MSG. 18. Bean curd. 19. Dried bean curd sheets (skin). 20. Bean sprouts (mung or soy). 21. Bean pastes (“Thick brown pastes prepared from soy bean flour and flavorings. Sweet types have sugar added and resemble pureed dates”). 22. Sweet red bean paste (“Made from red [azuki] beans. Almost all Chinese desserts use this for the filling. Mash the cooked beans in a strainer. The paste will come out leaving the skin”). Contents of recipes. Abbreviations, weights & measures. Contents of color photos. Index of recipes Vol. I. English-Chinese list of foodstuffs. About the author. Copyright.

Seating: The guest of honor sits in the seat at the inner side of the room, facing the entrance, while the seats on the serving side are for the host and hostess. The guest of honor always sits facing the host (p. 10).

After the “abbreviations” page are 4 full-page numbered color photos of Chinese tableware, vegetables, special ingredients, and Chinese individual place setting used in this book, and the numbered name of each item, in both Chinese and English, facing the photo. Among the vegetables is: 27. Fresh soybean (*maodou*). Among the special ingredients is:

2. Beancurd sheet (*doufu-pi*). 14. Bean curd threads (*gansi*). 21. Bean curd (*doufu*). 26. Fermented black [soy] beans [fermented black soybeans].

For every recipe there is a large (often full-page) color photo with the recipe name in Chinese and English, and the page number of the recipe. All the recipe photos come in a block before the recipes themselves. Each Chinese recipe is on the left page of the 2-page spread, and its English counterpart is on the right page. The ingredients for each recipe are in two rows at the top, in exactly the same relative place, to make finding the Chinese characters easy.

Recipes include: Braised soysauce duck (p. 157). Spareribs with fermented black beans (*Shih chih p'ai ku*, p. 177). Shredded pork with bean sauce (*Ching Chiang Jou szu*, with 2 tablespoons "sweet bean paste," *t'ien mien Chiang* [pinyin: *tian mian jiang*], and soysauce, p. 186-87). Diced fish with fermented black beans (*Shih chih yü ch'iu*, p. 216-17). Steamed fish with fermented black beans and hot pepper (*Tou shih la chiao cheng yu*, with 2 tablespoons *dou shih* / fermented dried black beans," p. 226-27).

The chapter titled "Egg and bean curd" (p. 256-75) contains 10 recipes. Examples of the descriptions of bean curd in the ingredients listing are: "6 squares bean curd (3" x 3")." "8 pcs. [pieces] bean curd (1" x 2" x 1")." "4 pcs. tender bean curd (3" x 3")." "10 oz. thin dried bean curd strips" (*gansi*). On p. 276 is a half-page description of bean curd and related products.

More recipes: Assorted vegetarian dish (*Lo han chai*, with "1 bean curd stick," *fu chu* / *fuzhu* [dried yuba sticks], p. 289). Spinach and bean curd soup (*Po ts'ai tou fu keng*, p. 317). Chicken, ham and shrimp with bean curd shreds soup (*San hsien kan szu t'ang*, p. 319). Yu-T'iau ([crullers] p. 335). Noodles with minced pork and bean sauce (*Pei fan cha Chiang mien*, with *maodou* / green beans, p. 339). Fried taro dumplings with sweet bean filling (*Tou sha yü tsao*, with "sweet [azuki] bean paste," p. 349).

A good portrait photo of Miss Fu appears on p. 371. Taiwan's popular T.V. chef, she "is also a producer and director. She has demonstrated over 600 different recipes from 1964 to the present. In 1955 Pei Mei's Chinese Cooking Institute was founded, In 1962 Taiwan's first television station was established. She accepted an offer to teach a demonstration cooking program once a week, starting in 1967. In 1969 she wrote her first volume, *Pei Mei's Chinese Cookbook*. The dishes were divided according to the geographical areas of China—North, East, South, and West. In 1977 Miss Fu began a weekly program on Japanese television.

The copyright page states that this book was published in the 80th year, 9th month of the Chinese calendar. Address: Cooking teacher, Taipei, Taiwan.

1166. Fu, Peimei. 2005. Peimei shi pu. Di san ce [Pei Mei's Chinese cook book. Vol. III]. Taipei, Taiwan: Ju zi wen hua

shi ye you xian gong si. 388 p. Illust. (color). 22 cm. [Chi; Eng]

• **Summary:** Chinese cooking can be divided clearly into five major schools or branches: Shanghainese, Cantonese, Szechuanese, Peking-style, and Hunanese. These correspond roughly to Eastern, Southern, Western, Northern, and Central China. This 3rd volume, containing 130 recipes, consists of nine complete formal Chinese banquet dinners from different provinces: Kiangche (Shanghai style), Canton, Szuchuan [Szechwan], Peiping, Hunan, Fuk-ien, Taiwan, Vegetarian style, and Buffet dinner.

The number of special ingredients in the numbered color photo has been increased to 47 from 32. Interesting new ingredients include: 29. Sweet red bean paste [azuki]. 31. Green sea weed. 32. Laver [sheets of nori]. 34. Fresh bean curd skin. 35. Dried bean stick [dried yuba sticks, fuzhu]. 36. Bean curd sheets [dried yuba]. 37. Bean curd, dried [dofu-gan]. 39. Wheat gluten. 40. Steamed wheat gluten. 41. Fried gluten puff.

The basic format of this book is quite similar to that of Vol. II, but the color photos of recipes are arranged together in a group of about 12 pages at the beginning of each of the nine sections, and quite a few pages have two recipes per page.

Recipes include: Sautéed black mushrooms with soy sauce (p. 35). Stir-fried crab with bean sauce (*Chiang pao ch'ing shieh*, with 1 tablespoon "sweet soy bean paste" / *t'ien mien Chiang* / *tian mian jiang*, p. 46-47). Stewed beef with hot bean sauce (*Yu hsiang nyu nan*, with 1 tablespoon "hot bean paste," (*la dou ban jiang*), p. 122-23).

The introduction to the section on vegetarian dishes notes: "Centuries ago in China, devout Buddhists and Taoists followed a strictly vegetarian diet, in keeping with their religious sanctions against the killing of sentient beings." The recipes in this section call for: Soy sauce (almost all). Soy bean soup stock (p. 313). Wheat gluten sticks (*su chang*) (each of which is made by rolling up a big sheet of wheat gluten, p. 315). Pieces of steamed wheat gluten and Pressed bean curd (*dou fu gan*) (p. 317). Cooked green vegetable soybeans (*shu mao dou*, p. 323). Sheets of bean curd skin, fresh or dried [yuba] (*toufu p'i* / *dou fu pi*, p. 323, 325, 331). Shredded dried bean curd (p. 327). Bean curd (p. 328).

More recipes: Braised beef with brown sauce (with 1 tablespoon "hot bean paste" (*la dou ban jiang*) and ½ tablespoon "soybean paste" (*tian mian jiang*), p. 360-61). Sautéed bean curd balls (p. 369). Two good portrait photos of Fu Pei Mei appear on page 296. Address: Cooking teacher, Taipei, Taiwan.

1167. Hu, Shiu-ying. 2005. Food plants of China (Continued—Document part). Hong Kong: Chinese University Press. xvi + 844 p.

• **Summary:** This is a truly remarkable, original and comprehensive book. "Angiosperms (p. 106): Every great

civilization has developed its special angiosperms for food. Accounts are given below of the seeds of seven species” including Job’s tears (p. 108), lotus seeds, mung bean (p. 111), red bean (Adsuki), soybean, and watermelon seeds.”

Note: The great revolution in plants was the appearance of angiosperms. Definition: An angiosperm is a plant that has flowers and produces seeds enclosed within a carpel. There was an explosion of diversity with this new strategy.

Hordeum vulgare L. var. *nudum* J.D. Hooker–Jade Barley [Naked barley?].

Hordeum vulgare L. var. *trifurcatum* (Schlechter) Alefield–Tibetan Barley. (p. 290-91).

Sorghum bicolor (L.) Moench–Sorghum, Kaoliang. Used for its seeds. The tallest crop plant known in China. “Used to be extensively cultivated in northern and northeastern China; today it is replaced by rice or maize in these areas” (p. 296-97).

From *Amorphallus rivieri* Durieu–Devil’s tongue, leopard palm, snake palm, is made *Mo-dou-fu* (W.-G. *Mo-tou-fu*) (3 Cc), ‘black bean curd’ (p. 304).

Arachis hypogaea L.–Peanut, ground nut. *Hua-sheng* (W.-G. *Hua-sheng*) (2 Cc). Seeds are cooked with “dry bean curd” (3 Cc *dou-fu-gan*) or used as a source of vegetable oil (p. 465-66).

Glycine soja Siebold et Zuccarini. *Lao-dou* (W.-G. *Lao-tou*) (2 Cc) (‘wild soybean’). *Wu-dou* (W.-G. *Wu-tou*) (2 Cc) (‘black bean’). “Seed gathered and used locally.” Both are annual climbers. (p. 474).

Also discusses: Algae (sea vegetables). Lablab purpureus (Syn. *Dolichos lablab*). The hyacinth bean or lablab bean (p. 475-76). *Pueraria lobata* (kudzu). *Ge-gen* is *Pueraria* root. *Ye-ge* is Wild kudzu. The root is cooked with Chinese dates, and sliced yams for a soup. *Ge-hua* is *pueraria* flower. *Pueraria montana*. *Ge-ma-mu* (3 Cc) (‘mother of kudzu’) is starch from the root. *Pueraria thomsonii*. Sweet kudzu, cultivated *pueraria*. *Gan-ge-teng* (3 Cc) (‘sweet kudzu’). Cultivated like a potato (p. 482).

From *Stizolobium capitatum* (Sweet) O. Kuntze (Synonym: *Mucuna capitata*). *Li-dou* (2 Cc) (‘wild cat bean’) or *Gou-zhua-dou* (3 Cc) (‘dog’s paw bean’). “Seeds used for making bean curd; very rare in China. Rarely cultivated” (p. 485).

Buchanania latifolia Roxburgh. *Dou-fu-guo* (W.-G.; *Tou-fu-kuo*) (3 Cc) (‘beancurd fruit’). “Seed, ground, used for making beancurd in Yunnan... Native to southeastern Asia, growing in deciduous forests in valleys at altitudes of 750-900 meters in Yunnan, Hainan Island and Guangdong [province] (p. 515).

Coriandrum sativum L. Coriander, Chinese parsley, cilantro (Spanish). *Yuan-sui* (W.-G.; *Yuan-sui*) (2 Cc) (‘coriander’). “Young or full-grown plants harvested before flowering, in villages of northern China leaves are washed, chopped small, mixed with cooked and salted soya bean [*dou-chi*] and sprinkled over cooled fish or meat;...” Address:

Botanist, Arnold Arboretum, Harvard Univ.; Honorary Prof. of Chinese Medicine, The Chinese Univ. of Hong Kong.

1168. Hu, Shiu-ying. 2005. Red beans (*Hong-dou*) (Adsuki [azuki]) (Document part). In: Shiu-ying Hu. 2005. Food Plants of China. Hong Kong: Chinese University Press. xvi + 844 p. See p. 116-18.

• **Summary:** In her investigation of the flora of China, the author has never seen wild ancestors of the red bean. The use of red [azuki] beans can be traced to the first century of the Christian era, in *Shen-nong ben-cai jing* (Wu, 220-260). From the name and description the species can be identified as the rice bean (lesser red bean, 3 Cc = Chinese characters given, red small bean, *Delandia umbellata* [Thunb.] S.Y. Hu), a climber with slender oblong seeds... This bean is presently used more as a medicine than as a food.

“The Adsuki bean (=greater red bean, *hong-dou*, *Azuki angularis* [Willd.] Ohwi), cultivated for food, is an erect herb with shorter and thicker seeds... The seeds of both species are shining, dark red.”

In Chinese cooking, “red bean paste is made of the greater red bean and is used in pastries. Its Chinese name is *dou-sha* (2 Cc) (‘bean sand’), a short term and easy to pronounce. Canned *dou-sha* is available in Chinese stores. Many home-makers among Chinese Americans prefer to make their own *dou-sha*. The procedure is simple but time consuming.” A detailed description of the process is given using 2 cups of grater red beans. At the end: “... mix with ½ cup sugar and 2 tablespoons of preserved rose petals. This is rose-flavored *dou-sha* to be used for home-made pastries and/or for desserts. A recipe for “Oriental red bean pottage” calls for “1½ cups red bean (cleaned, washed and drained).” Another recipe for “Steamed *dou-sha* wrappings (*dou-sha bao*)” calls for “1 cup home-made *dou-sha*.”

Azuki angularis (Willdenow) Ohwi–Adsuki bean, greater red bean (Syn. *Vigna angularis*). *Hong-dou* (W.-G. *Hung-tou*) (2 Cc). “Introduced from northern China to USA in 1900” (p. 466-67). Address: Botanist, Arnold Arboretum, Harvard Univ.; Honorary Prof. of Chinese Medicine, The Chinese Univ. of Hong Kong.

1169. Endô, Orie. 2006. A cultural history of Japanese women’s language. *Michigan Monograph Series in Japanese Studies*. No. 57. vii + 129 p. Nov. See p. 38. [415+* ref]

• **Summary:** In the section titled “Women’s language in the Kamakura [1185-1333] and Muromachi [1336-1573] periods” we learn (p. 37) that *mushi* is the women’s word (*nyôbô-kotoba*) for miso; it appears in *Senjimon* (The Decoction).

The word “mame no ko” (meaning *kinako* or “roasted soy flour”) appears on page 38—in the very interesting context of women’s words created during the Edo period. We read: “Some expressions came into use among the men of the samurai class as well, a fact lamented in *Kagomimi*

[a book published during the Edo period, 1600-1867]. 'It is unpleasant to hear samurai, tradesmen, and artisans use words that are women's. Examples such as... *okawa* for *kawameshi*, 'glutinous steamed rice for red beans' [azuki beans], *akanomeshi* for *sekihan*, 'festive red rice [with azuki beans], *kinako* for *mame no ko*, 'soybean flour,' are all too frequently used.' There are also examples of men using words such as *murasaki*, *himojii*, and *okabe* in a collection of popular common stories called *Seisuishô* (1623).

Note: This series is published by the Center for Japanese Studies, University of Michigan, Ann Arbor, Michigan. Address: Dep. of Cultural Linguistics, Koshigaya campus, Bunkyo Univ., Japan.

1170. Davidson, Alan; Jaime, Tom. 2006. The Oxford companion to food. New York, NY and Oxford, England: Oxford University Press. xxviii + 907 p. Illust. by Soun Vannithone. Index. 29 cm. [1500+* ref]

• **Summary:** The first edition of this remarkable book (1999) is already a "classic." "Alan Davidson famously wrote eighty percent of the first edition, which was praised for its wit as well as its wisdom. Tom Jaime, editor of the second edition, worked closely with Jane Davidson and Helen Saberi to ensure that new contributions continue in the same style... The text has been updated where necessary" and there are many new entries. The front matter, which is 10 pages longer, begins with "Alan Davidson: A tribute" (p. vii; he died in 2003) followed by a "Preface to the Second edition" by Tom Jaime. Entries in the 1st edition are generally on a different page in this edition. Tofu, for example, formerly on pages 798-99, is now on pages 801-02; however the information is the same. The marvelous illustrations in both editions are by the same artist. The last page of this edition is page 907 compared with page 902 in the 1st edition. Address: World's End, Chelsea, London, England.

1171. Koike, Yoshiko. 2006. Koike Yoshiko no tezukuri shokuhin kakô kotsu no kotsu. 3, Tsukemono sôzai okowa mochi tenpe konnyaku kunsei [Yoshiko Koike's tricks for homemade foods. No. 3. Japanese pickles, common side dishes, sekihan made with glutinous rice, mochi, tempeh, konnyaku, and smoked foods]. Tokyo: Nôsan Gyoson Bunka Kyôkai. 146 p. [Jap]*

• **Summary:** The Japan word *okowa* can refer to either *kowameshi* or *sekihan*. *Okowa* refers to a festive dish made by boiling glutinous rice with azuki beans (which are red and add a festive color to the dish). *Sekihan* is usually made by boiling regular (non-glutinous rice) with azuki beans.

1172. Sams, Gregory. 2007. History of work with natural foods and macrobiotics in London (Interview). *SoyaScan Notes*. April 12. Conducted by William Shurtleff of Soyinfo Center. [Eng]

• **Summary:** Greg no longer works in the field of food but he

is grateful to George Ohsawa for all Greg learned from him. Greg has collected a variety of publications to send Soyfoods Center such as the *Harmony: Macrobiotics* magazine he did in 1968-69 (a full set).

Greg was born in Santa Monica, near Los Angeles on 27 Nov. 1948. His father, Kenneth, had come out of the marines in World War II and (under the G.I. Bill) he was a student at the University of California at Los Angeles (UCLA). Then he got a job in London working for the U.S. government (Air Force) as an airbase historian. He wanted to get out of America and he did not want his kids growing up in America. "He wanted to bring us up in London, which was a pretty good idea, I think." He was in the same class as Ronald Reagan. His eyes were opened by the war.

When Greg's father, Kenneth, was younger, he was abandoned by conventional medicine. They did know what the problem was. He was shrinking away, down to about 90 pounds from about 160, and his skin was turning dark. He thinks it might have been related to the time during the war when he was on Iwo Jima and an ammunition dump exploded next to him. He went into a sort of shock after that, from which he recovered, but several years later he went into another. He doesn't know what it was; it could have been a bug of some sort. In 1946 was abandoned by allopathic medicine and the doctors thought he was going to die. Then someone told him about Dr. Nakadadi in Los Angeles. He was a natural healer. He focused on diet—wholemeal cereals, whole-wheat bread (which his wife had to bake herself), no white refined starches, almost no meat (but fish was OK) and no processed or canned foods. Kenneth's mother and father (Greg's grandparents) came from Syria and the Greg's mother, Margaret, was a good cook and she cooked the foods Dr. Nakadadi recommended. Kenneth recovered within a month; he returned to his natural weight and his skin resumed its former color. Thereafter Greg and Craig were raised on a similar, natural diet; they had a sugar ration of 1 teaspoon a day of dark brown sugar. No TV dinners, homemade bread, very little meat.

In 1958 Greg became a vegetarian (although he still ate fish), largely because of his dislike of red meat. "I was a pescatarian." Also on 1958 Kenneth made a New Year's resolution to go pescatarian again, but it only lasted for 6 weeks. Yet Greg persisted; his brother Craig, who was 4 years older than Greg, ate meat.

In about 1965/66 Greg (age 16-17) was introduced to macrobiotics by his brother, Craig. "Now my diet is what I eat instead of what I don't eat. I read a lot." Craig got interested in macrobiotics when he read about a raid in New York in which George Ohsawa's books were seized and burned. Craig got hold of Ohsawa's books and "immediately embraced macrobiotics. As soon as he introduced it to me, I immediately embraced it—because it was real food." Greg got deeply involved in the philosophy of macrobiotics and he read a lot about it.

On New Year's Eve 1966/67 Greg broke his back when he fell out a tree while a student at Cal, Berkeley. He was paralyzed from the waist down, and that landed him in a wheel chair for life. Greg went to college for only 3 months—the last 3 months of 1966 which was the 1st quarter of his freshman year. He returned to London for treatment of paralysis and rehabilitation. He planned to return to college.

The previous year his brother, Craig, had opened a macrobiotic restaurant in Airlie Gardens; Craig's was the first macrobiotic restaurant in the UK, but it was only open for a few months; it had no permits, was illegal, and the neighbors complained. Craig was in the process of moving his original restaurant and making it legal. The new location was to be at Westbourne Terrace near Paddington. But suddenly and unexpectedly Craig had to leave the UK so that summer (1967) Greg moved in and opened the macrobiotic restaurant. It was in a basement. John Lennon and Yoko Ono (of Beatles fame) were customers. Later (7 Nov. 1968) John drew an original 8-frame cartoon for Greg to help promote his magazine. One can still see it on Greg's website www.chaos-works.com. Initially it was called either "The Macro" or "Greg's." It had permits and was legal. After a year he named it Seed. "Seed became very popular; it was *the* place to eat in London. It was filled every night. It was the only '60s hippie restaurant in London, so people sought it out. It seated 40-50 people at one time. For Greg, the total motivation for Seed was to spread the word about macrobiotics. In 1967 Greg would hand out free brown rice and veggies to hippies on Portobello Road once a week.

Also in 1967 they established a company named Yin-Yang Ltd.; it turned out to be a holding company for all the other Sams brothers ventures. Each brother owned half the shares.

In 1968/69 Greg edited and published *Harmony: Macrobiotics*, a magazine about macrobiotics. He would duplicate it on his duplicator at home, staple the pages together (24 pages per issue at the beginning; 2s 6d). In all, there were only 3 issues; the last was in 1969.

In 1969 or 1970 he opened Sprout Café in a room off the Seed restaurant; the concept was extremely purist (it served brown rice and miso soup) but it lasted only about 2 months. Also in 1969 he opened Ceres, a store that was the only source of macrobiotic foods on All Saints Road in west London. "It was the first macrobiotic food store in London, and also the first natural food store. You couldn't even buy brown rice in a health food shop. Ceres did really well, and like Seed was profitable almost immediately. "People from the Findhorn community in Scotland used to come to Seed every couple of months to stock up on food. People would come from all over England, and from Wales. "Ceres is still in operation, although its name and modus have changed."

In mid-1970 Craig returned to the UK. Together they moved Ceres Grain Store to the Portobello Road to a much bigger location—about 1,500 square feet. At that point Greg

got out of the restaurant; he had enough to do. He said "Craig, here's your restaurant." No charge. But it was part of Yin-Yang Ltd., which was jointly owned. "At the time I was a young hippie, age 20, and I was just doing stuff. I wasn't keeping track of money so long as a venture was self-supporting."

In Aug. 1970 Greg began to wholesale macrobiotic foods through Harmony Foods, a new company that was the first macrobiotic food wholesaler in the UK. Harmony Foods had 3 different locations in its first 18 months. The first was in a basement (with the office upstairs) at St. Luke's Road, followed by All Saints Rd. (in about they moved Ceres to 269A Portobello Road (and renamed it Ceres Grain Shop), then moved Harmony into where Ceres had been; the first price list was printed in Sept. 1970 at All Saints Road), then in shortly in Freston Road (3 floors). Each location was significantly larger than the one before it. Harmony Foods was thriving in every way, including economically. "My biggest problem was keeping all our food products in stock. Harmony Foods was always our main source of income; it paid for the less successful ventures. Everything was under Yin-Yang Ltd. so all the bills were always paid. The customers were mostly new natural food stores, such as Infinity in Brighton, Suma in Leeds, Real Foods in Edinburgh, Scotland, On the 8th Day in Manchester, Holland & Barrett (a chain of health food stores). Brewhurst (in Surrey) owned Holland & Barrett and was the biggest health food distributor. Everything was moving so fast.

What foods did Harmony Foods wholesale? Brown rice, miso (mugi and Hatcho), tamari (both in wooden kegs; both imported from Muso Shokuhin in Japan), millet, buckwheat (roasted and unroasted), whole wheat, whole wheat flour, aduki [azuki] beans, sesame seeds.

Craig started Ceres Bakery on his own; Greg had almost no involvement in that.

When Harmony Foods moved to its new location on Freston Road, both Greg and Craig started Green Genes Café in its old location on All Saints Road. Green Genes was a working man's macrobiotic restaurant where the food was less expensive with an element of fixed menu. Green Genes lasted less than a year. Greg opened Ceres Bookstore above the Ceres Grain Shop; it lasted for a few years and usually lost money. It wasn't that Greg liked a busy life. "One had to do the things that needed to be done. Sometimes you'd bite off more than you could chew."

The last edition of *Harmony* magazine was in 1969. From 1971 until March 1977 (last issue) Greg was involved in establishing and running *Seed: The Journal of Organic Living*. The first issue was Nov. 1971. It was a real magazine with an editor, properly printed and bound. Craig was also involved, but most of the input came from their father, Ken—who was a civilian colonel in Vietnam; he retired from there early.

In 1974, after traveled to Syria with his father to visit

relatives. This idea came from the family's relatives he had visited in Syria. "They were peasants living in the mountains, in a Christian village. They ate meat only once or twice a year, as at Christmas, Easter or weddings; they couldn't afford to eat meat regularly. They didn't know what vegetarianism was. They killed a lamb for us because it was a big deal to have foreign visitors. Vegetarian prig that I was, I wouldn't eat any of that lamb. Afterwards I felt so stupid and guilty; I realized I'd done the wrong thing. So I resolved to stop being so absolute about not eating meat. That meant I would eat a little meat from time to time when the situation called for it." Continued. Address: London, England.

1173. Pirello, Christina. 2007. *Cooking the whole foods way: Your complete, everyday guide to healthy, delicious eating with 500 vegan recipes, menus, techniques, meal planning, buying tips, wit & wisdom*. Revised and updated edition. New York, NY: Home Books. xiii + 354 p. Aug. Illust. (by Christina Pirello). Index. 24 cm. [38 ref]

• **Summary:** On the cover: "Includes 80 new recipes. Revised and updated—Now 100% vegan." This is basically a macrobiotic cookbook with 500 vegan recipes. One long chapter is titled "Tasty tofu, tempeh and seitan" (p. 115-40). Other soy-related recipes include: Basic miso soup (p. 35). Miso millet stew (p. 64). Minute miso soup (p. 82). Black soybean relish (p. 101; as black soybeans are simmered, they create their own gravy). Baked beans with miso & apple butter (p. 109). Tofu cheese (with miso, p. 118-19). Lemon miso sauce (p. 276). Also contains recipes for amasake, azuki beans, mochi, and sea vegetables.

The recipe for "Tofu cheese" (p. 118-19) is very creative and delicious.

About the author: A brief biography is on the back cover; a color portrait photo is on the front cover. Address: Emmy Award-winning host of national public television's *Christina Cooks*.

1174. Fuller, Dorian Q. 2007. Contrasting patterns in crop domestication and domestication rates: recent archaeobotanical insights from the Old World. *Annals of Botany* 100(5):903-24. Oct.

• **Summary:** "Archaeobotany, the study of plant remains from sites of ancient human activity, provides data for studying the initial evolution of domesticated plants. An important background to this is defining the domestication syndrome, those traits by which domesticated plants differ from wild relatives."

"This paper explores this in einkorn wheat (*Triticum monococcum*) and barley (*Hordeum vulgare*) from the Near East, rice (*Oryza sativa*) from China, mung (*Vigna radiata*) and urd (*Vigna mungo*) beans from India, and pearl millet (*Pennisetum glaucum*) from west Africa. Brief reference is made to similar data on lentils (*Lens culinaris*), peas (*Pisum sativum*), soybean (*Glycine max*) and adzuki bean (*Vigna*

angularis)." Address: Institute of Archaeology, University College London, 31-34 Gordon Square, London WC1H 0PY, UK.

1175. Bittman, Mark. 2007. *How to cook everything vegetarian: simple meatless recipes for great food*. Hoboken, New Jersey: John Wiley & Sons, Inc. xii + 996 p. Illust. Index. 24 cm.

• **Summary:** The chapter titled "Tofu, vegetable burgers, and other high-protein foods" (p. 637-78) has this contents: Introduction. The umami factor (savory-ness). The basics of tofu: The tofu lexicon (regular tofu, silken tofu, pressed or extra-firm tofu, smoked tofu, fried tofu, baked tofu, fermented or pickled tofu, tofu skins {dried bean stick, yuba, bean curd sheets or skins}). Buying and storing tofu. Preparing tofu (freezing, squeezing, puréeing,...); then come a wealth of recipes.

The index contains 129 entries for tofu, 32 for miso, 26 for tempeh, 25 for soy sauce, 24 for edamame, 23 for seitan, 11 for soybeans, 7 for black beans (fermented [fermented black soybeans]), 4 for teriyaki sauce, 6 for tofu skins (yuba and dried yuba sticks), 3 for milk substitutes, 2 each for meatballs (vegetarian), and 1 each for bean sprouts (soy), black soybeans, meatless meat sauce, soybean oil, soy flour, soy milk, soy nuts, soy pasta, soy protein isolate, textured vegetable protein, tofu noodles, and Worcestershire sauce (hold the anchovies).

There are also recipes for adzuki beans [sic], tahini, vegan cookery—and much more. Address: New York Times food writer.

1176. Jones, Russell. 2007. *Loan-words in Indonesian and Malay*. Compiled by the Indonesian Etymological Project. Russell Jones, general editor. Leiden, Netherlands: KITLV Press. xxxix + 360 p. Map. 25 cm. + 1 DVD-ROM (4 3/4 inches). Reprinted in 2008 by University of Washington Press. [70 ref]

• **Summary:** *Tahu*, the Indonesian word for bean-curd / tofu (2 Chinese characters are given) comes from the Chinese Amoy dialect *tau hu* (See also *taofu*; variant *tau hu*).

Tahu pong, the Indonesian word for "soybean cake" [sic, okara], comes from the Chinese Amoy dialect *tau hu phong*.

Taoci, the Indonesian word for fermented black soybeans (two Chinese characters are given) comes from the Chinese Cantonese dialect *tau shi*.

Taoco, the Indonesian word for Indonesian-style miso (two Chinese characters are given) comes from the Chinese Chiangchui, Changchow [Hokkien] dialect *tau chio* (variant *taucio*, *tauco*).

Taofu, the Indonesian word for bean-curd / tofu (2 Chinese characters are given) comes from the Chinese Cantonese dialect *tau foo*. (See also *tahu*; variant *tofu*).

Taogé, the Indonesian word for bean sprouts (of the *Phaseolus radiatus*) [mung bean] (2 Chinese characters are

given) comes from the Chinese Chiangchui, Changchow [Hokkien] dialect *tau ge* (var. *taugé, togé*).

Taohupoi, the Indonesian word for dried bean curd sheets [dried yuba] (three Chinese characters are given) comes from the Chinese Chiangchui, Changchow [Hokkien] dialect *tau hu phoe*.

Taoki, the Indonesian word for deep fried bean curd strips [deep fried tofu strips] (two Chinese characters are given) comes from the Chinese Amoy dialect *tau ki* (var. *tauki*).

Taokua, the Indonesian word for dried bean curd [pressed tofu] (two Chinese characters are given) comes from the Chinese Amoy dialect *tau koa* (var. *takua, taukua*).

Taoni, the Indonesian word for soya bean milk [soymilk] (two Chinese characters are given) comes from the Chinese Amoy dialect *tau ni*.

Taosi, the Indonesian word for salted soya bean paste [fermented black soybeans] (two Chinese characters are given) comes from the Chinese Amoy dialect *tau si*.

Taoyu, the Indonesian word for soy sauce (two Chinese characters are given) comes from the Chinese Amoy dialect *tau iu* (var. *tauyu*).

1177. Kaga, Akito; Isemura, Takehisa; Tomooka, Norihiko; Vaughan, Duncan A. 2008. The genetics of domestication of the azuki bean (*Vigna angularis*). *Genetics* 178(2):1013-36. Feb. [35+ ref]

• **Summary:** “Genetic differences between azuki bean (*Vigna angularis* var. *angularis*) and its presumed wild ancestor (*V. angularis* var. *nipponensis*) were resolved into QTL for traits associated with adaptation to their respective distinct habits. A genetic linkage map constructed using progenies from a cross between Japanese cultivated and wild azuki beans covers 92.8% of the standard azuki bean linkage map.” Address: 1-2. National Inst. of Agrobiological Sciences Genebank, Tsukuba 305-8602, Ibaraki, Japan.

1178. Lee, Jennifer 8. 2008. The fortune cookie chronicles: Adventures in the world of Chinese food. New York, NY: Twelve (Hachette Book Group USA). x + 307 p. 24 cm. [75+ endnotes]

• **Summary:** Contents: Prologue. 1. American-born Chinese. 2. The menu wars. 3. A cookie wrapped in mystery inside an enigma. 4. The biggest culinary joke played by one culture on another. 5. The long march of General Tso. 6. The bean sprout people are in the same boat we are. 7. Why chow mein is the chosen food of the chosen people, or, The kosher duck scandal of 1989. 8. The Golden Venture: restaurant workers to go. 9. Take-out takeaways. 10. The oldest surviving fortune cookies in the world? 11. The mystery of the missing Chinese deliveryman. 12. The soy sauce trade dispute. 13. Waizhou, U.S.A. 14. The greatest Chinese restaurant in the world. 15. American stir-fry. 16. Tsujiura Senbei. 17. Open-source Chinese restaurants. 18. So what did Confucius really

say?

The basic history: Fortune cookies were invented in Japan by the 1870s (they were called *Tsujira senbei*), then brought to California by Japanese immigrants. Before World War II they were called *senbei* and the fortunes were usually written in Japanese. Makoto Fujiwara served these *senbei* in 1894 in San Francisco at the Japanese Tea Garden (of which he was superintendent); it was built as part of the World’s Fair, the Midwinter International Exposition. In San Francisco, there was a 9-foot fortune cookie manufacturing machine in the basement of Benkyodo, a Japanese sweets and food store still in operation.

Starting in early 1942, and during World War II, when basically all 110,000 West Coast Japanese were sent to internment camps, Chinese living in America took over the business of manufacturing fortune cookies (in Los Angeles and San Francisco)—in part because Chinese restaurants needed them. “By the 1940s English-language fortune cookies were already commonplace in Chinese restaurants in San Francisco and southern California. Historically, Chinese have never baked and are not known in the West for their desserts—which use little sugar and fat, but plenty of red [azuki] beans, lotus, peanuts, sesame seeds, soybeans and almonds. The Chinese built automated factories and when the Japanese were freed from the camps after the war, they were unable to get back into the industry. Today, the major fortune cookie manufacturing companies in the USA are owned and run by Chinese Americans.

Chapter 12 is about a company named Kari-Out, located in the quasi-industrial town of Totowa, New Jersey. Kari-Out—which was founded in the late 1960s by Howard Epstein, a Bronx-born businessman with a “passion for what he called ‘small-unit packaging’”—makes the millions of tiny transparent packets of brown-black liquid that are distributed every year for free in Asian take-out meals and products (like ramen noodles). It is called “soy sauce” but its main ingredients are water, hydrolyzed vegetable protein, caramel coloring, and corn syrup. So, where’s the soy? Asian manufacturers of traditional fermented soy sauce, in which soybeans are one of the main ingredients, have begun a global campaign to prevent products like that made by Kari-Out from being classified as “soy sauce.” Through the government of Japan, they have submitted a proposal to the Codex Alimentarius Commission, the “forum for international food-definition battles.” The Asian makers of soy sauce wanted to have soy sauce classified into four types: long-term brewed, short-term brewed, nonbrewed, and mixed. But the debate has heated up because La Choy, founded in America, also makes this same kind of HVP soy sauce. Suddenly the International Hydrolyzed Protein Council and the USDA were defending La Choy’s HVP soy sauce. In the end, the Americans wrestled the definition of “soy sauce” away from the Asian makers. In 2005 the Japanese government quietly withdrew its proposal.

Note 1. From the publisher's description of this book: "If you think McDonald's is the most ubiquitous restaurant experience in America, consider that there are more Chinese restaurants in America than McDonalds, Burger Kings, and Wendy's combined. *New York Times* reporter and Chinese-American (or American-born Chinese). In her search, Jennifer 8. Lee traces the history of Chinese-American experience through the lens of the food. In a compelling blend of sociology and history, Jenny Lee exposes the indentured servitude Chinese restaurants expect from illegal immigrant chefs, investigates the relationship between Jews and Chinese food, and weaves a personal narrative about her own relationship with Chinese food. The *Fortune Cookie Chronicles* speaks to the immigrant experience as a whole, and the way it has shaped our country."

Note 2. The author was born in 1976. "Jennifer 8. Lee, the daughter of Chinese immigrants and a fluent speaker of Mandarin Chinese herself, grew up eating her mother's authentic Chinese food in her family's New York City kitchen before graduating from Harvard in 1999 with a degree in Applied Mathematics and economics and studying at Beijing University. At the age of 24, she was hired by the *New York Times*, where she is a metro reporter and has written a variety of stories on culture, poverty, and technology." A color photo on the rear dusk jacket shows Jennifer 8. Lee. Address: Harlem, Manhattan, New York City, New York.

1179. Koblin, Seymour. 2008. *Food for life: Applying Macrobiotic principles and practices to create vital health for body, mind, and spirit*. Bloomington, Indiana: AuthorHouse. 180 p. Illust. (photos by Tyllie Barbosa).

• **Summary:** Miso is mentioned on 23 pages. Natto is mentioned on pages 92-103, 127, 130, 137. Tofu is mentioned on pages 114, 126, 127. Address: HHP, PhD, School of Healing Arts, San Diego, California.

1180. Kaplan, Lawrence. 2008. Legumes in the history of human nutrition. In: Christine M. Du Bois, C.-B. Tan, and S.W. Mintz, eds. 2008. *The World of Soy*. Urbana, Illinois: University of Illinois Press. viii + 337 p. See p. 27-44. [40 ref]

• **Summary:** Contents: Introduction. Legumes in early prehistoric nutrition. Food grain legumes native to the Americas: Radiocarbon dating, beans in American archaeology, history and protein structure. The Near Eastern pulses: The classical texts, the broad bean (*Vicia faba*), lentil, pea, chickpea. The Asiatic and African pulses: Cowpea (*Vigna unguiculata* subspecies *unguiculata*), yard-long or asparagus bean (*Vigna unguiculata* subspecies *sesquipedalis*), mung bean or green gram (*Vigna radiata*), black gram (*Vigna mungo*), adzuki bean black gram (*Vigna angularis*). Note.

Throughout the world and throughout history legumes

accompany cereal grains as primary components of human diets. "So pervasive is the combination of the combination of these complimentary food resources that they are often assumed to have been combined since the very beginnings of agriculture." In developing countries, "the proportion of protein derived from pulses appears to be in steady decline."

"Soy consumption is highest in industrialized, technologically developed Japan and the Republic of Korea [South Korea] (supply per capita per year of 7.53 kg and 8.10 kg, respectively) because of its central role in the traditional diet of these countries." Address: Emeritus Prof. of Biology, Univ. of Massachusetts, and former editor of the journal *Economic Botany*.

1181. Chiang, Cecilia Sun Yun. 2008. Salted fermented black soybeans, and sweets, in Chinese food culture (Interview). *SoyaScan Notes*. Nov. 15. Conducted by William Shurtleff of Soyinfo Center.

• **Summary:** Salted fermented black soybeans (pronounced dou-shuh in Mandarin) are fermented with salt and dried naturally in the sun. Traditionally they often also contained unwanted dust or sand, which got in during fermentation and drying. There is no commercial product named "Black bean sauce," which has these beans as a major ingredient. Cecilia does not use salted fermented soybeans much in her cooking; maybe once a year. In China, this product is most widely used in Hunan and Guangdong provinces in southern China. These are relatively poor provinces. They eat a lot of these fermented soybeans so they can get more flavor so they can eat more rice. The hot weather also has a lot to do with it; people in warm countries or areas tend to eat more hot, spicy foods. Such foods are not eaten much in northern China and Shanghai; rather they eat a lot of fresh foods. "When I first came to San Francisco the many Cantonese restaurants served 'Black bean sauce chicken' or 'Black bean sauce steamed fish' or 'Black bean sauce clams'—with a lot of garlic, ginger, and fermented black beans." Now she doesn't see them that much.

Sweet foods are a relatively small part of Chinese food. Sweets are used more in Cantonese cookery than in that of Beijing and northern China—or even of Shanghai Chinese desserts are not very interesting. Cantonese sweets are very boring; they use red beans (*xiao hong dou*; azuki) sweetened with sugar, sweet soup, red dates, green beans / peas, lotus seeds, and sugar. Cecilia finds moon cakes too big and too sweet, and she finds the extensive use of duck egg yolks (usually cooked with salt) to be very unhealthy (very filling; lots of cholesterol) and not very tasty. By contrast, Japanese people love a lot of sweets.

Soybeans are almost never used to make "sweet bean paste;" instead, small red beans [azuki] are used. Japanese use more azuki beans than Chinese, and their sweet bean paste is sweeter.

Cecilia has written a new book titled "Seventh

Daughter,” with Lisa Weiss, published this spring by Ten Speed Press. It contains a lot about Chinese foods and their history. Address: Former owner, The Mandarin restaurant, Ghirardelli Square, San Francisco, California.

1182. Xu, N.; Cheng, X.-Z.; Wang, S.-H.; Wang, L.-X.; Zhao, D. 2008. Establishment of an adzuki bean (*Vigna angularis*) core collection based on geographical distribution and phenotypic data in China. *Acta Agronomica Sinica* 34:1366-73.

• **Summary:** “A total of 4,877 accessions of adzuki bean (*Vigna angularis*) are conserved in National Germplasm Conservation Center in China, but only a few of which have been used in adzuki bean improvement programme. Establishing a core collection of adzuki bean can simplify management and enhance utilization of genetic resources in adzuki bean research programmes.”

1183. Pettid, Michael J. 2008. Korean cuisine: An illustrated history. London: Reaktion Books. 223 p. Illust. (color). Maps. Index. 23 cm. [118 + 110 endnotes]

• **Summary:** This is the best book seen to date on this subject. “Korean words are transliterated into English using the McCune-Reischauer system and Chinese words by the Pinyin system.” The book uses Korean words liberally, which we find very helpful. The many color photos on glossy paper also help to clarify the text. Contents: Daily foods. Ritual and seasonal foods. Regional specialties. Drinks. Foods of the royal palace. The kitchen space and utensils. Food in contemporary Korea.

Page 36: Rice mixed with beans (*k'ong pap*) was another way to stretch the rice supply; today it is common in many homes and restaurants. Black [soy] beans were generally used to make this dish. They were soaked overnight before being cooked with the rice. However, on the Harvest Festival (*Ch'usok*), the 15th day of the 8th lunar month, beans that are not quite fully ripened are added to the rice and cooked as is—to make the special holiday dish named *ch'ongdae k'ong pap*.

Pages 38-39, 101: The popular rice dish, Pipim pap [Bibim pap], probably developed from foods eaten by farmers when cooked rice (or other grains) was mixed with whatever vegetables were at hand. Nowadays, soybean sprouts (*k'ong namul*) are an essential ingredient.

Page 107, 109: In Pyongyang Province of today's North Korea, one of the most famous foods is *mandu* dumplings; in this area they are stuffed with beef, pork, kimch'i, [soy] bean sprouts, and the like.

Page 109: In Hamgyong Province, which occupies the northernmost reaches of the Korean Peninsula, the climate is harsh and the winter are long and cold. Rice is rarely grown here, but dry-field crops such as soybeans, millet and potatoes are grown in abundance.

The foods of northern Korea tend to be less spicy than

those grown in the south. “Perhaps most important to the flavour of Korean foods are the seasonings made from soybeans: *toenjang* (soybean paste) and *kanjang* (soy sauce). Sprouts from soybeans (*k'ong namul*) are eaten as a side-dish or added to soups and stews...” (p. 40).

Note: We find it interesting that in this detailed book on Korean cuisine, no mention is made of *chungkukjang* / *chongkukjang* (Korean natto). This may be an indication that this food is no longer of much importance in Korean culture. Address: Asst. Prof. of Korean, Dep. of German, Russian, and East Asian Languages, Binghamton Univ., England.

1184. **Product Name:** Tempeh.

Manufacturer's Name: Smiling Hara.

Manufacturer's Address: Candler, North Carolina. Blue Ridge Food Ventures kitchen.

Date of Introduction: 2009 October.

Ingredients: Water, soybeans, culture.

Wt/Vol., Packaging, Price: 1 lb.

How Stored: Frozen

New Product–Documentation: Talk with Chad Oliphant of Smiling Hara. 2012. May 12. Chad and his wife, Sarah Yancey started the business together. Its official / legal name is Smiling Hara. The company operates out of Blue Ridge Food Ventures kitchen in Candler, North Carolina—about 7 miles west of Asheville. Chad and his wife live in Mars Hill, North Carolina—about 20 miles north of Asheville. Asheville is near the eastern edger of the Great Smoky Mountains National Park. Chad is the executive manager of Smiling Hara (involved with sales, deliveries, overseeing and marketing) and she is the administrative manager, involved with administration, bookkeeping and raising a 2-year old child. He has a production manager, as well as a tempeh maker—four employees making the tempeh.

Chad knows how to make tempeh. He was the first tempeh maker, then he taught his wife how, and they made tempeh together. As the company has grown, they hired new people.

They started selling Soy Tempeh in Oct. 2009. He had been in development for about a year before starting. He learned how to make tempeh at the Kushi Institute, and then from *The Book of Tempeh*, by Shurtleff and Aoyagi. He has not read *Tempeh Production* (\$39.95 on Amazon.com) or *History of Tempeh* (2012, on Google Books). Their two main initial accounts were restaurants.

The company typically makes 700 lb of tempeh in a production run; before the recall, they were typically doing 2 production run a week and sometimes two.

In the summer of 2010 they introduced black bean tempeh, black-eye pea tempeh, azuki tempeh, and yellow split pea tempeh; none of these contain soybeans. They are softer than soy tempeh and the proper cooking time is the key to their texture. He initially sold these innovative, specialty tempeh products at farmers markets.

On Wed. 25 April 2012 Chad learned that his tempeh had a health problem. He began the first tempeh recall ever in the United States. He now knows that the starter he was buying was the cause of the problem; it was tested and shown to contain a rare strain of *Salmonella* bacterium, named *Salmonella paratyphi* B. To date, so far as Chad knows, 60 people have gotten sick (half from consuming tempeh, and half through person to person contact) and 7 have been hospitalized.

1185. Bryant, Terry. 2009. Vegan soul kitchen: fresh, healthy, and creative African-American cuisine. Cambridge, Massachusetts: Da Capo Press. xxvii + 223 p. + 8 unnumbered pages of plates. Illust. (some color). Index. 24 cm. [25 ref]

• **Summary:** A unique and pioneering book with 150 recipes! Terry is an African-American man with many distinctions and awards. Accompanying each recipe is the name of a musical soundtrack the author likes and would like to share. Each recipe also has headnotes.

Soy-related: Cajun Creole-spiced tempeh pieces with creamy grits (p. 10-11). Open-faced BBQ tempeh sandwich with carrot cayenne coleslaw (p. 12-13, incl. a brief introduction to tempeh). Pan-fried coconut tempeh cubes with creamy celeriac sauce (p. 50). Spice mafé tempeh (p. 95-96). Tempeh, shiitake mushroom and cornmeal dumpling stew (p. 97-98).

One chapter (p. 139-53) is titled: "Protein routine: beans, tofu, tempeh, seitan." Red beans [azuki] and brown rice with red wine-simmered seitan. Rosemary toasted tofu cubes. Blackened tofu slabs with succotash salsa (with a brief introduction to tofu. "Think of tofu as a blank canvas on which you can creatively arrange colors to make a beautiful work of art"). Tempeh-stuffed bell peppers. Good green tempeh packet. Whole-grain mustard and cornmeal crusted seitan. Smothered seitan medallions in mixed mushroom gravy.

On the front cover is a photo of the author cooking. For one page about the author, see p. 217 or www.bryant-terry.com. Address: Eco-chef, food justice activist, and author, Oakland, California.

1186. Lewis, Lynn. ed. 2009. The food of Asia: a journey for food lovers through China, India, Japan & Thailand. Sydney, Australia: Murdoch Books Pty Ltd. 504 p. Illust. (color). Index. 30 cm.

• **Summary:** A gorgeous, artistically designed book, printed on glossy paper, with spectacular color photos on every page.

Contents: The food of Asia: China, India, Japan, Thailand. Snacks. Starters and salads. Soups. Seafood. Poultry. Meat. Tofu, legumes & vegetables. Noodles & rice. Accompaniments & side dishes. Desserts. Breads, rice & basics. Glossary.

"China has one of the great cuisines of the world."

Japan: "... combines delicate, subtle tastes and textures, always prepared with a light hand and sublimely presented to appeal to the eye as well as the tastebuds."

Soy-related: Inari sushi (p. 22-23). Tofu rolls (from China, with firm tofu and tofu skins [yuba], p. 76-77). Chilled tofu with ginger and spring onion (from Japan, with "600 gm block silken firm tofu," p. 78-79). Tofu dengaku (from Japan, with "700 gm firm {cotton} tofu" and "100 gm red or white miso paste," p. 94-95). Tofu and spinach soup (from China, with "120 gm soft tofu, drained," p. 100-01). Stuffed tofu soup with prawns (from Thailand, p. 102-03). Ramen noodles with soy broth (from Japan, p. 104-05). Agedashi tofu (from Japan, p. 110-11). Fragrant tofu and tomato soup (from Thailand, p. 124-25). Ten-treasure soup (from China, with 450 gm firm tofu, p. 126-27). Salmon and tofu balls (from Japan, p. 150-51). Steamed mussels with black bean sauce (from China, with "1 tablespoon salted, fermented black beans, rinsed and mashed," p. 178-79). Clams in yellow bean sauce (from China, with "2 tablespoons yellow bean sauce," p. 178-79). Soy chicken (from China, with dark soy sauce and light soy sauce, p. 214-15). Shanghai soy duck (with light and dark soy sauce, p. 236-37). Shabu shabu (from Japan, with "150 gm firm {cotton} tofu," p. 258-59).

Tofu, legumes & vegetables: Ma Po tofu (from China, "A quintessential Sichuan dish... Soft tofu is traditionally used," p. 298-99). Braised tofu with Chinese mushrooms (from China, p. 304-05). Fermented tofu with Asian greens (from China, with "3 tablespoons fermented white tofu," p. 304-05). Mushrooms with tofu (from Thailand, p. 308-09). Miso tofu sticks with cucumber and wakame salad (from Japan, with "500 gm silken firm tofu, well drained" and "3 tablespoons white miso paste," p. 310-11). Stuffed tofu (from China, p. 314-15). Stir-fried tofu in yellow bean sauce (from China, p. 314-15). Buddha's delight (from China, with "50 gm tofu puffs {deep-fried cubes of tofu}," p. 322-23). Soft tofu with chilli and spring onion (from China, p. 328-29). Braised tofu (from China, p. 328-29). Mock duck (from China, with homemade wheat gluten, p. 338-39). Beans with sesame miso dressing (from Japan, p. 392-93). Shiitake simmered in soy [sauce] (from Japan, p. 408-09). Three ways with sauces (from Japan, Ponzu, Sesame seed sauce, and Tempura dipping sauce, with soy sauce, p. 484-85). Three sauces (from China, Soy and vinegar dipping sauce, Soy, vinegar and chilli dipping sauce, Soy, chilli and sesame dipping sauce, with soy sauce, p. 487-88).

Glossary of Asian food and cooking (p. 492+): Aburage, dal (dhal), edamame, fermented tofu ("It is sometimes called preserved tofu or tofu cheese and is used as a condiment or flavouring"), hoisin sauce, inari abura-age (used to make inarizushi), Japanese mustard, Japanese soy sauce (shoyu), ketchup manis ([kecap manis] "A thick, sweet soy sauce used as a flavouring"), kuzu, mirin, miso, nori, paneer, ponzu, red bean paste ("Made from crushed adzuki beans and sugar..."),

salted, fermented black beans (soya beans), sesame paste, sesame seeds, Shaoxing rice wine, soya beans, tofu, wakame, yellow bean sauce.

1187. Silverstone, Alicia. 2009. *The kind diet: a simple guide to feeling great, losing weight, and saving the planet*. Emmaus, Pennsylvania: Rodale Press. Distributed to the trade by Macmillan. xi + 308 p. Foreword by Neal Barnard. Illust. (color photos by Victoria Pearson). Index. 24 cm. [17 + 71 endnotes*]

• **Summary:** On the cover: “New York Times Bestseller.” A powerful, very popular book about a plant-based (vegan) lifestyle and diet, which calls for only “real food,” with some nice macrobiotic flavor—A whole grain dish should be at the center of every meal, use of seasonal foods organically grown, azuki beans, daikon, kuzu, kabocha, miso, mochi, nori, sea vegetables, seitan, shoyu, no white or cane sugar (a “crazy making” food), tamari, umeboshi, etc.

By a well known actress who first became widely known for the film *Clueless*, a 1995 American comedy film loosely based on Jane Austen’s 1815 novel, *Emma*.

She dedicates the book to Sampson, a stray dog she picked up on the streets of Los Angeles, to all animals who suffer needlessly, and to all “who do their best to tread lightly on the earth.”

The index contains 16 entries for tofu, 14 for miso, 11 for seitan, 4 for soybeans (whole dry), 3 for soy milk, 2 each for edamame and tempeh, 1 each for butter substitute (soy-based margarine, p. 142-43), cheesecake—tofu, cheese—vegan (p. 143), shoyu (p. 142), sour cream—soy (p. 143), soy candles (p. 134), and tamari (p. 142).

Some good quotations from a fine writer: “And what about your health?... What if I told you that, by eating a plant-based diet, you will strengthen your immune system, beautify your skin, increase your energy, and reduce your risk (significantly) of cancer, heart disease, diabetes, arthritis, osteoporosis, allergies, asthma, and almost every other disease? What if I said that I feel myself getting younger, more powerful, and more beautiful as I age simply because of *what I eat*?... If you want to lose weight, you’ve come to the right place (p. 1).

“Eating a plant-based diet is the most ecologically friendly thing you can do... Every time you purchase organic plant-based food, you are protecting the quality of the soil and participating in a more equitable distribution of resources. Conversely, every time you buy a mass-produced steak—packaged in Styrofoam and plastic—you are feeding a huge, unsustainable, toxic death machine. This may sound harsh, but it’s the truth! There’s a whole world of consequences behind every decision we make” (p. 131).

A large color photo on the cover shows lovely Alicia Silverstone, seated, with a bowl of food in one hand. The book contains many fine color photos on glossy paper.

Address: Actress, activist, and committed conservationist,

Los Angeles, California.

1188. Walters, Terry. 2009. *Clean food: a seasonal guide to eating close to the source, with more than 200 recipes for a healthy and sustainable you*. New York, NY: Sterling. 290 p. Illust. (Color). Index. 24 cm.

• **Summary:** This vegan cookbook, with a strong macrobiotic flavor and 223 recipes (arranged by season), shows you how to eat seasonal, unprocessed, and locally-grown foods that are good for people and the environment.

On pages 17-18 is a section titled “Soy” in which the author describes her belief that “there is so much information about whether soy is healthy or not.” We have rarely seen a short section on soy containing so many clearly false or misleading statements as this one—too many to list. Clearly she gets her information about the nutritional value of soy from the Web rather than from scientific journals. Nevertheless she recommends and uses miso, tempeh, tamari / shoyu, and tofu.

The glossary of foods likewise contains many errors. For example: Aduki beans: Misspelled. Fermented black beans: She fails to mention that these are soybeans. Gomasio: Misspelled. Tempeh: “Made from pressed and fermented soybeans.” Tofu: “Made from soybean curd.”

The index contains 23 recipes for tofu, 9 each for miso, and tempeh, 3 for shoyu, and 4 for tamari. Address: Connecticut.

1189. Vollmann, Johann. 2010. Re: Exhibition at the Ethnology Museum in Vienna, Austria, includes various small paper bags labeled (in Japanese) “kuro mame.” Letter (e-mail) to William Shurtleff at Soyinfo Center, March 2. 1 p. [Eng]

• **Summary:** “At present, there is an exhibition taking place at the Ethnology Museum in Vienna, Austria, on the occasion of the 140th anniversary (2009) of the setting up of diplomatic relations between Japan and Austria in 1869. This was an issue of the opening of Japan to the Western world after the end of the Edo period. And a couple of years later, Japan participated in the Vienna expo of 1873 and again thereafter the Haberlandt experiments had started.”

“In that present exhibition, a wooden box containing bags with Japanese food, ‘beans,’ tobacco, rice, medicals is presented. Mr. Takashi Sato, a Japanese PhD student of mine in Vienna has identified a bag entitled ‘kuro mame’ which means black beans. There is a possibility that these ‘beans’ are soybeans, perhaps the ones Haberlandt had seen during the expo in 1873 and of which he received his first seed samples (before ordering other early maturity samples). I contacted the curator of the exhibit. She believes that the signs on the bags read like black beans, but she does not know whether this means soybeans or not. (And we do not yet know what is inside!).

“I have copied a few color photographs for you onto

my web site, where you could see the box and bags from the exhibition.

"I would be happy to hear your opinion on the 'black beans' bag. Could this be a soybean?"

"Kind regards. Johann."

Shurtleff replied: "Dear Johann.

What treasures! It never occurred to me that such objects might be saved. I lived in Japan for 6 and a half years and still speak quite good Japanese, especially on subjects related to soy.

"In Japanese 'kuro mame' does indeed mean literally 'black beans.' However this term is used in Japanese *only* to refer to black soybeans, and should be translated 'black soybeans.' Mr. Sato will surely be aware of the widespread use of this term at the time of the Japanese New Year when *kuro mame* are one of the standard / required dishes.

"In his article 'Der Anbau der rauhhaaringen Sojabohne' (1877, table p. 261) Haberlandt states (referring to soybeans): 'Black from China (one original, one progeny), black from Mongolia (original), and black from Japan (original).' The paper bag confirms his black soybeans from Japan.

"In photo #5517 the right bag is labeled 'kuro mame.' The left bag is labeled 'maru kuro mame' ('round / whole black soybeans') and the middle bag bears the name of Siebold, referring to Philipp Franz von Siebold (1796-1866), the famous German physician and naturalist who wrote extensively about Japan and brought back a botanical garden and museum full of Japanese material, especially seeds and plants.

"Siebold's main trip to Japan lasted from Aug. 1823 to mid-1830—8 years. This was 50 years before the Wiener Ausstellung. Siebold was the first Westerner to sell soybean seeds in a seed catalog (his own), published in 1856 in Leyden (Netherlands) and Bonn. It would not be at all surprising or unusual if Haberlandt obtained that bag of soybeans from Siebold's organization.

"In photo No. 5524, a bag on the right is labeled 'kuro hira mame' which means literally 'black flat soybeans.'

"I think the probability that those carefully-labeled bags contain black soybeans is greater than 95%. What else could be in them? The only other possibility (very unlikely) is black azuki beans." Address: PhD, Inst. of Agronomy & Plant Breeding, BOKU—Univ. of Natural Resources and Applied Life Sciences Vienna, Gregor Mendel Str. 33, A-1180 Vienna, Austria.

1190. *SoyaScan Notes*. 2010. The first and second natural food movements in the United States: Differences and similarities (Overview). Aug. 19. Compiled by William Shurtleff of Soyinfo Center.

• **Summary:** There have been three major reform movements, or waves, related to food and health in the United States. Each has had its own philosophy or theory of

diet and health, its own periodicals, and, of course, its own founders, leaders, and teachers / lecturers. All three believed that there were certain natural laws of health and of the body which, if transgressed, would lead to sickness. The way to restore health was not (generally) to take medicines (which simply cover up the symptoms) but to stop the activity which was causing the sickness. All three believed in the healing power of nature, and advocated the return to a simpler, more natural way of living and eating. All three emphasized the importance of a good diet as the basis of good health, and (at least initially) all three advocated a diet based on traditional, natural foods, and avoidance of refined, highly processed, or artificial foods. Each new wave was bigger than the one before it and had more influence on American food culture.

The first natural foods movement, which started in 1953, had its headquarters in Atlanta, Texas. They published an excellent monthly magazine titled *Natural Food and Farming* from April 1954 until Aug. 1995 (Vol. 41, No. 2). Each issue was 8½ by 11 inches, and in 1957 a typical issue was 22 pages long.

The movement was based on an organization named "Natural Food Associates" (NFA) (founded in 1953), which had a large membership from the mid-1950s on, and had many nationwide chapters—such as the "Connecticut Natural Food Associates." Their basic missions were to raise awareness that our food system, soil, water, and bodies were being poisoned by a host of new agricultural chemicals (such as DDT), fluoridation, etc., and to provide an alternative for those who were concerned about their health and/or the environment: "natural foods grown on fertile soil eaten fresh and poison free" (April 1958, p. 6).

They encouraged people nationwide to start a vegetable garden and grow their own food using compost and without using chemical fertilizers or toxic pesticides. They were independent of but closely allied with and active in promoting the fledgling organic gardening and farming movement and the biodynamic farming movement (especially Ehrenfried Pfeiffer). As they watched with alarm as the fertility of the soil was being destroyed by large-scale chemical farming methods, they were especially active in linking the health of the body to the health of the soil.

They worked very hard, for example, to ban DDT and fluoridation and many of their leading members (PhDs and university professors) testified against it.

The founder, president and sparkplug of NFA was Joe D. Nichols, M.D., from 1954 until his death on 27 May 1992. Most of the officers and leaders of this movement were adults, and a large percentage were physicians (M.D.s), dentists, or in academia. They had annual nationwide conventions, and before long, regional and state chapters and conventions. They were very active and well funded—nationwide.

Note: In 1962 *Silent Spring* was published. In 1972 DDT was banned in the USA.

The second natural foods movement started in the mid-1960s and continued until the present. It was founded largely by young men and women who came of age during the period from 1960 to 1980. They discovered, to their surprise, that most food crops grown since the 1940s, were produced using chemical herbicides, pesticides, insecticides, and fertilizers. The safety of these agrichemicals had not been adequately tested. Moreover, many foods were then highly processed or refined, and contained added white sugar, preservatives, stabilizers, and other chemicals. It was quite difficult to obtain traditional, natural foods—even at health food stores. These young people, most of whom considered themselves part of the counterculture (they had fought against the Vietnam War and racial segregation, and for women's rights) decided to try to create a new food system. Some started companies to make new foods (from whole-grain breads and pastries to tofu and miso). Hundreds (eventually thousands) of others started new natural foods stores—which (for the first 10-15 years) sold many foods unpackaged in bulk, would not sell meat, refined foods, or foods containing sugar or chemical additives, pills, alcohol, or tobacco. From the beginning, the influence of macrobiotics, and of macrobiotic teachers such as Michio and Aveline Kushi (in Boston), Herman and Cornelia Aihara (in Chico, California), and George and Lima Ohsawa (world travelers from Japan) was strong. In fact, the 2nd natural foods movement actually started as a macrobiotic movement. They imported, introduced, and helped to popularize a host of foods from Japan—foods that most Americans had never heard of or tasted—such as brown rice, tamari soy sauce, azuki beans, sesame seeds, sesame salt (gomashio), soba (buckwheat noodles), udon (special wheat noodles), amazake, miso, sea vegetables (hijiki, wakame, kombu, nori, etc.), umeboshi (salt plums), kuzu, kabocha pumpkins, burdock root, jinenjo (glutinous yam), bancha twig tea, seitan, rice cakes, and mu tea. Erewhon was the first company to distribute many of these foods, and many of them gradually made their way into the American diet and language. Macrobiotics taught that whole grains should be the center of the diet—something many Americans had once believed but had long forgotten. Substances unfit for normal human consumption were white sugar, alcohol, dairy products, and all kinds of drugs.

Important early periodicals were East West Journal (Jan. 1971, Boston, macrobiotic), Vegetarian Times (March 1974, Chicago, Illinois), Health Foods Business (1973), Whole Foods (Jan. 1978, Berkeley), and Natural Foods Merchandiser (Feb. 1979).

Erewhon (Boston) was the first distributor of natural foods (fall 1969). Other early distributors were: Westbrae (July 1970, Berkeley, California), Erewhon—Los Angeles (summer 1970), Essene (Feb. 1971, Philadelphia), Eden Foods (June 1971, Ann Arbor, Michigan), Laurelbrook (Aug. 1971, Maryland), Shadowfax (1971, New York), The

Well (1971, San Jose, California), Janus (Jan. 1972, Seattle, Washington), Tree of Life (1972, St. Augustine, Florida).

“Pioneers and leaders included the founders and heads of the major distributing companies and periodicals. Plus Sandy Gooch (Mrs. Gooch's), Tony Harnett (Bread and Circus), Peter Roy and John Mackey (Whole Foods).

By the mid- to late-1970s, most of the health food distributors mentioned above were carrying a complete line of natural foods and distributing them to both health food stores and natural food stores.

Surprisingly, the natural foods industry has never developed its own trade association. Therefore the company that owns Natural Foods Merchandiser has used this opportunity to organize very successful trade shows at Anaheim, California, and Washington, DC each year, and to publish the industry's most important periodical.

In those heady days of the late 1960s and early 1970s it looked like America was headed into a peaceful, nonviolent revolution. Young people, the revolutionaries (“Power to the people!” “Don’t trust anybody over 30”) would be in the vanguard. They needed to develop new models for the rapidly approaching future. The Erewhon retail store at 342 Newbury Street that opened in Nov. 1968 was developed as a model new food store. Wooden walls, food in bins, only healthy natural foods. Fred Rohe's New Age Natural Foods in San Francisco was an early West Coast model retail store.

Erewhon was developed as a model wholesale distributor of the new foods. Many other new and successful companies modeled themselves after Erewhon.

The 2nd natural foods movement was largely vegetarian in addition to eschewing refined foods—and specially white sugar. The 1st natural foods movement advocated the eating of meat, poultry, and fish as good sources of protein.

Soyfoods were a major part of the 2nd natural foods movement, but a very minor part of the 1st. Address: Soyinfo Center, P.O. Box 234, Lafayette, California 94549.

1191. Product Name: Black Bean Tempeh, Black-eyed Pea Tempeh, Azuki Tempeh, and Yellow Split Pea Tempeh.

Manufacturer's Name: Smiling Hara.

Manufacturer's Address: Candler, North Carolina. Blue Ridge Food Ventures kitchen.

Date of Introduction: 2010 August.

Ingredients: Made with the use of soybeans.

Wt/Vol., Packaging, Price: 1 lb.

How Stored: Frozen

New Product—Documentation: Talk with Chad Oliphant of Smiling Hara. 2012. May 12. In the summer of 2010 they introduced black bean tempeh, black-eye pea tempeh, azuki tempeh, and yellow split pea tempeh; none of these contain soybeans. They are softer than soy tempeh and the proper cooking time is the key to their texture. He initially sold these innovative, specialty tempeh products at farmers markets.

1192. Andoh, Elizabeth. 2010. *Kansha: Celebrating Japan's vegan and vegetarian traditions*. Berkeley, California: Ten Speed Press. vii + 296 p. Illust. (color photos by Leigh Beisch). Index. 25 x 25 cm.

• **Summary:** A beautiful book, and a major contribution toward understanding Japanese cuisine, culture, and the pervasive spirit of gratitude / appreciation. In Japanese, *kansha* means appreciation or gratitude. Contents: Acknowledgments. Introduction: A historical perspective on *kansha* (*shojin ryori* is vegan), recent developments, putting theory into practice, practicing *kansha*, meal planning, some final thoughts, a note about language. Rice. Noodles. Stocks and soups. Fresh from the market. The well-stocked pantry. Mostly soy. Tuskémono [pickles]. Desserts. A guide to the *kansha* kitchen. A catalog of tools and techniques. A catalog of ingredients [glossary]—with entries that include the following: daikon, edamame, flours (kinako), kudzu, herbs, spices and seasonings (ao nori, sansho, shiso, togarashi, wasabi), kabocha, dried beans (adzuki [sic], daizu {dried soybeans—the most important legumes in the Japanese pantry}), dried soy foods [sic] (hoshi yuba {dried yuba}, koya-dofu / kori-dofu). Dried vegetables from the land (dried shiitake mushrooms). Dried vegetables from the sea (arame, hijiki, kanten, kombu [konbu]). Dried wheat gluten. Kasu (sake dregs). Konnyaku and shirataki. Matcha. Miso (red miso, white miso, genmai miso). Mushrooms. Natto. Nigari. Nuka. Okara. Pickles. Rice. Roots and tubers. Saké. Salt. Sesame (seeds, sesame paste, sesame oil). Soy milk. Soy sauce. Sweeteners (ama-zaké, kuro-zato, mirin, mizu amé). Tofu (firm tofu, silken tofu, grilled tofu, thin fried tofu {abura agé}, thick fried tofu {atsu agé}).

Tsukemono (pickles). Umeboshi (pickled plums). Vinegar. Yuzu. Yuba.

Note: This is the earliest English-language document seen (April 2013) that uses the term “thick fried tofu” to refer to *atsu agé* / deep-fried tofu cutlets.

Contains many recipes that use tofu, miso, soy sauce, edamame, natto, etc. Address: Japan.

1193. Hensall District Co-operative. 2010. *Azuki bean production guide (F#5B)*. Ontario, Canada: Hensall District Co-operative *

1194. Nishimura, Mayumi. 2010. *Mayumi's kitchen: Macrobiotic cooking for body and soul*. Tokyo, New York: Kodansha International. 157 p. Illust. (mainly color). Index. 26 cm. [15 ref]

• **Summary:** This is Mayumi's first English-language book. Madonna (of worldwide musical fame) wrote her a letter that appears in this book (p. 7): “Dear Mayumi, Congratulations on your fabulous book!... Not only are you the best chef in the world, you are part of our family, and we thank you for your love and warmth.

“In the seven years you lived with us and cooked for us, your amazing food helped me to be a happier, healthier person, balanced in body and mind. I feel better than I did 20 years ago. I am very grateful to you for this.”

The index of this stylish book contains 24 entries for tofu (some in the chapter titled “Protein dishes”—p. 97-104), 20 for miso, 14 for seitan, and 11 for tempeh. How nice to find a Japanese cookbook that calls for the use of brown rice (basic recipe, p. 67).

The centerpiece of Mayumi's book is her 10-day detox diet.

Also contains specific recipes for: Nabe (with “2 pieces abura-age {deep-fried tofu skins}, halved or cut open on one side to form pouches,” p. 67). Soybean and millet croquettes with beet sauce (with “15 oz {425 gm} canned soybeans, drained,” p. 84). Seitan pot stickers (with seitan and tofu, p. 113). Smoked tofu salad (with “7 oz {200 gm} firm tofu,” p. 104). Black soybean tea (p. 113).

The Glossary (p. 140-49) includes entries for: abura-age, adzuki beans, brown rice, brown rice mochi, edamame, hijiki, kombu, koyadofu, kuzu, mirin, miso, nori, rice milk, rice syrup, seitan, sesame oil, shiso, shoyu (incl. soy sauce and tamari), soba, soy meat nuggets (TVP), soymilk, tahini, tempeh, tofu, umeboshi plum, umeboshi plum paste, wakame, wasabi, whole-wheat flour.

About the author (inside rear dust jacket): “Mayumi Nishimura was born on the small island of Shinojima in Aichi Prefecture [in Mikawa Bay Quasi-National Park]. In 1982 she moved to the U.S. and began studying macrobiotics under Michio Kushi—the leading authority in the field—at the Kushi Institute. Later she worked at the school as head cooking instructor. In 2001 Mayumi became Madonna's private macrobiotic chef, joining her on her Drowned World Tour. Between 2001 and 2008 she cooked for the superstar full-time. Currently Mayumi travels between Japan, where she writes and lectures on macrobiotics, and the U.S.” She has written four books published in Japanese. A large color photo of Mayumi, standing, holding a dish of food, appears on the front dust jacket.

The book is dedicated to Mayumi's children, Lisa and Norihiko, to her parents, and to Michio Kushi and his wife, Midori.

1195. Hill, John W. 2011. *How to live on wheat*. 3rd ed. New and expanded. Published by the author on Createspace. 134 p. No illust. No index. 23 cm. [20 ref]

• **Summary:** This book is about storing food for security and survival. Wheat is high in protein, ranging typically from 13-20%. The hard types of wheat are used for bread and the soft types for pasta.

Pages 22-23: In the section on legumes, is a subsection on soybeans. “Soybean products [soyfoods] include tofu, tempeh, textured vegetable protein, soy sauce, miso and hundreds of others.” Soybeans can be sprouted and the flour

added to bread mixes [to improve the protein quality].

Pages 25-290 discuss anti-nutrients in grains and legumes.

Page 33: The recipes in this book emphasize wheat/legume combinations as discussed in *Diet for a Small Planet* by Frances Moore Lappe. The amino acid most lacking in wheat is lysine.

Pages 52-53: Describes briefly how to sprout soybeans.

Page 57: Has a recipe for “Sprout burgers” containing 1 cup soybean sprouts and 1 cup other bean sprouts (mung, adzuki, etc.).

Page 101: “Making gluten meat substitute.” It can be delicious but wasteful. The word “seitan” is not used.

Pages 115-18: A solid section on tempeh contains these recipes: How to make tempeh [on a home scale]. Making tempeh starter [over-simplified]. Fried tempeh. Tangy tempeh with peanut sauce. Tempeh chili. Two sources of tempeh starter.

1196. Vos, Heidemarie. 2011. *Passions of a foodie: An international kitchen companion, A to Z*. Durham, Connecticut: Eloquent Books. An imprint of Strategic Book Group. 598 p. 26 cm.

• **Summary:** Best-selling author Heidemarie Vos recounts a fascinating story and her journey of putting together the world’s first cross-referenced book regarding food—using more than five languages. This cookbook [which contains no recipes] will become an invaluable resource for your kitchen (from the publisher).

The Introduction states: “There are 7922 entries, 300,017 words... based on my own travels to 6 continents and over 40 countries.” Note: This is somewhere between a dictionary (in 5+ languages) or brief encyclopedia of food names. It immediately sets the language and cultural context for each word, and ends with broader or narrower terms. For example: “Aburage: Japanese cooking = A fried bean curd... Also see Bean Curd.” It contains more than its share of errors and outdated terminology and spellings. It is a “print on demand” book.

It includes: Aburage. Adzuki beans [sic], Agé. Aji Nomoto [sic], see monosodium glutamate. Aka miso—red bean paste. See Miso. Almond milk. Almond oil. Arachide / Arachis. See Peanut. Arachide oil. See Peanut oil. Bean cake, fermented: Chinese cooking, “fu yu” [fermented tofu]. Bean curd, pickled: Chinese cooking. [What is it?]. Bean curd cheese, red: Chinese cooking, “nam yu” or “nan yu” [red fermented tofu]. Bean curd: Oriental cooking. Known as “tofu” in Japanese or “dow fu” in Chinese. Pressed bean curd is “dow fu kon” [dofu-gan, pressed tofu].

“Bean curd, dried [yuba]: Chinese cooking = Known as ‘tiem jook’ [sweet yuba] / ‘fu jook pei’, other dialects are ‘t’ien ch’u’ and ‘fu pi chi’. It is soybean milk residue, which comes in a thin rectangular sheet or is curled into round sticks. They are usually tan- or cream-coloured with a shiny,

glossy smooth texture.”

Bean paste, red: Chinese cooking. “Made from soybeans and sugar mashed together then fried and dried out until it resembles sand.” Used to fill Chinese moon cakes. Bean sauce, Chinese: Chinese and Asian cookery. Many types including “min see jiong” or “do bahn jiang.” Incl. “Black bean sauce.” Beans, black: Chinese cooking. “A pulse [sic] known as ‘wu dow’ / ‘wu do’ [Black soybeans].

“Beans, black salted fermented: Chinese cooking = Known as ‘dow si’ / ‘dou shih,’ used as a vegetable or spice. Known as ‘wu dow’ dried and salted. They are dull, wrinkled, moist and tender and have an appetising fragrance, yet are pungent with a tangy salty flavor. Used as a flavor enhancer in dark sauces.” Keep covered so they do not dry out... “Must be rinsed prior to use to avoid over-salting. Store in a closed jar in the refrigerator after opening.”

Bean sprouts: Asian cooking [small green are mung bean sprouts, large yellow soybean sprouts]. Benne seeds: Sesame seeds are used to make sesame oil and tahini (sesame paste). Black beans, Chinese. Also known as ‘salted black beans’ or ‘fermented black beans’ and as ‘dow si’ (Chinese). China beans: See Soya / soy bean. Earth nut: See Peanut. Edamame: Japanese cooking. “Fresh soybean in or out of the pod.” Firm tofu. Fried tofu puffs. Ground nut: See peanut. Hard tofu. Hydrogenated fats. See fats. Miso. Naahm yu: Chinese term. “A cheesy-looking bright red bean curd sauce” [Red fermented tofu]. Nam yu / Nan yu: See Bean curd cheese, red. Shoyu: Japanese cooking. Japanese soy sauce. Soy bean / Soya bean.

Glycine soja, also known as “‘China beans,’ ‘Butter Beans’ and ‘Haricot de Java’ (French).”

Note. This is the earliest (and only) document seen (Aug. 2014) that contains the term *Haricot de Java* used to refer to the soybean.

Soy bean jam / condiment. See Main see. Silken tofu. Silken firm tofu. Soya oil. Soya sauce. Soy sauce. Tamari soy sauce. Tofu. Tofu tempeh [sic].

Not listed: Amazake. Lecithin. Daitokuji natto. Fermented black beans. Hamanatto. Kudzu. Kuzu. Meat alternatives. Meat substitutes. Milk alternatives or substitutes. Milk, nondairy. Milk, soy. Natto. Seitan. Soy milk. Soy protein concentrate. Soy protein isolate. Soy protein, textured. Tempeh. Teriyaki sauce. Yuba.

Errors: Arame is not also known as “Hijiki.” Address: Port Elizabeth, South Africa.

1197. Kramer, Christopher; Soltani, N.; Robinson, D.E.; Swanton, C.J.; Sikkema, P.H. 2012. Control of volunteer adzuki bean in soybean. *Agricultural Sciences* 3(4):501-09.

• **Summary:** “Abstract: The objective of this research was to evaluate the efficacy of various pre-emergence (PRE) and post-emergence (POST) herbicides for the control of volunteer adzuki bean (*Vigna angularis* (Willd.) Ohwi & Ohashi) in soybean (*Glycine max* L.). Trials were conducted

at two locations in 2005, 2006, 2007, and 2009.”

“Introduction: Production of adzuki bean (*Vigna angularis* (Willd.) Ohwi & Ohashi) in Ontario has grown over the last few years, and may continue to expand. From only 18 MT in 1994 [1], exports to Japan have reached approximately 5500 MT in 2005, with an additional 2500 MT exported to Taiwan [2].” Address: University of Guelph, Ridgetown Campus, Ridgetown, Canada.

1198. Product Name: Barry’s Azuki Bean & Brown Rice Tempeh.

Manufacturer’s Name: Grown in Brooklyn.

Manufacturer’s Address: Queens, New York 11232.

Phone: 718-321-3211.

Date of Introduction: 2013.

Ingredients: Cultured organic azuki beans, organic long grain brown rice, distilled white vinegar (distilled with water to 5% acidity).

Wt/Vol., Packaging, Price: 1 lb.

How Stored: Frozen.

New Product–Documentation: Label. 2019. Nov. 18.

Interview with Barry Schwartz. Nov. 17. 1987. Sept. 9.

1199. Shurtleff, William; Aoyagi, Akiko. comps. 2014. History of soybeans and soyfoods in Japan, and in Japanese cookbooks and restaurants outside Japan (701 CE to 2014): Extensively annotated bibliography and sourcebook. Lafayette, California: Soyinfo Center. 3377 p. Subject/geographical index. Printed 19 Feb. 2014. 28 cm. [11505 ref]
• Summary: This is the most comprehensive book ever published about the history of soy in Japan. It has been compiled, one record at a time over a period of 35 years, in an attempt to document the history of this ancient and interesting subject. It is also the single most current and useful source of information on this subject.

Contents: Search engine keywords. Dedication and acknowledgments. Introduction: Brief chronology / timeline of soy in Japan. About this book. Abbreviations used in this book. How to make best use of this digital book–Three keys. 445 pages of photographs and illustrations. Contains 445 photographs and illustrations. <http://www.soyinfocenter.com/pdf/173/Japa.pdf>.

Brief chronology of soy in Japan:

701 CE–The Taiho Law Codes (*Taiho Ritsuryo*), by Emperor Monmu, which some regard as Japan’s first constitution, is the earliest document seen that mentions soyfoods (and by implication soybeans) in Japan. It is also the earliest document outside of China to mention fermented black soybeans (FBS), which it calls “kuki” or “shi.” These law codes established the Hishio Tsukasa, or Bureau for the Regulation of Hishio Production, Trade and Taxation. The Hishio Tsukasa, located in the Imperial Palace, was an annex of the emperor’s kitchen, where hishio was made. Using methods very similar to those developed in China, it

transformed soybeans into hishio (which resembled Chinese jiang), fermented black soybeans (kuki or shi), and miso (an ancestor of miso; the term “miso” had not yet been coined). These foods and seasonings were consumed at the Imperial Household (Shurtleff & Aoyagi 1978, p. 219). FBS are again mentioned in Japan in 718, 730, and 923.

In 675 the first prohibition of meat eating in Japan was promulgated by Emperor Tenmu. Similar decrees, based on the Buddhist prohibition of killing, were issued repeatedly by emperors during the eighth and ninth centuries. Soyfoods gradually began to supply the savory flavor and protein that formerly had come from meat. Not until the 1860s did meat-eating resume in Japan, and not until after World War II did it become part of Japanese culture (Ishige 2001, p. 52-55, 146-153).

712 CE–The mythical story of the origin of the soybean in Japan is told in the *Kojiki* (Record of Ancient Matters).

720 CE–The mythical story of the origin of the soybean in Japan is told again in the *Nihon Shoki* / *Nihongi* (Chronicles of Early Japan).

725 CE–The Harima no Kuni Fudoki [Geography and Culture of Harima province], from Japan, is the first document that mentions koji outside of China. It states that by the early 8th century in Japan, koji was being made using airborne koji molds.

741 CE–Two new Buddhist temples are added to each feudal domain (kuni) in Japan: Kokubunji is for monks and Kokubunniji is for nuns. It is said that from this time, fermented black soybeans (tera natto, or shiokara natto) spread throughout Japan. They are made from soybean koji, which is soaked in salted water and dried.

760 CE–The *Manyoshu* (Collection of Japan’s Earliest Songs and Poems) (from 350-759 CE) mentions koji—the 2nd earliest Japanese work to do so.

794 CE–The capital of Japan is relocated to Kyoto from Nara. The Heian period (794-857) begins. 901-08 CE–The modern word for miso first appears in Japan in the *Sandai Jitsuroku*.

927 CE–The *Engishiki* is completed by Fujiwara no Tokihira (871-811) and others. In this book it is written: “In the feudal domain of Omi 60 koku of soybeans [1 koku = 47.6 gallons or 180 liters], in the domain of Tanba 30 koku, in the domain of Harima 20 koku, in the domain of Misa 10 koku, and in the domain of Iyo 10 koku are recommended (*susumu*).” It seems that the soybean was now an important crop in Japan.

1051-1083–The origin of natto is obscure. According to legend, it was discovered accidentally in northeast Japan by Minamoto (Hachimantaro) Yoshiie when warm, cooked soybeans, placed in a rice-straw sack on the back of a horse, turned into natto. The warmth of the horse (106 deg. F.) helped the fermentation; natto prefers 104 deg. F.

1058-1068–The word “natto” first appears in Japan, but it refers to “salty natto” (*shiokara natto*) (fermented black

soybeans) rather than to “sticky soybeans” (*itohiki natto*). In about 1068 salty natto are first mentioned in Japan in the book *Shin Sarugakki*, [New Monkey Play Story: A humorous novel...] by Fujiwara no Akihara (lived 989-1066).

1183 Jan.—Tofu is first mentioned in Japan in the Diary of Hiroshige Nakaomi.

1192—The Kamakura period and shogunate begins as Minamoto no Yoritomo (1147-1199) becomes the first head shogun. The seat of power has been moved from Kyoto (where the emperor resides) to far-away Kamakura, near today's Tokyo.

1228—The Buddhist monk Kakushin returns to Japan from Song / Sung dynasty China having learned the method for making fermented Kinzanji miso. While fermenting the miso in Japan, he discovers that the liquid (tamari) which gathers on the bottom of the vats can be used as a tasty seasoning. This tamari is considered to be the first soy sauce in Japan.

1275 July 26—Edamamé (green vegetable soybeans in the pods) are first mentioned in Japan (or worldwide) in a letter from Nichiren, the Japanese Buddhist saint. In a letter to Mr. Takahashi, one of the parishioners at his temple, he says “Thank you for the edamamé.”

1288-1292—Tamari-style shoyu is first sold from Yuasa in the Kishu area (in today's Wakayama prefecture).

1405 Dec. 19—Natto (*itohiki natto*) is first mentioned in the diary of Noritoki Fujiwara; it is called *itohiki daizu* (“stringy soybeans”).

1450—The word “natto,” referring to *itohiki-natto*, is next used in Japan in the *Shojin Gyorui Monogatari*. This is a funny story about foods that are depicted as people and a battle for rank between vegetarian and nonvegetarian foods. Natto, called “Natto Taro” or “Natto Taro Itogasane” (the last word meaning “many threads”) is given a high rank. 1540?—*Mame no ko*, the early Japanese word for roasted soy flour, first appears in the Nyôbô Shitsukegaki [Women's Book of Manners]—according to the *Nihon Kokugo Daijiten*. 1542 Jan. 1—*Mame no ko* appears again in the *Tamon-in Nikki* [Tamon-in Diary]. 1587 June 19—Kinako, the modern Japanese word for roasted whole soy flour, first appears in the *Sotan Chakai Kondate Nikki* [Master Sotan's Tea Ceremony Cookery Menu Diary]—in the morning menu. 1603—*Vocabulario da Lingoa de Iapam* [Vocabulary of the Language of Japan], a Japanese-Portuguese dictionary, is compiled and published by Jesuit missionaries in Nagasaki, Japan. There are entries for:

Abura ague [Abura-agé, deep-fried tofu pouches]

Amazaqe [Amazake], a still-bubbling fermented liquid that has not yet completely become sake; or sweet sake.

Azzuqi or azzuqui [azuki beans].

Cabe [Kabe]. Same as tofu.

Côji [Koji], a yeast [sic] used in Japan to make sake, or mixed with other things

Daizzu [Daizu, whole dry soybeans].

Dengacu [Dengaku]. Dancing monks or skewered tofu spread with miso and broiled.

Fanben [Hanben]. A type of food which is made by broiling tofu and simmering it with miso.

Icchô. A way of counting some types of food, such as tofu.

Miso. A kind of mixture which is made with grains [grains, seeds, kernels], rice, and salt to season Japanese soups.

Miso coxi [Misokoshi], a bamboo strainer used for straining miso. Miso ya, a shop that sells miso. Miso yaqi jiru [Miso-yaki-jiru], a type of soup (Xiru) made with tofu and finely sliced daikon radish.

Misôzzu, which should properly be called Zosui, is a healing food made from vegetables, rice, miso, etc.

Nattô, a type of food made by a brief boiling of grains / seeds [*graos*], which are then put into an incubation chamber (muro).

Nattôjiru, a soup (Xiru) made from natto. Tamari, a very savory liquid taken from miso which can be used for seasoning foods [when cooking] or at table.

Tôfu*—Taufu. A type of food. It is made into the shape of a cheese by crushing soybeans.

Tôfuya—Taufuya, a shop which makes and sells that cheese-like thing (tofu), which is made by grinding soybeans that have been soaked in water until they are soft.

Vdondôfu [Udon-dôfu]. Tofu which is made like udon (Japanese-style wheat noodles) and cooked.

Xôyu [Shoyu, or soy sauce], a liquid which corresponds to vinegar except that it is salty. It is used for seasoning foods. It is also called sutate.

Yudôfu—Yudaufu: A food made from thinly sliced tofu, served next to a kakejiru-type sauce [which is then poured over the top].

1605—Tokugawa Ieyasu in Japan commands the monks at Daifukuji temple to make Hamana Natto—a type of fermented black soybeans, later known as Hamanatto (Saito 1985, p. 14-16).

1633—The Tokugawa shogunate (upset at Portuguese Christian missionaries intent on making converts and instigating revolts) adopts a policy of national isolation which continues for 221 years until 1854. In 1639 the Portuguese are expelled. This leaves only the Dutch among the Europeans still trading with Japan.

1639—By this time the Japanese had so successfully closed their doors to the outside world that subsequently Japan all but dropped out of the consciousness of Europeans. The only important exception was the annual Dutch vessel from the East Indies to the Dutch trading post on the island of Hirado, then Deshima in Nagasaki harbor. Continued. Address: Soyinfo Center, P.O. Box 234, Lafayette, California 94549. Phone: 925-283-2991.

1200. Smith, K. Annabelle. 2014. The history of the veggie

burger: Now mainstream, the hippie food changed vegetarian culture forever in 1982. *Smithsonian magazine*. March 19. <http://www.smithsonianmag.com/arts-culture/history-veggie-burger-180950163/>

• **Summary:** As of 2013 some 7.3 million Americans are vegetarian. Even Burger King offers a meatless patty. But the original veggie burger was invented in London in 1982 by Gregory Sams. It was not so much a burger as a dry mix in a box. It was for hippies. In the USA vegetarianism wasn't fashionable until 1971 when *Diet for a Small Planet*, by Frances Moore Lappe was published.

In the late 1960s, at age 19, Sams opened Seed, a macrobiotic restaurant in a basement in the Paddington neighborhood of London. It served brown rice, veggies, seaweed, unleavened whole wheat bread, miso soup, and the like. Customers included John Lennon and Yoko Ono—and for them he made fresh veggie burgers. He'd make seitan by kneading protein-rich flour under running water for 30 minutes until it could be stretched, then he seasoned the mass with tamari, azuki beans, and oat flakes, shaped it into patties and voila! A veggie burger.

Macrobiotic restaurants like Seed didn't become popular in Europe until after about 1975.

The brothers were macrobiotic entrepreneurs. Gregory had been a vegetarian since age 10 when his father gave up meat as a New Year's resolution. Not many people were vegetarians back in those days. Craig started a whole-meal bakery and Gregory started a company that distributed wholesale natural foods. "Both businesses were eventually united under the Harmony Food brand." After a while the brothers ran into financial trouble and they needed a plan.

Gregory says that he ended up creating the Vegeburger to save the company. He had noticed that all the commercial meat alternatives were more expensive than their meat counterparts—which he knew was backwards. So he set to work making a dry mix with the basic four ingredients—just mix with water, shape into 4 patties and cook. There was a lot of trial and error. He knew he was close when his long-suffering wife asked for a second bite.

As soon as he got the recipe right, Gregory sold all of his shares in Harmony Food to his brother and launched the Realeat Company from his bedroom. He wanted to get out of the restaurant business and he saw the vegeburger as his ticket to the world of commercial food.

In a pre-launch test, a Carrefour supermarket near Southampton sold 2,000 packets (of 4 burgers each) in the first 3 weeks.

With this initial success, Sams quickly expanded into other grocers including Sainsbury and Safeway. Each box of dry mix sold for about 56 pence, which was much lower than regular meat burgers that sold for 75 to 85 pence each on average.

In 1984 Gregory launched a frozen Vegeburger through a licensing agreement; about 7 million were consumed every

year.

In 1988 Gregory sold Realeat, which was now selling 13 million Vegeburgers a year.

Gregory's Vegeburger inspired others. In about 1985 in Portland, Oregon, restaurant owner Paul Wenner founded Gardenburger Inc. In 1992 he launched his first commercial veggie burger. Boca Burger Inc. was founded the next year. By 2002, when Boca Burger was acquired by Kraft Foods, the company had sales of more than \$70 million a year.

Yet Gregory says that nothing beats the homemade veggie patties he made at Seed for John and Yoko long ago.

Photos show: (1) Gregory Sams seated in Seed restaurant at a wooden table topped with many dishes of macrobiotic food—for an article in *Fiesta* magazine in 1971. To the left we read: "Macrobiotic mini-empire in England which includes Harmony Foods, Ceres Grain Shops, and the Green Genes Cafe. He is shown about to ravish a typical macrobiotic meal of organic rice, buckwheat croquettes, vegetables nituke, unleavened bread, soy sauce and apple crumble."

(2) A color Realeat leaflet for "VegeBurger & VegeBanger." Note: A banger is like a U.S. hot dog. (3) An article in *Meat Trades* journal, 12 April 1984, titled "Vegetarians launch attack on meat sales," by Paul Gorman. A photo in the article shows Gregory taking a big bite out of a Vegeburger between buns. All three photos are "Courtesy of Gregory Sams."

Note: Many commercial meatless burgers were launched before 1982. For a carefully documented account read *History of Meat Alternatives (965 CE to 2014): Extensively annotated bibliography and sourcebook*, by Shurtleff and Aoyagi. Published on Google Books in Dec. 2014 (free of charge), it contains 1,437 pages and 435 photographs and illustrations (mostly color).

1201. Kang, Yang Jae; Satyawati, D.; Shim, S.; et al. 2015. Draft genome sequence of adzuki bean, (*Vigna angularis*). *Scientific Reports* 5:8069. Jan. 28. [35+ ref]

• **Summary:** "Adzuki bean (*Vigna angularis* var. *angularis*) is a dietary legume crop in East Asia. The presumed progenitor (*Vigna angularis* var. *nipponensis*) is widely found in East Asia, suggesting speciation and domestication in these temperate climate regions. Here, we report a draft genome sequence of adzuki bean. The genome assembly covers 75% of the estimated genome and was mapped to 11 pseudo-chromosomes." Address: 1-3. Department of Plant Science and Research Institute for Agriculture and Life Sciences, Seoul National University, 151-921, Seoul, Korea.

1202. **Product Name:** Adzuki Bean Tempeh. Later renamed +ZUKI.

Manufacturer's Name: Maui Tempeh Co.

Manufacturer's Address: Maui, Hawaii.

Date of Introduction: 2015 March.

New Product–Documentation: Introduction to Shurtleff & Tourin from Seth Tibbott. This company's entry on Yelp says they were founded in Feb. 2015. They are vegan, vegetarian, gluten-free. Owner is Jaime Tourin. On the Big Island.

Email from Seth Tibbott of The Tofurky Co. 2019. July 17. "Hi Bill, Meet Jaime Tourin, Founder of Maui Tempeh. I visited Jaime on Maui enroute to Australia in 2018 and had some of the best tempeh ever. As I mentioned, Jaime's Adzuki Bean Tempeh is the only non soy tempeh that I have ever eaten that I felt was as good as plain old Soy Tempeh. Have attached several photos of his business including one of an epic adzuki tempeh meal at Maui' upscale, famous Mama's Fish House.

"Not sure where things are at with Jaime now as he had downsized business to just making tempeh for the local fresh market days."

Email from Jaime Tourin to Wm. Shurtleff. 2019 July 21. "Huge Mahalos going out to you too! Thank you for wanting to include Maui Tempeh in your Anniversary Edition Book! I am Honored! Your book (bible) was a huge resource for me when I was getting started. I still find myself referring back to it all the time.

"Sorry it took a bit for me to get back to you guys. When you emailed me, I was having a meeting with the Head Chef at Mamas Fish House. They want to get the tempeh back on the menu and I want to get back into business... so I asked them for a little help to get back into a small kitchen space... which I think they are going to help me with.

"Here's a comprehensive response to your questions.

"Name of Product

"Maui Tempeh Co. Adzuki Bean Tempeh. (Originally)

"+ZUKi by Maui Tempeh Company (Currently)

"First Sold Commercially

"Farmers Market, March 2015

"Stores & Restaurants, April 2016

"Where It Was Made

"1128 E. Kuiaha Rd. Haiku, Maui, HI 96708

"511 Kolohala Dr. Kula, Maui, HI 96790

"95 Makawao Ave. Makawao, Maui, HI 96768

"331 Hookahi St. Wailuku, Maui, HI 96793

"Weight & Description

"Originally 6oz. Blocks 4 inches" x 6 inches. Perforated Baggies–Removed Plastic and Wrapped in Butcher Paper for Retail, Stored in Gallon Ziplock 3 at a time on Ice

"Currently 3oz. Patties 4"x4" Perforated Baggies–Left in Plastic, Stored in Gallon Ziplock 6 at a time on Ice

"Labels–I attached a few of the different labels we used to this email.

"I have had Lots of support throughout this project. I wouldn't have been able to do it without the blessings of others.

"It's true, I started the biz in Feb. 2015 and made it to March 2018 before the 'contamination' happened.

"The Problem was that I changed Suppliers right at a big

pivotal moment. I thought I was adding value by ordering beans from a USA farm instead of China. When the new pallet came in, we did everything as normal, but the beans had been contaminated with *Fusarium* [filamentous fungi] and treated with a *Trichoderma* [genus of fungus] before harvest. These are 2 fungus that didn't play well with our *Rhizopus*.

"I'm attaching a whole load of documents to this email... In there you will see LAB DOC.pdf. It wasn't till 4 months after the lab tests that we actually identified what the problem was... By then I was out of our facility and defaulting on all the loans.

I spent last night getting documents together for you. Whatever you'd like to use feel free. There's everything from Labels to Food Pics, Products Ideas, Spreadsheets, Schedules, Tempeh Making Instructions, Marketing Material.

1203. Yang, Kai; Tian, Zhixi; Chen, Chunhai; et al. 2015. Genome sequencing of adzuki bean (*Vigna angularis*) provides insight into high starch and low fat accumulation and domestication. *Proceedings of the National Academy of Sciences, USA (PNAS)* 112(43):13213-18. Oct. 27.

• **Summary:** "Significance: Adzuki bean (*Vigna angularis*) is distinct in its high starch and low fat accumulation. However, the underlying genetic basis is still not well understood. In this study, we generated a high-quality draft genome sequence of adzuki bean by using whole-genome shotgun sequencing strategy. By comparative genomic and transcriptome analyses, we demonstrated that the significant difference in starch and fat content between adzuki bean and soybean were caused by transcriptional abundance rather than copy number variations in the genes related to starch and oil synthesis. Furthermore, through resequencing of 49 population accessions, we identified strong selection during domestication and suggested that the semiwild adzuki bean was a preliminary landrace. Generally, our results provide insight into evolution and metabolism of legumes." Address: 1. College of Plant Science and Technology, Key Laboratory of New Technology in Agricultural Application, Beijing University of Agriculture, Beijing 102206, China.

1204. **Product Name:** Barry's Savory Tempeh Burgers.

Manufacturer's Name: Grown in Brooklyn.

Manufacturer's Address: Queens, New York 11232. Phone: 718-321-3211.

Date of Introduction: 2015.

Ingredients: Cultured organic azuki beans, chickpeas & sunflower seeds.

Wt/Vol., Packaging, Price: 4 x 3.5 oz pack.

How Stored: Frozen.

New Product–Documentation: See next page. Label. 2019. Nov. 18. Interview with Barry Schwartz. Nov. 17.

1205. Hajika, M. 2016. An overview of legume cultivation in



Japan In: JIRCAS International Symposium Proceedings. *

1206. Sams, Gregory. 2017. Re: Wholefood history of Britain. Letter (e-mail) to William Shurtleff at Soyfoods Center, March 27, in reply to request. 7 p.

• **Summary:** “In the same way that the flap of a butterfly’s wing can affect weather systems thousands of miles and hundreds of days distant, the wholefood revolution in the diet of the United Kingdom originated with an exploding ammunition dump at Iwo Jima during the second World War. My father, Sgt. Kenneth Sams, was caught in the middle of that ammunition dump, asphyxiated by noxious fumes and evacuated to a hospital on Guam. It was his ticket out of the war, but he was convinced that the after-effects of this event triggered, a year later, the debilitating condition that doctors could neither diagnose nor treat.

“At the time, our father was in Los Angeles with our mother; I had not yet been born, and my brother, Craig, was two years old. His weight had shrunk from over 70 kilos to 45. Ken’s skin was turning black and it looked like the end was nigh. Someone recommended that he see an offbeat Japanese man, Dr. Nakadadi, who might be able to succeed where western medicine had failed.



“Dr. Nakadadi put our father, and by extension our family, on what you would now call a macrobiotic diet, with complete exclusion of canned, frozen and processed foods, avoiding all sugars, white flour, white rice, meat and dairy products. Whole grains, pulses and fresh vegetables predominated, with oatmeal our regular breakfast.

“Born and bred on a farm, our mother Margaret was an excellent cook, and able to make the prescribed wholemeal bread at home. I am writing this so, needless to say, our father made a rapid and miraculous recovery on this diet. My parents were smart enough to recognize this was a healthful diet and not just one required to cure disease, so thereafter we were brought up on wholesome food that was far removed from the meat & veg processed fare of the day. My brother and I were rationed one teaspoon of brown sugar a day, and never felt like we were being deprived of the boring foods that other people ate.

“I wasn’t aware of the Nakadadi story at the age of ten, when my father took a job in Omaha, Nebraska, doing public relations work for the US Air Force. As part of his work he was invited to visit the famous Omaha slaughterhouse. With images from this visit fresh in his mind, and remembering that meatless diet recommended by Dr. Nakadadi, my father resolved to become a vegetarian. I had not heard of such a thing, but because I had a natural dislike for the taste of meat, I joined him in this New Year resolution. Although he only lasted a few months, I continued with my vegetarian diet throughout my subsequent schooling, never meeting another vegetarian student in the course thereof.

“As we passed through puberty and had more independence neither my brother nor I maintained the natural food diet we had been brought up on, and for a few years my diet consisted of anything apart from meat and I became expert at making ice cream sundaes. I assumed the angst and distress of going through adolescence was just part of being a teenager, and never considered that my distress was affected by consumption of ice cream and sugary foods, which was still far less than the norm.

“When my brother came back for the summer from University in 1965, he introduced me to the macrobiotic diet that he had discovered at the Paradox Café in New York, laid out in George Ohsawa’s seminal book, *Zen Macrobiotics*. I read this book, and immediately embraced the idea of a diet that was focused upon what I did eat, rather than what I did not eat. The near immediate change in vital energy and consciousness that accompanied my upgrade in diet was remarkable. All that wonderful food upon which we were nurtured made so much sense now there was a philosophy to wrap it around.

“Craig had graduated in 1966 from Wharton’s School at the University of Pennsylvania, and I went off to begin it at the University of California in Berkeley. In the house in which I lived (known as ‘hippie house’), my food was the only edible material in the communal kitchen untouched by

other residents, since nobody else knew what to do with it. Fringe benefits.

“Soon after turning 18, in Berkeley, I was up a tree when a dead branch snapped and I landed disastrously on my back, incurring a complete spinal cord injury and subsequent paralysis. A month later I was flown back to England to Stoke Mandeville Hospital for several months of rehabilitation before being released, now using a wheelchair to get around.

“My brother had meanwhile been introducing macro foods at the legendary UFO Club in London, and had opened a funky and illegal restaurant in a Notting Hill Gate basement. The authorities soon shut it down, and before I got a chance to see it. During the Summer of ‘67, inspired by The Diggers, I was dishing out free brown rice and vegetables weekly to hippies congregating in the Portobello Road, while planning to return to university next year.

“Craig had found new premises, in an out-of-the-way basement near Paddington Station. Unless you count cars, there was zero passing traffic. The autumn of his Summer of Love was spent kitting this up to open as a legal restaurant. Unfortunately, before it got there an unexpected crisis led Craig to make a sudden departure from the country, in November of ‘67. It didn’t look like that restaurant was ever going to get opened so in February ‘68 I ended up ditching my return to university to sort it out. Our 47 yr old mother Margaret was coaxed into being the first chef, and some of Craig’s intended crew were re-assembled. We opened in March ‘68. The crew had to carry me up and down the outdoor stone stairs six days a week for over two years. The only time we collapsed, but didn’t tumble, was when I said something too funny.

“The restaurant rapidly grew in popularity, becoming the prime watering hole to London’s psychedelic community, where minds were open to the radical concept that we could improve our physical and mental health by eating unrefined and organic foods. John and Yoko became regulars, as well as the less well heeled who came for the free food. I soon christened it Seed and named the menu Tomorrow’s You.

That seed sprouted in early 1969, when I opened Ceres Grain Shop, Britain’s first natural food shop, on All Saint’s Road, parallel to the Portobello Market. We sold unusual stuff like organic brown rice, miso, sunflower seeds, chick peas, tahini and weirdest of all—seaweeds! Now the customers of Seed could prepare these strange new foods in their own homes.

“There was nothing easy-to-digest out there about eating naturally or organically and in balance with the planet. This prompted me to create Harmony magazine in 1968, publishing, distributing and partially writing three editions over the next two years. Regular John Lennon liked it so much that he dedicated an 8-frame cartoon to its support. One issue included an article on the Diet of the Viet Cong, explaining how combat rations of yang roasted rice would

inevitably lead the Viet Cong to victory against the yin junk food-eating Americans. Another, reprinted from *The Order of the Universe* in Boston [Massachusetts], explained The Art of Life, followed by detailed instructions for cutting carrots correctly. Duplicated on an old Roneo [rotary duplicator like a mimeograph] machine and assembled in my bedroom, it was a humble affair selling 700 copies per edition, but the first publication in Europe dedicated to organic and green ideas for living.

“Craig eventually worked out the situation that had triggered his departure, and returned to the scene at the end of 1969. Ceres was by then bursting at the seams, with customers driving down from Scotland (Findhorn) and communes in Wales to source their food. So in 1970, we moved into a larger shop on the Portobello Road. By this time we were having to import some of the products needed for the shop and it seemed unecological to have customers driving hundreds of miles for their food.

“Soon after Ceres expanded into the Portobello Road, Harmony Foods was born in a basement store-room with a small office above it in nearby St. Luke’s Rd. Our first price list came out in Sept. 1970, offering organic brown rice, buckwheat flour, tamari, miso, mu tea, sesame seeds, aduki beans, umeboshi plums, patchouli oil and unleavened bread.

“By Feb. 1971 we had moved to a more spacious building in Freston Road, W.11, with about 5000 square feet on two floors, where we were able to install rudimentary packing and processing equipment. Our price list had now expanded from 10 to 30 products and kept growing. Harmony peanut butter was the best that Britain had ever tasted, ground between marble stones on a small mill that I had spotted in a warehouse and bought on impulse. It worked brilliantly, people loved it and it’s successor today (2016), now branded Whole Earth, claims to be Britain’s best selling peanut butter” (Continued). Address: 2 Trevelyan Gardens, London NW10 3JY England.

1207. Sams, Craig. 2017. A 50-year contribution.

NaturalProducts News. April. p. 76. [1 ref]

• **Summary:** “50 years ago I opened a little restaurant and macrobiotic study centre in Notting Hill. People filled in their own bills based on what they ate and paid on an honour system. Then Graham Bond brought his Hammond organ down for a party one evening and played until 2am. The neighbourhood erupted in rage and I was chucked out.

Note: Gregory Sams adds: “The first restaurant didn’t live long enough to get a name. It was just the macrobiotic restaurant, as was Seed for the first six months or so until I decided to christen it.”

“I found ideal new premises: two big rooms in a hotel basement between Paddington and Notting Hill. I got it ready to open, but then a complication about my right to stay in the UK meant I had to leave the country. That’s when my brother Gregory, who had been a wheel-chair user since an accident

eight months earlier at the University of California Berkeley, rose to the occasion. He completed the restaurant project, supported by our mother Margaret and my girlfriend Ann.

“Seed Restaurant opened in early 1968. It was an instant success, with great macrobiotic food and a loyal customer base that included John and Yoko [Lennon], Terence Stamp and everyone else who understood that organic, wholesome food was the way of the future.

“Macrobiotic harmony: Gregory published a magazine called *Harmony* that neatly set out the basics of the macrobiotic philosophy. He then opened the first ever natural foods store called Ceres Grain Shop. It had all the grains, beans, seeds and organic vegetables. There were no products containing sugar, honey, refined cereals and no supplements. Ceres was the model for the new natural food stores, distinctly different from health food shops.

“I rejoined him in 1969 and we went on to create Harmony Foods, with an offering of hitherto unfamiliar (in the UK) foods like organic brown rice, miso, tamari, aduki beans and seaweeds. Ceres Grain Shop moved to Portobello Road where the manager in 1971 was Pamela Donaldson. Pam represented us in setting up the first Glastonbury Fayre. She became ill so I took over running the shop, working with Gregory. We did the food at that legendary Glastonbury. In 1972 the premises next door became available and we opened Ceres Bakery, pioneering sourdough and wholemeal sugar-free baking. There was little or no competition in those days. Most people were still wondering how long this natural organic food fad would last.

“Gregory liaised with committed organic farmers who grew cereals and bought their wheat, oats, rye and barley, milled it at Harmony Foods and supplied it to Ceres Bakery. He organized flaking of cereals that led to British cereal flakes being the mainstay of German organic mueslis.

“He also sat on the Soil Association committee that drafted the first organic standards: two pages, would you believe? When the Soil Association expressed a lack of interest in ‘trade’, he and David Stickland set up Organic Farmers & Growers to certify and market home-grown organic cereals.

“Organic connections: Harmony Foods went from strength to strength and we moved to a huge warehouse/factory in Willesden. We had a big cash ‘n’ carry area and manufactured our Whole Earth-branded jams, peanut butter, packed cereals and macrobiotic specialties. We grew too fast, and in 1982 found ourselves overstocked and with cash-flow problems. Gregory had just created the world’s first Vegeburger and trademarked it because nobody had used the word before. I concentrated on downsizing Harmony Foods and focusing on peanut butter and jam.

“Gregory instigated the Gallup polls that highlighted the trend to vegetarianism. The Vegeburger was a massive success; Gregory cashed out and retired. For a few months. Then in 1989 he created the world’s first fractal art shop

and created stunning posters based on the Mandelbrot set and Chaos Theory. Since then he has written two groundbreaking books: *The State is out of Date* and *Sun of God*, two books that will change your perspective on everything.

“I am honoured to have known this remarkable guy for 68 years and to acknowledge his seminal contribution over 50 years to this wonderful world of natural and organic food we take for granted today.”

Note: Craig and Gregory Sams are pioneers in the UK organic and wholefood sector. Address: Hasting, Sussex, England.

1208. Shurtleff, William. 2017. Some effects of macrobiotics on American food culture (Overview). *SoyaScan Notes*. Aug. 20. Compiled by William Shurtleff of Soyinfo Center.

• **Summary:** 1. New Japanese foods (and words) that macrobiotics introduced to Caucasians in the Western world: Miso. Brown rice. Natto. Kuzu. Tamari—and awareness of the quality of the soy sauce you used. Sea vegetables—such as wakame, nori, kombu, hijiki, kanten. Azuki beans. Soba (buckwheat noodles). Udon (flat, wheat-flour noodles). Sesame seeds. Sesame salt (*gomashio*). Tahini (sesame paste). Seitan (wheat gluten & soy sauce). Amazake (thick fermented rice beverage). Umeboshi (salted pickled plums). Mu tea (a delicious herb tea). Many new vegetables, such as burdock root, daikon, etc.

1A. Asian foods whose consumption macrobiotics encouraged: Tofu. Tempeh.

1B. Foods and food accessories to avoid: Sugar (“without question the number one murderer in the history of humanity”), alcohol, recreational drugs.

2. The natural foods movement was initially a macrobiotic foods movement (e.g., Erewhon). This movement is still going strong with stores such as Whole Foods Markets.

2. The idea that whole grains (such as brown rice) should be the center of the diet and constitute 40-50% of the meal.

3. The idea that food was the best way to heal and prevent most diseases by changing one’s constitution. Address: Director, Soyinfo Center, P.O. Box 234, Lafayette, California 94549.

1209. *Austin American-Statesman* (Austin, Texas). 2017. Sweet potato and aduki bean casserole. Nov. 8. p. D8.

• **Summary:** This recipe is from a book *The New Vegan*, by Aine Carlin. It calls for “1 cup cooked aduki beans (drained, if using canned).” and “1 heaped teaspoon miso paste.”

1210. Jack, Alex; Kato, Sachi. 2017. The one peaceful world cookbook: over 150 vegan, macrobiotic recipes for vibrant health and happiness: contemporary whole-food cooking and natural remedies. Dallas, Texas: BenBella Books, Inc. 293 p. Illust. (color). Index. 23 cm.

• **Summary:** One chapter (p. 143-62) is titled “Green protein: Tofu, tempeh, seitan and fu” [dried cakes of wheat gluten]. Soybeans are mentioned on 4 pages, tempeh on 8 pages, miso on 4 pages, edamame on one page, Also amazake on 5 pages. Azuki beans on 3 pages. Address: Massachusetts.

1211. Whitsitt, Tara. 2017. *Fermentation on wheels: road stories, food ramblings, and 50 do-it-yourself recipes from sauerkraut, kombucha, and yogurt to miso, tempeh, and mead*. New York, London, etc.: Bloomsbury. [viii] + 247 p. Illust. Index of recipes. 23 cm.

• **Summary:** Amazake: Contains a recipe for making your own (p. 156-57).

Miso: Adzuki-bean miso (p. 52-53; short term). Red-lentil, soy, and toasted barley miso (p. 184-85; long term).

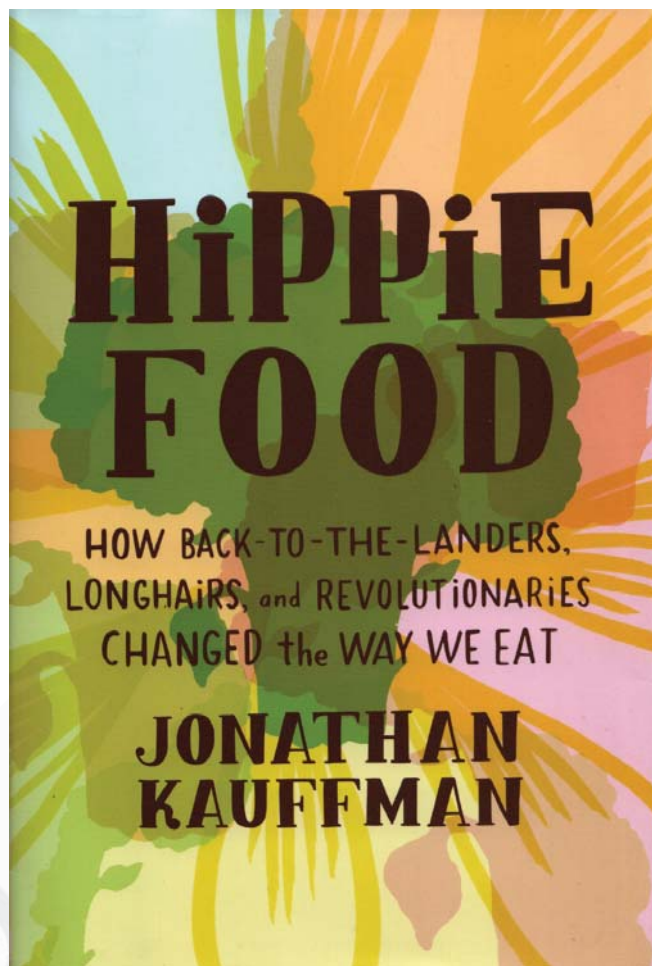
Tempeh: Contains recipes for many types of tempeh, including basic soy tempeh (p. 162-63; “Tempeh is a challenging ferment...”). And recipes for using tempeh (p. 173-74; Tempeh with ginger and sesame), and Navy bean and brown rice tempeh (p. 208-09). Address: Nomadic author and fermentationist. Lives in Eugene, Oregon.

1212. Kauffman, Jonathan. 2018. *Hippie food: How back-to-the-landers, longhairs, and revolutionaries changed the way we eat*. New York, NY: William Morrow, an imprint of HarperCollins Publishers. 344 p. Index. 24 cm. [135 + 390 endnotes]

• **Summary:** Brown bread, brown rice, granola, tofu, vegetarianism, organic foods. These are just some of the iconic foods that Hippies introduced to America.

Contents: Introduction: Why the counterculture of the late 1960s embraced a completely new type of food and a new way of relating to that food. They wanted real food, pure and from the source. Many Hippies felt America had betrayed their trust. So they worked to build a new America in the shell of the old. Why did Hippie food spread so fast—as if by magic? Taking a journalist’s approach, Kauffmann divides the story of Hippie Food into three eras: (1) The years before 1968 are prehistory. (2) 1968-1974 is the revolutionary era. (3) From 1975 on is the era of creating institutions and businesses, writing cookbooks to bring the revolution to a much broader audience.

1. Fruits, seeds, and (health) nuts in southern California: The Aware Inn, run by Jim and Elaine Baker on Sunset Strip; “it was one of the very first restaurants in the country to print *organic* on the menu.” The Health Hut, owned by Gypsy Boots and his wife Lois, on Beverly Boulevard near La Cienega. Only Los Angeles, which started as a destination for tuberculosis sufferers in the late 1800s seeking to regain their health, could have produced these two. Before them came raw fooders John and Vera Richter, Naturmenschen from Germany, Arnold Ehret, Paul Chappius Bragg, Gayelord Hauser, Healthy Hollywood, *California Health News*, Nature Boys, Jack LaLanne, Steve Allen, Rancho La



Puerta, and more.

2. Brown rice and the macrobiotic pioneers: The caravan to Chico, California. Chico-San, George Ohsawa and his teachings, *Zen Macrobiotics*, miso, miso soup, seitan, adzuki beans and kudzu-root, tamari, George Ohsawa Macrobiotic Foundation, rice cakes, organic brown rice, Cambridge, Massachusetts, Evan Root, Beth Ann Simon’s death, George Ohsawa’s death on 24 April 1966 in Tokyo at age 72, Michio and Aveline Kushi, Erewhon, study houses, Paul Hawken, Sanae, macrobiotic restaurants nationwide, the primary practice of macrobiotics seemed to be eating, and selling macrobiotic food, Hawken and organically grown food, Frank Ford of Arrowhead Mills, Erewhon’s quest for brown rice, Lundberg Family Farms starts growing brown rice for Chico-San, fire destroys Chico-San. Sidebar at end on carob.

3. Brown bread and the pursuit of wholesomeness: Haight-Ashbury and The Diggers, Sylvester Graham and the history of whole-grain bread in America, white flour and bread, discovery of vitamins, Adelle Davis, the poisons in our food (1950-1970s), Black Muslims and dark bread, Beatrice Trum Hunter, Clive McCay and Cornell bread, Ed Brown and Tassajara, *The Tassajara Bread Book*.

4. Tofu, the political dish. Frances Moore Lappé, *Diet for a Small Planet*, eating becomes a political act. Shurtleff

and Aoyagi in Japan, The Farm in Summertown, Tennessee, Laurie Sythe Praskin, Stephen Gaskin, The Farm Soy Dairy, soybean missionaries, *The Book of Tofu*, Soycrafters Association founded in Ann Arbor, Michigan, tempeh, Seth Tibbott, tempeh and Tofurky.

Note: This is the best (most accurate and most complete) account of how Shurtleff & Aoyagi, with *The Book of Tofu*, introduced tofu and soyfoods to America in the mid-1970s.

5. Back-to-the landers and organic farming: Samuel Kaymen, Natural Organic Farming Association established in Vermont (June 1971), Sir Albert Howard, J.I. Rodale, Rodale Press, *Organic Gardening and Farming*, Rudolf Steiner, Biodynamics, communes, the back to the land movement, NOFA.

6. Vegetarians on the curry trail: The Seventh-day Adventists, meat substitutes, The Hurds and *Ten Talents*. At the end is a sidebar on Granola and Granula.

7. Food co-ops, social revolutionaries, and the birth of an industry: Whole Foods in Austin, Texas, and the Wheatsville Food Co-op in Austin.

Conclusion: The revolution failed, the revolution succeeded.

The Aware Inn, a restaurant in Los Angeles, is discussed on pages 19-21, 29, 37-39, 42-44, 55, 178, 218, 232.

Jim Baker, who with his wife founded the Aware Inn, is discussed on pages 19-20, 29-30, 33, 37-39, 42-48, 178, 218, 232.

The Source, a Los Angeles restaurant founded by Jim Baker and his wife, is discussed on pages 45, 47-48, 50-55, 232. The Brotherhood of the Source on pages 51-52, 55. The Source Family on pages 51-54, 275. Address: Reporter for the food section of *The San Francisco Chronicle*.

1213. Belfry, K.; Sikkema, P.H. 2018. Weed management in adzuki bean: a review. *Canadian J. of Plant Science* 98(6): Dec.

• **Summary:** “Adzuki bean is a niche market, high-value field crop suited to the temperate growing regions of the world. Adzuki bean lacks early season vigour and thus early season weed control is critical for profitable production. Efficacious application of preplant incorporated (PPI), preemergence (PRE), and, to a lesser degree, postemergence (POST) herbicides have been documented, however, the number of registered herbicides is currently limited due to the sensitivity of adzuki bean crops.”

“Introduction: Adzuki bean [*Vigna angularis* (Willd.) Ohwi & Ohashi] is a legume native to Asia and is a valuable export crop in Canada, the United States, and Australia. Adzuki bean has been grown and used for many centuries in the Orient and is the second most important legume crop grown in Japan (Hardman et al. 1989; Hajika 2016). Adzuki bean is grown for its sweet, nutty flavour and is used primarily as a confectionery ingredient in Asian desserts (Uwaegbute 1996; HDC 2017). The beans are consumed

directly as food and are subject to minimal processing (Hardman et al. 1989). This crop is subject to stringent grading standards where colour, plumpness, and an overall healthy appearance of seed are metrics used to assess quality (Hardman et al. 1989).

In the late 1990s, Japan produced approximately 90,000 t [metric tons] of adzuki bean annually while importing an additional 30,000 t to meet local demand (Vaughan et al. 2005). Canada, the United States, and Australia are reported to produce the highest quality adzuki bean imported to Japan (McGill 1995).

1214. Kim, Sohui; Wharton, Rachel. 2018. Korean home cooking: Classic and modern recipes. New York, NY: Harry N. Abrams. 303 p. Illust. (photos by Zack & Buj). Index. 29 cm.

• **Summary:** This is a beautiful, elegant book. The first author is a woman. There is more emphasis on recipes than ingredients. Every recipe has a full-page facing color photo. Many of the recipes are seasoned with Korean soy sauce (*ganjang*) so we will mention just the first one.

Contents: The Korean kitchen—with photos and explanations of basic ingredients. Names of recipes and most ingredients are given in Romanized Korean followed by English. Soy-related ingredients include: Doenjang (fermented soybean paste). Gochujang. Dried soybeans are soaked and simmered, then mashed into a paste and formed into bricks named *meju* [Korean-style soybean koji]. These are hung up to dry and ferment. The dried *meju* is then soaked in salt water for months in a stone crock to break down even further. The result is a mixture of doenjang and ganjang (Korean soy sauce). The longer the mixture is aged, the darker its color. Miso makes a fairly good substitute for doenjang.

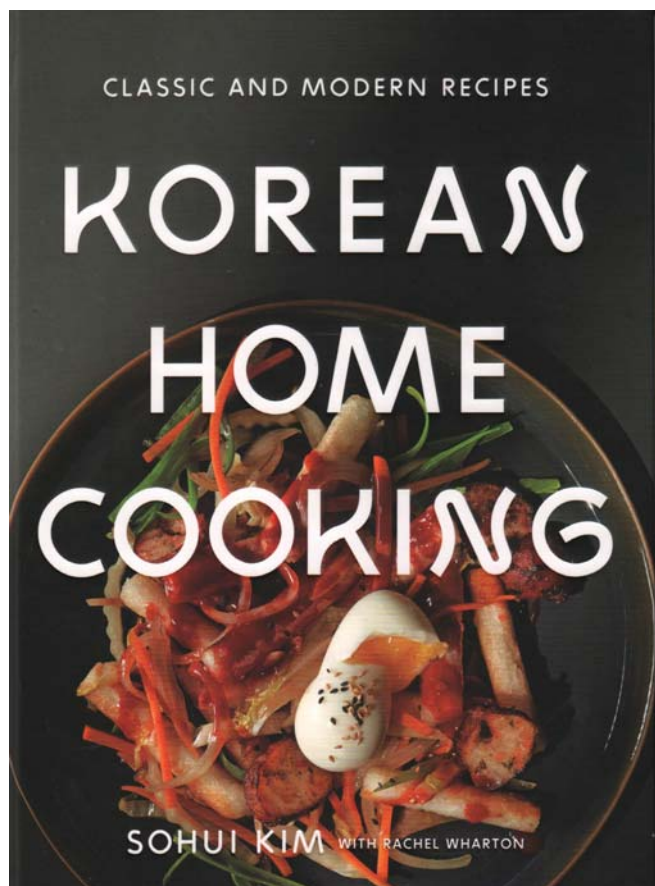
Gochujang, fermented red chili paste, is made from red chile flakes (*gocharu*), sugar, glutinous rice, doenjang, and salt, traditionally fermented together for years in earthenware pots. Roasted soybean powder (Korean name not given). Tofu (firm and silken). Dried soybeans. Black soybeans (*seoritae*). Soy sauce and white soy sauce.

Banchan: vegetables and sides. The word ‘banchan’ means “small dishes;” every Korean meal begins with banchan. Jang Jorim: soy-braised beef. Ganja Jorim: potato stewed in soy sauce. Dubu Jorim: soy-braised tofu. Dan Hobak Jorim: sweet soy-glazed kabocha. Kongjang: Soy-braised black soybeans. Kong Namul: soybean sprout salad. Gaji Namus: charred eggplant with white soy and chiles.

Korean Barbecue. Dweji Kalbi: gochujang-glazed baby back ribs. Kong-Garu: soybean powder (roasted). Ssam Jang: seasoned doenjang sauce.

Haesanmul & Gogi: seafood & meat. Bulgogi: grilled sirloin.

Guk, Jjigae, Jjim & Tang: soups and stews. Soondubu: silken tofu stewed with seafood. Kimchi Jjigae: kimchi stew



with tofu & gochujang. Doenjang Jjigae: soybean paste stew.

Myeon, Bap & Mandu: noodles, rice & dumplings.
Jjang Myeon: black bean noodles (with black bean paste).
Juk: congee (with 1 teaspoon soy sauce). Hu-Shik: desserts.
Ripe Summer Tomatoes with tofu cream. Samsaek Kyung-Dan: sweet rice dumplings in three colors (one is coated with roasted soy powder (*kong-garu*); [kinako]).

Note 1: “Sohui Kim is the chef and co-owner of Insa and the Good Fork in Brooklyn, She is the author of *The Good Fork Cookbook*.

“Rachel Wharton is a James Beard Award-winning journalist” and the co-author of three books. She lives in New York City.

Note 2. This book does not even mention the influence of the Japanese occupation of Korea—from 1910 to 1945—on Korea. Yet in this book we find mention of udon, sushi, kinako, adzuki / azuki beans, etc.—all Japanese foods. Address: Cook and author, Brooklyn, New York.

1215. *Indian Journal (The) (Eufaula, Oklahoma)*. 2019. Food: beat the heat. July 11. p. 8.

• **Summary:** “Astringent foods are preventative. They are drying just like bitter foods, but in a deeper way—they actually help to stop the spread of warmth rather than just quell heat. Pick up some apples, pomegranates, cranberries or artichokes. Legumes of any sort will do, but kidney beans,

peas, adzuki, chick peas and lentils are far more effective.”

1216. Hu, Winnie. 2019. Retire? These ‘encore entrepreneurs’ are just starting up. *New York Times*. Sept. 17.
• **Summary:** After losing their jobs several times, some folks decide they’d like to be their own boss—doing what they love.

Photos show: (1) “Business partners Gordon Bennett, left, and Barry Schwartz, both 66, prepare a new batch of tempeh in Queens [New York City]. They sell \$125,000 worth of tempeh annually.”

(2) One of their products is named “Barry’s Savory Tempeh Burger” (Heat & Serve).

Note: The company’s name is Grown in Brooklyn. The website is growninbrooklyn.com phone: 718-321-3211.

Products:

(1) Barry’s Classic Soy Tempeh, 1 lb.—wheat-free

(2) Barry’s Chickpea Tempeh, 1 lb.—soy and wheat-free (not grown locally)

(3) Barry’s Azuki Bean & Brown Rice Tempeh, 1 lb.—soy and wheat-free (not grown locally) (4) Barry’s Savory Tempeh Burger, 3.5 oz., is made from Azuki Beans, Chickpeas and Sunflower Seeds. There’s 4 to a pack. It’s already cooked and seasoned so you just heat & serve. Our 1 lb. pack of Tempeh is available in both soy and soy-free varieties. All ingredients are 100% organic, always fresh-frozen, never pasteurized. That’s why it tastes better. Address: New York Times.

1217. Kim, Tae jin; Park, J.G.; Ahn, S.K.; et al. 2020. Discrimination of adzuki bean (*Vigna angularis*) geographical origin by targeted and non-targeted metabolite profiling with gas chromatography time-of-flight mass spectrometry. *Metabolites* 10(3):112. March 17.

• **Summary:** “The adzuki bean (*Vigna angularis*), which contains starch, nutritious proteins, and vitamins and has a sweet taste, has been used as an ingredient in traditional dessert foods, particularly in East Asian countries such as Korea, China, and Japan [1,2,3]. Adzuki beans have been extensively cultivated in more than 30 countries worldwide [4,5,6].”

“More than 80% of adzuki beans consumed in Korea are imported from China.” Address: Division of Life Sciences, College of Life Sciences and Bioengineering, Incheon National University, Incheon 22012, Korea.

1218. Wikipedia, the free encyclopedia. 2021. Shiruko (Web article). <https://en.wikipedia.org/wiki/Shiruko> 1 p. Accessed Oct. 8. [2 ref]

• **Summary:** “Shiruko, or oshiruko with the honorific “o”, is a traditional Japanese dessert. [1] It is a sweet porridge of azuki beans boiled and crushed, served in a bowl with mochi. [1][2] There are different styles of shiruko, such as shiruko with chestnuts, or with glutinous rice flour dumplings instead

of mochi.

“There are two types of shiruko based on different methods of cooking azuki beans. Azuki beans may be turned into paste, crushed without keeping their original shape, or a mix of paste and roughly crushed beans.[2] There is a similar dish, zenzai, which is made from condensed paste with heat and is less watery than shiruko, like making jam or marmalade. In Western Japan, Zenzai refers to a type of shiruko made from a mixture of paste and crushed beans. [2] In Okinawa, the term ‘zenzai’ commonly refers to this bean soup served over shaved ice with mochi. Other toppings, such as sweetened condensed milk, are occasionally added for flavor.

“The half-melted sticky mochi and the sweet, warm red bean porridge is enjoyed by many Japanese, especially during the winter. [2] Shiruko is frequently served with a side dish of something sour or salty, such as umeboshi or shiokombu to refresh the palate as shiruko is so sweet that the taste may cloy after a while.

“In Tottori Prefecture and Shimane Prefecture, shiruko is also used for zoni, the special soup for New Year celebration.”

See also: Hong dou tang [Chinese name]; Petjuk [Korean name].

2 references.

1219. *SoyaScan Notes*. 2021. Chronology of Charles Christian Georgeson (1851-1931) of Kansas and Alaska. Compiled by William Shurtleff of Soyinfo Center.

• **Summary:** 1851 June 26–Born in Denmark on the island of Langeland.

1872–Emigrated to the USA.

1878–Graduated from Michigan Agricultural College with a B.Sc. degree.

1878-1880–Associate editor for the *Rural New Yorker* of New York City.

1880 fall–Chosen professor of agriculture and horticulture at the Texas Agricultural and Mechanical College.

1882–Received an MSc degree from the same College.

1885–Invited to teach in Japan.

1886-1889–From early 1886 to late 1889 he is employed by the Japanese government for 4 years as Professor of Agriculture at the Imperial College of Agriculture and Dendrology at Komaba, near Tokyo, Japan.

1887 Dec. Publishes “Fertilizer Experiments with Rice,” which is *Bulletin of the College of Agriculture, Tokyo Imperial University* No. 1.

1889 fall–He returns to the United States. Very shortly thereafter he is offered the position of professor of agriculture in the Kansas Agricultural College at Manhattan, Kansas.

1890 Jan.–He accepts the offer and remains at the college for nearly 8 years until Sept. 1897, when the final

dispersion of the old faculty took place at the hands of the Populist party.

1890 April–He receives a considerable consignment of seeds directly from Japan for experimental trial in Kansas. Among these seeds are three varieties of soya beans (including one later identified as the famous Ito San) and one or two varieties of adzuki beans.

1890 June 7–Writes his first article, titled “Farm Notes,” that mentions soya beans in *The Industrialist* (Manhattan, Kansas). He reports that he grew both his Japanese and American (“home-grown”) soybeans. “In all cases we find that home-grown seed has given us the best stand.”

1890 Dec.–Writes his first article about testing azuki beans in Kansas.

1893 Jan.–Sent to Europe by the U.S. Secretary of Agriculture to investigate the thriving dairy industry in Denmark.

1898 March–Appointed special agent in Charge of the Alaska agricultural investigations, and at once started for Sitka, Alaska.

1925 Jan.–Publishes the earliest document seen about soybeans in Alaska or the cultivation of soybeans in Alaska. It appears in “Report of the Agronomist in Charge,” *Alaska Agric. Exp. Stations, Annual Report*. The soybean varieties Mandarin and Pekin [Peking] were planted on 15 May 1923 for use as silage.

1927–He retires.

1931 April 1–Dies at his home in Seattle, Washington. He is nearly 80 years of age.

An asterisk (*) at the end of the record means that SOYINFO CENTER does not own that document. A plus after eng (eng+) means that SOYINFO CENTER has done a partial or complete translation into English of that document. An asterisk in a listing of number of references [23* ref] means that most of these references are not about soybeans or soyfoods.

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Azuki Bean. *Vigna angularis* (Willd.) Ohwi & Ohashi. Also called Adzuki, Aduki, Adsuki, Adzinki, Red Bean, Chinese Red Bean, Red Mung Bean, Small Red Bean. Japanese–Kintoki, Komame, Shôzu. Chinese–Xiaodou, Chixiaodou, Hsiao Tou [Small Bean], Ch'ih Hsiao Tou [Red Small Bean]. Former scientific names: *Phaseolus radiatus* (L.), *Dolichos angularis* (Willd.), *Phaseolus angularis* (Willd.) Wight, or *Azukia angularis* (Willd.) Ohwi 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346,

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