

**HISTORY OF  
FERMENTED BLACK SOYBEANS (165 B.C. to 2011):  
EXTENSIVELY ANNOTATED  
BIBLIOGRAPHY AND SOURCEBOOK**

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**USED TO MAKE BLACK BEAN SAUCE.**

**ALSO KNOW AS: FERMENTED BLACK BEANS, SALTED BLACK BEANS, FERMENTED SOYBEANS,  
PRESERVED BLACK BEANS, SALTY BLACK BEANS, BLACK FERMENTED BEANS, BLACK BEANS;  
DOUCHI, DOUSHI, TOUSHI, TOU-CH'IH, SHI, SHIH, DOW SEE, DOWSI (CHINESE);  
HAMANATTO, DAITOKUJI NATTO (JAPANESE); TAUSI, TAOSI (FILIPINO)**

**Compiled**

**by**

**William Shurtleff & Akiko Aoyagi**



**2011**

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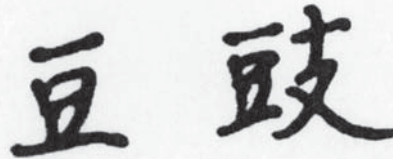
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 History of douchi  
 History of doushi  
 History of preserved soybeans  
 History of dow see  
 History of tausi  
 History of Daitokuji natto  
 Bibliography of fermented black soybeans  
 Bibliography of fermented black beans  
 Bibliography of Hamanatto  
 Bibliography of black bean sauce  
 Bibliography of shi  
 Bibliography of shih  
 Bibliography of salted black beans  
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 Bibliography of douchi  
 Bibliography of preserved soybeans  
 Bibliography of dow see  
 Bibliography of tausi  
 Bibliography of Daitokuji natto

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## DEDICATION AND ACKNOWLEDGMENTS

**This book is dedicated to the Chinese people of the Han dynasty who, with great creativity and perseverance, developed this, the earliest known fermented or processed soyfood.**

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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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

### What are Fermented Black Soybeans?

They are dull-black, somewhat shriveled and soft soybeans that often have tiny salt crystals on them. Most have a hint of ginger flavor. Never eaten alone, they are widely used as a condiment or seasoning in Chinese cooking, especially in “black bean sauce.” They have a strong and complicated flavor.

**When and where did they originate?** They were found in a tomb that was sealed in about 165 B.C. in south-central China. So they probably existed in China by 200 B.C., making them the oldest known soyfood worldwide.

**How are they made?** By a two-step fermentation process: In the first step soybeans (usually black soybeans) are cooked, drained, and inoculated with the koji mold (*Aspergillus oryzae*), then incubated until they are covered with a fragrant mycelium. The soybeans are immersed in salt water with fresh ginger and other herbs or spices – traditionally in a wooden vat. Pressure is applied and the mixture is allowed to age and ripen for about 6 months. Then the soybeans are drained, dried in sunlight, and sold. Note: Those that are not made from black soybeans turn black during the fermentation process.

**Where are they made and used today?** They are most popular, by far, in southern China, but they are also made and used in Japan, and the Philippines.

**The word “natto” in Japanese:** This word is used in Japanese refer to two very different foods, which causes considerable confusion: (1) Natto, technically called *itohiki natto* (“stringy” natto) which is inoculated with bacteria, incubated for 24 hours, and contains no added salt. (2) Hamanatto and Daitokuji natto which are inoculated with a mold, undergo a two-part fermentation that takes 3-6 months, and do contain added salt. In Japan, when people say “natto,” they are almost always referring to the first kind of natto (“stringy natto”) which is vastly more widely made and consumed than the second type. We try to use the word “natto” as little as possible in reference to the second type, calling it “fermented black soybeans” instead.

### Brief Chronology of Fermented Black Soybeans

**165 B.C.** – Fermented black soybeans are found clearly marked in Han Tomb No. 1 at Mawangdui near today’s Changsha, Hunan province, in south-central China. The tomb was sealed in about 165 B.C. and was first opened in 1972. The high-ranking lady to whom the tomb belonged was probably the wife of the first Marquis of Tai.

**90 B.C.** – In the *Shiji* (Records of the Historian) by Sima Qian, Chapter 69 refers to 1,000 earthenware vessels of mold-fermented cereal grains and salty fermented soybeans (*shi*). They were now an important commodity in China. Huang (2000, p. 337) tells this story from the *Shiji* ((Biography of the Prince of Huainan, Chap. 118): “When the Prince of Huainan (the legendary inventor of tofu), was exiled for inciting rebellion (in 173 BC), against his brother, the Han Emperor Wendi, he and his retinue were, nevertheless, provided with such necessities of life as ‘firewood, rice, salt, *shi* [fermented black soybeans], and cooking utensils.’” Note that the date 173 BC is before Han Tomb No. 1 at Mawangdui was sealed!

**40 B.C.** – The *Jijiu Pian* [Handy Primer or Dictionary for Urgent Use], by Shi You, mentions *shi* (fermented black soybeans), a clear indication of their great popularity.

**76 A.D.** – The *Qian Hanshu* [History of the Former Han Dynasty], by Ban Gu mentions *shi*. Chapter 61, titled “Record of economic affairs” states that two of the seven wealthiest merchants in the realm had accumulated their fortunes by trading in fermented black soybeans (*shi / shih*). Such soybeans are also mentioned in books that appeared in China in A.D. 121, 150, 153, 175, 232, 379, 510, 530, and 543.

**150 A.D.** – The *Shiming* [Expositor of Names], by Liu Xi first mentions *shizhi*, fermented black soybean extract (or “shi juice”), a kind of soy sauce with no wheat, resembling Japanese tamari. It is mentioned as an ingredient in a recipe. *Shizhi* is also mentioned several times in the *Qimin Yaoshu* (6<sup>th</sup> century AD). *Shizhi* can be seen as a precursor of soy sauce.

**510** – The *Mingyi Bielu* [Informal Records of Famous Physicians] by Tao Hongjing, describes the first process for making fermented black soybeans that includes ginger.

**544** – The *Qimin Yaoshu* [Important Arts for the People’s Welfare], by Jia Sixie, gives the earliest known instructions for making fermented black soybeans.

**701** – The *Taihō Ritsuryō* [Taiho Law Codes], by Emperor Monmu, which some regard as Japan's first constitution, is 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 *misho* (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.

**741** – 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 nattō*, or *shiokara nattō*) spread throughout Japan. They are made from soybean koji, which is soaked in salted water and dried.

**1058-1068** – The word “natto” first appears in Japan, but it refers to “salty natto” (*shiokara nattō*) (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).

**1596** – The *Bencao Gangmu* [The Great Pharmacopoeia], by Li Shizhen contains a detailed description of how to make *dadou shi* (fermented black soybeans).

**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)

**1815-1823** – Fermented black soybeans are first mentioned in the Western world in *A Dictionary of The Chinese Language in Three Parts*, by Robert Morrison, published in Macao. They are called “she” or “tow she.”

**1842-1843** – Fermented black soybeans are first mentioned in English in *Chinese and English Dictionary: Containing all the Words in the Chinese Imperial Dictionary, Arranged According to the radicals*. 2 vols., by Walter Henry Medhurst, a missionary. They are called “Shé.”

**1855** – Fermented black soybeans are first mentioned in French, by Stanislas Julien in the *Bulletin de la Societe d'Acclimatation*. They are called *chi*.

**1856** – Fermented black soybeans are first referred to as “salted beans,” “salted beans and ginger,” or “tau shi” in English in *A Tonic Dictionary of the Chinese Language in the Canton Dialect*, by Samuel Wells Williams.

**1884 July 13** – The term “salted black beans” is first used to refer to fermented black soybeans, by the *Washington Post*. However the article was copied from Wong Ching Too in the *Brooklyn Eagle*.

**1899** – The term “pickled and salted beans” is first used to refer to fermented black soybeans, by Carstairs Douglas.

**1900** – Fermented black soybeans are first mentioned in Dutch, by P.A. Boorsma, who is writing about the Dutch East Indies (today's Indonesia). They are called *Tao-dji*. However they gradually disappear from Indonesia.

**1901 Nov. 3** – Fermented black soybeans are first mentioned in the *New York Times*, in an article titled “How to make chop suey.” They are used to make commercial “See Yu sauce.”

**1902** – The term “Hamanatto” is first used in English to refer to Japanese fermented black soybeans, by Sawa of Japan.

**1911** – *Chinese Materia Medica*, by Rev. George A. Stuart, under “Vegetable kingdom: Bean relish (*To-tou-shih*)” contains a good, early description of fermented black soybeans, published in Shanghai.

**1914 Jan. 2** – Fermented black soybeans are first mentioned in German, by Clemens Grimme. They are called *Tao-tche*, but are confused with Japanese natto.

**1914** – The term “hamanatto” is first used to refer to Japanese fermented black soybeans, by U.S. Dept. of Treasury. These soybeans, which are now being imported into San Francisco, are classified as “prepared beans” and therefore subject to an import duty.

**1923** – In their classic *The Soybean*, Piper and Morse give a detailed description of Hamanatto (p. 245).

**1929** – During a trip to Japan (funded by the U.S. Department of Agriculture), William Morse observes and photographs “Hama Natto.” In his log of trip he writes: The beans are soft and of a flavor like dill pickles. The beans are eaten as a relish.” While in Kyoto he wrote: “We then went to a Natto manufacturing place near an old temple known as Daitokuji. Here we tried out a kind of natto [Daitokuji natto = fermented

black soybeans] which we think might take with the American people,..."

**1935** – The term “Black salted soy beans” is first used to refer to fermented black soybeans, by Mary Li Sia (*Chinese Chopsticks: A Manual of Chinese Cookery...*).

**1936** – The term “Dow see” is first used to refer to fermented black soybeans, by Cheng in *Shanghai Restaurant Chinese Cookery Book*.

**1939 Feb. 19** – The term “black bean sauce” is first used in connection with fermented black soybeans, by Loeb (*New York Times*).

**1939** – The term “tao-si” is first used to refer to fermented black soybeans in the Philippines (*Handbook of Philippine Agriculture*).

**1948 Dec. 31** – The term “Chinese black beans” is first used to refer to fermented black soybeans, by Wood (*Chicago Daily Tribune*).

**1949 March** – Allan K. Smith writes an important article in *Soybean Digest* titled “Oriental use of soybeans as food,” based on a research trip he made for the U.S. Department of Agriculture to China, Japan, and Korea to study such foods. In this article (p. 32) he gives the first detailed description in English of how to make “Fermented soybeans” [Chinese-style] from small black soybeans.

**1950** – The term “black fermented beans” is first used to refer to fermented black soybeans, by Feng in *The Joy of Chinese Cooking*.

**1956** – The terms “spiced black beans” and “salted spiced black beans” are first used to refer to fermented black soybeans by Morrison Wood.

**1957** – The term “black bean and garlic sauce” is first used to refer to fermented black soybeans, by Robert W. Marks.

**1960** – The term “fermented black beans” is first used to refer to fermented black soybeans, by Mimie Ouei in *The Art of Chinese Cooking*.

**1962** – Shih Shêng-han translates the *Qimin Yaoshu* into English (as *A Preliminary Survey of the Book Ch'i Min Yao Shu: An Agricultural Encyclopedia of the 6<sup>th</sup> Century*). It gives the earliest known instructions for the preparation of fermented black soybeans (*shih*).

**1962** – The term “pickled black beans” is first used to refer to fermented black soybeans, by Lin Yutang.

**1965** – The term “Daitokuji natto” is first used in English to refer to fermented black soybeans made at Daitokuji temple in Kyoto, Japan, by William Brandemuhl.

**1968 July 1** – The Immigration and Nationality Act. of 1965 (Hart-Cellar Act) becomes law. It now became much easier for people from East Asia to enter the United States – to the great benefit of the USA.

**1978 June 8** – The term “douchi” is first used in English to refer to fermented black soybeans, by Wm. Shurtleff.

**1972** – Han Tomb No. 1 at Mawangdui near Changsha, Hunan province, China is discovered and opened. Intact fermented black soybeans (with ginger), more than 2,000 years old, are found in pottery jars, neatly listed on bamboo strips.

**1972** – *The Chinese Cookbook*, by Craig Claiborne (*New York Times*) and Virginia Lee states (p. 35): “Fermented, salted black beans have an almost winy flavor, and they give an intriguing flavor to almost any dish in which they are cooked.” In Chapter 11, “Chinese ingredients,” it adds: “An ingredient of Cantonese cooking but virtually unknown elsewhere in China, these black beans...”

**1975 March** – A Japanese-language article titled “Studies in Hama-Natto...” by Masayo Kon states: Hamanatto, a salty fermented soybean product, is made only in the district around Lake Hamana in Shizuoka prefecture. There are two methods of making Hamanatto: (1) Using artificial inoculation with molds, the method used at Yamaya and Horinji, and (2) Using natural inoculation, the method used at Daifukuji.

**1976 March** – Hiroshi Ito writes another excellent article titled “Hamanatto.” It is the earliest document seen that mentions “Ikkyuji” or “Ichimeji Ikkyuji” in conjunction with Daitokuji natto.

**1977** – In a book chapter titled “Han China,” Yü Ying-shih gives a detailed description of the discoveries in Han Tomb No. 1 at Mawangdui. It is in the outstanding book *Food in Chinese Culture*, edited by K.C. Chang (1977, Yale University Press).

**1977-1978** – Alfred Birnbaum and William Shurtleff in Japan visit all known makers of Hamanatto (including Hōrinji / Horinji) and Daitokuji natto; they observe and describe the process used by each manufacturer in detail and take numerous color photos.

**1980 Aug. 24** – The term “salty black beans” is first used

to refer to fermented black soybeans, by Florence Fabricant (*New York Times*).

**1981 March** – The term “soy nuggets” is first used in a publication to refer to fermented black soybeans, by Wm. Shurtleff in *The Book of Miso* (Revised ed.).

**1982** – The terms “Chinese salted black beans” and ginger black beans” are first used to refer to fermented black soybeans, by Barbara Tropp (*The Modern Art of Chinese Cooking*).

**1983** – The term “fermented black soybeans” is first used to refer to fermented black soybeans, in *Chinese Cuisine from the Master Chefs of China*.

**2000** – Joseph Needham’s *Science and Civilisation in China. Vol. 6, Biology and Biological Technology. Part V: Fermentations and Food Science*, by H.T. Huang contains the best early history to date of “Fermented soybeans, *Shih*” (fermented black soybeans) (p. 336-42).

**Alphabetical list of names of fermented black soybeans**  
(useful for searching digital / electronic text):

Bean Relish  
Beans, black salted fermented  
Black bean and garlic sauce  
Black bean and ginger sauce  
Black bean sauce  
Black beans, fermented  
Black beans, salted  
Black fermented beans  
Black salted soybeans  
Black soybeans, fermented  
Black soybeans, salted  
Chinese black beans  
Chinese fermented black beans  
Chinese preserved black beans  
Chinese salted spiced black beans  
Daifukuji natto  
Daitokuji natto or Daitokuji nattō  
Daitokuji soy nuggets  
Dausee  
Douchi  
Dou-chi or dou chi  
Doushi  
Dow see (Cantonese)  
Dowsi (Cantonese)  
Fermented black beans  
Fermented black soybeans  
Fermented salted black beans  
Fermented and salted soybean

Fermented soybeans  
Ginger black beans  
Ginger black bean sauce  
Hamanatto  
Hamananatto  
Hama-natto or Hama natto  
Hamananattō or Hamana-nattō  
Jofukuji natto  
Kara-natto or kara-nattō  
Kofukuji natto  
Kuki  
Nattō-jiru  
Pickled and salted beans  
Pickled black beans  
Preserved and cured Chinese black beans  
Preserved black beans  
Preserved Chinese black beans  
Preserved soybeans  
Salted and fermented black beans  
Salted bean relish  
Salted beans  
Salted beans and ginger  
Salted black beans  
Salted black beans, spiced  
Salted relish  
Salted spiced black beans  
Salty black beans  
Salty natto  
Savory soy nuggets  
Shi or shi or shí  
Shi-chih  
Shih  
Shiokara-natto  
Shiqing  
Shizhi  
Soy nuggets  
Spiced black beans  
Taosi  
Tao-si or Tao si  
Ta-tou-shih  
Tau see  
Tau shí  
Tausi  
Tau-si or Tau si  
Terra-natto  
Tou-ch’ih  
Tou-see or tou see  
Toushi  
Tou shih  
Tow she



## ABOUT THIS BOOK



This is the most comprehensive book ever published about the history of fermented black soybeans. 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 soy condiment. It is also the single most current and useful source 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.
- 709 published documents - extensively annotated bibliography. Every known publication on the subject in every language.
- 26 original Soyinfo Center interviews and overviews never before published.
- 61 unpublished archival documents
- 9 commercial soy 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.

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	mm = millimeter(s)
Agric. = Agricultural or Agriculture	N. = North
Agric. Exp. Station = Agricultural Experiment Station	No. = number or North
ARS = Agricultural Research Service	Nov. = November
ASA = American Soybean Association	Oct. = October
Assoc. = Association, Associate	oz = ounce(s)
Asst. = Assistant	p. = page(s)
Aug. = August	photo(s) = photograph(s)
Ave. = Avenue	P.O. Box = Post Office Box
Bld. = Boulevard	Prof. = Professor
bu = bushel(s)	psi = pounds per square inch
ca. = about (circa)	R&D = Research and Development
cc = cubic centimeter(s)	Rd. = Road
Chap. = Chapter	Rev. = Revised
cm = centimeter(s)	RPM = revolutions per minute
Co. = company	S. = South
Corp. = Corporation	SANA = Soyfoods Association of North America
Dec. = December	Sept. = September
Dep. or Dept. = Department	St. = Street
Depts. = Departments	tonnes = metric tons
Div. = Division	trans. = translator(s)
Dr. = Drive	Univ. = University
E. = East	USB = United Soybean Board
ed. = edition or editor	USDA = United States Department of Agriculture
e.g. = for example	Vol. = volume
Exp. = Experiment	V.P. = Vice President
Feb. = February	vs. = versus
fl oz = fluid ounce(s)	W. = West
ft = foot or feet	°C = degrees Celsius (Centigrade)
gm = gram(s)	°F = degrees Fahrenheit
ha = hectare(s)	> = greater than, more than
i.e. = in other words	< = less than
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)	

## HOW TO MAKE THE BEST USE OF THIS DIGITAL BOOK - SEARCH IT

**Most Important Thing:** The **KEY** to using this digital book, which is in PDF format, is to **SEARCH IT** using Adobe Acrobat Reader: For those few who do not have it, Google: **Acrobat Reader** - then select the **free** download for your type of computer. Then...

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**Click the small down-pointing arrow just to the right of that box to get a menu.**

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**When asked: “What word or phrase would you like to search for?” type that word or phrase in the box. For example: China or Rockefeller Foundation. No need to use quotation marks. Then click “Search.”**

**At “Results” click any line that interests you.**

**For those using a Mac without Acrobat Reader: Safari is often the default browser. Click “Edit” in the toolbar at top. In the dropdown click “Find,” then click “Find...” again. A search bar will open across top of screen with a search box at right. In this box type a word or phrase you would like to search, such as China or Rockefeller Foundation. Click “Done” then scroll through the various matches in the book.**

**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, A.A. Horvath, Englebert Kaempfer, Mildred Lager, William 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 or more of 14 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).

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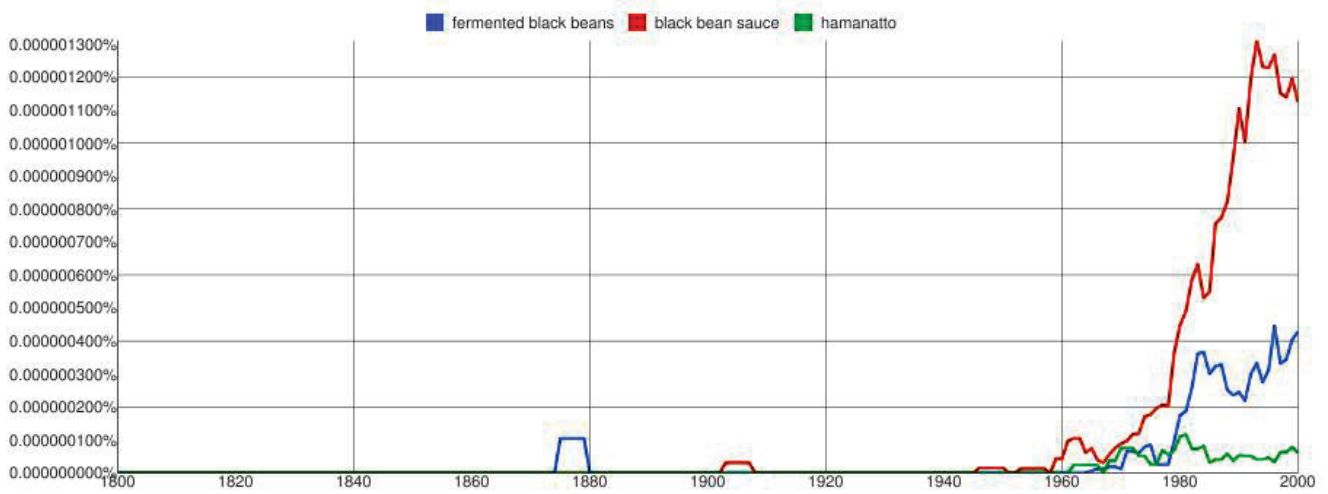
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## HISTORY OF FERMENTED BLACK SOYBEANS

1. Chuci [Poems from the state of Chu]. 250? B.C. China. Passage on soy reprinted in C.N. Li 1958 #23, p. 44. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Ch'u Tz'u*. Eastern Zhou dynasty–Warring States period. Chapter 9 is a poem titled “Summons of the Soul” (*Zhao Hun*); the poet is inviting the soul to return home to the good life, in which a variety of delicious dishes have been prepared to please the palate. On line 95 of this poem the characters *daku* meaning “extremely bitter” appear. (Translated by H.T. Huang, PhD, Nov. 2001). See also Huang (2000, p. 336, 339).

Dr. Huang adds: This is an important work; it is almost as famous as *The Book of Odes* (*Shijing*). In the 2nd century A.D. (Later or Eastern Han dynasty), Wang Yi made the most famous commentary on this poem; it was probably he who interpreted the characters *daku* as referring to fermented soybeans, presently called *shi* or *doushi* in Chinese (pinyin; W.-G. *shih*), and “fermented black soybeans” in English. An excellent English-language translation of this work is *Songs of the South*, by David Hawkes. This is an authentic anthology / collection of poems from the Warring States period (480 BC to 221 BC). The most famous poems were written by a poet named Qu Yuan, who was also an official of the kingdom of Cu. He was very disheartened by all the corruption he saw in the court. He advised the king to make corrections, but his advice was disregarded. Finally, the kingdom was conquered. Filled with sadness, he drowned himself in the river. Legend has it that he became a dragon. In his memory, since the 3rd century BC, dragon festivals have been held in his honor throughout China. This kingdom was located in the middle part of the Yangtze valley, in today’s Hubei plus a little of Hunan in central China. Archaeological research within the last ten years has shown that a very highly developed civilization flourished there in about 8,000 BC, at about the same time as civilizations in the Fertile Crescent. Ten years ago it was thought that Chinese civilization started in the north, but it now appears that the oldest Chinese civilization started further south, in central China around Hubei. Rice was domesticated there. Although the written Chinese language was invented further north in the Shang dynasty about 1,500 BC and first recorded on oracle bones, a spoken language had been developed earlier in the south. Moreover, we now know from similarities in culture and artifact designs that communication already existed between people in the north and south. For example, similar but unique clay pottery steamers and 3-legged vessels for cooking existed in both north and south (Huang 2000, p. 76-80).

Additional evidence that fermented soybeans (fermented black soybeans, *chi*) existed in China in the 2nd century

BC comes from Han Tomb No. 1 at Ma-wang-tui at Henan/Honan China; it was sealed in about 165 BC. Fermented black soybeans were among the foods stored in pottery jars and listed on bamboo slips discovered in this cave. They were specifically identified as the material stored in jars 126 and 301. However the character for fermented black soybeans then was different from the modern character. The *Shuo Wen* (A.D. 121) says that this character refers a substance prepared by incubating soybeans with salt. Nevertheless there are no direct references to fermented black soybeans in literature predating the Ch’in dynasty (221 BC to 209 BC). However there is no doubt that by the late Western Han, fermented black soybeans had become an important commodity in China (Huang 2000, p. 336).

Therefore, this may be the earliest document seen (Feb. 2003) concerning fermented black soybeans—however we cannot be sure.

2. Sealing of the Han tombs at Mawangdui near today’s Changsha, Hunan province, China (Early event). 165? B.C. Undated.

• **Summary:** In 1972 Chinese archaeologists made one of the most important discoveries in the history of such research in China (and *the most* important discovery related to early Chinese food) when they uncovered the first of three Han tombs at Mawangdui (W.-G. Ma-huang-tui; the name of a place, pronounced “ma-wang-DUI”) in south-central China. Two large volumes about the discovery, containing many wonderful photographs, have been published (see *Ch’ang-sha Ma-wang-tui I Hao Han Mu*. Peking: Wen Wu Press, 1973). Several photographs from this book appear in the following book: Chang, K.C. 1977. *Food in Chinese Culture*, p. 183-84.

Sealed during the same period (within a few years of each other) in the early Han dynasty (about 165 B.C.), these were the tombs of one Chinese ruling family—The Marquis and Marquise of Dai, and probably their son.

Note: These tombs are completely different from the Later / Eastern Han Tomb No. 1, at Da-hu-ting, Mixian, Henan province, China; they are located about 425 miles to the south of the latter tomb and were sealed at least several centuries earlier.

The first tomb to be excavated and reported was Han Tomb No. 1, which contains the greatest abundance of actual food remains plus the names of foods. The body of the lady buried here was so remarkably preserved that her skin, muscles, and internal organs still retained some elasticity when the coffin was opened. She was probably the wife of Li-Cang, the first Marquis of Dai (reigned 193-186 BC) and died a few years after 168 BC at about the age of

fifty (Ying-Shih Yü, 1977, p. 55-57). With her were buried all the 5-6 major grains, including wheat, barley, rice, two kinds of millet, soybeans (*shu*), and hemp. Also found in the tomb were several seasonings including soybean *jiang*, *shi* (fermented black soybeans or ‘salted darkened beans’), and leaven (*ch’ü*) [*qu*].”

The best English-language account of fermented black soybeans (*shi*; soybeans fermented with salt) in these tombs is found in H.T. Huang (2000, p. 336). Fermented black soybeans were found in pottery jars No. 126 and 301 and listed on a bamboo slip discovered in Tomb No. 1 at Mawangdui. The character for *shi* on the bamboo slip is identical to a character which appears in the *Shuowen Jiezi* (Analytical dictionary of characters) (121 AD), where it is defined as soybeans fermented with salt (fermented black soybeans). There are no references to *shi* in earlier literature. Note: This bamboo slip is the earliest completely reliable document seen (Nov. 2011) that mentions fermented black soybeans, which it calls *shi*.

The best English-language account of *jiang* in these two tombs is found in H.T. Huang (2000, p. 346-47). Apparently, by the time these tombs were sealed in the Former / Western Han, the word *jiang* had “already undergone a subtle change from its ancient meaning. It was increasingly used specifically to denote the fermented paste made from soybeans.” Since then, it is understood that the character *jiang*, unless otherwise indicated, usually means *doujiang*, i.e., *jiang* made from soybeans. Likewise, the character *dou*, unless otherwise specified, usually means “soybean.” When the word *jiang* is applied to a specific type of fermented sauce or paste, a prefix is used to indicate the kind of raw material from which the *jiang* was made. Thus, in addition to *jiang* itself, the Mawangdui bamboo strips also list a *jujiang* (meat paste), a *quejiang* (sparrow paste), and a *majiang* (a kind of fish paste), as well as a *tan* (probably horse meat *jiang*) and a fish *tan*.” The types of *jiang* made from animal parts are addressed separately in the chapter on “Food processing and preservation” (p. 379-415).

Huang (2000, p. 165-66) also states that records of both ferments (*qu*, a grain-based mold ferment like Japanese koji) and grain-based wines were found among the burial remains at Mawangdui. The Inventory lists two sacks of ferment (*qu*) and 8 jars of wine of various types. One, named *baijiu* (white wine {Jap. white saké}), is described as mature, muddy wine. That would make it like Japanese *doburoku*.

3. Sima Qian. 90? B.C. Shiji [Records of the historian]. China. Passage on soy reprinted in C.N. Li 1958 #28, p. 48-49. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Shih Chi*, by Ssuma Ch’ien. This is the earliest known history of China, written during the early Han dynasty, and the most famous of all Chinese historical works. It is also the earliest Chinese work whose date of appearance is fairly well known; he presented

it to the emperor ca. 90 BC.

Chapter 6 (*Qin Shihuangdi*), which is about the first emperor of China, notes that soybeans (*shu*) were transported [as a commodity]. Chapter 7 (*Xian Yu*), which is about a general contending for power, states that soldiers eat taro/yam (*yu*) and soybeans (*shu*). Chapter 10, about Zhang Yi (who was probably another general) states that people in a mountainous region of China (perhaps near today’s Korea) grow lots of wheat but eat mostly cooked soybeans and soup made from soybean leaves (*huo*). Chapter 27, about Li Si (a top government official) mentions soup made from soybean leaves.

Chapter 69, titled “Economic affairs” (*Huo zhi liezhuan*, a famous chapter) refers to one thousand earthenware vessels of mold-fermented cereal grains and salty fermented soybeans (fermented black soybeans) (*niequ yanshi qianhe*), as articles of commerce. (Translated by H.T. Huang, PhD, Dec. 2001). Dr. Huang adds: Chapter 69 shows that soybeans and fermented black soybeans had now clearly become major commodities in the Chinese economy (See Huang 2000, p. 336). The term *niequ* probably refers to two separate entities. *Nie* is a general term for sprouted grain; it should not be translated as “malt,” since in English “malt” generally refers to malted barley. *Qu* (which is the same character pronounced “koji” in Japanese) refers to molded grain used in a fermentation, but we cannot say what type of cereal grain (such as wheat, rice, barley, millet, etc.) was used. Note 1. The Japanese almost surely learned both the method and the character from the Chinese. Since this book was written in northern China, the *qu* was probably either molded wheat, barley, or millet. The earliest method describing how *qu* was made appears in the *Qimin Yaoshu* (Important arts for the people’s welfare) (544 AD); that *qu* was molded wheat.

Dr. Huang continues: Soybean leaves are still widely used in soups, in part because there were not as many types of vegetables as there are today. Much later they used only tender soybean seedlings (*doumiao*) in soups, finding the regular leaves too tough. Most of the chapter titles in this work refer to people, but some refer to early dynasties (Xia, Shang, and Zhou) or to subjects such as economics. This book gives the names of all the Shang dynasty emperors. It also lists Shennong as an early historical emperor. The “Burning of the Books” commanded by the first emperor of China some 123 years earlier, in 213 BC, had destroyed much of Chinese written history. Thus, scholars didn’t take this list seriously until inscriptions on Shang oracle bones, discovered by archaeologists in the early 20th century, showed (remarkably) that this list of emperors was quite correct, and that many of these emperors were real people.

Note 2. This is the earliest document seen (June 2009) that contains the term *doumiao*, which refers to tender, young soybean seedlings for food use, or that describes eating the tender young leaves of soybean seedlings (*doumiao*).

Note 3. This is the 2nd earliest document seen (Nov.



2011) that clearly mentions fermented black soybeans (*shi*).

Chapter 70, about a man named *Taishi Gong* (which may be an honorific name of Sima Qian; Gong means “duke”), mentions a soup made from soybean leaves.

Huang (2000, p. 337) tells this story from the *Shiji* (Biography of the Prince of Huainan, Chap. 118): “When the Prince of Huainan (the legendary inventor of tofu), was exiled for inciting rebellion (in 173 BC), against his brother the Han Emperor Wendi, he and his retinue were, nevertheless, provided with such necessities of life as ‘firewood, rice, salt, *shi* [fermented black soybeans], and cooking utensils.”

Wilkinson (2000, p. 781). Sima Qian (145-86 BC) fulfilled the request of his father, Sima Tan (80-110? BC), to complete the project for which he had begun to gather the materials, a history of China from the earliest times to the reign of Han Wudi, a period of 3,000 years. The *Shiji* is a history of China from the Yellow Emperor down to Han Wudi arranged in a manner which, with certain adaptations, was to set the form for a new way of writing history. Wilkinson gives details of its structure (p. 501-02).

Fukushima (1989, p. 7): This is the earliest known document to mention shih.

Needham (1986, p. 237-38): One may ask how Shen Nung entered this book. He was one of the great culture heroes of Chinese antiquity, the second of the ‘three primordial sovereigns’ (*san huang*). Reigning as Yen Ti, he was the “technic-deity, arch-inventor and patron saint of all the biological arts—agriculture, tillage, animal husbandry, pharmacy, and medicine. This was the soil from which Chinese botany and zoology as sciences emerged.” In the *Shiji* we find the statement that Shen Nung ‘experimented with (literally tasted, experienced) the hundred herbs, and so began the use of medicaments.’

Bray (1984, p. 629): Historical Record (down to -99). Published in early Han, c. -90. By Ssuma Ch’ien, and his father Sima Tan (W.-G. Ssuma T’an). Partial translations by Chavannes (1895-1905), Pfizmaier (1858-1863), Hirth (1917), Wu Khang (1932), Swann (1950), etc. Yin-Te Index, no. 40.

Bo (1982): “Meat jiang 1,000 pots, and [soybean] jiang 1000 pots.”

K.C. Chang (1977:31): “... in all likelihood soy sauce [probably chiang] was known toward the end of the Chou period (see *Shih chi*, “Huo Ch’ih Lieh Chuan”).

Shih Shêng-han (1962), in his translation and interpretation of the *Qimin Yaoshu*,

Shih Shêng-han (1962, p. 86) notes that Sima Qian mentions fermented black soybeans (*shi*) as being sold commercially in the cities, so it must have been produced in large quantities in his time.

Reischauer and Fairbank (1960, p. 111-13): The greatest literary achievement of the Han period was in the field of historical writing. No people have been more interested in

their past than the Chinese. This book is a history of China up to 99 BC, much greater in scope and far more advanced in scholarship than any work that had preceded it. It continued Confucius’ work on history. *Shih* means historian or history. *Chi* means record or note. Wu Ti had Ssu-ma Ch’ien castrated. The book set the pattern for later Chinese historical works. 130 chapters, 700,000 characters.

Morohashi (1955): Chiang kang (chiang crocks). “Throughout T-ai (district in Szechuan?), in one year, 1,000 fermented products and 1,000 crocks of pickles and chiang (are made). This is equivalent to a house of a thousand chariots (i.e., a dukedom).”

Hagerty (1917, p. 33-34, 79): “The Shih chi, or Historical Records, under the heading of Huo Chih, or Political Economy, says: ‘In the big centres and capital cities, at the harvest time, this bean product [shih, or bean relish {fermented black soybeans}] was on sale in the markets and was called Nieh ch’ü yen shih, and the quantity which was sold in one year, amounted to one-thousand *ta*.’” The Han shu writes the last two characters (Cc).

Bretschneider (1871, p. 7-8): “Ssu-ma-ts’ien, the Herodotus of China, in his historical work *Shi-ki* (pinyin: *Shiji*, by Sima Qian), written in the second century BC, states that the Emperor Shen-nung 2700 BC sowed the five kinds of corn [five grains, *wugu*]. In later times the Chinese commentators agreed that here the following corns were meant:” 1. *Shu Panicum millet (Panicum miliaceum L.)*. 2. *Tsi [Chi] Foxtail / Setaria millet (Setaria italica Beauv.)*. 3. *Shu Soja-bean (Glycine hispida)*. 4. *Mai Wheat*. 5. *Tao Rice*.

4. Shi You. 40 B.C. 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 commentary (large characters) by Yan Shigu (a famous Tang dynasty scholar) and a +13th century 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 soybeans (fermented black soybeans; *shi*), soured pickles / vinegar, and *jiang*. Concerning *shi*: The +7th century commentary states: “When you incubate beans (*dou*) you

get *shi*. In the *Chuci* (Poems from the state of Chu) (-250), fermented black soybeans are called *daku*. Concerning *jiang*: The +7th century 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: *Sanni* is three kinds of meat paste still mixed with bone. See Huang 2000, p. 379).

Note: This is the earliest document seen (June 2007) 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 B.C. 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.

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

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, p. 31). The commentary by Yen Shih-Ku in the 7th century A.D. states that soybeans and wheat flour are mixed to produce *chiang*. There is also a +13th century 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.

5. Ban Gu. 76 AD. Qian Hanshu [History of the Former Han dynasty]. China. Passage on soy reprinted in C.N. Li 1958 #36, p. 52-54. Modern rendering by Morohashi 1955, trans. p. 25. For translation see Swann 1950. Called Kansho in Japanese. [Chi]

• **Summary:** Wade-Giles reference: *Ch'ien Han Shu*, by Pan Ku. Often titled simply *Hanshu* / *Han Shu*, this large, important work of 100 chapters became a prototype of all later dynastic histories of China. Since Ban Gu (who lived AD 32-92) died before he could complete the work,

it was finished (in AD 76) by his sister, who was a famous woman and writer in her own right. In Chapter 7, the soybean (*shu*) and millet are mentioned together twice. But the character for (*shu*) is written without the usual grass radical on top—perhaps an early way of writing it. This character (pronounced *shu*) can also mean “uncle,” however commentator Yan Shigu (7th century) states that here it refers to soybeans.

Chapter 61, titled “Record of economic affairs” states that two of the wealthiest merchants in the realm traded in fermented black soybeans (*shi*) (Huang 2000, p. 337). Section 4 of this same chapter mentions the “five grains” (*wugu*). The commentator, Yan Shigu, says that one of these five was soybeans (*shu*).

The chapter on the Five Elements, No. 7, middle section, Part II, mentions soybeans (*shu*, written with the grass radical) seven times.

The chapter on geography, section 8, mentions the five grains during the Zhou dynasty. The commentary states that the five grains are two kinds of millets, soybeans (*shu*), wheat, and rice.

The chapter on the biography of Xiangji, a famous Chinese general, states that his foot soldiers were running short of food; they had only half the amount of soybeans (*shu*) that they needed. Note: Soybeans are now used as a military food.

The chapter on the biography of Yang Yun, who apparently did something wrong and was punished, contains a letter he wrote to the emperor: “I have suffered for three years, and worked hard in my fields. I have hunted in the winter, cooked mutton, drank the grain wine I have made, worked close to the soil, and served the Qin family. The women of the family are skilled in the art of the drum and the flute. My female servants and concubines sing, and after they drink, they perform. After I drink grain wine, my ears feel warm and I cry out to heaven. My poem states: In my fields close to the southern hills, out of the poor earth, I have been able to cultivate and harvest soybeans (*dou*) as well as their stems (*qi*). Life has been good to me. Why do I need more riches?” Note 1. He has learned to be content even with his hard life. He probably uses the stems for fuel and mulch. Note 2. This is the earliest document seen (March 2003) that mentions soybean stems (*qi*).

The chapter on the biography of Bao Xuan, mentions four beverages and foods: juice, grain wine, soybean leaves (*huo*), and meat.

The chapter on the biography of Di Fang Jin, section 54, states: For food (*fan*), give me cooked (steamed or boiled) soybeans (*dou*).

The chapter on the biography of Wang Mang, section 69, middle part, mentions soybeans (*shu*) and millet. (Translated by H.T. Huang, PhD, Jan. 2002). Dr. Huang adds: Today, *fan* means cooked rice.

Wilkinson (2000, p. 502-03). The *Hanshu* was the

second Standard History of China after the *Shiji* (Records of the Grand Historian). The most important difference between all the Standard Histories from the *Hanshu* onward and the *Shiji* was that they covered only one dynasty and made no attempt to cover the vast sweep of history (3,000 years) embraced by the *Shiji*.

Ying-shih Yü (1977, p. 76): “Under the reign of Emperor Ch’eng (32 to 7 B.C.) the prime minister Chai Fang-chin (whose courtesy name was Tzu-wei) had caused the breakdown of a major irrigation dam in Ju-nan commandery (in Honan). Agriculture in the whole region was therefore seriously affected. To register their complaint against Chai, the people of Ju-nan created a song which reads, ‘It was Chai Tzu-wei who destroyed our dam, / Now all we have for food is soybeans and yam [taro].’ As the commentary by Yen Shih-ku makes clear, the second line means that the people cooked soybeans as grain food (*fan*) and yam as *keng* (*Han shu*, 84:22a).”

Morohashi (1955): Decrying the present state of philosophical studies: “How bitter is the void! The students of today are such materialists they do not even understand the changes (*I*), so how can they comprehend the darkness. I’m afraid in the future they will use the philosophy books to cover *chiang* jars (*chiang p’ou*).” “In the morning during the first month, the wind comes from the northwest section, bringing the *Jung shu*.” Meng K’ang says this *Jung shu* is the same as *Hu tou* (foreign bean).

Hagerty (1917, p. 34): The *Han shu* says: “From the completion of the reign of Han Yüan Ti up to that of Wang Mang (a nephew of the Empress of Han Yüan Ti, who lived from BC 33–AD 23), some famous rich man of this time engaged in the business of making and selling *Shih*, or Bean relish, in the capital at Chang-an. One named Fan Shao-wêng incurred the ridicule of all the people because of being engaged in this business.”

6. Xu Shen. 121 AD. *Shuowen jiezi* [Analytical dictionary of characters]. China. Passage on soy reprinted in C.N. Li 1958 #42, p. 56. [Chi]

• **Summary:** Wade-Giles reference: *Shuo Wen Chieh Tzu*, by Hsü Shên. Often abbreviated to *Shuowen*. Bray (1984, p. 630) translates the title literally as “Explanations of simple characters and analysis of composite ones.” Wilkinson (2000, p. 63) translates it as “Explaining single-component graphs and analyzing compound characters.” This is the earliest systematic or comprehensive Chinese lexicon/dictionary, and by far the most important. It succeeded the *Erh Ya*, is arranged by the structure of the characters, and lists more than 9,000 characters under 540 radicals.

Li (1958, p. 56) identifies ten ancient Chinese “seal characters” (*zhuanwen*, ornamental writing) in this dictionary that are related to soybeans (and other beans); all ten are compound / composite characters: (1) Pronounced *da* means “small soybean” (*shu*). It is composed of a grass radical over

the character *he* which has a stylized roof above a mouth. (2) Pronounced *qi* means “soybean stem.” It also has a grass radical on top. (3) Pronounced *huo* means “soybean leaves.” It is the third character with a grass radical on top. (4) Pronounced *dou* and means “beans.” It is a plate with a pedestal. (5) Also pronounced *dou* means “beans,” and is an ancient way of writing No. 4. (6) Pronunciation unknown: Refers to a kind of soybeans.” At the bottom is character No. 4. (7) Pronunciation unknown: Refers to a sweet product made from soybeans. It also has character No. 4 at the bottom. (8) Pronounced *shu* means “soybeans” (*dou*). This is the main part of the early character *shu* meaning soybeans or the character *shu* meaning uncle. The character itself resembles a germinating soybean emerging from the ground—showing the horizontal line of the soil surface, roots below it, and a stem and branch above. (9 and 10) Pronounced *chi* (or *shi*) and showing two ways of writing the same character, which means “soybeans fermented with salt” or “fermented black soybeans.” The first has *shu* on the left while the second has *dou* on the left, each meaning “soybeans.” On the right, both have the ancient radical for “branch.” This second character is basically the same as the modern character for “fermented black soybeans.” (Translated by H.T. Huang, PhD, Jan. 2002).

Dr. Huang adds: These are China’s oldest and most revered characters, based largely on the inscriptions found on China’s ancient bronzes. Stylized and formalized, they demonstrate the beauty of ideographic language, which starts as pictures. They have no counterpart in Western European culture. These characters have been written by calligraphy specialists throughout Chinese history (until 1949), regardless of the dynasty, to announce special or weighty occasions. They are also available as a modern font. The Chinese Communist government, in their desire to break with the past, was the first to discontinue and discourage their use—although a few calligraphers keep them alive.

Huang (2000) discusses the different types of ferments (*qu*, *koji*) listed in this work and, throughout Chinese food history (p. 167, 261, 150-68), early uses of the word *fu* to mean ‘decayed’ or ‘rotten,’ “hardly a fitting appellation for a food product (p. 302). What is *jiang*? The *Shuowen* tells us that “*jiang* is *hai*; it is made by blending meat with wine.” Fortunately other works give us “more specific information on how *hai* or meat *jiang* was made in antiquity” (p. 334). The *Shuowen* says that fermented black soybeans (*shi*) are prepared by incubating soybeans with salt (p. 336).

Bretschneider (1881, p. 162): The ‘*shuo wen*’ (introduction), in one chapter, explains “*tou*” by “ancient vessels for containing meat” but in another chapter given to it the meaning of “*shu*” or pulse. Some authors in the Ch’in dynasty (3-4 century AD) began to write “*tou*” to designate “pulse.”

Hagerty (1917, p. 34): “The *Shuo Wan* [sic, *Shuo Wen*], or Ancient Dictionary, says: ‘The term for bean is *Lu lu* *huo*

(Cc), and this is really identical with the name Niu lu huo (Cc).’... The Shuo wên also says that the term Chüan lu huo (Cc) really is identical with Niu (Cc). The Commentary says these all refer to what we know as the Lu tou (Cc) [mung bean].

Morohashi (1955): Translated p. 9, 16 (nuggets). Listed 9,000 Chinese characters under 540 radicals.

Ho Ping-ti (1969): This was the earliest systematic Chinese lexicon, compiled shortly after 100 A.D.

Hsu (1980): Gives 4 variations for “beans” “The character shu/shih? is used to denote the salted bean.

Bo (1982): “In this, China’s oldest dictionary, it is stated that the character chiang follows the characters for meat and (?). Chiang already meant meat chiang so it was not necessary to explain this. But if chiang already meant meat chiang, why was the character chiang used more widely than the other character chiang written in a similar way? This is conflicting and confusing. I think the author made a mistake in his interpretation, or maybe he didn’t have a clear understanding of the origin of the term “chiang... The character for shi is described as a fermented bean using salt. For “fermented” they use the term “yu,” which means that you place things upside down, inoculate them with koji molds, and allow them to ferment.

Note that the fermented black soybeans in tomb number 1 of Mawangdui [Jap: Seikan Baotai, literally “Horse King Mound,” the tomb of the prime minister of a small state (Changsha) in the Former Han] of the Former/Western Han were about 200 years before the Shuo Wen. Note: The Former/Western Han had its capital at Ch’ang-an (today’s Sian or Xi’an, the capital of Shensi). It later became the capital of the Later Ch’in, Northern Chou, and T’ang dynasties. Luoyang (W.-G. Lo-yang, in today’s north Honan province) was the capital of the Eastern Chou, then the Later Han, and Jin.

Bray (1984:630): Shuo Wen Chieh Tzu. Analytical Dictionary of Characters [lit. Explanation of Simple Characters and Analysis of Composite Ones]. Later Han, +121. By Hsü Shen.

Fukushima (1989, p. 7): “Shih is also described along with chiang in *Shuo-wen Chie-tzu* (*Setsubun-kaiji* in Japanese) by Hsu Shen (Kyoshin in Japanese), the oldest dictionary in China published in 121 AD in the later Han dynasty. The raw material of the shih is soybeans.”

Letter from Dr. H.T. Huang, expert on the history of Chinese food and agriculture. 1994. May 10. There is a reference to *li* (the Chinese forerunner of Japanese amazake) in this work which appeared in 121 AD. It explains that “*li* is wine that has only been fermented overnight.”

7. Liu Xi. comp. 150 AD. Shiming [Expositor of names]. China. Passage on soy reprinted in C.N. Li 1958 #46, p. 57, and #221, p. 234. [Chi]

• **Summary:** Wade-Giles reference: *Shih Ming*, by Liu Hsi.

Later / Eastern Han dynasty. *Shu* (the simplified character) means soybeans (*shu*, the early, more complex character).

In Chapter 13, fermented black soybeans (*shi*) are mentioned twice. The first states: *Shi* is also written as *shi* (a Chinese character with the same pronunciation / sound that refers to something delectable and highly desirable). It is used to blend / harmonize the five flavors. *Shi* is necessary for this blending to succeed. It helps to make things sweet and delectable. That’s why the people of Qi [a region in today’s Shandong province near the birthplace of Confucius] call it *shi* (fermented black soybeans). Because it sounds just like *shi* (delicious / delectable) (See Huang 2000, p. 337). The second reference to *shi* in Chapter 13 is in a recipe for dry-roasted meat. “Marinate meat in malt sugar, honey, and *shizhi* (fermented black soybean extract; literally “juice from *shi*”), and roast it until it has the consistency of dried meat” (see Huang 2000, p. 360). (Translated by H.T. Huang, PhD, Feb. 2002). Dr. Huang adds: By the late Han period, *shi* was a popular food product. The fact that it was traded extensively makes it clear that it was considered a culinary necessity of daily life. The second reference is interesting in terms of the origin of soy sauce. *Shizhi* was an extract, probably made by boiling *shi* in water; so it was something like miso soup without the added vegetables, etc. *Shizhi* is also mentioned several times in the *Qimin Yaoshu* (6th century A.D.), but it is not mentioned in any other work in between. It was a precursor of soy sauce but it would have lacked the richness of soy sauce.

Note: This is the earliest document seen (Nov. 2011) that mentions fermented black soybean extract / sauce, which it calls *shizhi*.

Huang (2000) discusses the different types of ferments (*qu*, *koji*) listed in this work and, throughout Chinese food history (p. 167, 261, 150-68). The *Shiming* says “when *hai* is soupy, it becomes *tan*. Thus *hai* can be construed as a thick meat sauce (or a paste), and *tan* a thin one” (p. 334). This work says that fermented black soybeans (*shi*) are “delectable and highly desirable. It was a popular food product. In fact, the extensive trade in *shi* during the Han-Wei Period [202 BC to 265 AD] leaves no doubt that it was considered a culinary necessity of daily living” (p. 337). Fermented black soybean sauce (*shizhi*) was apparently a well-known flavoring agent during the Han. The *Shiming* states: “Roast-dry meat: marinate meat in sugar, honey, and *shizhi* and roast it until it has the consistency of dried meat” (p. 360). The *Shiming* discusses different types of pasta (both non-filamentous and filamentous) including one with sesame seeds (*huma*) sprinkled over it (p. 468, 472s, 480, 484). Gives a good history of malt sugar made from various cereals (p. 457-58); one type (*i*) is mentioned in the *Shiming*.

Hagerty (1917, p. 33): “The Shih Ming, or Explanation of Terms, by Liu Hsi of the After Han Dynasty period says: ‘The Shih, or Bean relish, has an excellent taste, having all five flavors harmonized together. This sauce is necessary in

order to complete the flavor of the food and make it taste good. For this reason the people of Chi state pronounce the character for shih (Cc), the name for bean relish, the same as the character (Cc) (?) which denotes “excellent.””

Wilkinson (2000, p. 66, 790): The chapter titled “Dictionaries” states that China’s first etymological dictionary, the *Shiming*, compiled by Liu Xi, appeared circa +200. Liu used rhyming puns plus the literary and spoken languages of his day, to trace the origins of 1,500 words in 27 categories. This is a major work.

8. Zhao Qi. 153 AD. Sanfu juehu [A considered account of the three cities of the metropolitan area (Changan, Fengyi and Fufeng)]. China. Passage on soy reprinted in C.N. Li 1958 #129, p. 91. [Chi]

• **Summary:** Wade-Giles reference: *San Fu Chieh Lu*, by Chao Ch’i. The names of the three cities in Wade-Giles are: Ch’ang-an, Fêng-i and Fu-fêng. This book of the Later / Eastern Han dynasty book mentions *yanshi suanguotung* (Salt + fermented black soybeans + leeks + fruits). Note: Changan is today’s Xi’an.

9. Ying Shao. 175 AD. Fêngsu tongyi [Meaning of populist traditions and customs]. China. [Chi]\*

• **Summary:** Wade-Giles reference: *Fêng Su T’ung I*, by Ying Shao. Later / Eastern Han dynasty. This is an important work.

Wilkinson (2000, p. 188) translates the title as “Comprehensive meanings of customs,” notes that Ying Shao lived ca. 140-206 A.D., and observes that this is the earliest existing example of a work that records annual festivals, customs and beliefs in China.

10. Cao Zhi (W.-G. Ts’ao Chih). 220-232 AD. [Poem mentioning shu (soybeans), shih (fermented black soybeans), and fermented black soybean sauce (shih-yu)]. China. [Chi]\*

• **Summary:** Qin dynasty or Three Kingdoms? Hagerty (1917, p. 33): “Tsao Chih (Footnote: See Giles, C.B.D., p. 756), a famous poet who lived AD 192-232, makes mention of the [soy] bean in a poem as follows: ‘Make a fire of the stalks and cook the beans. They are both from the same root.’ The Shu bean is cooked and also salted.”

Bo (1982): Ts’ao Chih, a famous poet during the Three Kingdoms period (220-280 A.D.) wrote a famous poem in praise of fermented black soybean sauce: “Cook soybeans to make kan. Strain shih (fermented black soybeans) with water to make fermented black soybean sauce” (*shih-yu*). From this poem it is clear that fermented black soybean sauce became a very important seasoning in the diet of the ruling class. Fermented black soybean sauce is still widely produced in the area south of the Yellow River and in the Choko? River area. Even the poor peasants in the countryside often make fermented black soybeans (*tou-shih*) and fermented black soybean sauce. In the Kosei Shokuryo area, fermented black

soybean sauce is often sold as a commercial product. In the southern part of Fukien (Fujian) province, they call soy-nugget sauce “shih-yu.” The pronunciation is very similar to that of the Japanese term “shoyu.” It is said that Japanese shoyu came into the country at Yahama or Osaka from Senshu? in Fukien Province of China. Or it is said that it is deeply related to niro/niira tamari, which was produced in Aichi prefecture, central Japan, until the Taisho period. In issue No. 20 of the Hong Kong Consumer Association publication Hsüan-Tsu (“Selections”), they call soy sauce “shih-yu.”

Note: This is the earliest document seen (March 2001) that mentions fermented black soybean sauce, which it calls *shih-yu*. Address: China.

11. Wang Hsi-chih. 346-379 AD. Shijiu [The record of fermented black soybean wine]. China. Modern rendering by Morohashi 1955, trans. p. 19. [Chi]\*

• **Summary:** Wade-Giles reference: *Shih Chiu*, by Wang Hsi-chih. Eastern Jin dynasty; Sixteen kingdoms.

“When I was young I drank *shih chiu* [fermented black soybean wine]. It was very good.” Address: China.

12. Tao Hongjing. 510 AD. 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 (Feb. 2007) 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 (July 2006) stating that soybean pods can be used as livestock feed. 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 (March 2003) 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 (June 2008) 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 (Jan. 2005) that mentions sea vegetables.

Hagerty (1917, p. 4) says that the *Pieh lu* (*Ming i pieh lu*, a *Materia medica* by Tao Hung-ching, AD 452-536) states: “The Shêng ta tou [gives Chinese characters], 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 (Aug. 2009) concerning 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 [character].

Hagerty (1917, p. 76-77): “Shih: The Shih [character], 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 [character], 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 (1881, p. III: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 AD.

Note 9. This is the earliest document seen (May 2001) that mentions hemp seed oil.

13. *Shijing* [Food canon (#1)]. 530? AD. China. Passage on soy reprinted in C.N. Li 1958 #294, p. 216. Undated. [Chi] • **Summary:** Wade-Giles reference: *Shih Ching*. Northern Wei. There are several early Chinese books with this title. The original work has been lost, but its contents are partly preserved in the fermentation and food processing / food and drink chapters of the *Qimin Yaoshu* (QMYS). The author and date of this one are uncertain. The date was probably before that of the QMYS (+544); the date +530 is proposed here by Li. Authorship has been attributed to Cui Hao (W.-G. Ts'ui Hao), to his mother, or to Ma Wan—but these are just theories. One *Shijing* (Food canon), attributed to Cui Hao, in 9 volumes, is listed in the *Weishu* (History of the Northern Wei dynasty) (+554), in which only the preface remains. This preface, which has been translated in Huang (2000, p. 125), strongly implies that most of the *Shijing* was actually written by Cui Hao's mother. During a famine that lasted more than ten years, she realized “how ignorant the younger generation had become” in matters related to food preparation and the culinary arts. “The result is nine chapters of elegant and systematic descriptions that form this book.” In his later years, Cui Hao unfortunately had a falling out with the Wei emperor; in +450 he and his entire family were put to death for high treason, and he was regarded as a traitor for the last 100 years of the Northern Wei dynasty. This was probably why his name is never mentioned in the CMYS and though many passages from the *Shijing* are quoted and the source cited, the CMYS never says *whose Shijing*. The author of the QMYS was a government official when Cui Hao was remembered as a traitor.

The section titled “How to make soybean (*dadou*) thousand year bitter wine (*kujiu*)” (preserved in Chapter 71, titled “Vinegar” in the QMYS) says: Take one pint (*dou*) of soybeans (*dadou*). Wash until very clean, soak until soft, then steam until cooked through. Dry in the sun. Then repeatedly pour wine (*jiu*) over the soybeans—so they impart their flavor to the final vinegar and aid the oxidation process. This section also describes other ways of making other kinds of vinegar—each with a unique flavor.

The section titled “How to make fermented black soybeans (*shi*)” (preserved in Book 8, chapter 72 of the QMYS) describes three methods for making *shi*. The main method (the one described first in the QMYS and considered to be most important by the author) is for unsalted / bland fermented black soybeans (*danshi*). The method for making salty fermented black soybeans (based on the translation by

Shih Shêng-han 1962, p. 86-87, and H.T. Huang 2000, p. 338-39) is as follows: Fermented black soybeans are usually made in the summer, from the 5th to 8th month; this is the best time. Take one *dan* (about 40 liters; later pronounced *shih*) of soybeans, wash / scour well, and soak overnight. The next morning, drain off the water then steam until the hulls / seed coats will slip off when you rub the beans. Spread on the ground (or on a mat if the ground is bad) to a depth of about 2 inches (*cun*). Wait until the beans are completely cool, then cover with a layer of rushes about 2 inches thick. After 3 days, inspect the beans to see if they are covered with a yellow coating [or mycelium, probably of *Aspergillus* mold]. If so, remove the rushes and spread the soybeans to form a thinner layer. Make grooves with the fingers in this layer and shape into “plots.” Mix again. After several hours, mix and make into “plots” again. Repeat this mixing and plot-making process 3 times a day for 3 more days.

Meanwhile, cook another batch of soybeans to get a thick, syrupy decoction. Make some glutinous rice koji (*nuqu*; W.-G. *nü ch'ü*). Mix 5 *sheng* (1 *sheng* = about 400 ml) of the glutinous rice koji and 5 *sheng* of good table salt into the yellow molded soybeans, then sprinkle with the syrupy decoction (soybean cooking liquid). Knead with both hands until some juice begins to run out between your fingers. Then place the mixture into an earthenware / pottery jar (*ping*) with a neck until full—but do not compress or pack. If the jar is not full, fill to the brim with wild mulberry leaves. Seal mouth of jar tightly with mud (*ni*). Leave jar in middle of courtyard for 27 days. Then pour out the jar's contents [probably onto a mat], spread, and dry in the sun. Steam it again, then sprinkle with a decoction of mulberry leaves. Steam it again for as long as is steaming raw soybeans, then spread it again and dry in the sun. After steaming and sun-drying three times, the fermented black soybeans will be ready.

Note 1. This is the earliest document seen (Nov. 2011) that mentions unsalted / bland fermented black soybeans (*danshi*). However the document no longer exists.

Bo (1982): Mentions wheat chiang and mustard chiang.

The *Ch'i-min yao-shu* states that this work contains a recipe for “one thousand year bitter soy wine,” which was apparently made by soaking fermented black soybeans in a grain-based alcoholic beverage or medicinal tincture.

Fukushima (1979, p. 3, 8-9, adapted from Bo 1982). “The manufacturing process of wheat chiang, appearing in *Chi-ching* (*Shokkei* in Japanese) by Hsieh Fêng (Sha Fu in Japanese), published in the Han dynasty (206 BC to 220 AD). Shi-ching has not survived to the present day, but the original Shi-ching process for making wheat chiang is cited in the *Ch'i-min Yao-shu*.” In the process wheat is soaked, steamed, and spontaneously molded to make koji. The wheat koji is mixed with cooked wheat and salt water to make a firm mash. This is insulated and aged to make wheat chiang.

The work also describes how to make *shih* (fermented

black soybeans): Soybeans are washed, soaked, drained, and steamed. The cooked soybeans are cooled, then spread, furrowed, and piled. The last 3 steps are repeated 3 times a day for 3 days until the beans have become spontaneously molded. The resulting soybean koji is mixed with soybean cooking liquid, barley koji, and salt, put into an earthen pot, sealed, and insulated. It is then dried in the shade, mixed with a mulberry leaf extract, and steamed. The last 3 steps are repeated 3 times, resulting in salted soybean shih.

Note 2. This is the earliest document seen (March 2009) that mentions soybean koji; in this case it is used to make fermented black soybeans (*shi*, *shih*).

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 27-28 is a detailed discussion (with one excerpt) of this book (*Shijing*), whose title he translates as “Catering Guide or Nutrition Manual.” He states that 33 quotations from the *Shijing* are mentioned in the *Qimin Yaoshu*. The Records of Classics and Other Writings in the *Suei Shu* mentioned nine books (all lost now) titled *Shijing*. One of these, written by the mother of Cui Hao (lived ?–450), the Prime Minister to the first Emperor of the later Wei dynasty, is definitely previous to the *Qimin Yaoshu*.

14. Gu Yewang. 543 AD. Yupian [The jade record]. China. Passage on soy reprinted in C.N. Li 1958 #67, p. 67-68. [Chi]

• **Summary:** Wade-Giles reference: *Yü P’ien*, by Ku Yeh-Wang. Southern Dynasties–Liang. This is a sort of dictionary. Each of these characters / words had a definite meaning at the time this book was written, some 1,500 years ago. However presently (2002), many are obsolete (no longer used—pronunciation and / or meaning unknown); those entries are followed by an asterisk (\*).

Chapter 162, titled “On herbs / grass” defines four characters: (1) The leaf of the soybean (*dou*); a character with many strokes, pronunciation unknown\*. (2) *Huo*, the common character for the leaf of the soybean. (3) *Qi*, the stem; *doujing* or *douxing* is the stem of the soybean. (4) *Shu*, the ancient character for soybean. This chapter also states that the character meaning “green” is pronounced *liü*, and that this is the first character in the term *liüdou* (meaning mung bean). Note: This is the earliest document seen (Nov. 2008) that mentions the mung bean, which it calls *liüdou*.

Chapter 186, titled “On *shu*” defines three characters: (1) The archaic character for *shu*, meaning soybean. (2) A less ancient character for *shu*, which can mean either “soybean” or “uncle.” (3) An earlier character for *shi* meaning “fermented black soybeans” or “salted fermented soybeans.” *Shi* is used to harmonize the flavors. The modern character for *shi* is also given.

Chapter 236 titled “On *dou*” defines 13 characters. (1) The modern character for *dou* (bean, soybean); this used to

refer to a container (plate or tray) with a pedestal, still used (about 6 inches high) in some Cantonese restaurants. In ancient times the pedestals were so tall that the tray was at the level of a person’s shoulders when both were seated on the floor. (2) An ancient form of *dou*, meaning not given\*. (3) A sweet made from soybeans; pronunciation unknown\*. (4) Has to do with the stem; pronunciation may be *ma*. \* (5) A variety of soybean (*dou*)\*. (6) Another variety of soybean (*dou*)\*. (7) Broken or ground *dou*; it is not clear whether the texture is like grits or flour\*. (8) *Shi*, the modern character for “fermented black soybeans.” (9) Half-raw soybeans (*dou*)\*. (10). Another name for soybeans\*. (11). Probably the stem of soybean; pronunciation unknown\*. (12) Broken up soybean stems\*. (13) Unclear\*.

Also in Chapter 236, the entry for *xiang shuang* (“river + double”), repeating an entry from the *Guangya*, states that this is another name for “Foreign bean” (or “Western bean”—*hudou*). See Li 1958 #586.

Another entry in Chapter 236 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. (Translated by H.T. Huang, PhD, May & June 2002, May 2003).

15. Jia Sixie. 544 AD. *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 (AD 386–534; 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. 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 2. 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 BC) 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 AD), 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) 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 AD), when Zhang Qian (W.-G. Chang Ch’ien) traveled to foreign lands,

he brought *hudou* (“foreign bean”) seeds back to China.

Note 3. 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 BC. 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 *niuqian* (“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 4. This is the earliest document seen (Aug. 2011) that mentions Korea in connection with soybeans.

Note 5. This is the earliest Chinese-language document seen (Jan. 2005) 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 (*liudou*, probably *Dolichos* species rather than mung beans or green gram). Azuki beans or sesame seeds (*huma*) are next (Note 6. 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 (*liudou*) 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 7. This is the earliest document seen (Jan. 2008) 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 8. This is the earliest document seen (May 2010) that gives basic formulas for soy ingredients such as *jiang*, soy sauce, etc.

16. Jia Sixie. 544 AD. *Qimin yaoshu* [Important arts for the people’s welfare (Continued)]. China. Passage on soy reprinted in C.N. Li 1958 #66, p. 66-67. Translated by Shih Sheng-han 1958, 1962, and H.T. Huang 2000. [Chi]

• **Summary:** Continued: Wade-Giles reference: *Ch’i Min Yao Shu*, by Chia Ssu-hsieh.

Huang (2000, p. 349) adds: We see from this description that the process is divided into three stages: (a) Preparation of the soybeans to make them receptive to fungal growth. Steaming the soybeans three times before removing the seed coats by pounding is neither effective nor efficient. (b) First fermentation. The moulded soybeans were later given the

name *jiang huang* (yellow *jiang* ferment); they are analogous to the *huangzi* (yellow seed ferment [soybean koji]) produced in the first stage of the process for making fermented black soybeans (*shi*). Inoculation with two kinds of ferments should greatly hasten microbial growth. Likewise, the wheat flour present in the two *qu* inoculants would enhance the nutrients available to support microbial growth. (c) Second fermentation. The fungal enzymes from the first fermentation hydrolyse the proteins and carbohydrates present to give a savoury, pasty product. A flow diagram of the three stages is shown on p. 350. Huang then compares this process with the process for making fermented black soybeans (*shi*, p. 338-41), and shows that there are several unnecessary steps in the *jiang* process. “It is natural that later work would be aimed at correcting the major deficiencies noted above” (p. 351). Note: Of course, enzymes were not known to exist at this time.

Talk with H.T. Huang. 2002. Oct. 19. The method for making *jiang* in the *Qimin Yaoshu* described above, based on the method for making fermented black soybeans, is unnecessarily complicated, so it was later simplified several times. Huang (2000, p. 123) lists the complete table of contents of this book, in 10 books and 92 chapters.

Wilkinson (2000). Jia Sixie placed a table of contents (*mulu*) at the head of each *juan* (book, volume, or chapter); he apologized, since this was an unusual practice at the time (p. 289). The author was born at the end of the 5th century in Shandong. This is the earliest extant comprehensive agricultural treatise. Although half of the book consists of quotations from previous works (which have thereby been preserved) the rest is based on the author’s experience of farming in Shandong. He also gives detailed information on the eating and drinking habits of the Northern Wei (386-584, when northern China was inhabited by nomadic people from the northern steppes). His descriptions of the different methods of preparing everyday food are the first such descriptions to survive and can be used as recipes (p. 629). Wilkinson conducted a 3-month experiment in Beijing during the winter of 1999; he asked his chef to prepare dishes based on the cooking methods, ingredients, and occasional recipes found in the QMYS. Some of the ingredients, such as grasses and fibrous plants, are difficult to find today, but “not unpleasant to anyone fond of vegetarian cooking. The fermentation of many of the ingredients or their dousing in fermented bean sauce [*jiang*?] becomes an acquired taste. The absence of sugar, vegetable cooking oil, chili, and tomatoes is hardly missed, and the use of boiling, roasting, or baking is a relief from the oily monotony conferred by stir frying. However I noticed that most of my Chinese guests felt that what they were eating was foreign, not Chinese” (p. 636). The earliest known record of everyday cooking in China is in the QMYS, which is also the main primary source on food and cooking methods in northern China during the Northern Wei of the Northern dynasties. (p. 639,

641).

17. Jia Sixie. 544 AD. 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 (Jan. 2011) 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 2003) 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?)—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 2010) 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.

18. Jia Sixie. 544 AD. *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 A.D., 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 AD (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 AD in China.” (Note: The above statement is not true; as of Nov. 2002, five Chinese documents, from 166 B.C., 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 Hsie 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: This is the earliest document seen (Nov. 2002)

that discusses fish culture (fish farming, aquaculture); however soybeans were not used as fish feed.

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: 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).

19. Jia Sixie. 544 AD. *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. 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 BC) and the *Simin Yueling* [Monthly ordinances for the four classes of people] (160 AD) 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.”

Note: This is the earliest document seen that clearly mentions the azuki bean.

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.

20. Jia Sixie. 544 AD. 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.”

Sato (1963, p. 9), in his book titled “Documents on Soy Nuggets, 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.”

21. Jia Sixie. 544 AD. Qimin yaoshu [Important arts for the people’s welfare (Continued)]. China. [Chi]

• **Summary:** Continued: This record concerns information on soy sauce, based on the research and writing of H.T. Huang (2000). The section titled “Fermented soy sauce, jiangyou” (p. 358-78) contains an excellent, detailed discussion of this subject. In its food processing chapters, the *Qimin Yaoshu* (QMYS) mentions 3 seasoning agents that have been considered the ancestors of soy sauce: *jiangqing* (W.-G. *chiang ch’ing*), *shizhi* (W.-G. *shih chih*), and *shiqing* (W.-G. *shih ch’ing*). *Jiangqing* (which is “clarified jiang,” is *qingjiang* with the two characters in reverse order and probably means the same thing) is used as a condiment in five recipes—in chapters 70, 76, 77, and 87. Much more popular is *shizhi* (aqueous extract of fermented black soybeans / fermented soybeans) which is used in at least 26 recipes—in chapters 76, 77, 80, 82, 87, and 88. Finally there is *shiqing* (clarified fermented black soybeans / fermented soybeans), which is used in 3 recipes—in chapters 76 and 77. Unfortunately the QMYS gives no indication of how *jiangqing* or *shiqing* were prepared, although in the recipe for a fish and vegetable stew this is, luckily for us, a brief statement on how *shizhi* was obtained by boiling fermented black soybeans (*shi*) in water. In Chapter 76 (p. 465) we read:

*Shizhi:* Cook [fermented black soybeans] in a separate pot of water. Let it boil once. Strain off the fermented black soybeans, and after the soup settles, decant the clear solution. Do not stir the water during cooking, lest you muddy the decoction so that it will not clarify after straining. When cooking *shizhi*, stop the process as soon as the water reaches the light brown color of amber. Do not allow it to become too dark lest the juice be bitter (Huang, p. 359).

In examining the recipes in the QMYS it is easy to get the impression that these 3 types of soy sauce are used interchangeably. Is it possible that they were simply different names for the same product? The answer is no. There are two

cases in which both *jiangqing* and *shiqing* are used in the same recipe, and another case in which *shizhi* and *shiqing* are used to cook the same dish. These examples leave no doubt that these are the names of three different types of soy sauce.

A full-page table (Huang, p. 372) shows the “Usage of soy condiments in food recipes from the Han to the Qing dynasties.” The seasonings based on *jiang* (fermented soybean paste) are used in 7 recipes: *jiang* itself in 2, and soy sauce made from *jiang* (*jiangqing*) in 5 recipes. However the seasonings based on fermented black soybeans (*shi*) were used in 48 recipes (far more): Fermented black soybeans in 20 recipes, fermented black soybean sauce named *shizhi* in 26, and fermented black soybean sauce named *shiqing* in 2.

Note: This is the earliest document seen (Nov. 2011) that mentions the soy condiments or seasonings *jiangqing* or *shiqing*.

22. Fan Xuanling; et al. 635 AD. Jinshu [History of the Jin dynasty (+265 to +419)]. China. Passage on soy reprinted in C.N. Li 1958 #62, p. 63-64, and #292, p. 215. [Chi]

• **Summary:** Wade-Giles reference: *Chin Shu*, by Fang Hsüan-Ling, et al. The Jin dynasty, the second unification of China after the Han, is divided into Western Jin (+265-317) and Eastern Jin (+317-420). Soybeans are mentioned many times in this book, indicating that they were grown extensively during this dynasty.

In the chapter on “Calendrical Records” (*lilizhi*), Part I mentions four grains that were grown: soybeans (*shu*), another kind of legume / pulse (*da*), hempseed (*ma*), and wheat or barley (*mai*). The unit of capacity, one *hu* (equal to about a bushel or 10 *dou*) is mentioned in connection with these four grains.

In the chapter on “Economic Records,” soybeans (*dou*) are mentioned twice in connection with the war of succession (about +220) at the end of the Han dynasty before the Three Kingdoms.

The chapter on “Record of the Five Elements” (one of which is water) mentions several times that heavy rain and hail injured or destroyed soybeans (*shu*) or the three kinds of beans (*sandou*). It mentions once that locusts damaged soybeans (*dou*).

The “Biography of Shi Chong” chapter states that Mr. Shi was preparing soybean congee (*douzhou*) for a guest. Within a short time it was ready. Wan Kai (his friend) was amazed... Surreptitiously, he came to Mr. Shi’s tent asked for an explanation. Shi said: “Soybeans are extremely difficult to cook. I had precooked soy congee powder (*mo*). When a guest arrives, all I have to do is to mix it with water to make congee.”

The “Biography of Lu Ji” chapter states that Lu Ji was entertaining Wan Ji, the ruler (a prince or duke) of that region. Wan pointed to *yangluo*, a sort of yogurt made from sheep’s or goat’s milk, and asked Lu Ji, “In your region do

you have anything that can compare with this?” Lu Ji replied, “We are 1,000 Chinese miles (*li*) away from the capital [i.e., in a rural area, out in the boondocks] and we are making a stew of water vegetables (*chun*, *Brasenia schreberi*), but we have not yet added the salt and fermented black soybeans (*shi*). So this is what we have to offer.” Dr. Huang observes that this comparison reveals an understanding that soy products are probably as nutritious as dairy products. Dairy products (such as yogurt and milk) were quite common during this period (and earlier during the Han Dynasty) in northern China, so the phrase “1,000 Chinese miles from the capital” may refer to that distance south of the capital (which was probably at Luoyang; W.-G. Lo-yang).

The “Biography of Pan Chan” chapter states that he lives very simply in rough surroundings. He sleeps in a simple grass hut and eats goosefoot (*li*, *Chenopodium*) leaves and soybean leaves (*huo*) (*rulihuo*). He dresses simply and does not socialize. He cultivates his spirit.

The “Biography of Zhou Chu” chapter mentions that he eats goosefoot or Chinese quinoa (*li*, *Chenopodium*) leaves and soybean leaves (*huo*).

The “Biography of Ge Hong” chapter (he was a famous alchemist) also mentions that goosefoot or Chinese quinoa (*li*, *Chenopodium*) leaves and soybean leaves (*huo*) are desirable for food.

The “Biography of Liang Li” chapter is probably a series of vignettes about the lives of virtuous lower officials / bureaucrats (*liang li*). It mentions that Mr. Wu Yingzhi eats soybean congee (*chuoshu* or “sucks soybeans”) in the evening.

The “Biography of Huo Yuan” chapter contains a rhyme or ditty that was going around: “Where is the emperor? He is near the soybean (*dou*) field. He uses the soybean leaves (*huo*). He [Mr. Huo Yuan] was taken and beheaded.” Dr. Huang comments: Mr. Huo Yuan was probably responsible for this ditty, but he [Dr. Huang] doesn’t understand why he was beheaded. Perhaps the ditty was considered disrespectful.

The “Biography of Wendi” (“emperor Wen”) states that each soldier was given 3 *sheng* (1 *sheng* = 200 ml or 6.8 fluid ounces) of soybeans (*dadou*). (Translated by H.T. Huang, PhD, Feb. 2002; Jan. 2003).

Wilkinson (2000, p. 503, 810) states that this is the standard history of the Jin; it was compiled in +644 and presented in +646.

23. Sun Simo. 655? AD. Qianjin yaofang [A thousand golden remedies]. China. Passage on soy reprinted in H.T. Huang 2000. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Ch’ien Chin Yao Fang*, by Sun SSu-Mo. Tang dynasty. Huang (2000, p. 614) gives the date as Tang, between +150 and +659 (p. 614). This work and its supplement have survived and together they form a veritable encyclopedia of the medical and pharmaceutical

arts of Tang dynasty China. In this work, an entire chapter (Chap. 26) is devoted to diet therapy (p. 136). It mentions that dried young soybean sprouts (*dadou huangjuan*) have medicinal properties (p. 296). It also mentions fermented black soybeans (*shi*) (p. 341). Also mentions malt sugar (*yi*) (p. 460).

Bo (1982): In the literature of the T'ang dynasty it is not rare to use soy sauce for medicinal purposes. In the third volume of this work it is said, "If a dog bites a person, apply 2-3 tou-chiang-ch'ing (literally, "soybean chiang refined") compresses a day. The fourth volume of this work states, "For pain in the fingers and toes, warm chiang ch'ing ("chiang refined") and honey and apply as a compress.

Williams (1988): The author was a well-known alchemist who lived 581-682, during the early T'ang dynasty. For a translation see: Nathan Sivin. 1977. *Science & Technology in East Asia*. New York: Science History Publications.

24. Su Jing (=Su Gong); et al. comps. 659 AD. Tang bencao [Tang dynasty pharmacopoeia]. China. [Chi]

• **Summary:** Wade-Giles reference: *T'ang Pên Ts'ao*, compiled by Su Ching (=Su Kung), et al. Tang dynasty. This book has been lost. See: Su Jing, ed. +659. *Xinxiu Bencao* [Newly improved pharmacopoeia].

25. Su Jing (=Su Gong); et al. comps. 659 AD. Xinxiu bencao [Newly improved pharmacopoeia]. China. Passage on soy reprinted in H.T. Huang 2000. [Chi]

• **Summary:** Wade-Giles reference: *Hsin Hsiu Pên Ts'ao*, compiled by Su Ching (=Su Kung), et al. Tang dynasty. The text of this book is identical to that of the *Tang Bencao*, which has been lost. Huang (2000). It mentions that dried young soybean sprouts (*dadou huangjuan* or "yellow curls") have medicinal properties (p. 296). It states that fermented black soybeans (*shi*) are widely used as food. In the spring and summer when the weather is unsettled, fermented black soybeans are either steamed or pan-fried then soaked in wine, to make an especially good relish (p. 341). It also states: Jiang is usually made from soybeans. Smaller amounts are made from wheat. Some types are also made from meat and fish; these are named *hai* and are not used medicinally (p. 354). Also mentions malt sugar (*yitang*).

Huang (2000, p. 134-36, 616) adds: Date: +659, Tang. Title: The Newly Improved Pharmacopoeia. Edited by Su Jing (= So Gong) and a commission of 22 collaborators. This work was afterwards commonly but incorrectly known as the *Tang Bencao* (W.-G. *T'ang Pên Ts'ao*). It was lost in China, apart from manuscript fragments at Dunhuang (W.-G. Tunhuang), but copied in +731 by Tanabe Fubito (a Japanese physician or medical student) and preserved, though incompletely, in Japan (at Ninnaji).

Note: Talk with H.T. Huang, 2003. May 3. The *Tang Bencao* has been lost. But the exact same work (the entire

text is identical) was rediscovered under the name *Xinxiu Bencao*; therefore the latter work is usually cited. The *Tang Bencaozhu* is a later commentary on the *Tang Bencao*, published within the *Zhenglei Bencao* (1082 AD), a Song dynasty work.

This was the first official pharmacopoeia in any country worldwide, the first compiled by imperial decree, the first to be richly illustrated. The unusual history of this great work has been told by Needham (1986, p. 265-74, 570, 587). The illustrations in the original editions are all lost. However the table of contents and significant parts of the text have been preserved in chapters 2 to 4 of the *Qianjin Yifang* (Supplement to *A Thousand Golden Remedies*) (+660). All this made it possible for the complete ancient text to be published in 1981.

Letter from Dr. H.T. Huang, expert on the history of Chinese food and agriculture. 1996. Sept. 29. "The earliest document with an illustration of the soybean is probably the illustrated *Hsin Hsiu Pên Ts'ao* (Newly Improved Pharmacopoeia) (+659). Illustrations to this work are now lost, but some are preserved in the *T'u Ching Pên Ts'ao* of +1061 and later in the *Ch'ung Hsiu Cheng-Ho Ching-Shih Cheng-Lei Pei-Yung Pên Ts'ao*, generally known as *Cheng Lei Pên Ts'ao* (CLPT), +1249 (final version), which remains available today. The entry on soybean (*Dadou*) in the CLPT includes a picture of the plant. A copy is attached."

Note: This is the earliest document seen (Feb. 2010) that contains an illustration of a soybean.

Needham (1986, p. 174): The *Tang Bencao*, compiled in c. +660 under the chairmanship of Su Jing (W.-G. Su Ching), was the first Chinese work to mention the castor-oil plant (*ma*, *Ricinus communis*); how long the plant had been known in China before that time is unknown.

Needham (1986, p. 264-74): This was the first national pharmacopoeia, issued by royal decree, in any civilisation. Nearly 1,000 years would pass before a similar work was produced in Europe under government authority; that was the *Pharmacorum... Dispensatorium*, by Valerius Cordus, published in 1536 by the Municipality of Nuremberg [in today's Germany]. Yet though it was also officinal, it was not national, and for that we have to wait for the first *London Pharmacopoeia* of 1616, issued by royal proclamation for the whole country of England. Emperor Kao Tsung (Li Chih) came to the throne in +650 and in the following year he commissioned Li Chi (a famous general) and Yü Chih-Ning (a high civil official) to superintend the preparation of a new pharmaceutical natural history, radically revised and improved. Published in +659, this work "was a landmark of natural history at least as much as a treatise on *materia medica*. It was, so far as we know, the first of the pandects to be richly illustrated." The illustrations were of plants, animals, and minerals. Note: A pandect is a treatise covering an entire subject. "Although existing manuscripts do not all show it, we know that [this book]... fully maintained

the red and black colour system of the T'ao Hung-Ching.” Unlike most later pandects “there is almost no quotation of authorities or differences of opinion; the information is set forth as if it were from the pen of one man... The result is a singularly fresh approach, as if everything had been written down anew.” The book had a rather sad history. Although so great a work, it was produced a couple of centuries before the beginning of printing in China, and must therefore have circulated only in manuscript form on the flimsy medium of paper.” By the year +970 it had certainly become rare. The work is now accessible only through quotations and fragments. “Putting all of the pieces together one can say that we still possess the greater part of 12 out of the 20 text chapters” and its table of contents. The book had a close connection with the development of medical and scientific education in China and spread of medical-scientific culture to Japan. In +731 in Japan, Tanabe Fubito was copying this work.

Bo (1982): This T'ang dynasty work states: “The majority of chiang varieties are made from soybeans, and very rarely use wheat or barley (mugi).”

26. Meng Shen. 670 AD. *Shiliao bencao* [Compendium of diet therapy (Materia dietetica)]. China. Passages on soy reprinted in H.T. Huang 2000. [Chi]

• **Summary:** Wade-Giles reference: *Shih Liao Pên Ts'ao*, by Mêng Shên. Tang dynasty.

Huang (2000) notes that this book emphasizes the relationship between nutrition and health, and the medicinal properties of foods. It was the first of the *Bencao* compilations devoted to diet therapy (p. 116, 135-36). It mentions that dried young soybean sprouts (*dadou huangjuan*) have medicinal properties (p. 296). It gives a recipe for cooking fermented black soybeans (*shi*) similar to that from the *Xinxiu Bencao* (Newly improved pharmacopoeia) (+650) (p. 341). It also discusses fermented black soybean sauce (*shizhi*; W.-G. *shih chih*), noting that an excellent product comes from Shan prefecture and describing briefly how it is made: The fermented black soybean sauce (*shizhi*) from Shan prefecture is better than ordinary fermented black soybeans (*shi*). To make it, allow cooked soybeans to ferment to the yellow mold stage of soybean koji. For each *tou* (pint) [of soybean koji], add 4 pints of salt and 4 ounces of pepper. [Note: Some water was probably also added]. It will be half done after 3 days in spring, two days in summer, and 5 days in winter. Add 5 ounces of raw ginger to give it a clean, delicate flavor (p. 360-61). This work also mentions mung beans (p. 298) and malt sugar (*yitang*, p. 460).

Hagerty (1917, p. 4) states: “The Shih liao pên ts'ao (Materia Medica, by Mêng Shen of the T'ang Dynasty, second half of the 7th century), says: ‘The Ta tou [soybean] has a cold effect upon the human system. When mixed with rice and pounded into a powder, it may be used as a remedy

for reducing all kinds of inflammatory swellings. It is used as a remedy for swellings or inflammation in the region of the reproductive organs of both male and female. This remedy is prepared in the form of a poultice made by wrapping the bean paste in cotton cloth and applying to the diseased part. It is also a specific for poison from eating certain herbs. According to this work, if these beans are boiled into a liquid form, and the mixture taken, it will eradicate all poison from the system and cure gastric fever, paralysis, pains, difficulty in passage of urine and other bladder troubles. It is also good for improper circulation of the blood, improper functioning of the heart, liver, kidneys, stomach, and bowels, and also a remedy for chills. When mixed together with the ashes of burned mulberry twigs and water, and boiled, it is used as a remedy for dropsy and swelling of the bowels. The yellow bean is a specific for paralysis, pains in thighs, improper functioning of the heart, liver, kidneys, stomach, and bowels, and constipation. It is also used to increase the lung power (?), make the body plump, and beautify the complexion. These beans are also cooked until they are of an oily consistency, mixed with hog's fat, and taken in the form of pills in order to fatten and increase the strength of the body. This may also be used as a remedy to cure hoarseness.

“To prepare a remedy, take one “Shêng” (Chinese pint) of fresh Ta tou beans, forty-nine green bamboo sprouts about four inches (Chinese) long, and one “fen” (one-tenth of an inch) wide. Boil thoroughly in water, and take two doses, one during the day and the other at night—and also after each meal. Another method of utilizing these beans consists of washing them thoroughly, and grinding into a meal and combining with chicken's eggs. This is eaten as a food and will cause man to live a long life. When first eaten they will cause the body to become heavy, but after eating constantly for one year, they will cause the body to become light and also increase the power of the male reproductive organs.”

Hagerty continues his translation on p. 78 concerning fermented black soybeans (See also Bretschneider, *Botanicon Sinicum* 1:45): “The Shen-chou-fu, Liquid bean relish, is very much better than the ordinary bean relish and gives the following directions for its manufacture: Take some Ta tou beans [soybeans] and steam until yellow, to each *tou* or peck, add four *sheng* or pints of salt, four *liang* or ounces of pepper. If made in the spring, let it stand for three days; if made in the summer let it stand for two days; if made in the winter let it stand five days, when it is half ripe. Now add five *liang* or ounces of fresh ginger and let it stand in order to clarify. The best method is to bury the vessel containing this mass in horse manure. When Ta tou [soybeans] cannot be obtained, the good bean relish can be used as a substitute.”

Note: This is the earliest document seen (Nov. 2005) that mentions cotton cloth.

27. Emperor Monmu. 701 AD. *Taihô ritsuryô* [The Taiho Law Codes]. Japan. [Jap]\*



• **Summary:** This is the earliest document seen (July 2000) concerning soybeans, soybean products, or miso in Japan. Although it does not specifically mention soybean cultivation, the soybeans used to make the various fermented soy products described below must have been grown in Japan. This document also contains the earliest date seen for soybeans in Japan, or (by inference) the cultivation of soybeans in Japan (A.D. 701).

Shurtleff and Aoyagi (1976. *The Book of Miso*, p. 216; 1983. *The Book of Miso*, 2nd ed., p. 219): One of Japan's earliest constitutions, the *Taihō Ritsuryō* established the *Hishio Tsukasa*, or Bureau for the Regulation of Hishio Production, Trade, and Taxation in A.D. 701; it went into effect in 702. The *Hishio Tsukasa*, located in the Imperial Palace, was an annex of the emperor's kitchen (*kunaicho daizenshoku*), where *hishio* was made. Using methods very similar to those developed in China, it transformed soybeans into high- and low-quality *hishio* (which resembled Chinese *jiang*), fermented black soybeans (*kuki* or *shi*), and *misho* (an ancestor of miso; the term "miso" had not yet been coined). These foods and seasonings were consumed at the Imperial Household.

Note: This is the earliest Japanese document seen (Nov. 2011) that mentions *kuki*, an early type of Japanese fermented black soybeans / salted fermented soybeans.

Yokotsuka (1986, p. 198) states that the "Taiho-Law (701) mentioned soybean-hishio, miso, *kuki* (same as *shi*), *taremisu*, *usu-dare*, and *miso-damari*." But in a letter (June 1988) to William Shurtleff, who questioned the correctness of this, he stated, "This was a serious mistake. I am fully aware that there is no description of filtered soy sauce in the Taiho Ritsuryo. I should have written:

"Taiho-Law (701): Sho-shi and miso

"Taremisu, *usudare*, *miso-damari* (1300–1500)

"*Ekirinbon-setsuyoshu* (1598): *Shoyu*."

*Usudaré* and *miso-damari* were apparently liquid soy sauces. *Usu-daré* means a thin *taré*, where *taré* is a typically thick seasoning sauce. *Miso-damari* is the liquid that separates or is separated from miso, often forming a pool in the upper surface of the vat.

Reischauer and Fairbank (1960, p. 481-82) notes: "The Law Codes. The details of the administrative system which the Japanese borrowed from China can best be learned from the law codes they compiled on the basis of the Chinese models... The very concept of law was a new idea. Hitherto the Japanese had had only the unwritten precepts of the Shinto religion... The first code seems to have been compiled under Tenchi, but the most famous was the Taiho Code of 701."

28. Fujiwara, Fuhito. 718 AD. *Yōryō ritsuryō* [Yoryo ritsuryo]. Japan. [Jap]\*

• **Summary:** According to Ichiyama (1968) an early reference to *hishio*, perhaps a soy-based product, appeared

in this book. It mentioned various types of *chiang* and fermented black soybeans, plus *misho*, the second character of which was *chiang*. Address: Japan.

29. *Tōdaiji shōsōin monjo* [Documents in the Shosoin imperial treasury at Todaiji temple in Nara]. 730-748 AD. Japan. [Jap]\*

• **Summary:** Sato (1963, p. 27), in his book titled "Documents on Soy Nuggets, Chiang, Miso, and Shoyu," cites this as the earliest Japanese document seen on the subject. He gives the date as Tenpyo 2 (730 A.D.). It is written entirely in Chinese characters (*Kanbun*).

Ichiyama (1968) says this is a collection of documents, not just one. "In 730 AD taxes were being paid on miso and *hishio*, in 731 on *kuki*, *arabishio*, and *richio*."

Shinryū Sekine, in his book *A Study on Eating Habits in the Nara Period* (1969, 1974) quotes from the *Shosoin-monjo*, a document preserved in the Shosoin, the storehouse at the Todai-ji temple in Nara. From the phrase "... to obtain liquid out of brewed or fermented soybeans..." in the document, Sekine says: It is clear in those days that *sho* in those days was liquid.

Shurtleff and Aoyagi (1983. *The Book of Miso*, 2nd ed., p. 219): "The most detailed information to date on the early relatives of miso and the first clear reference to a soybean *hishio* appeared in the Todaiji Shosoin documents, written between 730 and 748, and still preserved in excellent condition in the Imperial Treasury of the Shosoin, connected with Nara's Todaiji temple. It records that in 730 taxes were being paid on *hishio* and on *misho* (a variety of *hishio* and an early relative of miso). A document from the next year mentions the same foods again. A document written prior to 748 clearly referred to soybean *hishio* (Ichiyama 1968)."

30. Chen Cangqi. 739 AD. *Bencao shiyi* [A supplement for the pharmaceutical natural histories]. China. Passage on soy reprinted in H.T. Huang 2000. [Chi]

• **Summary:** Wade-Giles reference: *Pên Ts'ao Shih I*, by Ch'ên Ts'ang-Ch'i. Tang dynasty. "The Pu-chou (in Shansi province) *Shih* has a salty flavor and is not poisonous. It is considered a specific cure for the following diseases: [many listed with treatments]."

31. Omi, Mifune. 785 AD. *Tang Da He Shang Dong Zheng Zhuan* [Biography of the great monk from the T'ang dynasty who traveled to the East]. China. [Chi]\*

• **Summary:** Wade-Giles reference: *T'ang Ta He Shang Tung Cheng Chuan*. Tang dynasty. Williams (1988): The monk discussed is Chien Chên (Jap. Ganjin, who lived A.D. 688-763), who was blinded while traveling to Japan to teach Buddhism. The author, Omi, lived A.D. 722-785 in Japan, wrote this work in Classical Chinese, probably between A.D. 763 and 783. New editions of the work have been published in 1936 and 1979.

Concerning Ganjin, Shurtleff and Aoyagi write in *The Book of Miso* (1976, p. 216): “One of the most colorful chapters in the history of miso concerns the great Chinese Buddhist master Ganjin. The founder of the Japanese Ritsu or ‘precepts’ sect and of the well-known Toshodaiji temple in Nara, Ganjin spent over 11 years trying to reach Japan. After being blocked by pirates, shipwrecks, and storms, and having lost his eyesight during one of his 6 attempted crossings, he finally succeeded in 754 at the age of 66. The records of his ship’s cargo show that in addition to 185 monks, sailors, and craftsmen, he brought 100,000 gallons of ‘sweet kuki.’ Later records show that this same fermented soybean food was prepared at his temple, carried by foot to Kyoto, and peddled there in the streets.

“Although Ganjin’s sweet kuki was related to miso, it was probably more a preserved food than a seasoning, similar to today’s Daitokuji natto. Nevertheless, Ganjin is often said to have brought the first prototype of Japanese miso from China, and if we take this sweet kuki to be the original Japanese miso, then he was clearly its transmitter. But records show that something called ‘miso’ was already being sold in Nara’s markets more than 20 years before Ganjin’s arrival. Hence, some scholars have concluded that the popular ‘Ganjin theory’ probably reflects more of a desire on the part of early miso makers and Buddhist priests to link their new product to Ganjin’s lofty reputation than to historical fact.”

H.T. Huang (2000, p. 317). There are two popular theories about how tofu was transmitted from China to Japan. The first theory holds that it was brought from China by the delegation of Buddhist monks headed by the master Kanshin (Jianzhen; W.-G. Chien Chên), who arrived in A.D. 754. While this view is certainly plausible, there is as yet no documentary evidence to support it.

Note 1. This is the earliest document seen (March 2003) concerning an early foreign traveler in Japan (Chien Chên; Jap. Ganjin) in connection with soybeans.

Note 2. This is the earliest document seen (April 2001) that is a biography of a person involved with soyfoods (fermented black soybeans) or soybeans.

32. Han E. 900 AD. Sishi zuanyao [Important rules for the four seasons]. China. Passage on soy reprinted in H.T. Huang 2000, p. 351. [Chi]

• **Summary:** Wade-Giles reference: *Ssu Shih Tsuan Yao*, by Han O. Date of publication: Late Tang dynasty. Huang (2000, p. 351) notes that the method for making jiang described in this book represents a significant improvement over that from the *Qimin Yaoshu* (+544). A method for making jiang in ten days is given:

“Jiang substrate: Take one *dou* of yellow soybeans, clean three times (to remove extraneous matter), drain off water, steam thoroughly until the beans are tender (*lan*) and collect on a flat surface. Mix the beans with two *dou* and five *sheng*

[10 *sheng* = 1 *dou*] of wheat flour. Be sure all the beans are individually coated with the flour. Steam again until the flour is cooked. Spread and allow to cool to human body temperature. Cover the ground evenly with cereal leaves. Spread the beans on top, and cover them with another layer of leaves. Incubate for three to four days, until the beans are covered with a dense yellow coat. Dry them in the sun and store the finished jiang substrate.

“Chiang incubation: When it is time to make jiang, get ready one *dou* of water for every *dou* of jiang substrate used. Dissolve five *sheng* of table salt in water at body temperature. Mix the salt solution with the jiang ferment in a jar. Seal tightly. After seven days stir the contents. Place three ounces of Han pepper in a cloth bag, and hang the bag in the jar. Add one catty of cold, cooked [edible] oil and ten catties of wine. After ten days the jiang will be ready.”

Huang then comments on this improved process (p. 351-52). “Although the description is rather sketchy, we can see that the process has been simplified and streamlined. It now follows the same general scheme that had been developed for the brewing of *jiu* (wine) and the making of *shi* (fermented soybeans) [fermented black soybeans]. As is the case with the *jiu* and *shi* processes, the first stage involves an aerobic surface culture, and the second, a mildly anaerobic submerged incubation. These changes should make the process more efficient. Even without the use of preformed inoculum, the first stage now takes only four days, instead of thirty days. The second fermentation takes only ten days whereas the old method requires more than twenty days, Although there is no indication that the beans are dehulled before use, the text says that they are steamed until *lan*, i.e. soft, ripe and tender. This means the internal structure of the beans is already damaged; they are thus rendered easily susceptible to invasion by proliferating fungal myceliae.”

33. Minamoto no Shitagau. 923 AD. Wamyô ruijûshô (Wamyôshô) [General encyclopaedic dictionary. 10 vols.]. Japan. [Jap]\*

• **Summary:** Heian period. This is a collection of Japanese names, by subject.

Needham (1986, p. 590) cites this as: Minamoto no Shitagau. +934. *General Encyclopaedic Dictionary*.

Shurtleff & Aoyagi (1983. *The Book of Miso*, 2nd ed., p. 221): “Some scholars believe that the pronunciation ‘miso’ originated in the *Wamyoshô* (also called *Wamyô Ruijushô*), the earliest dictionary of the Japanese language, encyclopedic in scale and written between 903 and 938 by Minamoto no Shitagau. It was modeled after Chinese dictionaries and listed many types of hishio including ones pronounced *miso*, *misho*, and *kara hishio*. It also mentioned fermented black soybeans.”

J.R. Wang and Y.H. Lee (1976) in “Traditional soybean foods in Korea” state that: “Since an old Japanese literature [document], *Hwameyruitsuroku* [*Wamyô Ruijushô*;

Collections of Japanese Names, by Subject], of Heian [Heian] records that ‘Maljang (Meju) is a Korean soy sauce and paste’ and a record on Maljang was also observed in the ruins of Nara, it is evident that soy sauce and paste were introduced from Korea to Japan during the Nara period (645-793 A.D.).”

Sato (1963, p. 33), in his book titled “Documents on Soy Nuggets, Chiang, Miso, and Shoyu,” cites this as the tenth earliest Japanese document seen on the subject. See section 16 (Shoume/Anbai). The selections were made during the Encho period then published more than 700 years later in about 1615, during the Genwa era. It is written entirely in Chinese characters (*Kanbun*).

Note: This is the earliest document seen concerning soybeans or soybean products in Korea. It seems very likely that soybeans were also being grown in Korea by this time, but this is not stated.

34. Ding Tu. 1000-1099. *Libu yunlüe* [Phonetic dictionary]. China. [Chi]\*

• **Summary:** Wade-Giles reference: *Li Pu Yün Lüeh*, by Ting T’u. Northern Song dynasty. Address: China.

35. Fujiwara no Akihira. 1058-1068. *Tamatsukuri komachi sôsui-sho*: *Shin sarugakuki* [New monkey play story: A humorous novel about the Uemon family in Nishi-kyo]. Japan. Japanese summary by Kawakami 1978, p. 220-22, and by Naomichi Ishige. Undated. [Jap]

• **Summary:** *Sarugaku* is a funny story or play, the origin of Noh and Kyogen dramas. Written in Chinese (*Kanbun*).

Ito (1976) and Iwaware (1976) both say that the word for salty natto [fermented black soybeans] first appeared in 1286 in this book. This document is said to contain an early reference to fermented black soybeans. Kawakami (1978) in his half-page summary of the book makes no mention of natto or of soynuts. Two books, Motoyama’s *Inshoku Jiten* (1958) and Zenkoku Natto’s *Natto Enkakushi* (1975) give the date of this book as A.D. 1286. The fermented soyfood mentioned in this book is not *itohiki-nattô*, but a type of spring (or crab) salty natto (*shiokara nattô*), fermented with a mold rather than a bacterium, and thus in the family of fermented black soybeans.

Kawakami and Eiichi (1985) in *Daizu ryôri kotoba no rekishi* [“History of soyfoods terminology in Japan”] (p. 35, 39) state that the word “*irimamé*” (dry roasted soybeans) first appears in the *Shin Saru Gakki* [New and Funny Lewd Stories], a book published in Japan during the Heian period in about A.D. 1058-1065. *Sarugaku* (*Saru* means “monkey”) is a kind of comedy containing some obscene stories that make it especially entertaining. It is found in the collected works titled *Gunsho Ruiju no Sarugakki* which states (volume 136, p. 344) “*Sakana wa Irimame*,” which means that *irimame* is used as a food to serve with saké (*o-tsumami*). The story is about a woman who loved saké.

Ohta (1986) says: The earliest document known to have mentioned the word “natto” is the *Shin Sarugaku Shiyu*, written by A. Fujiwara in 1068; yet no description was given of the method for making this natto.

Fujiwara no Akihira lived 989-1066.

Note: This is the earliest document seen (July 2009) that mentions dry roasted soybeans for food use, or the Japanese word for such soybeans, *irimamé*.

Letter (e-mail) from Naomichi Ishige, Japanese food historian and expert on natto. 2008. Nov. 16. “The author of the book you asked about was Fujiwara Akihira, and its title was *Shin-sarugaku-ki* (in English: “New sarugaku story”). The book is supposed to have been written during 1058-1065.

“*Sarugaku* is a kind of show consisting mostly of music, singing, dancing, acrobatics, etc. This show was popular among people during the Heian period (794-1185) in Japan. *Shin-sarugaku-ki* first commented on *Sarugaku*, and then introduced a man watching *sarugaku* one night. The story described the whole family of this man, so it became encyclopaedic information about the life of ordinary people in Kyoto at that time.

“This is the first book which used the word *natto* to refer to “salty natto” [fermented black soybeans]. However, salty natto itself has existed from ancient times in Japan; it was called *kuki*.

“Concerning the origin of the word ‘natto’: According to the widely held theory, the character pronounced *na* originated from *nasso*, which refers to a temple’s kitchen. *To* means ‘beans.’ Monks ate lots of natto because they were (and still are) vegetarians. Thus *natto*, which means ‘beans of a temple’s kitchen,’ became used among people.

“I once wrote about natto as a food in Southeast Asia and East Asia. I shall send photocopies to you.” Address: Japan.

36. The word *natto* first appears in Japan, but it refers to “salty natto” (*shiokara natto* [fermented black soybeans]) rather than to “sticky natto” (*itohiki natto*) (Early event). 1058-1068.

• **Summary:** Letter (e-mail) from Naomichi Ishige, Japanese food historian and expert on natto. 2008. Nov. 16. “The author of the book you asked about was Fujiwara Akihira, and its title was *Shin-sarugaku-ki* (in English: ‘New sarugaku story’). The book is supposed to have been written during 1058-1065.

“This is the first book which used the word *natto* to refer to ‘salty natto’ [fermented black soybeans]. However, salty natto itself has existed from ancient times in Japan; it was called *kuki*.”

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “salty natto” or the term “*shiokara natto*” to refer to fermented black soybeans.

“Concerning the origin of the word ‘natto’: According to the widely held theory, the character pronounced *na*

originated from *nasso*, which refers to a temple's kitchen. *To* means 'beans.' Monks ate lots of natto because they were (and still are) vegetarians. Thus *natto*, which means 'beans of a temple's kitchen,' became used among people."

37. Ouyang Xiu; Song Qi. 1060. *Xin Tangshu* [New history of the Tang dynasty (+618-906)]. China. Passage on soy reprinted in C.N. Li 1958 #88, p. 75. [Chi]

• **Summary:** Wade-Giles reference: *Hsin T'ang Shu*, by Ouyang Hsiu and Sung Ch'i. The record of the emperor Dezong states that in the 7th month of a certain year, frost killed the soybeans (*shu*).

The biography of Gao Ying says that in the eighth month of a certain year there was not enough rain, so the soybeans (*shu*) and wheat (*mai*) grew poorly and did not mature. (Translated by H.T. Huang, PhD, July 2002).

Dr. Huang adds: The biography of Zhang Xiaozhong (a high-ranking military and civil figure) states that he met with a disaster. So he and his retinue were compelled to live very simply. They were in an area plagued by locusts. They had daily rations of *dou* (an unusual character, which may refer to fermented black soybeans).

Wilkinson (2000, p. 504, 737, 820) states that this standard history was written/compiled by Ouyang Xiu (lived 1007-72) and Song Qi (998-1061). It was compiled during the years 1043-1060 and presented/printed in +1060. This book, compiled during the Song dynasty, covers the entire period of the Tang dynasty, +618-906. Non-Han foreigners mentioned: Xiyu, Nanman Beidi, Dongyi.

38. Chen Zhi. comp. 1080. *Shouqing yanglao xinshu* [New handbook on care of the elderly]. China. [Chi]

• **Summary:** Wade-Giles reference: *Shou Ch'in Yang Lao Hsin Shu*, compiled by Ch'ên Chih. Northern Song dynasty. Huang (2000, p. 341) says that this work describes a recipe containing fermented black soybeans (*shi*) named Heart of fermented black soybeans congee (*Shi Xin Zhu*). Huang (2000, p. 623) also translates the title as "Nutritious Recipes for the Aged." The work was enlarged in 1307 during the Yuan (Mongol) dynasty by Zou Xuan (W.-G. Tsou Hsuan). A modern edition was published in 1986 by Zhongguo (W.-G. Chungkuo) in Beijing.

Note: This is the earliest document seen (Feb. 2011) that contains a recipe related to soy—not including documents that contain recipes for basic foods such as Miso, fermented black soybeans, soy sauce, tofu, etc.

39. Tang Shenwei. comp. 1082. *Zhenglei bencao* [Reorganized pharmacopoeia]. China. Passage on soy reprinted in C.N. Li 1958 #299, p. 220-221. [Chi]

• **Summary:** Wade-Giles reference: *Chêng Lei Pên Ts'ao*, compiled by T'ang Shên-Wei. Song dynasty. Needham (1986, p. 561) says that the full title of this work (in W.-G.) is *Ching-Shih Chêng Lei Pei-Chi Pên Ts'ao*. This important

work discusses the medicinal properties of foods. Chapter 25 states that the soybean (*dadou*) can be used to make sprouts. When these sprouts are dried, they are called "yellow curls" (*huangjuan*). You can also use the [undried] sprouts as food.

Chapter 25 also contains a long passage from the *Bencao Tujing* (Illustrated pharmacopoeia) (+1061) on dried soybean sprouts ("yellow curls"), fresh soybean sprouts, and mature dry soybeans (which see).

Chapter 25 states that fermented black soybean sauce (*shizhi*; W.-G. *shih chih*) from Shan or Shanzhou (same as today's Shaanxi province) can be kept for years without deterioration. Note 1. This passage suggests that this type of *shizhi* was a fermented product which would keep as long as today's soy sauce. If this is true, then *shizhi* would be a precursor of the soy sauce (*jiangyou*) that originated in China in the late Song dynasty (Huang 2000, p. 361).

The next passage appears in a much later book titled *Sannongji*, by Zhang Zongfa (W.-G. *San Nung Chi*, by Chang Tsung-Fa) (Records of the three departments of agriculture) (+1760). Young soybean plants (*doumiao*) grow to a height of 1-2 feet (*chi*). The leaves are round with a pointed tip; their color is green (*qing*) and they have hairs (*mao*) on the surface. One stem divides into branches. In the fall, white flowers appear; they are white or purple, and grouped together. The pods (*jia*) are more than an inch (*cun*) long, and they typically contain 3-4 seeds, or at least 1-2 seeds. The seeds fill the pods. The pods grow separately from the leaves. The varieties are early, middle, and late. The pods are either large or small, round or flat. The colors of the seeds are yellow, white, red (*chi*), black, spotted / speckled (*ban*), or dark brown. You can [use the seeds to] make jiang or fermented black soybeans (*shi*), tofu (*fu*) or sprouts (*ya*). You can press them to give yield oil (*you*). You can roast / fry (*chao*) them to give nuts (*guo*; soynuts). You can make candy from grain sweetener (*tangmo*). It has many uses. The pods are called *jia*. The leaves are called *huo*. The stems are called *qi*. The seeds are called *dou*. (Translated by H.T. Huang, PhD, Jan. 2003).

Note 3. This is the earliest document seen (Feb. 2003) that mentions red (*chi*) soybeans.

Also mentions malt sugar (*yitang*) and gluten (Chap. 25). (See Huang 2000, p. 296, 460 {malt sugar}, 498 {gluten}, 611). This work was enlarged in +1116 and retitled *Chêng-Ho Hsin-Hsiu Ching-Shih Chêng-Lei Pei Yung* (New revision of the classified and consolidated armamentarium pharmacopoeia of the Chêng-Ho reign period). It was then re-edited +1204 in Jurchen Chin, and definitively republished +1249 in Yuan; later reprinted many times. See also Hummel (1941).

40. Tang Shenwei. comp. 1082. *Jingshi zhenglei beiji bencao* [The classified and consolidated armamentarium of pharmaceutical natural history]. China. Passage on soy reprinted in C.N. Li 1958 #299, p. 220-221. [Chi]

• **Summary:** Wade-Giles reference: *Ching-Shih Chêng Lei Pei-Chi Pên Ts'ao*, compiled by T'ang Shên-Wei. Song dynasty. See *Zhenglei Bencao* (1082).

41. 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 (*bing*; *mochi* or "rice cake" in Japanese), sprouted soybeans (*yadou*), etc.

Note 1. This is the earliest document seen (April 2011) that mentions pounded glutinous rice, widely known in the West as *mochi*.

Note 2. This is the earliest Chinese-language document seen (Aug. 2002) 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 A.D. 100 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 and the completion of the move to Hangchow in +1135; it was first printed in +1187 (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.

42. Wu Ceng. 1150? *Nenggai zhaimanlu* [Miscellaneous records of the ability-to-improve-oneself studio]. China. 148 p. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Nêng Kai Chai Man Lu*, by Wu Ts'êng. Southern Song dynasty. Mid-12th century. Huang (2000, p. 341) notes that fermented black soybeans (*shi*) are mentioned in this book. He adds (p. 127-28) that this work, one of the food canons and recipe books of late medieval China, is a 148-page collection of anecdotes about unusual events associated with various aspects of daily life spanning the long period from the Wei-Jin (220 to 420 AD) to the Tang-Song (618-1279).

43. Luo Yuan. 1174. *Erya yi* [Wings for the *Literary Expositor* (Ancient Chinese dictionary of classical terms)]. China. Passage on soy reprinted in C.N. Li 1958 #106, p. 81. [Chi]

• **Summary:** Wade-Giles reference: *Erh Ya I*, by Lo Yüan. This is a relatively important work. The section titled "Soybeans" (*shu*) begins by stating that *shu* is the same as *dou* (soybeans). There are many varieties. This book then cites and repeats the information about soybeans in many earlier Chinese-language documents that discuss or mention *shu* including: (1) *Guangya* (Ancient dictionary: Enlargement of the *Erh Ya*) (+230). (2) *Guangzhi* (Extensive records of remarkable things) (+390). (3) *Lüshi chunqiu* (Master Lü's spring and autumn annals) (-0239). (4) *Shijing* (Book of odes) (-1000).

Then this book continues: As Confucius said, to eat soybean congee (*chuoshu*, literally "suck soybeans") and drink water (*yinshui*) is a joy [which makes one content]. This is called "filial piety" [to be satisfied with what you have]. It does not depend on the abundance of your material possessions.

According to the *Hanshu* [also called *Qian Hanshu*] (History of the Former Han dynasty) (+76), this year the people are hungry so they have to be satisfied with eating half of their food as soybeans (*shu*) [which were not highly regarded]. They say the army is lacking in grain, and so they mix soybeans (*shu*) with other grains to use as rations—which means even the poor are not lacking in righteousness. So the use of soybeans is extensive.

Then there are several characters that mean various kinds of pastry and cakes. In making pastry and cakes, today they like to use rice. Certain names are given to those made by steaming with millet and those made with soybeans (*dadou*); they complement each other. They also use broken pieces of soybeans (*douxiao*). They also use soybeans to make fermented black soybeans (*shi*). According to the *Chuci* (W.-G. *Ch'u Tz'u*) (Poems of the state of Ch'u) (-0250), the characters *daku* meaning "extremely bitter" or "great bitterness" appear. It has been said that *daku* means "fermented black soybeans" (*shi*) [probably by Wang Yi, 2nd century A.D.]. And it has been said [in the *Qimin Yaoshu*] that you can take the "juice" from fermented black soybeans to obtain fermented black soybean extract (*shizhi*; literally "juice from *shi*"). And you can mix and blend this extract

with different flavors such salty taste, vinegar, pepper, ginger, malt sweetener, and honey. In the *Yangshenglun* [Discourse on nurturing life...] (+223), Xi Kang says that eating soybeans (*dou*) makes the stomach feel heavy. (Translated by H.T. Huang, PhD, Aug. 2002).

Dr. Huang notes: Confucius was a very frugal man who found joy in simple things. Compare the attitude of this book with that of the *Xunzi* (Book of Master Xun) (-240) which depicts soybean congee as the ultimate hardship food. For more on fermented black soybean extract, see Huang (2000, p. 359-60).

44. 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: *Mêng Liang Lu*, by Wu Tzu-Mu. This important work is a description of Huangzhou, 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 (*liudou*), 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 (Sept. 2004) 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 (Huangzhou) 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 (Feb. 2010) that mentions grilled tofu. It is also the earliest Chinese-language document seen (Nov. 2009) that mentions Chinese-style grilled tofu, which it calls *jian doufu*.

45. Zhou Mi. 1291. Qidong yeyu [Wild talk from east of the state of Qi]. China. Passage on soy reprinted in C.N. Li 1958 #129, p. 91. [Chi]

• **Summary:** Wade-Giles reference: *Ch’i Tung Yeh Yü* by Chou Mi. Yuan (Mongol) dynasty. The section titled “Adjusting salt to incubate soybeans (*shu*)” states: It is said that a scholar from Jiangxi (W.-G. Kiangsi, a province in south central China) came to offer his services to Yang Zhengzai. After a few days, Yang wrote to him and said, “I hear you are from Jiangxi; can you give me a little of the product from ‘adjusting salt and incubating soybeans (*shu*)’? The scholar was deeply perplexed. He apologized to Mr. Yang saying, “Please pardon my ignorance. Truly, I have no idea what you mean.”

Yang showed him the character for *shi* (fermented black soybeans) from the dictionary. The commentary says: *shi* is the product from adjusting salt and incubating soybean. Its meaning may not be well known. The *Chuci* (Songs of the South) contains this line, *daku xiansuan singanxing* (“great bitterness salty sour pungent sweet in parallel”). Great bitterness is *shi* (fermented black soybeans). Another explanation is that when one mixes soybean juice with salt, vinegar, fagara / Sichuan pepper (*jiao* or *huajiao*; *Xanthoxylum piperitum*), ginger, malt sugar or honey, then the pungent and sweet flavors will be well blended. There were no *shi* (fermented black soybeans) in antiquity. The *Jijiu Pian* (Handy primer, or dictionary for urgent use) (40 B.C.) first described Wuyi salt and *shi*.

Then in the *Shiji* (Records of the Historian) (90 B.C.), Chapter 69, titled “Economic affairs” mentions a thousand earthenware urns / crocks of malt, ferment, salt and *shi* (*niequ yanshi*), as articles of commerce. The *Sanfu Juelu* (A Considered Account of the Three Cities of the Metropolitan Area {Ch’ang-an, Fêng-i and Fu-fêng}) (153 A.D.) also mentions *yanshi suanguotung* (Salt + fermented black soybeans + leeks + fruits). *Shi* (fermented black soybeans) only became available after the Qin (221-206 B.C.) and Han (202 B.C. to 220 A.D.) dynasties. (Translated by H.T. Huang, PhD, Sept. 2002).

46. 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 Huainan (*Wainan O Ryuan*) invented tofu. Therefore 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 Tang 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 Misho), 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 misho (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 Kokubuniji is for nuns. It is said that from this time, fermented black soybeans (*tera nattô*, or *shio kara 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 misho (a product resembling miso). The places famous for making misho are Omi, Hida, Yamato, etc. There are 27 misho 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 nonglutinous 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 (*shio kara 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.

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 Sung 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. 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 1. This document contains the earliest clear date seen for the cultivation of soybeans in Japan (A.D. 802, and 840), and for the appearance of the term "tamari" in Japan (1228).

Note 2. This is the earliest document seen (Sept. 2000) that mentions sesame seeds (802 A.D.). Address: Norin Suisansho, Tokei Johobu, Norin Tokeika Kacho Hosa.

47. 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).

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 (*lüdou*) 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 (Dec. 2005) concerning roasted soy flour.

Note 2. This is the earliest document seen (Aug. 2002)



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 fermented rice] and a red wine.

Note: This is the earliest document seen (Nov. 2011) that mentions fermented red rice, which it calls *hong qu*.

Bray (1984, p. 623): Translates the title as “Collection of certain sorts of techniques necessary for households (encyclopedia).” Published in Yuan, +1301. Probably by Hsiung Tsung-Li. Ed. Ming, +1560, 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.

48. Hu Sihui. 1330. *Yinshan zhengyao* [Principles of correct diet]. China. Passage on soy reprinted in Buell and Anderson 1999, p. 515-17. [Chi]

• **Summary:** Wade-Giles reference: *Yin Shan Chêng Yao*, by Hu Ssu-Hui. Yuan. Reissued in +1456 by imperial order. Huang (2000) shows that this celebrated Yuan nutritional treatise is a rich source of information about Chinese food and drink. One of China’s two best known and most important medieval and premodern works on diet therapy materia medica, it contains food prescriptions and was the official nutritional guide for the royal household. The author was the dietician at the Yuan (Mongol) court. Fortunately modern editions are available. (p. 135, 137-38). Huang (2000) notes that this work mentions fermented black soybeans (*shi*) (p. 341), and says that in countering the toxicity of foods, soybean jiang (*doujiang*) is superior to fermented wheat jiang (*mian jiang*) (p. 357). It also discusses: Red fermented rice (p. 196; also called red ferment, *hongqu* in pinyin, or *hung ch’ü* in Wade-Giles; it is made with the Mold *Monascus purpureus* Went, and used as a natural red coloring agent). Distilled wine (p. 227). Five types of dairy products (p. 256). Malt sugar (*tang*) (p. 460). Pasta-making, including steamed buns (*mantou*) and wheat flour noodles (*mian, miantiao*) (p. 476, 484). Sea vegetables (*haicai*) are mentioned as a cure for goiter (p. 576). Three

recipes for curing beri-beri (*jiaoqi*, W.-G. *chiao-chhi*) are given (p. 581). Wilkinson (2000, p. 649) states that after the Han dynasty, recipe books were called *shijing* (“food treatises”), and after the Tang, *shipu* (“recipe manuals”) or *shidan* in the later empire. Most have been lost. One that survives, a treatise on diet written for the khan by the Muslim court doctor, the Mongolian Hoshi (Husihui), titled *Yingshan Zhengyao* (Essentials of eating and drinking)” has been translated into English.

English translation: Buell, Paul D.; Anderson, Eugene N., trans. 1999. *A soup for the Qan: Chinese dietary medicine of the Mongol era as seen in Hu Szu-hui’s Yin-shan Chêng-yao*. London: Kegan Paul International. 715 p.

Section 3 (p. 515-17) states: “Soybeans are sweetish in flavor and neutral and lack poison. They decrease demon *qi*, control pain, and drive out water. They expel heat of the stomach, bring down blood stasis, and counteract the poisons of various drugs. They are made into tofu. Tofu is cooling and moves the *qi*.”

Needham (1984, p. 592) says this book is mainly about deficiency diseases, with the aphorism “many diseases can be cured by diet alone.”

Lu, Gwei-Djen; Needham, Joseph. 1951. “A contribution to the history of Chinese dietetics.” *Isis—History of Science Journal* 42:13-20. April. The *Yinshan Zhengyao* discusses early Chinese treatments for beri-beri.

49. Ni Zan. 1360. *Yunlintang Yinshi Zhidu Shi* [Dietary system of the Cloud Forest Studio]. China. [Chi]

• **Summary:** Wade-Giles reference: *Yün Lin T’ang Yin-shih Chih-tu Chih*, by Ni Tsan. Yuan dynasty. Huang (2000) states that this book mentions only one dairy product, milk curds (*rufu*; W.-G. *jufu*), a name that would later be used to refer to fermented tofu (p. 256).

Concerning the history of soy sauce, Huang observes (P. 362): The role of fermented black soybeans as a precursor to soy sauce is further emphasized in the very first specific reference we have to the making of *jiangyou* (soy sauce). Found in this book written by the famous Yuan painter Ni Zan, it says: “For every official peck of yellow soybean koji (*huangzi*), have ready 10 catties of salt and 20 catties of water. On a *fu* day, mix them [in a jar] and incubate.” Note 1. *Huangzi* is soybeans covered with a mycelium of *Aspergillus* mold used as a substrate for making fermented black soybeans (*shi*). A *fu* day is one of the 3 *geng* days during the summer, based on the calendrical system according to ‘celestial stems’ and ‘earthly branches.’ Essentially, it means that the operation should be carried out when the weather is warm.

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 3

recipes, soy sauce made from jiang (*jiangyou*) is used in 1, and another type of soy sauce made from jiang (*jiangshui*) is used in 2 recipes. Note 2. This is the earliest document seen (Aug. 2005) that uses the word *jiangshui* to refer to a type of soy sauce.

Also discusses mantou and cooked noodles (p. 476, 484n). Address: China.

50. Liu Ji. 1370. Doneng pishi [Routine chores made easy]. China. [Chi]

• **Summary:** Wade-Giles reference: *To Nêng P'i Shih* by Liu Chi. Ming dynasty. Huang (2000) states: This is the earliest of at least 13 food canons and recipe books in premodern China. “Premodern” refers to the period from the start of the Ming to the end of the Qing dynasty (1368-1912). The author was a distinguished official of the early Ming (p. 129-130). The book contains a brief recipe for making fermented black soybeans (p. 340) and for making jiang (p. 353, 357).

A full-page table (Huang, p. 372) shows the “Usage of soy condiments in food recipes from the Han to the Qing dynasties.” Jiang (fermented soybean paste) is used in 5 recipes, and fermented black soybean sauce (*shizhi*) in 1 recipe.

The book also mentions preparation of meat and fish pastes (*jiang*) including those made from five kinds of fish, yellow sparrow, pork, lamb, mutton, and shrimp. Many of these recipes were copied verbatim from two earlier works (p. 386, 387n). Also mentions the use of soybean jiang to preserve meat or fish (p. 414n). Address: China.

51. Iseno, Teijo. 1525? Teikun ôrai [Teikun ôrai]. Japan. [Jap]\*

• **Summary:** Ohta (1975, p. 226) states that this book was written during the Muromachi (Ashikaga) period [ca. 1336-1573] in Japan. It contains recipes for using fermented black soybeans (*shiokara nattô*).

K. Tsuchiya (Soy milk, 1982, p. 30) states that in this book, written during the Muromachi (Ashikaga) period in Japan, the word *tofu-kan* appears in the section titled *Shojin Ryori* (Buddhist Vegetarian Cookery). That word used to mean “tofu soup” but it actually refers to what Japanese today call soy milk (*tônyû*).

Toyo Shinpo. 1983. Jan. 1. “Tonyu no rekishi wa furui” [Soy milk has a long history]. Based on new book by Kanji Tsuchiya.

52. ôkusa-ke ryôri-sho [The house of okusa cookbook]. 1532. Japan. [Jap]\*

• **Summary:** The word *shoyu*, written with the characters used today, was first used in a cooking book in this work. The next major event with shoyu in Japan was when a brewer in Noda sent tamari to Kawanakajima.

This book also contains a detailed recipe for making Natto Miso Soup (*nattô-jiru*, a special type of miso soup

that contains diced natto), which became popular during this period. Note: This is the earliest document seen (Nov. 2011) that mentions *nattô-jiru*.

Letter (e-mail) from Naomichi Ishige, Japanese natto expert. 2007. March 20. The title of this book is *ôkusa-ke ryôri-sho*. The “nattô” used to make *nattô-jiru* (natto miso soup) is actually *kuki*, or fermented black soybeans (*shiokara natto*, *tera natto*); it is not *itohiki nattô*. This cookbook was reprinted in a modern version in 1932 (Dec. 15) in Tokyo by Zokugunsho-ruï Ju Kanseikai (Ohta Yoshimara [person]).

Note: This is the earliest document seen (Dec. 2008) that mentions *nattô-jiru* [Natto Miso Soup] or miso soup of any type.

53. Hôchô kikigaki [Transcribed instructions for cooking]. 1560-1580. Published in the *Gunsho Ruijû*. Japanese summary by Kawakami, p. 136. [Jap]

• **Summary:** A *hôchô* is a Japanese kitchen knife; *kikigaki* means “listening and writing.” According to Kawakami and Kimura (1985, p. 36-37) the term *shiokara nattô* (“salty natto”) appears in the work titled *Gunsho Ruiju* [compiled about 1819-20] (*Katsuji-hon*, page 344, lower section, line 5). The authors think that this is the earliest document that mentions *tera nattô* or non-stringy natto [fermented black soybeans]. But after that time, the same food appears to be called *ko no daizu* or *kaori no daizu* (“fragrant soybeans”), and that term first appeared in the *Hôchô Kikigaki*, a cookbook that was published about 1560-1580 and that is part of the *Gunsho Ruiju* (*Katsuji-hon*, page 800, upper section, line 6).

This book also gives recipes using *tare miso*, made by mixing miso and water. Mentions *chiang*. Also contains a very early possible footnote reference to soy sprouts, *Moyashitaru mame*.

54. Matsuya Hisamasa. 1561. Nattô-jiru [Natto miso soup]. In: Matsuya Hisamatsu chakai-ki [Three-generation diary of the Matsuya family’s tea ceremonies]. Sept. 5. Compiled by Hisashige Kaiki. Japanese summary by Kawakami 1978, p. 261. [Jap]\*

• **Summary:** Concerning *natto-jiru* (natto soup): Kawakami and Kimura (1985) state that in the olden days in Japan, people used natto in a soup (*nattô-jiru*), which was quite popular. However these two authors think that the *natto* used in this soup was probably fermented black soybeans (*kuki*, *shiokara natto*, *tera natto*) rather than *itohiki natto*. This is the 2nd earliest document seen (Nov. 2011) that mentions *nattô-jiru*. It is mentioned in the entry for 5 Sept. 1561. Mr. Matsuya was a rich merchant in the Nara area. His family kept their diary for three generations. Address: Japan.

55. Sotan. 1588. Sotan Chakai Kondate Nikki [Master Sotan’s Tea Ceremony Cookery Menu Diary]. Japan. [Jap]\*

• **Summary:** According to Kawakami and Kimura (1985, p.

36-37), the term *ko no daizu* or *kaori no daizu* apparently refers to salted non-stringy natto (tera natto or fermented black soybeans). It appeared in the *Sotan Chakai Kondate Nikki* (*Master Sotan's Tea Ceremony Cookery Menu Diary*), in the morning menu for 19 March 1588.

56. Gao Lian. 1591. *Yinzhuan fushijian* [Compendium of food and drink]. China. Passage on soy reprinted in H.T. Huang 2000, p. 297, 324, 340, 373. [Chi]

• **Summary:** Wade-Giles reference: *Yin Chuan Fu Shih Chien*, by Kao Lien (who lived 1574-1624). Ming dynasty. Huang (2000) discusses: Processes for making sprouts from yellow soybeans (*dahuangdou*) and broad beans (*handou*) (p. 297; Footnote: The identity of *handou* is uncertain; it could be either broad beans (*candou*, *Vicia faba*) or peas (*wandou*, *Pisum sativum*)). Mention of tofu (p. 324). Brief recipe for making fermented black soybeans (*shi*, p. 340).

A full-page table (Huang, p. 372) shows the “Usage of soy condiments in food recipes from the Han to the Qing dynasties.” Seasonings based on jiang (fermented soybean paste) are used in 27 recipes: jiang itself in 20, soy sauce made from jiang (*jiangyou*) in 5 recipes, soy sauce named *jiangzhi* in one recipe, and soy sauce named *jiangshui* in one recipe. Seasonings based on fermented black soybeans (*shi*) are used in only 5 recipes: Fermented black soybeans (*shi*) in 4 recipes, and fermented black soybean sauce named *shizhi* in 1.

Huang adds (p. 373): Soy sauce (*jiangyou*) started to rival jiang in importance during the Ming [1368-1644], and by the early years of the Qing [1644-1912] had surpassed it in culinary usage. This book is the last Ming entry in the table. Huang also discusses: Use of red ferment (*hongqu*) to make red rice wine (p. 196).

Huang (personal communication, 5 June 1993), gives the date of this document as +1591, and notes that pages 148-49 mention *fu cha* (tossed gluten salad) and *chian fu* (pan-fried gluten slices). This information is repeated from an earlier book by Han I written ca. +1350.

Bo (1982): This Ming dynasty book contains many recipes that use soy sauce. Partly reprinted in Shinoda & Tanaka (1973), “A Collection of Chinese Dietary Classics.”

57. 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 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. 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 yuba (*doufu pi*), which is itself a delicious food ingredient (Huang 2000, p. 303, 323).

Note. This is the earliest Chinese-language document seen (May 2010) that mentions yuba, which it calls *doufu pi*.

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). This section has four parts: (1) “Explanation of names.” The soybean is *shu*. The pods are called *ja*. 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 B.C.), 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 B.C.), 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 B.C.). 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 1. This is the earliest document seen (April 2003) 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 2. This is the earliest document seen (Feb. 2003) that uses the term *huang dadou* to refer to yellow soybeans.

Note 3. This is the earliest Chinese-language document seen (Sept. 2006) that uses the term *douyou* to refer to soybean oil.

Note 4. 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 (*liudou*). 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.

58. 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), 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), reiterated about 350 years later in the *Sishi Zuanyao* (Important rules for the four seasons) (+900).

(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 (Jan. 2010) 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 (Oct. 2002) 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 (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.

59. 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 (A.D. 1658). 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 media* 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 (1881) 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.

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 Soy Nuggets, *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).

60. Li Rihua. 1610. Penglong yehua [Night discourses by the Penglong mountain]. China. Passage on soy reprinted in C.N. Li 1958 #151, p. 98. Undated. [Chi]

• **Summary:** Wade-Giles reference: *P'êng Lung Yeh Hua*, by Li Jih-Hua (who lived 1565-1635). Ming dynasty. Penlong mountain is in Anhui province, in central eastern China. The text states (in very literary Chinese): The people of the Xi district are skilled in making tofu. They use a quern (hand-turned rotary mill stones) made of very fine purple stone. Each pair of stones is worth 2-3 pieces of gold. They are of the quality of inkstone. When the soybeans are ground, the cakes of tofu are completely smooth, without dregs. When you cook them, you do not have to season them with salt or fermented black soybeans (*shi*); they have a natural, sweet flavor. On this mountain lived old Mr. Wang. He used a clay pot to cook his tofu; the flavor is superb. Legend has it that a scholar, Mr. Xu, was unsuccessful in his state examinations. So he threw down his pen and said, “How much time does one have in a lifetime? Why not return to my village, heat up my pot, and make tofu?” His product became well known as the Tofu of the Xu Pavilion. (Translated by H.T. Huang, PhD, Nov. 2002).

The second paragraph has been translated by H.T. Hang (2000, p. 325-26) who notes that this is the earliest document seen (Dec. 2002), worldwide, that mentions fermented tofu: “The people from the *i* District (in southern Anhui) love to ferment *hai fu* [*hai tou fu*] in the fall.\* They wait until it changes colour and is covered with a hairy coat. The hair is carefully wiped off and the cake gently dried. It is then deep fried in hot oil, just like the making of *san* pastry. The oil is drained off and the cake cooked together with other food materials. It is said that the product has the flavor of *yu* fish. (Footnote: \**Hai* is the ancient word for making a sauce by auto-digestion. The hairy growth refers to the fungal mycelium. The *i* District lies in southern Anhui).

Chu Yung-Shung (1981, p. 98A). “Fu ru is the fermented form of bean curd. The earliest record for this is in a book called *Night Dialogue under the Shade*, written by Li Rihuo (1636-1661). He said that fu ru was prepared between summer and autumn in the Qi Men district and briefly described the procedure.” Yet in the next sentence the author, Chu, contradicts what he has just said. “In a famous book on Chinese herbal medicine, *Compendium of Materia Medica* [*Bencao Gangmu*], the author, Li Shizhen (1518-1593) describes the preparation in detail.”

Note 1. This is the earliest Chinese-language document seen (Oct. 2011) that mentions fermented tofu, which it calls *hai fu*.

Note 2. Concerning the date or year this document first appeared: C.N. Li (1958, p. 98 #151) gives the date as 1610. H.T. Huang suggests we use that date; it seems reasonable since Li lived 1565-1635.

Note 3. Dr. H.T. Huang (Dec. 2002) is unable to find any mention of fermented tofu in the *Bencao Gangmu*; he concludes that Chu may have been repeating misinformation started by Morohashi (1955).

61. Li Zhongli. 1612. Bencao yuanshi [Objective natural history of materia medica; a true-to-life study]. China. Passage on soy reprinted in C.N. Li 1958 #312, p. 226. [Chi]

• **Summary:** Wade-Giles reference: *Pên Ts'ao Yüan Shih*, by Li Chung-Li. Ming dynasty. The section titled “Soybeans” (*dadou*) contains little new information. There are different kinds of soybeans: black, white, yellow, dark brown, green (*qing*), and spotted / speckled (*ban*). According to the *Guangya* (Ancient dictionary: Enlargement of the *Erya*) (+230) soybeans are called *shu*. Black soybeans are sprouted until they are 5 inches (*cun*) long, then dried; they are called dried soybean sprouts (*dadou huangjuan*, “soybean yellow curls”).

Black soybeans—nature and flavor (*heidadou qiwei*): They are sweet, neutral, and nontoxic.

Dried soybean sprouts—nature and flavor (*heidadou qiwei*): They are sweet, neutral, and nontoxic.

Unsalted / bland fermented black soybeans (*dan doushi*): Steam soybeans until well cooked, then incubate them [so that wild mold spores will grow on them]. On the right side of the river [presumably north side of the Yangtze River] they make and sell a lot of it. It is called “bland” (*dan*) because no salt is used in the process. It is called *shi* because it is very much liked / greatly appreciated (Note: the word pronounced *shi* can mean either “fermented black soybeans” or “something delectable and highly desirable”). It is used to blend the five flavors. As for its nature and flavor (*qiwei*): it is bitter (*ku*), cold (*han*), and nontoxic.

Needham (1984, p. 321-23, 581) says that this book was started in +1578 and printed in 1612. The author lived near Kaifeng in northern Henan province. The illustrations, all drawn by the author, are of excellent quality and perhaps the earliest Chinese botanical illustrations to show particular parts as well as the entire plants; four are reproduced by Needham. (Translated by H.T. Huang, PhD, Feb. 2003).

62. 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: 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).

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 the okara. 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 1. This is the earliest document seen (Sept. 2001) concerning the use of soybean presscake (or cake—the residue from pressing out soy oil) as a fertilizer.

Note 2. This is the earliest document seen (Oct. 2001) 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 B.C.).

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.

63. Shen, Master. 1630? Shenshi nongshu [Mr. Shen’s agricultural treatise]. China. Passage on soy reprinted in C.N. Li 1958 #319, p. 228-29. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Shen Shih Nung Shu*, by Master Shen. Late Ming dynasty. In the section titled “Appropriate activities for each month,” each entry begins with the month plus a range of dates using two of the “Twenty-Four Solar Terms” (each being a fixed description of the main seasonal phenomena—as found in the Farmer’s Almanac). Table VII in Mathews’ *Chinese-English Dictionary* (1943, p. 1178) enables us equate the ancient solar terms with approximate current dates.

Master Shen states: In the third lunar month—at the time of “clear and bright,” “grain rains” (April 5-20)—plant 3 different types of soybeans Note: We have not seen these flowery soybean names before. Each character for bean (*dou*) has a grass radical on top.

In the fourth lunar month—at the time of “summer begins,” “grain fill” (May 5-21)—plant another type of soybean. In the sixth lunar month—at the time of “slight heat,” “great heat” (July 7-23)—you can start harvesting some of the beans and you can start making fermented black soybeans (*doushi*).



In the ninth lunar month—at the time of “cold dew,” “hoarfrost descends” (Oct. 8-23)—harvest the soybeans and roast the green soybeans (*qingdou*) [probably soybeans with green seed-coats]. (Translated by H.T. Huang, PhD, Feb. 2003).

Bray (1984, 628-629, 83): Cites this as *Nung Shu* (“Agricultural treatise”), by Master Shen—instead of as *Shen Shih Nung Shu*. Late Ming dynasty. It could be described as a work on estate management. Bray adds (p. 504) that the expense of a little oil-cake was usually not begrudged, for it went a long way; pounded finely and planted with the seed, a single cake would fertilize an entire *mu* of young rice (Bray, p. 294-95). Before transplanting took place, the main rice field was ideally fertilized with river mud, burned compost, hemp, bean-cake (*doubing*), or other fertilizers according to soil type.

64. Shixian hongmi [Guide to the mysteries of cuisine]. 1680. China. Passage on soy reprinted in H.T. Huang 2000, p. 325-27. [Chi]

• **Summary:** Wade-Giles reference: *Shih Hsien Hung Mi*. H.T. Huang (2000, p. 623) states that this book is attributed to Wang Shizhen (Wade-Giles: Wang Shih-Chên) but more probably was written by Zhu Yizun (W-G: Chu I-Tsun).

Huang states (p. 324) that frozen tofu (*dong doufu*; W.-G. *tung toufu*) is first mentioned in Chinese in this work. The section titled “Frozen tofu” states: In the depths of winter, place a cake of tofu (*doufu*) outdoors in a basin of water overnight. The water will freeze even though the tofu itself may not. However the beany flavor will be lost in the water, leaving the flavor of the tofu much improved. Another way is to freeze the tofu itself without the water. When thawed, it will look like a little beehive. Wash it well. Heat it in a soup base or fry it in oil. It will be an unusual dish regardless of how it is cooked. Huang adds that this same description of the process is repeated in the *Yang Xiaolu* (1698). Note: Dr. Huang states (March 2004) that the term *dong doufu* almost always refers to tofu that has been frozen, then thawed and dried. However he has never seen an early description of how it was thawed and dried. In addition, he has never heard the term *bing doufu* (“ice tofu”), meaning “frozen tofu.”

Huang (2000) states (p. 325) that pressed tofu (*doufugan*, “tofu + dry”) is first mentioned indirectly in this work in connection with the preparation of smoked tofu (*xun doufu*; W.-G. *hsiin toufu*), which is first mentioned in Chinese in this 1680 book. The section titled “Smoked tofu” states: Press tofu until it is as dry as possible. Soak it in brine, wash well, then dry it in the sun [to give *doufugan*]. Spread sesame oil over the surface, then smoke it. Another method is to soak tofu in brine, wash well, then dry it in the sun. Boil it in soup stock, then smoke it.

When William Shurtleff saw pressed tofu (*doufugan*) prepared in Taiwan and China during the 1970s, it was always pressed using either a hand-turned screw press

or a lever-press with huge stones. He never saw it being dried in the sun. Perhaps the efficiency of the screw press in removing moisture from the tofu made the sun-drying unnecessary. Note that sun-drying takes extra time and exposes the warm tofu to unwanted microorganisms.

Huang (2000, p. 326) translates the earliest known account of making fermented tofu\*: To make Fujian (W.-G. Fukien) style fermented tofu (*doufuru*, W.-G. *tou fu fu*), press tofu until it contains a little moisture as possible or wrap it in fine cotton paper and desiccate it in fresh ashes. Cut cake into thick square pieces and place them in rows on a bamboo steamer pad. After all steamer tiers are filled, cover steamer. [The best time to make it] is in the 2nd or 3rd month in spring or 9th or 10th month in autumn. Place steamer in an airy place. After 5 or 6 days, surfaces [of tofu] will be covered with a hairy growth, which may gradually turn black or greenish red. Wipe hair off tofu squares with a piece of paper. Save it, making sure not to damage the skin. For [the tofu from] each *dou* of beans, prepare 3 catties of soy sauce and 1 catty of fried salt. (If soy sauce is not available, use 5 catties of salt.) Grind 8 ounces of fresh red ferment spiced with clean peppercorn, fennel and licorice, then mix powder with salt and wine. Place tofu in a jar, add wine sauce mixture, then seal mouth of urn with clay. Allow urn to stand for 6 months; an excellent flavour will result.”

(Footnote: \*The original passage is interspersed with notes that describe a variation of the process as it was practiced in Zhejiang (W.-G. Chekiang). These notes make the text somewhat confusing to read, so they were left out in the translation. However, from these notes we can reconstruct the Zhejiang process as follows: After the steamer is filled with tofu squares, steamed them. Place the steamer, while still hot, on a bed of rice straw and cover completely with rice husks—in a place with little air movement. Remove tofu squares after 5-6 days. Press down and flatten the hairy growth. [This will help to keep the product fresh.] Then layer the squares in a jar. Sprinkle a pinch of salt on each piece of tofu until all surfaces are evenly salted. For each layer of tofu there should be a layer of salt. When salt is dissolved, each piece is heated in the sun by day and marinated in sauce mixture [as indicated in the Fujian process]. Continue sunning and marinating until all sauce is used up. Soak layered tofu in a jar with wine. Then seal mouth of urn with clay. Allow the urn to stand for 6 months and an excellent flavour will result.)

Note: This is the earliest document seen (Feb. 2007) that mentions fermented tofu, which it calls *doufuru*.

Huang (2000, p. 326) continues by noting: Two other passages in the *Shixian Hongmi* are also of interest in this connection. One describes a method for making *zao rufu* (W.-G. *tsao ju fu*), i.e. fermented tofu (*furu*) aged with a fermented mash [rice wine dregs]: Transfer ripened *rufu* or samples that are too salty in layers to a new vessel. Line fermented mash or residue between layers and allow material

to age. A product with a unique flavor is obtained. The other deals with the making of *doufu fu* (W.-G. *tou fu fu*), a deep fried ‘stinky’ dewatered tofu: Take good quality [pieces of] tofu and grill in oil. Then cover with a cloth screen to keep out flies and other insects. When a “stinky” odour is developed, fry the pieces again in hot “boiling” oil. The flavor is excellent.

Note: This “stinky” tofu is probably *chou doufu*. If it is, this is the earliest document seen (Oct. 2011) that mentions a type of *chou doufu* (“stinky tofu”).

Huang (2000, p. 326-27) comments further: Two interesting points emerge from these passages. First, by the time that the *Shixian Hongmi* (+1680) was published, *furu* and *rufu* had apparently become synonyms for fermented tofu. The word *fu* could now mean a gel or custard made from any edible suspension or emulsion of food material, and *ru* any type of dairy or soy milk derived product. Second, although the word *zha* (W.-G. *cha*) was not used, there is no question that the frying in “boiling oil” shown in the second passage indicates that deep frying was a common method of cookery during the Ming dynasty.

Huang (2000, p. 341) states that this book contains an interesting recipe in which fermented black soybeans (*shi*) are stewed with pieces of pressed tofu (*doufugan*) and bamboo shoots.

A full-page table (Huang, p. 372) shows the “Usage of soy condiments in food recipes from the Han to the Qing dynasties.” Seasonings based on jiang (fermented soybean paste) are used in 49 recipes: jiang itself in only 8, soy sauce made from jiang named *qingjiang* in 1 recipe, soy sauce named *jiangyou* in a whopping 37 recipes, soy sauce named *jiangzhi* in 2 recipes, and soy sauce named *jiangshui* in one recipe. Seasonings based on fermented black soybeans (*shi*) are used in only 6 recipes: Fermented black soybeans (*shi*) in 4 recipes, and fermented black soybean sauce named *shizhi* in 2.

Talk with H.T. Huang. 2001. Feb. 20. This 1680 book contains a recipe titled Soy Sauce Pressed Tofu (*Jiangyou Fugan*) which states: Cut pressed tofu (*doufugan*) into pieces. Mix 1 catty of soy sauce with 2 catties of water. Filter the liquid mixture then boil it. Filter it again to remove any remaining residue. Now add to the liquid: mushrooms and 4 different spices (*dingxiang*, *baiqi*, *dahuixiang*, and *guipi* {cassia bark, *Cinnamomum cassia*}), and tofu. Boil for several minutes. Remove from heat and allow to stand for half a day. The color still will not be very dark. Remove tofu from liquid and dry it. After 1 night, repeat the process of boiling and soaking several times. Note: This yields a highly seasoned tofu with a long shelf life at room temperature.

Note: This is the earliest document seen (Feb. 2004) that recommends adding mushrooms or spices / seasonings to soy sauce to enhance its flavor.

65. 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 BC) 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.

66. Honkan shokkan [Japanese model cookbook?]. 1697. Japan. [Jap]\*

67. Gu Zhong. 1698. Yang xiaolu [Guide to nurturing life]. China. [Chi]

• **Summary:** Wade-Giles reference: *Yang Hsiao Lu*, by Ku Chung. H.T. Huang (2000, p. 627) gives the date of this document as +1698. In the section titled “Products associated with tou fu,” Huang states: (1) (p. 324) A recipe for making frozen tofu, first mentioned in the *Shixian Hongmi* (Guide to the Mysteries of Cuisine) (+1680), is repeated in this book. (2) (p. 325) that both pressed tofu (*doufugan*) and smoked tofu (*xun doufu*) are mentioned in this book.

In the section titled “Fermented soybeans (*shi*),” Huang states that wheat flour is used as an ingredient in a recipe for making fermented black soybeans (*shi*).

In the section titled “Fermented soy sauce, *chiang yu*,” Huang states (p. 363): About 100 years after the *Bencao Gangmu* (The great pharmacopoeia) (+1596), the next description of the process for making soy sauce (*jiangyou*) appears in this book, in the form of three sketchy recipes, one of which states: Cook yellow soybeans (*huangdou*) or black soybeans (*heidou*) until soft. Mix the soybeans and their cooking water with white [wheat] flour and knead to form a dough. Shape into flat or convex cakes. Cover with artemisia leaves until a good growth of yellow mold appears; then grind these cakes. Incubate the meal in a jar with brine. Warm in the sun to give [a thin] soybean jiang (*doujiang*). Filter through a tightly-woven bamboo sieve placed over a wide-mouthed vat. The jiang (soy paste) stays in the sieve while the soy sauce (*jiangyou*) is collected below.

A full-page table (Huang, p. 372) shows the “Usage of soy condiments in food recipes from the Han to the Qing

dynasties.” Seasonings based on jiang (fermented soybean paste) are used in 25 recipes: jiang itself in 14, and soy sauce made from jiang named *jiangyou* in 11 recipes. Seasonings based on fermented black soybeans (*shi*) are used in only 1 recipe, which uses fermented black soybeans itself.

Huang adds (p. 373): During the Ming dynasty, soy sauce (*jiangyou*) started to rival soy sauce in importance; by the early years of the Qing dynasty, soy sauce had surpassed jiang in culinary usage.

Huang notes (personal communication, 5 June 1993) that page 21 contains recipes for deep-fried gluten and smoked gluten.

Bo (1982): Describes the method for making *chiang-yu* (soy sauce).

68. 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 (Nov. 2011) 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 (Nov. 2011) 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 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. Hacho 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.

69. Terashima Ryoan. comp. 1711. *Wakan sansai zue* [Collection of Japanese and Chinese diagrams and drawings of all things]. Japan. 40 books, 106 sections. Japanese summary by Kawakami 1978, p. 269. Translation into modern Japanese titled *Wakan Sansai Zukai* published by Heibonsha in Toyo Pocket Library series. [Jap; eng+] • **Summary:** This is Japan's oldest encyclopedia, written in *kanbun*, the Japanese transcription of Chinese writing. It is a Japanese compilation, which originated in Japan and is not a Japanese translation of a Chinese work. When cited in Chinese, the title in pinyin is: *Hehan sanchai tuhui* (W.-G. *Ho Han San Ch'ai T'u Hui*). The author's nickname (*aza*) is Shojun; his artist's name (*go*) is Kyorindo. The work contains many illustrations, although they were generally primitive and not very accurate.

In volume 105 (*Jozorui*), which is about brewing and fermented foods, a clear distinction is made between miso, shoyu, and tamari.

The section on yuba states: "Tofu film is made on the surface while making tofu. It looks like yellow paper. If you stir too much, the film will not form properly. If you wish to obtain the film, add coagulant and boil the milk. The wrinkled look of the film resembles (the skin of) an old woman. If you remove too much film, the yield of tofu decreases and the tofu becomes hard to eat." Yuba is referred to as *doufu-p'i*, the present Chinese term. When the text notes that yuba "resembles (the skin of) an old woman," it seems to imply that the earlier term *lao* or *uba* was used because of the similarity of yuba and an old woman's face.

Fukushima (1989, p. 9) states that the *Wakan Sansai Zue* (Narushima, 1712) describes miso and shoyu.

Ebine (1989, p. 91-93) gives the date of this work as 1712, and states that volume 105 describes the preparation of "tama-misho" using broad beans (*Vicia faba*; Japanese: *soramame*), and a "whitish misho" using soybeans. For each of these Ebine gives a flowchart. Rice or barley are soaked

in water, steamed, and fermented to make rice koji, which is mixed with salt, and then the salted koji is mixed with broad beans that have been cooked and dehulled. The mixture is formed into balls, which are wrapped with rice straw, hung under the rafters over a fireside for several weeks, crushed in a mortar, then mixed with water to make tama-misho. To make whitish misho from soybeans and rice: 10 parts of soybeans are soaked in water, dehulled by brushing, and cooked. The hulls are first removed from the cooker, then the cooked beans are removed, formed into balls, and the balls are sliced. Meanwhile, about 14 parts of rice are polished, soaked in water, steamed, cooled, and allowed to mold spontaneously to yield 16 parts of rice koji. The rice koji, sliced soybean balls, and 1.3 parts of salt are mixed, pounded, packed into vats, and fermented for 10 days to yield the whitish misho.

C.N. Li (1958): Making Fermented Products, Fermented black soybean sauce (*shizhi*; W.-G. *shih chih*). Note: Shih is often used at meals to harmonize the five flavors. People used to use it during this dynasty. Nowadays, if people do not use chiang, they do not use shih; they use soy sauce (*chiang-yu*), not fermented black soybean sauce (*shizhi*).

Modern rendering by Morohashi (1955). He translated p. 5 (roasted flour), p. 17 (fermented black soybean sauce). Confection of soy flour and *ame* = *Ame chimaki*. In "Making Fermented Foods." Morohashi (1955) translated p. 5. *tou i (mame ame)*. In: vol. 10, p. 63.

Iino (2003, p. 8) notes that this 1712 book "states that soy sauce made from wheat is suitable for the public and soy sauce made from barley is of low quality." Iino comments (p. 8-9): "Put simply, the soy sauce sold in shops was made from wheat because that made from barley was inferior."

On the same page, Iino shows a full page reproduction of the page titled "shoyu" in this book. It gives: "An explanation of soy sauce production with an illustration of the proper sort of barrel to be used." Iino notes (p. 9): "Another method for producing soy sauce requires a heating process. The *Wakan Sansai Zue* states: '... Squeeze the *moromi* to extract the oil [sic, liquid]. If the color is light, the flavor will not be good. Boil the oil [liquid], place it in a pail and leave it over night to darken the color and improve the flavor. Mix the dregs [presscake] again with salt water and extract the oil [liquid]. This [second pressing] is called *niban shoyu* (second soy sauce), and the flavor is very much inferior.'"

70. Chen Menglei. ed. 1726. *Tushu jicheng* [Imperial encyclopedia]. China. 10 vols. Passage on soy reprinted in C.N. Li 1958 #327, p. 233. [Chi]

• **Summary:** Wade-Giles reference: *T'u Shu Chi Ch'eng*, edited by Ch'ên Mêng-Lei. Title also cited as: *Gujin tushu jizheng* (W.-G. *Ku Chin T'u Shu Chi Chêng*). Or as: *Qinding gujin tushu jizheng* (W.-G. *Ch'in Ting Ku Chin T'u Shu Chi Chêng*). Qing dynasty.

Soybeans are discussed in detail in the lengthy section titled “Beans.” The section titled “Explanation of the name soybeans” (*dadou*) states: The word *dadou* is found in the *Shennong Bencao Jing (Benjing)* (Classical pharmacopoeia of Shennong, the Heavenly Husbandman) (+100). The simplified character *shu* [the ancient name for soybeans] is found in the *Bencao Gangmu* (The great pharmacopoeia), by Li Shizhen (+1596). The pods are called *jia*. The leaves are called *huo*. The stems are called *qi*. (Translated by H.T. Huang, PhD, March 2003). Dr. Huang adds: In this section on soybeans, there is much more information, but none of it is new; it is all from sources we have translated previously.

Huang (2000, p. 625-26) and Bray (1984, p. 631) give the date as 1726 and translate the title as “Imperial Encyclopedia. [or: Imperially Commissioned Compendium of Literature and Illustrations, Ancient and Modern].” Index by L. Giles (1911).

Wilkinson (2000, p. 605-07, 967) has an entire section on this book, including a table of contents, which is divided into 6 main categories, 32 sections, and 10,000 subsections. He cites it as *The Imperial Encyclopedia* or “Imperially approved synthesis of books and illustrations past and present,” Chen Menglei et al., comps. 1726-1728. 10,000 *juan*. It is by far the largest [and last] of the general encyclopedias (*leishu*) to have been printed. “Modern editions are available, including on CD-ROM. The most detailed is that prepared for the 1985 Zhonghua and Ba-Shu edition.

Needham (1986) has an interesting chart (p. 184) that shows the ancestry and descent of this and other major Chinese encyclopedias and dictionaries. He tells the remarkable history of this encyclopedia and its compiler (p. 206-08).

Bray (1984, p. 76, 631): This popular encyclopedia contains sections devoted to crop plants. They “consist of quotations from the classics and from agricultural treatises, and are of little intrinsic interest here except for the illustrations, which sometimes differ slightly from those of the agricultural monographs.”

Hummel (1944, p. 93-95): Ch’ên Meng-lei, born in 1651, was a scholar, native of Huo-kuan (Foochow). Caught in a rebellion, he was exiled, then in 1698 pardoned and brought back to Peking, where he served as teacher and secretary for the Emperor’s son, Yin-chih. There he began to compile a classified encyclopedia consisting of extracts copied from various works. In 1701 he persuaded Yin-chih to finance the project further. Then the emperor Sheng-tsu probably became interested in the project, for he gave it the title “Synthesis of Books and Illustrations of Ancient and Modern Times.” The work seems to have become a state enterprise, for officials were appointed to help Ch’ên in the compilation. It was completed in about 1722, before the death of emperor Sheng-tsu. The emperor’s son, who succeeded to the throne after a bitter power struggle, disliked

Ch’ên and so had the work “revised” to obliterate all signs of Ch’ên’s connection to it. The “revision” was completed in 1726. The first edition, comprising 10,000 *chüan*, plus a table of contents in 40 *chüan* was printed in 1728. Sixty-four sets were printed. A second edition of 1,500 sets was printed in Shanghai in 1884-88, but was marred by errors. A third accurate edition / set was printed in 1895-98 in Shanghai. One set was presented to the Library of Congress in 1908. An English index to the encyclopedia, with a valuable introduction, was compiled by Lionel Giles and titled “An Alphabetical Index to the Chinese Encyclopedia Ch’in-ting Ku-chin t’u shu chi-ch’eng.” It was published in London in 1911.

W.T. Swingle (1942, p. 13): The largest single Chinese account of many plants “is contained in the *Great Chinese Imperial Encyclopedia*, the largest encyclopedia ever printed in any country. It was compiled by order of the Manchu Emperor K’ang Hsi by Ch’êng Mêng-lei, but the work was not completed when K’ang Hsi died in 1723. His son and successor as emperor, Yung Chêng, promptly dismissed Ch’êng Mêng-lei and appointed Chiang T’ing-hsi, a scholar and statesman of some distinction, under whose care the manuscript was printed in 1726. This giant work fills 5,020 volumes, each containing two books or chapters.”

W.J. Hagerty (1917) did an excellent translation (which see) of the section titled “Beans.” Published by the USDA, Washington, DC. With plates. 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.

71. Li Hua-Nan; Li Diao-Yuan. 1750? *Xingyuan lu* [Memoir from the garden of awareness]. China. Undated. [Chi]

• **Summary:** Wade-Giles reference: *Hsing Yüan Lu*, by Li Hua-Nan, compiled by his son Li Tiao-Yüan. Qing dynasty.

H.T. Huang (2000, p. 324), in the section on frozen tofu, states that dried frozen tofu is first mentioned in this work, which suggests: Allow a whole batch of thinly sliced frozen tofu squares to thaw slowly, then store them in a cool place so they can be used in the summer.

Huang (2000, p. 327), in the section on “Making of fermented tofu” states: “Technically the most interesting accounts of the making of *furu* are found in the *Xingyuan lu* (1750). Five recipes are presented, representing two types of methodology. One uses ground wheat *ferment* as shown in the translation given below: ‘First prepare yellow wheat *ferment* as previously described and comminute it to a fine powder. Take ten catties of fresh tofu and two catties of salt. Cut the tofu into thin rectangular pieces. Sprinkle a layer of salt over a layer of tofu. Allow the tofu to soak in the brine [that is generated]. After five or six days remove the tofu but keep the juice for later use. Arrange the tofu pieces neatly in a steamer and steam until they are well cooked. Hang

the steamer with its contents in an empty room for half a month when the tofu becomes covered with luxuriant fungal growth. After scraping off the hairy surface the pieces are air dried. Now treat the tofu with dry yellow *ferment* as follows. Decant the salty juice from the soaking step and mix in dried *ferment* to form a paste. Spread a layer of tofu over a layer of *ferment* paste and cover with a layer of fragrant (i.e., sesame) oil. Add a few whole pieces of fagara. Place the stacks in a crock and seal the mouth securely with mud. Warm the crock in the sun during the day. After a month the product will be ready for the table.”

Huang adds (p. 327): “The other methodology uses the mash left from the fermentation of wine from grains.”

Huang (2000, p. 341-42) also notes that the process for making fermented black soybeans (*shi*) described in the *Bencao Gangmu* (The great pharmacopoeia) (1596) is repeated in four recipes in this book. Although the first stage, the production of soybean koji (molded soybeans) remains unchanged, “a variety of additional materials such as fagara, sugar, wine, melon juice, melon meat, melon seeds, liquorice [licorice], mint, magnolia bark, fritillary corm [fritilaria; bulbous herbs of the lily family] etc. have been included in one or more recipes for the second stage incubation.” These herbs and spices gave each product its own unique fragrance and flavor. One of the four recipes calls for the use of wheat flour. Huang observes that when the amount of wheat flour is large, the process becomes very similar to that for making soybean jiang.

In addition (Huang 2000, p. 363-64) translates the detailed method for making soy sauce, which is presented as a method for making *qingjiang* (“clear jiang”): Clean and wash one *dou* of yellow soybeans. Boil beans until soft and the color has turned red. Blend beans and cooking water uniformly with 24 catties white wheat flour. Form into cakes, arrange on bamboo or willow [leaf] trays, then cover with rice straw. Place trays in a wind-free room, and incubate for 7 days or until a good growth of mycelium appears. Remove the straw. Place trays in the sun during the day; bring them indoors at night. Repeat the procedure for 14 days. If it rains during the day, trays should be placed in the sun for addition days until the total of 14 days is attained. This is how to make the yellow koji for jiang (*jianghuang*).

For each *dou* of yellow koji for jiang, measure 5 *dou* of well water into an earthenware crock. Measure exactly 15 catties of raw salt into a bamboo basket, and hang the basket in the well water [inside the crock] until all the salt dissolves in the water. Discard any residue in the basket. Mix the yellow koji into the water; let it warm in the sun for 3 days. On the morning of the 4th day, remove earthenware crock from sun and stir contents well with a wooden paddle. Two days later, remove from sun and stir again. Repeat this procedure 3-4 times. After about 20 days, the “clear jiang” (*qingjiang*, or soy sauce) should be ready for use.

To separate the soy sauce (*qingjiang*), use a finely

woven cylindrical bamboo tube that is open at both ends. People in southern China call this a “circular sieve for jiang” (*jiangchou*). It is widely available in local markets of the capital [Beijing]. The same markets also sells various sizes of covers for the crocks. When the jiang / mash is ready [it has a consistency resembling that of applesauce], push the woven bamboo tube down into its center until the bottom of the tube rests securely on the bottom of the crock. Remove the jiang inside the tube so that the bottom of the crock is clearly visible. Place a brick atop the tube to prevent it from floating upwards. Liquid soy sauce will flow from the jiang mash into the tube. The next morning the tube should be filled with liquid. Use a bowl to transfer this clear soy sauce into a clean crock. Cover the crock with a piece of cloth to prevent flies from falling in. Warm the crock in the sun for half a month. To make more soy sauce, increase the amount of raw materials. After the sauce is ready, you can also use a sieve to collect the soybeans that float to the top of the mash. When half-dried, these beans make delicious fermented black soybeans or “fermented bean relish” (*doushi*).

A full-page table (Huang, p. 372) shows the “Usage of soy condiments in food recipes from the Han to the Qing dynasties.” Seasonings based on jiang (fermented soybean paste) are used in 10 recipes: jiang itself in 4, soy sauce made from jiang named *qingjiang* in 5 recipes, and soy sauce made from jiang named *jiangyou* in 1 recipes. A seasoning named *douyou* is used in 8 recipes. Note: This is the earliest document seen (Aug. 2005) in which a soy-based seasoning named *douyou* (W.-G. *tou yu*) is mentioned. Huang states (p. 371) that *douyou* is written with the Chinese characters for bean + oil.

Wilkinson (2000, p. 646) states that this book (late 18th century) is the first Chinese collection of recipes from a regional cuisine—that of Sichuan.

Fukushima (1989, p. 6): “The general manufacturing methods of soy sauce in the Ch’ing (Shin in Japanese) dynasty are recorded in *Ch’ing-yuan Lu* (sic, *Hsing-yuan Lu*; *Seienroku* in Japanese), written by Li Hua-nan (Ri Kanan in Japanese). Cooked soybeans and uncooked wheat were the raw materials used in koji making. The resultant koji was mixed with brine. After aging, the soy sauce was collected by pressing a deep bamboo colander into the aged mash and ladling out the liquid which had accumulated.”

Bo (1982): Describes the method for making *chiang-yu* (soy sauce).

72. 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; which see). The section titled “The spring” states: Plant black soybeans (*heidou*). Note: The

last month of spring in the Chinese lunar calendar 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): *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: 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: 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): Soybeans (*dadou*) were also called *shu*; azuki beans (*xiaodou*) were also called *da*.

According to the *Mingyi Bielu* (Informal records of famous physicians) (+510): 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: 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 frijoles. 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.

73. Tiaodingji [The harmonious caldron]. 1765-1860? China. Undated. [Chi]

• **Summary:** Wade-Giles reference: *T’iao Ting Chi*. Qing dynasty. This is a collection of recipes starting in about the year 1750. Huang (2000) says that this undated work was compiled during the Qing dynasty, between 1760 and 1860. Compiler unknown. The original hand-written manuscript is in the Beijing Library. First printed in a 1986 edition by Hsing Po-T’ao, published by Commerce Publishers in Beijing (p. 625). This is the most comprehensive of the pre-modern food canons. A massive tome covering 871 pages and containing 2,700 recipes, it includes about 250 entries on fermentations and food processing. Parts of it were said to be in circulation before 1765, but other parts perhaps no earlier than 1860. There is great interest in the origin of this book among Chinese food historians, since many of the recipes in it are identical to those in the *Suiyuan Shidan* [*Recipes from the Sui Garden*], By Yuan Mei (W.-G. *Sui Yuan Shih Tan*, by Yüan Mei). The questions arise: Which book is earlier? Who copied whom? Regardless, this is a book we cannot ignore (p. 132). This massive Qing recipe book does not mention soy sprouts (p. 297).

In Chapter 3, “Meats,” it uses jiang (fermented soybean paste) in 58 recipes, regular soy sauce called *qingjiang* (W.-G. *ch’ing chiang*) in 4 recipes, called *jiangyou* (W.-G. *chiang yu*) in 138 recipes, and called *jiangshui* (W.-G. *chiang shui*) in 2 recipes, and fermented black soybeans (*shi*) in 2 recipes.

In Chapter 7, “Vegetables,” it uses jiang in 33 recipes, regular soy sauce called *jiangyou* (W.-G. *chiang yu*) in 66 recipes, called *jiangzhi* (W.-G. *chiang chih*) in 1 recipe, and called *jiangshui* (W.-G. *chiang shui*) in recipe, and fermented black soybeans (*shi*) in 1 recipe. In this recipe book, which may be considered the summation of culinary arts in China in the 19th century, there are 212 entries for soy sauce (under various names) versus only 91 for jiang. Soy sauce had come to be the more widely used seasoning, but jiang was still important—as it is today (p. 372-73). Fish jiang and shrimp

jiang are mentioned (p. 387n). Page 86 describes various ways of preparing *mianjin* (W.-G. *mien-chin*) (wheat gluten) (Huang 2000, p. 502).

74. Xi Huang; et al. eds. 1767. Xu Tongzhi [The *Historical Collections* continued]. China. Passage on soy reprinted in C.N. Li 1958 #332, p. 235-36. [Chi]

• **Summary:** Wade-Giles reference: *Hsü T'ung Chih*, by Hsi Huang, et al. Qing dynasty. The section titled “Brief note on insects and plants” begins by stating the soybeans (*dadou*) are the same as *shu*. It then repeats information from earlier works, including the names of the different parts of the plant and the different soybean colors. Cites the *Guangya* (Ancient dictionary: Enlargement of the *Erya*) (+230). The soybean can be used as medicine, as food (directly), and for making fermented black soybeans (*shi*). (Translated by H.T. Huang, PhD, March 2003).

Wilkinson (2000, p. 526): This is one of the “ten encyclopaedic histories of institutions” (*Shitong*); its monographs cover from 907 to 1644.

Needham (1986, p. 571, 588) and Bray (1984, p. 625): This work was commissioned in 1767 and printed in about 1770. It covers to the end of the Ming dynasty (1644), and is a continuation of the *Tongzhi* by Zheng Qiao (which appeared in +1149).

75. Yuan Mei. 1790. *Suiyuan shidan* [Recipes from the Sui garden]. China. [Chi]

• **Summary:** Wade-Giles reference: *Sui Yüan Shih Tan*, by Yüan Mei. Qing dynasty.

H.T. Huang (2000, p. 323-24), in the section titled “Products associated with *tou fu*,” states that this is the earliest document seen that mentions fresh tofu curds. In a recipe for “Hibiscus Tofu” (*fuyong doufu*) the famous Qing dynasty gastronome says (p. 100): Place fresh tofu curds (*funao* = “tofu brain”) in well water and heat to boiling three times to remove the beany flavor. Suspend the curds in chicken soup and heat again to boiling. Before serving, garnish with laver / nori (*Porphyra*, a sea vegetable) and pieces of shrimp. Later, fresh tofu curds were also called “tofu flowers” (*douhua* or *doufu hua*).

Concerning frozen tofu, Huang states (p. 324) that a recipe in this book states: Boil the thawed tofu in water to remove the remaining beany flavor, then simmer it in a soup base.

Huang also states (p. 325, 364) that both pressed tofu (*doufugan*) and smoked tofu (*xun doufu*) are mentioned in this book.

Concerning fermented tofu, Huang (2000, p. 327) notes: By the middle of the Qing dynasty local varieties of *furu* had begun to win national fame, such as the *furu* of Suzhou [in southern Jiangsu; W.-G. Su-chow or Soochow, formerly Wuhsien] and the white *furu* of Guangxi [or Guangxi Zhangzu, an autonomous region in southeast China; W.-G.

Kuangsi]. The *Suiyuan Shidan* says:

‘*Rufu*: The ones from the [shops] near the front of the Temple of General Wên in Suzhou are particularly good. The colour is black, and the flavour is clean. There are two types, a wet and a dry. The product with some shrimp paste in it is also attractive, but may have a slight fishy taste. The white *furu* from Guangxi (Kuangsi) is also outstanding, especially that made by the family of the official Wang Ku.’

A full-page table (Huang, p. 372) shows the “Usage of soy condiments in food recipes from the Han to the Qing dynasties.” Seasonings based on jiang (fermented soybean paste) are used in 48 recipes: Jiang itself in 15, soy sauce made from jiang named *qingjiang* in a 24 recipes, soy sauce named *jiangyou* in 2 recipes, soy sauce named *jiangzhi* in 1 recipe, and soy sauce named *jiangshui* in 6 recipes. Fermented black soybeans (*shi*) are used in 2 recipes, and a new type of soy sauce named *qiuyou* (W.-G. *ch'iu yu*) is used in a whopping 62 recipes. Note: This is the earliest document seen (Aug. 2005) in which a soy-based seasoning named *qiuyou* is mentioned. Huang states (p. 371) that *qiuyou* is written with the Chinese characters for autumn + oil, implying a sauce harvested in autumn.

Wilkinson (2000, p. 647-48). This was the most famous recipe book of its day, yet *wok* dishes accounted for only 16% of the recipes. Yuan Mei (lived 1716-1798) was one of China’s four most famous “literati gourmands;” they exerted a considerable influence on the development of a higher cuisine, especially when they compiled their own cookbooks...

Letter from Dr. H.T. Huang. 1996. Sept. 29. “Page 103 mentions mock roast goose made with yam wrapped in *tou fu p’i* (yuba).”

Dr. H.T. Huang, expert on the history of Chinese food and agriculture (personal communication, 5 June 1993), gives the date of this document as +1790, and the English translation of the title as “Recipes from the Sui Garden.” He notes that page 107 contains three recipes for gluten.

Newman (1989) states: “The idea of freezing bean curd is not new. Iced Bean Curd is one of Yuan Mei’s recipes from the Xi Yuan Cookery Book written near the end of the 18th century. This book by a poet, government official and author, is a very comprehensive volume of over 300 recipes, only some are about tofu. One difference is that the Iced Bean Curd recipe is meant to be served hot, the doufu in it is first frozen then prepared for use.”

Bo (1982): In this work Yüan Mei states that it is more graceful for a writer to use the term “ch’ing chiang” instead of “chiang-yu” when referring to soy sauce.

Hummel (1944, p. 955-56): Yüan Mei lived 1716-1798. A poet, literary critic, and essayist, he was a native of Ch’ien-t’ang (Hangchow). Resigning (1748) from his post as magistrate of Chiang-ning, he retired (1749) to his newly acquired “Garden of Contentment,” Sui-yüan, near Nanking. From 1784-1795, spent in alternate travel and quiet



seclusion, he came to be known as one of the most skillful poets of his time.

Reichl (1985): Yuan Mei has been called the “the 18th century philosopher of the table.” His sayings are widely quoted. For example: “A great cook cannot with the utmost application produce more than four great dishes a day.” Address: China.

76. Duan Yucai. 1812. *Shuowen jiezi Duanshi zhu* [*Analytical Dictionary of Characters* as annotated by Mr. Duan]. China. Passage on soy reprinted in C.N. Li 1958 #334, p. 236. [Chi]

• **Summary:** Wade-Giles reference: *Shuo Wen Chieh Tzu Tuan Shih Chu*, by Tuan Yü-Ts'ai (lived 1735-1815). Also titled simply: *Shuowen Jiezi Zhu*. Qing dynasty. The *Shuowen Jiezi* (+121) was an analytical dictionary of characters. The section titled “The bean (*dou*) category” contains an unusual “seal character” for *dou* in the title. Soybean sprouts (*dadou huangjuan* or “soybean yellow curls”) have a flavor that is sweet and neutral; they cure “wet sinews.” Soybeans can be used to make sprouts (*ya*). When sprouted grains (*nieh*, incl. soybeans) appear, dry them quickly; then they are called *huangjuan*. Soy sprouts are also good for kidney problems. When cooked soybeans are incubated with salt, they become fermented black soybeans (*shi*, [character written incorrectly]). The rest is a reiteration of earlier information about soybeans. Dr. Huang adds: The word *ya* refers to seeds that are fully sprouted and usually used as a vegetable, whereas *nieh* refers to seeds with a short, maltlike sprout. (Translated by H.T. Huang, PhD, March 2003).

Wilkinson (2000, p. 954-55): Philology (The study of human speech especially as the vehicle of literature and as a field that sheds light on cultural history): The main contribution of the Qing philologists was to lay the basis for the reconstruction of the phonology (the science of speech sounds including, esp. the history and theory of sound changes in a language) of Old Chinese. “Gu Yanwu was a pioneer. Thereafter, the biggest contribution was made by Duan Yucai, the most influential Qing scholar of the *Shuowen*. After failing the metropolitan examination in 1761, he spent the remainder of his life as a teacher and scholar...” His most influential work is *Shuowen jiezi zhu*, 1813-1815.

77. Chen Jing. comp. 1814. *Suanqi wuchanshu* [Inventory of products from Suanqi]. China. Passage on soy reprinted in C.N. Li 1958 #335, p. 237. [Chi]

• **Summary:** Wade-Giles reference: *Suan Ch'i Wu Ch'an Shu*, compiled by Ch'ên Ching. Qing dynasty. The section titled “Yellow soybeans” (*huangdou*) states: The soybean has many uses. You can make tofu (*fu*), or press out the oil (*you*), or make fermented black soybeans (*shi*) or jiang—with the soybeans produced in our village or elsewhere. But we seldom consume soybeans directly. They come in various

colors: black, white, yellow, dark brown, green, or spotted / speckled (*ban*). According to the pharmacopeia (*bencao*) literature, when eaten raw it is neutral (Note: Dr. Huang has never heard of eating soybeans raw), when eaten parched or stir-fried (*chao*) it is heating, when eaten boiled it is cooling, when made into fermented black soybeans (*shi*) it is cold. When eaten by cattle it is warm. When eaten by horses it is cold. It is also said that if small children eat the parched beans with pork, they will suffocate. But after the age of ten years, they are out of danger; we do not know the reason. Dr. Huang adds: “I wonder how that story got started.” (Translated by H.T. Huang, PhD, March 2003).

78. Morrison, Robert. 1815-1823. A dictionary of the Chinese language in three parts. 6 vols. Macao. Printed at the Honourable East India company's press by P.P. Thomas. 30 cm. [Eng; Chi]

• **Summary:** S.W. Williams, in “A Syllabic Dictionary of the Chinese Language,” starts his preface by noting the great importance of this very early Chinese dictionary. “This work will ever remain a monument to his industry and scholarship; and its publication in six quarto volumes by the East India Company at an outlay of \$60,000 was a just appreciation of its merits. Since then, many similar works have been published, dictionaries both of the general language and its chief dialects.”

Part 1. Chinese and English arranged according to the radicals. Part 2. Chinese and English arranged alphabetically. In Part 2, Vol. 1 (published in 1819), page 739 (#9187) gives 3 characters for *she* [shih = fermented black soybeans], pronounced shuh. *Tow she* is a condiment made from pulse, used in cooking. *She yew* or *Tsëang yew* is soy [sauce].

Note: This is the earliest English-language document seen (Nov. 2011) that mentions fermented black soybeans, which it calls *she* or *Tow she*.

Page 860 (#10365) gives 2 characters for *tow* [pronounced doe]. “A generic name for pulse, beans, and so on. Page 882 (#10622) gives 2 characters for *Tseang* [chiang; like soft Japanese miso]. “A kind of pickle; certain mode of preserving meat, rice, and pulse. *Tseang yew* is soy [sauce].

Part 3. English and Chinese (published in 1822). Page 398 gives “SOI, or Soy” followed by the two characters for “tseang yew” [soy sauce]. Note 1. Illustrations show each of these characters.

Vol. 3, Part 1 (published in 1823) gives Chinese and English arranged according to the radicals. On p. 397 is the 151st radical, *Tow*. Two early original forms of the radical are shown, each resembling a vessel with a lid. “Name of an ancient vessel to contain food, and used in the rites of sacrifice; a certain measure. Grain; leguminous plants, beans, or peas. Name of an office, of a place, and of a district. A surname.” Characters containing this radical are shown on pages 397-98: *she*—“A sort of pulpy substance made of pulse [shih; fermented black soybeans]. *wan*—“A substance

expressed from pulse; soy. Also read Yuh.”

Note 2. The author, Rev. Robert Morrison (lived 1782-1834), a minister, was the first Protestant missionary in China. He was a Scotchman, though born at Morpeth in Northumberland, England. In 1807 he was sent by the London Mission to try to start a mission in China. But the British East India Company opposed missionary activity. So he traveled via the USA and reached Canton in 1808. Once there, the Company was glad to enlist his great linguistic talents, and he was appointed translator to their factory at Canton. Thus, it was at their expense (£15,000) that his great Chinese dictionary was published in 1822. He had previously published complete translations of the New and Old Testaments. A condensed (2 volumes in 1) edition was published in 1865 in London. He also established the Anglo-Chinese College at Malacca for English and Chinese literature, with a view to the propagation of Christianity. He died in 1834 at Canton, but he was buried at Macao in the Christian cemetery.

Note 3. This is the earliest English-language document seen (March 2001) that mentions fermented black soybeans, which it calls *tow she*.

Note 4. *Webster's New Geographical Dictionary* (1988) defines Macao (Portuguese Macau) as a Portuguese overseas territory consisting of the Macao peninsula (located at the mouth of the Pearl River just south of Canton and about 40 miles west of Hong Kong) and the two small islands of Taipa and Colôane. It was settled by the Portuguese in 1557; from 1717 until the 1800s, Macao and Canton were the only Chinese ports open to European trade. Its independence was declared by Portuguese in 1849 but not recognized by Chinese as Portuguese territory until 1887. It was for many years a haven for missionaries and traders. Portugal agreed in 1987 to return Macao to Chinese sovereignty in 1999. Address: D.D.

79. Hanawa, Hokinoichi. comp. 1819. *Gunsho ruijû* [Great collection of old documents. 670 vols.]. Tokyo Japan. New ed. published 1959-60. [Jap]\*

• **Summary:** The compiler was born in 1746 in Hokino Village, Saitama prefecture, about 100 km north of Tokyo. He was a great Japanese scholar—and he was blind. At age 34 he decided to begin the compilation of this large work. He set out to gather as many old documents as possible from all over Japan, and examine and select worthy ones for compilation, regardless of their character. Thanks to his efforts, it is now possible for everyone to refer to them whenever they want.

Kawakami and Kimura (1985, p. 36-37) state that *shiokara natto* (also called *tera-natto*) was first mentioned in the *Gunsho Ruijû* (*Katsuji-hon*, p. 344, lower section). They think this compilation is one of the oldest documents in Japanese literature to mention fermented black soybeans. But after that fermented black soybeans in Japan were called

*Kaori no Daizu* (or *Ko no Daizu*—Fragrant soybeans). They think the second-earliest mention was in the *Hôchô Kikigaki*, which they think was published in about 1560-1580. However this 2nd book was published in the *Gunsho Ruiju* (*Katsuji-hon*, p. 800, upper section, 6th line).

In 1959-60 a new edition of *Gunsho Ruiju*, compiled and published by the Zoku Gunsho Ruijû Kansei Kai (“Complete Society”). See Section 9; *Bun Pitsu Bu* (Literature Dept.), and *Shôsoku Bu* (News Dept.) Also Section 23. *Buke Bu* (Samurai warrior Dept.). Address: Japan.

80. 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: Missionary.

81. Wu, Ch’i-chün. 1848. *Ta tou* [The soy bean]. In: Wu Ch’i-chün, ed. 1848. *Chih Wu Ming Shih T’u K’ao* [Illustrated Treatise on the Names and Natures of Plants]. Published at T’ai-yuan-fu, Shansi, China. 28 cm. [Chi; eng]

• **Summary:** This treatise, containing 1,714 plates (including two illustrations of soybean plants), is the most important source of Chinese information on native plants.

The sections on the soy bean were translated into English and indexed by W.J. Hagerty in 1917. The translation includes photocopies of plates from the original work. Hagerty, who lived in Berkeley, California, was Chinese Translator for the Office of Crop Physiology and Breeding Investigations, USDA. He drew heavily on Bretschneider 1881, *Botanicon Sinicum*. Wu Ch'i-chün lived 1789-1847.

The translation is divided into two parts, each numbered separately, typewritten and double spaced. Part 1 (Book 1:8-9) is 3 pages translated. Part 2 (Book 1:24-33, titled *Pai ta tou* or "white soy bean") is 98 pages translated and includes a 16-page index to Part 2 only. Pages 1-38 of Part 2 contains numerous translations of the information about soybeans quoted from earlier Chinese texts. Pages 39-75 of Part 2 are extracts concerning beans (both soy beans and other beans) from Chinese gazetteers (*Chih Shêng Chu Shu*). The work concludes with a discussion of individual soyfoods, including many quotes from ancient Chinese documents: Shih or soybean relish [fermented black soybeans] (p. 76-80); Tou fu or bean curd (p. 80-81); Chiang or soy sauce (p. 81-82). The index is on pages 83-98.

In the introduction we read: "The Huang tou is at present commonly called *Mao tou* (characters: 'hair + bean'), or Hairy bean. When this is planted it grows very profusely. The beans are at first eaten as a vegetable, while later they are utilized like grain foods. The people cannot go a day without this food."

Both full-page illustrations (line drawings, apparently original) of soybean plants are bound before the title page. They show: (1) An upright soy bean plant, with two sets of flowers, two pods, and roots. Four types of seeds are shown near the bottom of the plate, but with no Chinese characters. At the left of the page, the following is written in four blocks of Chinese characters from top to bottom: *Chih Wu Ming Shih T'u K'ao* (the title of this book). *Ta tou* (soybean; literally "big bean"). Page number 8. *Ku lei chüan chih I* (Class-grains-Chapter 1).

(2) White soybean, slanting from lower left to upper right, including flowers two pods with outlines of the seeds, and roots. The seeds of five different types of soybean seeds are shown, each accompanied by its Chinese characters: Tea bean, yellow bean, black bean, white bean, and duck's egg green bean. At the left of the page four blocks of Chinese characters are written from top to bottom. The first and last blocks are the same. The second block is *pai ta tou* (white soybean). The third block is page number 10.

Note 1. The first illustration of the soybean plant (and an azuki bean plant) also appears in K.C. Chang, ed. 1977. *Food in Chinese Culture* (p. 178). Note 2. Letter from Dr. H.T. Huang, expert on the history of Chinese food and agriculture. 1999. July 9. He transcribes and translates the Chinese characters on the left of these two illustrations, then adds: "I presume the illustrations were original since they are different from the other illustrations I have seen in the

pharmacopoeias."

Note 3. This is the earliest Chinese-language document seen (June 2009) stating that the term *mao tou* is used to refer to both green vegetable soybeans and to regular dry soybeans. Address: Michael J. Hagerty, Berkeley, California. June 1917.

82. Hakura, Yokyu? 1854. *Yôshû roku* [A record of small provision]. Japan. Publisher unknown. 46 p. Written in Kanbun (Chinese). Japanese summary by Kawakami 1978, p. 156. [Jap]

• **Summary:** Mentions red miso (*aka-miso*), how to make a type of miso soup called *shi-yu* or *kuki-yu*, and tofu. Hatcho miso from Mikawa was recommended as red miso.

83. Julien, Stanislas. trans. 1855. *Le pois oléagineux de Chine* [The "oil peas" (soybeans) of China]. *Bulletin de la Societe d'Acclimatation* 2(4):225-26. April. [2 ref. Fre]

• **Summary:** This is a letter addressed to the president of the Zoological Society for Acclimatization, from the session of 30 March 1855. "Monsieur and dear colleague. I have the honor to offer you, at the request of my friend Émile Tastet, some information that I have found in a Chinese book on the subject of oil peas (soybeans, *Pois oléagineux*, *Yeou-teou*).

"One reads in the *Imperial Encyclopedia of Agriculture* (*Cheou-chi-thong khao*; [*Ch'in Ting Shou Shi T'ung K'ao* by Chang Ting-yu and Chiang P'u]), volume 27, fol. 8, first page (recto): 'According to Li Shih-chen (Li-chi-tchin, author of the Great Materia Medica [Pen-ts'ao kang-mu]), the large peas (soybeans, *Ta-teou*) are found in the following colors: some are black (*Hé-teou*), white (*Pe-teou*), yellow (*Hoang-teou*), or gray (*Ho-teou*); and there are also some that are spotted with blue (*Thsing pan-teou*). The black ones are ordinarily called *Ou-teou* (here the word *ou* has the same meaning as *he*, black); they can be used in medicine, be eaten, and are used in the condiment called *chi* (fermented black soybeans, which are composed of these soybeans, of ginger, and of salt). The yellow can be used to make tofu (*Teou-fou*, a sort of fermented soybean pâté, on which the people nourish themselves habitually); oil is also drawn from them by putting them under a press; they are also used to make *chiang* (tsiang; Note: a sort of sauce like a soft miso that serves as a seasoning).

"The other species of large peas (soybeans) are not good for making tofu (*teou-fu*, fermented pâté of peas); they are eaten after having been roasted. All the species of large peas (soybeans) described hereafter are planted before and after the summer solstice (June 21). The stem attains a height of 3-4 feet. The leaves are round and terminate in a point. In autumn, the plant bears small, white flowers, which are clustered together. Then they form pods (about as long as one's thumb), which become dry after the frost.

"One reads in the *Treatise on Agriculture* by Fan-ching [Fan Sheng-chih, written ca. 10 B.C.]: 'At the summer

solstice, the soybean (*teou*) is sown; it is not a big job. The flowers of the soybean do not like to see the sun; otherwise they turn yellow and the and the roots blacken.’

“I regret, Monsieur, to be unable to find at the moment more details on the soybean; however, the above extract largely suffices to confirm the remarkable usefulness, unknown in Europe until just now, of the soybean which M. de Montigny has sent to you. I have already called attention to this fact in a large work that I finished a year ago, in which are described all of the Chinese industrial processes that relate to chemistry. But I do not know when I will be able to publish this work.

“I am at the disposition of the Society for Acclimatization whenever you would like me to translate Chinese texts that would be of interest.”

Note 1. This is the earliest French-language document seen (Nov. 2011) that mentions fermented black soybeans, which it calls *chi*.

Note 2. This is the earliest French-language document seen (Feb. 2004) that uses the word *Teou-fu* to refer to tofu. Bretschneider (1881) calls Julien a “great sinologue.”

84. Williams, Samuel Wells. 1856. A tonic dictionary of the Chinese language in the Canton dialect. Canton, China: Printed at the office of the Chinese repository. xxxvi + 832 p. See p. 438, 511. 22 cm. [10 ref. Eng; chi]

• **Summary:** At the top of the title page, the title is written in Chinese (Cantonese) but printed in Roman letters: *Ying Wá Fan Wan Ts'üt Iu*. This book contains definitions and expansions of 7,850 characters; it focuses on those in general use. Soy-related characters include the following: Page 61–*Fu*. Corrupted, rotten; *tau fu* bean curd.

Page 438–*Shí*. Salted eatables, as beans, oysters, olives, which are afterwards dried and used as relishes; *tau shí* salted beans; *shí yau* soy [sauce]; *mín shí* salted flour and beans used in cooking; *lám shí* stoned and pickled olives; *tau shí kéung* salted beans and ginger—a relish” [like Hamanatto in Japan].

Note 1. This is the earliest English-language document seen (Nov. 2011) that uses the term *tau shí* or the term “salted beans” or the term “salted beans and ginger” to refer to fermented black soybeans.

Note 2. Concerning the term *mín shí* (mín shí), Dr. H.T. Huang (expert on Chinese food history, June 2008 personal communication) says it is simply Cantonese for *mian shí* (pinyin; or in Wade Giles *mien shih*, characters #4503 + #5805). The characters are the same in Cantonese or in pinyin. The term is used only in Cantonese, where it often refers to “soy paste” or *jiang / chiang* (character #661). Dr. Huang has not seen the term used in classical texts or heard it in Mandarin or Fujian dialects.

Page 511–*Tau*. Pulse, peas, beans, legumes; *hung tau* red pulse [beans]; *tí tau* ground-nuts; *tau fu* bean curd; *tau fu fa* bean curd jelly [soymilk curds]; *tau fu kon* [pinyin:

*doufugan*] bean curd cakes.

Page 533–*To*. A knife; a sword with one edge; *leung min to* a bean-curd knife.

Page 708–*Yun*. Liver, yellow; *tau fu yun* yellow bean curd cakes.

In the Preface, the author refers to ten earlier Chinese or Cantonese-English dictionaries and related works by Kanghi (*Kanghi Tsz T'ien*, which have been in use throughout the empire for nearly 150 years), Morrison (1827), Medhurst (1842–43), De Guines, Gonçalves, Callery, Klaproth, Bridgman (1841), Williams (1841), and Bonney (1854).

Note 1. This is the earliest English-language document seen (Feb. 2008) that uses the term “tau fu kon” or “bean curd cakes” to refer to tofu.

Note 2. This is the earliest English-language document seen (March 2001) that mentions *shí*, *tau shí*, or fermented black soybeans, which it calls “salted beans.” This is also the earliest document seen (March 2001) concerning the etymology of fermented black soybeans. Address: Canton, China.

85. Chalmers, John. 1859. An English and Cantonese pocket-dictionary, for the use of those who wish to learn the spoken language of Canton Province. Hongkong: Printed at the London Missionary Society’s Press. [ii] + 159 p. See p. 131. 19 cm. [Eng; Chi]

• **Summary:** Under “Soy” (noun, p. 131) are the Chinese characters and the Cantonese term for soy sauce, *shi-yau*, with tones shown.

Note 1. *Shi-yau* is, more precisely, “soy nugget sauce.”

Under “Bean” (p. 11) is the Chinese character *tau*.

At the top of the title page are four large, bold characters: *Ying Yüeh Tzu Tien*. Address: M.A.

86. Chalmers, John. 1862. An English and Cantonese pocket-dictionary, for the use of those who wish to learn the spoken language of Canton Province. 2nd ed. Hongkong: Printed at the London Missionary Society’s Press. vi + 163 p. See p. 134. 19 cm. [Eng; Chi]

• **Summary:** Under “Soy” (noun, p. 134) are the Chinese characters and the Cantonese term for soy sauce, *shi-yau*, with tones shown.

Note: *Shi-yau* is, more precisely, “fermented black soybean sauce.” Address: M.A.

87. Williams, Samuel Wells. 1863. The Chinese commercial guide: Containing treaties, tariffs, regulations, tables, etc... With an appendix of sailing directions. 5th ed. Hongkong: A. Shortrede & Co. xvi + 387 + 266 p. Index. 21 cm. Facsimile edition reprinted in 1966 by Ch’eng-Wen Publishing Co., Taipei, Taiwan.

• **Summary:** In the section titled “Description of articles of export” [from China, alphabetical], Chinese characters accompany every entry. On p. 111 is an entry for “Beans

## DESCRIPTION OF ARTICLES OF EXPORT.

111

BEANS and peas 荳 *tau*; bean-cake 荳餅 *tau ping* or 荳石 *tau shih*. The Chinese cultivate legumes to a greater extent, perhaps, than any other nation.

and peas" (*tau*) incl. bean cake (*tau ping* or *tau shih* = "bean stones"). "The Chinese cultivate legumes to a greater extent, perhaps, than any other nation."

The manufacture of bean jam [jiang] and bean curd cakes [tofu] for food from the flour employs many people. The cakes used for manure are made by crushing the ripe peas [sic, beans] and boiling the grits soft; the mass is then pressed into cakes in iron hoops, and made solid by means of wedges driven down by heavy mallets. Peas and bean cakes are exported from Yingsz' [Ying-k'ou, Yingkou?] and Tientsin to Amoy and Swatau [Swatow, Shantou, in Guangdong province]; they comprise one-fourth of all the produce shipped from Tientsin in 1861; and there is little else sent from Yingsz'. In 1859, about a million piculs [1 picul = 133.33 lb] of the cake were reshipped to the south of China from Shanghai alone, chiefly for the consumption of sugar growers."

In the same section is an entry (p. 139) for: "Soy, *shi yú* [*shiyu* = fermented black soybean sauce], and *tsiang yú* [*jiangyou* = soy sauce], is a condiment made from the Dolichos bean, which grows in China and Japan; our name is derived from the Japanese *siyau* [*shoyu*]. To make it, the beans are slowly boiled soft, then an equal quantity of wheat or barley flour is added; after this has thoroughly fermented and become mouldy, the beans are washed, and put into jars with their weight in salt, adding some aromatics, and three times as much boiling water as the beans were at first. The whole compound is now left for a month or more, exposed to the sun, and then pressed and strained. Good soy has an agreeable taste, and if shaken in a tumbler, lines the vessel with a lively yellowish-brown froth; its color in the dish is nearly black. There are many qualities of it, and when well made all improve by age. Japan soy is considered superior to Chinese, but both are of different qualities, and are probably made of various materials, some of which may be base enough. It is most commonly sent to England, India, and Europe, to form the basis of other sauces and condiments. It is worth from \$4 to \$8 per picul and goes chiefly from Canton."

On p. 129 is a section on "Oil" (*yú*), incl. [soy] bean oil (*tau yú*), wood oil (*tung*), cotton-seed oil, sesamum oil, olive oil, ground-nut oil, cabbage or rape oil, fish oil, etc.

In the same section (p. 149) is an entry for "Vermicelli (Chinese characters) *fun sz*, i.e. flour threads. This article, sometimes called *loksoy* [*lock soy*], manufactured from both

rice and wheaten flour, is extensively used among the natives in soups. It is everyway inferior to the European."

Note 1. This is the earliest English-language document seen (Sept. 2006) that uses the term "bean oil" to refer to soybean oil, or that mentions *tau-yú* as the Chinese (Cantonese) name for soybean oil.

Note 2. This is the earliest English-language document seen (Sept. 2006) that uses the term "Dolichos bean" to refer to the soybean. It is also the earliest English-language document seen (Sept. 2006) that repeatedly uses the word "bean" (not preceded by the word "soy" or "soya") to refer to the soybean.

Note 3. This is the earliest English-language document seen (Feb. 2004) that uses the term "bean-cakes" to refer to tofu.

Note 4. This is the earliest English-language document seen (May 2005) that uses the "grits" to refer to coarsely ground soybean flour or pieces.

Note 5. This is the earliest English-language document seen (Sept. 2003) that contains the term "cotton-seed" or term "cotton-seed oil" (each spelled with a hyphen).

Note 6. This is the earliest English-language document seen (Oct. 2006) that that uses the term "crushing" (or "crush," "crushes," "crushed" or "crushings") in connection with soybeans to refer to the process of pressing the beans to yield oil and cake.

This section also discusses (alphabetically): Almonds (but not almond oil), ground-nuts (*hwa sang* characters, ground-nut cake characters *hwa sang ping*; the "oil is the chief article of export"), gypsum (*shih kau*, used especially in making bean-cakes and curd [tofu], sometimes called bean-macaroni), manure cakes or poudrette (*kang sha*, made from night soil mixed with earth for exportation. "The refuse of ground-nuts, sesamum, rape-seed, and other oleaceous seeds, is prepared for manure and for feeding swine and sheep, and sent from one part of the country to another"), salt, seaweed, sesamum seed, and silk.

A table titled "Rates of freight in steamers to Canton" states (p. 228): "Soy, per tub of 1 picul-\$0.75."

In the section on "Foreign commerce with Japan" we read (p. 254): "Camphor, sulphur, porcelain, copper, nut-galls, vegetable wax, cassia, soy, and verdigris, have been furnished at rates and quantities sufficient to export to Europe."

Other sections discuss Chinese, Japanese, and British

weights and measures, numerals, coins and currency.

Samuel Wells Williams lived 1812-1884. Address: LL.D., Hongkong.

88. Chalmers, John. 1870. An English and Cantonese pocket-dictionary, for the use of those who wish to learn the spoken language of Canton Province. 3rd ed. Hong Kong: London Missionary Society's Press. iv + 146 p. See p. 69. 19 cm. [Eng; Chi]\*

• **Summary:** On page 69 is the Cantonese term for soy sauce, *shi-yau*. A 5th edition was published in 1878 in Hongkong, and a 7th edition in 1907 in Hongkong.

89. Maclay, Robert Samuel; Baldwin, Caleb C. comp. 1870. An alphabetic dictionary of the Chinese language in the Foochow dialect. Foochow: Methodist Episcopal Mission Press. xxiv + 1107 p. See p. 773. 23 cm (8 vo.). [7 ref. Eng; Chi]

• **Summary:** Each Chinese character has a number, in parentheses directly above it. Below it is the Mandarin pronunciation. To the upper right of the first character for a certain sound in the Foochow dialect is written that sound. Tones are given for each character.

In the text below, we give the page number and the Mandarin pronunciation, followed by the Foochow pronunciation in parentheses.

Introduction (p. vii): "The work contains 928 different syllabic divisions or sections, as written in Roman letters and numbered in the text. This of course does not include all the distinctions arising from difference in tone."

Page 95 Chiang (Chiong): "A sauce, pickle, brine or condiment, made of salt and sugar [sic], used in cooking; relishes, seasonings, like oilmen's stores; salted preparations: com., *tién chiong* sweet condiments; *chiong heong* or *chiong hwong taing* a shop where condiments are sold; *chiong e* sauces, condiments; Coll. *tau chiong* a bean relish.

Page 234 Fu (Ho): Corrupted, rotten, spoiled. Coll. *tau ho* bean curd; *ho p'ieŋ* thin slices of curd; *ho kang* dried bean curd [pressed tofu].

Page 401 Chüan (Kwong): *kwong chiéng* rolls of glutinous rice (in thin crusts of bean-curd).

Page 435 K'o (K'o): To cook thoroughly. *k'o tau ho* to cook bean curd thoroughly.

Page 596 Ya (Nga): A germ, plumule, bud, or sprout. *tau nga* bean sprouts.

Page 763 Ssu [Shu] (Seuk): A general term for edible kinds of pulse.

Page 773 Shih (Sié): Salted eatables, as beans, etc., dried and used as relishes... *sié iu*, soy [sauce]; *iu sié* soy-beans or residual grains; *tau sie kiong* a sauce of salted beans and ginger; *sié iu ch'iong*, a soy [sauce] factory.

Page 783 Shao (Sieu): Coll. *sieu king chio* Sieuhing bean curd.

Page 847 Tou (Tau): Beans, peas, legumes. *tau sié* salt-

bean relish; *tau ho* bean curd; *tau kang* (coll. *tau kwang*) cakes of bean curd; *tau nga* bean sprouts, made by covering so as to heat or ferment; *tau ho tea* "curd chopsticks"—the film [yuba] from the surface of the curd [hot soymilk] made into rolls [probably dried yuba rolls]; *tau ho peng* a bean-curd press; *peng tau leng* crushed beans; *tau chio* fermented bean-relish.

Note: This is the earliest document seen (Nov. 2011) that uses the term "fermented bean-relish" or the term "salt-bean relish" (with or without hyphens) to refer to fermented black soybeans (*douchi*).

Soy is also mentioned on pages 157 right side ("to diffuse the soy by tossing"), p. 227 right (flavored with soy), p. 257 right (Sort of pork balls seasoned with soy and unions), p. 365 right ("scalded with seasoning of soy, &c."), p. 557 left ("to fry with a seasoning of oil, soy, etc.").

Note: The word Foochow is also spelled Fuzhou (pinyin), and Fuhtchou. Robert S. Maclay lived 1824-1907. Address: Rev., D.D., of the Methodist Episcopal Mission; 2. Rev., A.M., of the American Board Mission [Foochow, China].

90. Doolittle, Justus. 1872. A vocabulary and hand-book of the Chinese language, romanized in the Mandarin dialect. 2 vols. in 3 parts. Foochow: Rozario, Marcal, and Company. London: Trubner & Co. New York: Anson D.F. Randolph & Co. Reissued in 1878. [Eng; Chi]

• **Summary:** In vol. 1, part 1, p. 272: "Ketchup, (a kind of sauce) shih yu." Note: The two Chinese characters (2 Cc) are printed to the left of their romanized form "shih yu." "Shih" means "fermented black soybeans." We would translate "shih yu" as "fermented black soybean sauce."

In vol. 2, parts 2 and 3. Page 36: Dip in the soy and eat it (Cc).

Page 79: Insipid like bean curd boiled in water (Cc).

Page 433: Ta tou (Cc), Soja hispida, Mön.

Page 443: "Precious as pearls" says a sign in a "Soy and condiment shop" in Canton.

Page 515: Street names in Peking: (1) Bean Curd Lane [Tofu]; Soy Manufactory Lane.

Page 598: Five grains, incl. soja bean (Cc), shu. Address: Rev.

91. Douglas, Carstairs. 1873. Chinese-English dictionary of the vernacular or spoken language of Amoy, with the principal variations of the Chang-chew and Chin-chew dialects. London: Truebner & Co. xix + 613 p. 28 cm.

• **Summary:** The Preface notes that the written language of China is uniform throughout the whole of China, but it is pronounced differently when read aloud in the different parts of China. Various spoken languages of China have already been studied by Western residents in China: the Mandarin, the Hakka, the vernaculars of Canton and Amoy, etc. The Amoy vernacular is believed to be spoken by 8-10 million

people. Chinese characters are not used in this dictionary.

Abbreviations (at start of parentheses): R. = Reading or literary style as to sound or meaning. C. = Chang-ebow dialect. Cn. = Chin-chew dialect.

Soy-related terms include: chiap (R. id.), (Cn. tsap; p. 46 L.2) “juice, sap, gravy, etc. kôe-chiap, brine of salt or pickled fish, &c.” kê (Amoy = kôe; p. 201 L.7) “Pickled fish or shell fish.” kê-chiap (implied; p. 46 L.2).

hû (p. 156 R.3) tâu-hû “bean-curd shaped into squares (from the pulpy ‘tâu-hoe’), but not yet pressed. See tâu.

kôe-chiap (p. 242 L.4) “Brine of pickled fish or shell fish.”

tâu (p. 480 L.3) “pease or beans, pulse.” tau-khe “bean-cake from north China used as manure.” tâu-iû “soy [sauce].” tâu-chiû “a thick sauce made from pulse.” tâu-sí “salted beans” [fermented black soybeans]. tâu-hoe “soft bean curd not yet pressed or shaped.” tâu-chiû or tâu-hû “bean-curd shaped but not yet pressed.” tâu-hû-phê “bean curd made into thin sheets [yuba] for wrapping around eatables.”

Note: This is the earliest English-language document seen (Oct. 2008) that uses the term *tâu-hû-phê* to refer to yuba.

te tâu-hû “to shape the pieces of ‘tâu-hoe’ into pieces of ‘tâ-hû.’” tâu-koa “bean-curd that has been pressed in a cloth.” tâu-jú “bean-curd that has been pressed in a cloth then cut into smaller pieces and salted.” tâu-kiâm or tâu-che or tâu-thâu “refuse from manufacture of bean curd” [okara].

Note 1. A new, revised edition of this work was published in 1899 in London by Presbyterian Church of England. A supplement by Douglas and Barclay was published in Shanghai in 1923. In some cases, the 1923 edition is bound at the back of the 1873 edition. The 1873 edition is dedicated to Rev. James Legge, D.D., a Christian missionary and Chinese scholar.

Note 2. This is the earliest English-language document seen (Oct. 2001) that mentions okara, which it calls “refuse from manufacture of bean curd,” along with its Chinese vernacular names.

Note 3. This is the earliest English-language document seen (Oct. 2001) that uses the term “cake” or “bean-cake” to refer to ground, defatted soybeans.

Note 4. the earliest English-language document seen (Feb. 2004) that uses the many terms such as “tâu-hoe,” “tâu-hû-phê,” “tâu-koa,” or “tâu-jú” to refer to the many uniquely Chinese varieties of tofu.

Note 5. This is the earliest English-language document seen (Jan. 2006) that contains the terms “kôe-chiap” or (by implication) “kê-chiap” to refer to pickled fish or shell-fish. These terms are said by some to be the ancestors of the Malay word *ketjap* / *kecap* meaning soy sauce.

Note 6. Schlegel (1894, p. 143 footnote) gives the character for *Kê-tsiap* but the 1873 ed. of Douglas’ dictionary gives no Chinese characters for any of the words defined. Address: Rev., M.A., LL.D. Glasgow, Missionary of

the Presbyterian Church in England.

92. Williams, Samuel Wells. 1874. A syllabic dictionary of the Chinese language; arranged according to the Wu-Fang Yuen Yin, with the pronunciation of the characters as heard in Peking, Canton, Amoy, and Shanghai. Shanghai, China: American Presbyterian Mission Press. lxxxiv + 1252 p. 28 x 22 cm. [8 ref. Eng; chi]

• **Summary:** In this dictionary, the Chinese characters are arranged alphabetically. Each main character, written large, has the pronunciation written below it, and the meaning written in English to the right. Below these are numerous compound words in which the character appears, followed by a definition of each. No pronunciation is given for compounds or combinations of several characters, such as teu-fu [doufu], which makes the dictionary hard to use. The main radical relating to soya is no. 151, Teu, 7 strokes, referring to pulses and sacrificial vessels (p. 874).

Page 145, under fu (rotten, corrupt, spoiled), lists the characters (teu-fu) for “bean curd; low policeman and underlings are named teu-fu-kwan because they live on and are no better than this curd; and also the teachers in low government schools.”

Page 764, under shi, lists the characters for “salted beans” [fermented black soybeans], “salted beans and flour,” “soy [soy sauce; shi yu in Chinese or shoyu in Japanese], an English word probably derived from this name.”

Note: This is the earliest English-language document seen (Nov. 2011) that uses the word “shi” to refer to fermented black soybeans.

Pages 874-75, under teu, list the characters for “legumes of every kind, pea, beans,” “bean-curd jelly” [tofu].

Page 968, under tsiang [ch’iang], lists the characters for “a relish made of salt mixed with bean or other kinds of flour, and water, and allowed to remain until cured; it is used as a condiment; relishes, sauces, condiments; salted preparations,” “a dry relish,” “a shop for sale of oilman’s stores, and condiments,” “bean sauce, this is the basis of most of the Chinese relishes,” “vegetables seasoned in soy.”

On page 839, under ta (big), there is no listing for ta-teu, the soybean. On page 252, under hwang (yellow), there is no listing for hwang-teu, the yellow soybean. On page 580, under mao (hair), there is no listing for mao-teu (fresh green soybeans). Thus it seems that the compiler of this dictionary was unaware of the soybean.

Page 1111, under yiu, lists the character for oil in various combinations. When preceded by the character for “fragrant” it refers to “sesamum, gingilie, or benne oil,” made from the seeds of *Sesamum orientale*. Soybean oil is not specifically mentioned.

Note: This is the earliest English-language document seen (Feb. 2005) that uses the word “benne” to refer to sesame seeds. Address: United States Legation, Peking.

93. Eitel, Ernest John. 1877. A Chinese dictionary in the Cantonese dialect. 3 vols. London, Trübner and Co.; Hongkong, Lane, Crawford & Co. xxv + 1018 + xcvi p. 25 cm.

• **Summary:** Page 122: Tau fu: bean curd.

Page 354: Liang, leung: pickle with soy.

Page 615: Shi yau: soy [sauce].

Note: *Shi-yau* is, more precisely, “fermented black soybean sauce.”

Page 707, 710: Tai tau or pak tau: soy-bean, Soja Hispida.

Page 739: Tau fu to: beancurd knife.

Page 783: Tsiang, tseung: pickle, preserve in sauce. Tau tseung: bean sauce. Tseung siu ts’oi: vegetables seasoned with soy.

Page 906: Tseung ün: a soy or pickle factory.

94. Houghton, Ross C. 1877. *Women of the Orient: An account of the religious, intellectual, and social condition of women in Japan, China, India, Egypt, Syria, and Turkey.* Cincinnati, Ohio: Hitchcock and Walden; New York, NY: Nelson and Phillips. 496 p. Illust. Index. [10\* ref]

• **Summary:** In Chapter 4, “Education” is a long passage quoted from an article in the *Leisure Hour* [date, author, and title not cited] (p. 88-90) which contains “a translation of one of the very few Chinese works designed for the instruction of women.” Page 90: “The third important thing is, do not waste rice or flour; be careful of the soy [sauce], vinegar, oil, and salt; in the day of plenty think of a day of want, that when that time comes you may not have to beg.”

In Chapter 12, “Woman’s position and life in the household,” notes (p. 241): “The domestic position of an average Japanese woman is superior to that conceded to her sisters in other Eastern countries. Although she does not enjoy all the rights and privileges secured to a married woman in a Christian land, still she is treated as the companion rather than the slave of her husband, and her likes and dislikes are, to a considerable degree at least, respected. She is, however, without legal rights, and her evidence is not admissible in a court of justice.”

Concerning Japanese food (p. 242-43): “A favorite relish is ‘soy,’ a strong sauce composed of pepper [sic] and fermented black beans.”

Illustrations show: (1) A Japanese family at dinner (p. 242). (2) A Japanese lady (p. 243). Address: Rev., A.M., St. Louis, Missouri.

95. Chalmers, John. 1878. An English and Cantonese dictionary, for the use of those who wish to learn the spoken language of Canton Province. 5th ed. Hongkong: Printed by De Souza & Co. xi + 258 p. 18 cm. [Eng; Chi]\*

• **Summary:** On page 69 is the Cantonese term for soy sauce, *shi-yau*. A 5th edition was published in 1878 in Hongkong, and a 7th edition in 1907 in Hongkong.

96. Gray, John Henry. 1878. *China: History of the laws, manners, and customs of the people.* Edited by William Gow Gregor. 2 vols. London: Macmillan and Co. See vol. II, p. 135-37. Illust. 22 cm.

• **Summary:** In Vol. II, chapter XXIII, titled “Agriculture—Arable Farms” (p. 106+), begins with a brief history of China agriculture and the cultivation of the major cereals. On pages 135-37 is a discussion, with three large illustrations, of [soya] beans cultivated in China, and their products—oil, bean cakes, flour, bean curds [tofu], salted and fermented bean [fermented black soybeans], and [soy] sprouts. The author is clearly describing soya beans yet he apparently does not know their name, for he never uses the word “soya.” “The [soya] bean farms in the northern provinces are very extensive; and, as the soil as a rule is a rich strong loam, the crops are very luxuriant. The varieties of this plant which the Chinese cultivate are the tick and horse beans; they prefer to sow them in February and March.” He then describes how the fields are plowed and the seeds are planted. The “[soya] beans are drilled or set in rows, either by an instrument or by hand, with spaces about two English feet apart. These spaces are regularly hoed, and the weeds in the rows are carefully removed by hand. Hoeing is so essential a part of the cultivation of beans that the success of the crop depends in a great measure upon the manner in which it is performed.” The plants harvested with a sickle, then taken to the homestead of each farmer and the beans threshed with flails. “These extensive crops of beans and peas are grown for the sake of abundant supplies of oil. For this purpose the beans are placed in a circular trough, and crushed by a massive stone wheel drawn by oxen. The fragments are placed in large presses until all the oil has been expressed into vats. The bean cake from which the oil has been pressed is given, in part, to cattle, and, in part, sent to Swatow, Canton, and the ports of Formosa, where it is regarded as the best possible manure for sugar-producing lands.

“In Kwang-tung there are also extensive bean and pea farms. The crops, however, which are produced on these farms are not crushed for oil, but used as food by the people. When threshed, they are sold in large quantities, and bought extensively by persons who gain a livelihood by selling bean curds. For this preparation the beans are reduced to flour by the ordinary Eastern handmill. The flour is then passed first through a strainer of coarse calico [cotton cloth], and afterwards through one of a finer quality. It is then boiled for an hour over a slow fire, till it attains the proper consistency, and can be sold as food. The Cantonese are very fond of bean curds, which are prepared during the night to be ready for the morning meal. No sooner has the sun arisen than men may be seen in almost every street of the large cities and towns of Kwang-tung, selling the much relished preparation. It resembles *blanc mange* [*blancmange*] so much that for many months after my arrival at Canton, I quite thought that it was



something of that kind.”

Note 1. This is the earliest English-language document seen (Feb. 2004) that uses the term “bean curds” (with a space in front of the word “bean”) to refer to tofu. It is also the earliest document seen (May 2000) that compares tofu to blanchmange.

Note 2. This is the earliest English-language document seen (Oct. 2001) which gives a detailed description of how flour is made from [soya] beans in China.

The Chinese also salt beans. For this purpose they place four catties of beans in a jar, together with one catty of salt, a half catty of ginger, and a few taels of almonds and other spices. The jar is then hermetically sealed, and placed in the pantry. At the expiration of a month it is opened, and the ingredients [fermented black soybeans] are always agreeable to the Chinese palate. The most singular use, however, to which beans are put is yet to be recorded. Great quantities of them are purchased by a class called N’ga-Tsoi, who subject them to the following treatment in the large establishments in which they carry on their occupation. The beans are deposited in coarse earthen-ware jars, which are filled with very clear spring water. In a few hours the water is drawn off by the removal of plugs; and this process is repeated six times in the twenty-four hours. At the end of seven days the beans are inspected, and each is found to have produced a tender shoot. The beans with the shoots [bean sprouts] are then sold in the vegetable markets as great delicacies. There is an establishment of this kind at the gate of the old Sam-kai Miu, a suburb in the western suburb of Canton. There are two wells in this establishment, containing water which in point of purity cannot be surpassed.”

Full-page original illustrations (line drawings) show: (1) “Crushing [soya] beans” (facing p. 135). An ox turning a large horizontal millstone while a farmer, seated nearby, holds a whipping stick. His home is in the background and several containers and simple implements related to the oil and cake are in the foreground.

Note 2. This is the earliest English-language document seen (June 2001) that uses the word “crushing” (or any cognate thereof) in connection with soybeans.

(2) “Crushing [soya] bean cakes” (facing p. 136). One man uses a wooden mallet to pound wedges between bean cakes in a hollow log to press out the oil. A second man to the right drives an ox which is turning the top stone of a pair of horizontal millstones. These millstones are different than those shown in the first illustration; their diameter is smaller and the top stone has two holes in it—similar to the mill traditionally used to make tofu.

(3) “[Soya] Bean cakes” (facing p. 137). A wealthy merchant is standing by an attractive brick building. To the right is a body of water. One man is stacking round bean cakes (about 12 inches in diameter) to the right of the large front door. A second man is carrying ten bean cakes using a shoulder pole. A small boy and a dog are bringing up the

rear.

Both volumes contain 140 illustrations. Pea-nuts are discussed on pages 137-38.

Note 3. This is the earliest document seen (July 2000) concerning soybean products (bean cake) in Formosa (Taiwan). This document contains the earliest date seen for soybean products in Taiwan (1878); soybeans as such had not yet been reported by that date. Address: M.A., LL.D., Archdeacon of Hong Kong.

97. Paillieux, Auguste. 1880. Le soya, sa composition chimique, ses variétés, sa culture et ses usages [The soybean, its chemical composition, varieties, culture, and uses]. *Bulletin de la Societe d’Acclimatation* 27:414-71. Sept.; 27:538-96. Oct. 28 cm. [73 ref. Fre]

• **Summary:** One of the most important and original of the early publications on soya in Europe. Its in-text bibliography on soya was the largest of any published up to that time.

Contents: Part I: Introduction and extracts on soybeans and soyfoods from 30 articles published previously in the *Bulletin of the Society for Acclimatization* from 1855 to 1880 (pages 414-430). 1. Soybean botany (p. 430-31). 2. The soybean in Japan (p. 431-42): Engelbert Kaempfer and his writings on miso and shoyu, information on soya from a document titled *Japan at the World Exposition of 1878* (*Le Japon à l’Exposition universelle de 1878*, written in French by a Japanese, p. 29-33), recipe for making shoyu in France, tofu. 3. Soya in Cochinchine (French Indochina, p. 442-46): Black soybeans. 4. Soya in China (p. 446-51): Soy oil (*Huile de Soya*), tofu (*le fromage de soya, teou-fou*), soy sauce (*tsiang-yeou*; In London, England, it is sold under the name of “India Soy” at Cross & Blackwell, Soho-Square {p. 451}). 5. Soya in Austria-Hungary (p. 452-71): Starting with soybeans at the World Exposition of Vienna in 1873, includes a long, in-depth discussion (with many excerpts) of Prof. F. Haberlandt’s book *Le Soja*, published in Vienna in 1878.

Tables in Part I show: (1) The chemical composition (in both their normal and dry states) of Chinese soybeans (*pois de Chine*), tofu (*fromage de pois*), and tofu curds (p. 427). (2) The yield of tofu. 120 gm of soybeans yields 184 gm of tofu (p. 427). (3) The weight and nitrogen content of the different components when tofu is made from soybeans (p. 428). (4) The Japanese names of 23 soybean (*mame*) varieties and a very brief description of their characteristics (p. 435-36; e.g., 1. *Go-guwatsu no mame* {5th month bean}. 2. *Use mame* [*sic*, *Wase mame*] {early}. 3. *Nakate mame* {half season}. 3a. *Okute mame* {late}. 4. *Maru mame* {round}. 5. *Shiro teppo mame* {white, like a pistol bullet} 6. *Kuro mame* {black}. 7. *Kuro teppo mame* {black, like a pistol bullet} 8. *Koishi mame* {small stone}. 9. *Awo mame* {Ao, green}. 10. *Kage mame* {shade, shadow}. 11-15. *Aka mame* {red; 1 of same species, two of different species}. 16-18. *Tsya mame* {Cha, tea colored}. 19. *Kuro Kura Kake mame* {black

saddled}. 20. *Aka Kura Kake mame* {red saddled}. 21-23. *Fu iri mame* {striped, variegated, mottled; see *Uzura mame* = speckled like quail eggs}). This nomenclature was taken from a Japanese work titled: “Explanation, with figures, of trees and plants recently determined / identified.”

(5) The romanized Chinese names of six types of soybeans and a French translation of each (e.g., *Houang-teou* = *Soya jaune*) (p. 447). (6) Two analyses of soybean seeds, reprinted from *Chemischer Ackersmann*, 1872 (p. 458). (7) The chemical composition of three soybean varieties, including Yellow of Mongolia, Yellow of China, and Reddish-Brown of China; the composition of the original seeds and the first generation seed is given for each type (p. 460-61). (8) The chemical composition of reddish-brown, yellow, and black varieties of soybeans (p. 469-70; data from M. Schroeder, Mach, and Caplan, published by F. Haberlandt). (9) Weight of 1,000 seeds for four generations grown out in Vienna. Original seeds: 81.5 to 105 gm. First generation: 110.5 to 154.5 gm. Second generation: 141.8 to 163.6 gm. Third generation: 116.0 to 151.0 gm.

Contents (continued), Part II. 6. The Soybean, by Count Heinrich Attems (p. 538-60): Soybean culture and harvest, uses, and preparation of whole soybeans. Practical soybean culture trials on a grand scale, in the domain of the archduke Albert, an extract from a booklet by Edmond de Blaskovics titled “The Soybean, Its Culture, Use, and Value as Forage” (Vienna, 1880). Excerpts of six articles on soya from the *Wiener Landwirtschaftliche Zeitung (Viennese Agricultural Journal)* (Jan. 1879 to June 1880) (p. 548-54). Excerpts of ten articles on soya from the *Oesterreichisches Landwirtschaftliches Wochenblatt (Austrian Agricultural Weekly)* (March 1879 to Feb. 1880) (p. 554-59).

7. The soybean in France (p. 561-76): History (starting with Buffon, who became director of the *Jardin des Plantes* [Royal Garden, also called *Jardin du Roi*] in 1739), varieties grown, cultivation, utilization (mainly as forage plant for livestock and as an oilseed for oil and meal), accessory uses (miso, Japanese-style soy sauce {*shoyu*}, Chinese-style soy sauce {*tsiang-yeou*}, Japanese-style tofu {*tô-fu*}, Chinese-style tofu {*téou-fou*}, fermented black soybeans {*téou-che*}, and soy coffee {*café de Soja*}, white fermented tofu {*fromage blanc*}, red fermented tofu {*fromage rouge*}, green vegetable soybeans {*des graines fraîches, écosées encores vertes, comme le Haricot flageolet*}, whole dry soybeans {*les graines sèches comme le Haricot blanc ordinaire*}).

8. Conclusion and tables showing French analyses of soybeans (p. 576-78). Appendixes (p. 579-96): Summaries of letters to the Society describing 27 cultural experiments with soybeans conducted during late 1880 at various locations in France, Switzerland and Algeria. (Note: Though the publication date of this appendix is given as Oct. 1880, some of the letters are dated as late as 21 Nov. 1880). Reprint of a 2-page letter from Eugene Simon, former French consul in China, on soybean farming in China (p. 591-93). Reprint of

a description by Eugene Simon, based on the description of a Chinese, of how tofu is made in China (p. 593-94). A French translation of a 1781 article by Isaac Titsingh on preparation of soy sauce in Indonesia (p. 594-95). And some information about soybeans from the ancient Chinese herbal *Pên Ts'ao Kang Mu* (p. 595). Reprints of 2 letters from Eugene Simon in China, on soya and tofu in China. French translation of a 1781 article by Isaac Titsingh on preparation of soy sauce.

Note 1. We find it surprising that this superb work contains no illustrations of a soybean plant, or of any part of the plant, or of any foods made from soybeans; the only illustration (p. 569) is a cross section of an empty pit into which one could put a mixed silage that contained 20% soybean plants. The distance a-b is 3 meters; f-g is 2 meters; e-f is 0.5 meters; a-e is 1 meter; i-h is 0.4 meters.

Note 2. This is the earliest French-language document seen (Dec. 1999) that uses the term *Huile de Soya* to refer to soybean oil.

Note 3. This is the earliest document seen (March 2001) that has a bibliography of more than 50 references concerning soybeans.

Note 4. This is the earliest European-language document seen (Sept. 2004) that mentions the Japanese soybean types *Nakata-mame* or *Okute mame*.

Note 5. This is the earliest French-language document seen (Feb. 2010) that uses the term *tsiang-yeou* to refer to Chinese-style soy sauce. Address: France.

98. Paillieux, Auguste. 1881. *Le soya, sa composition chimique, sa culture et ses usages* [The soybean, its chemical composition, culture, and uses]. Paris: Librairie Agricole de la Maison Rustique (26 Rue Jacob). 126 p. 28 cm. [42 ref. Fre]

• **Summary:** This is largely a reprint in book form of Paillieux's excellent article by the same title published in the September and October 1880 issues of the *Bulletin de la Societe d'Acclimatation*. The arrangement of text on the pages is somewhat different from (and clearer than) the earlier publication, and it contains small amounts of new information—as on p. 87-88.

Note: This is the second book on the soybean published in the western world; the first was by Haberlandt in 1878. This book contains only one unimportant illustration, the same one found in the preceding articles. Address: Membre de la Societe d'Acclimatation, France.

99. *Brisbane Courier (Queensland, Australia)*. 1884. Imports (A special charge is made on consignees' announcements inserted in this column). April 8. p. 4.

• **Summary:** “Suez, A.C.J. and S.S.S. Company's s. [steamer], from Hongkong direct: 2,432 bags rice, 50 cases oil, 50 cases Chinese oil, 10 cases China oil,... 10 boxes bean curd,... 8 boxes salt beans [probably salted black soy beans; fermented black soybeans],... 54 boxes sauce,... 5 boxes bean

sauce [perhaps soy bean sauce],...”

Note: The ambiguous term “bean sauce” is used in 4 issues of this Australian newspaper from 8 April 1884 to 8 March 1897.

100. *Washington Post*. 1884. The Chinese cuisine: Methods of cookery mostly in vogue among the Orientals. July 13. p. 6.

• **Summary:** “Wong Ching Too in the Brooklyn Eagle—Chinese gastronomy is different from American, in some respects diametrically opposite... they use wines and liquors sparingly and chiefly as aids to digestion. One dinner at Delmonico’s contains more alcohol than a dozen at Pekin.”

“Chop soly [chop suey?] is a ragout and may be justly termed the national dish of China.”

The main ingredients are pork, bacon, chickens, mushroom, bamboo shoots, onion and pepper... accidental ingredients are duck, beef, perfumed turnip, salted back beans, sliced yam, peas and string beans.”

The Chinese do not eat rats, mice, cats and dogs.

Note 1. This is the earliest English-language document seen (Nov. 2011) concerning fermented black soybeans / fermented, salted black soybeans, which it calls “salted black beans.”

Note 3. This is the earliest document seen (Jan. 2009) concerning Chinese restaurants outside China, or soy ingredients used in Chinese-style recipes, food products, or dishes outside China.

Note 3. This is the earliest (and ONLY) document seen (Sept. 2008) in all major U.S. newspapers digitized by ProQuest that contains the term “chop soly.”

101. 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. yayanari, 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 (*tachetéés*) 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 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. Freymy (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].

102. Forman, Allan. 1886. New York's China-town: A dinner in Mong Sing Wah's restaurant. *Washington Post*. July 25. p. 5.

• **Summary:** This restaurant is at 18 Mott Street. The proprietor is a "Celestial Delmonico." "The only condiment is seow [Cantonese: *shi-yau* or *si-yau*, meaning "fermented black soybean sauce"], a sort of Celestial cousin to Worcestershire sauce, and, in fact, its probable original. The evolution of Worcestershire sauce was somewhat as follows: Seow was taken from China to India, where hot spices were added to tickle the palates and livers of the English East Indians, who relished Chili sauce, army powder and red pepper. There it was known as soy [sauce]. From the East Indies to England, where it was still more spiced and flavored and patriotically called Worcestershire sauce. But the average Chinaman uses but little flavoring in his food, he prefers the natural taste."

Includes 4 illustrations, three of the restaurant and one titled "Position of the hand while using the chop sticks."

Note 1. This is the earliest document seen (Jan. 2007) stating that soy sauce is used as an ingredient in Worcestershire sauce.

Note 2. This is also the earliest English-language document seen (Sept. 2008) that mentions "chop-suey." The Chinese host orders "Chow-chop-suey" and several other dishes with Chinese names at the restaurant.

103. *Brisbane Courier* (Queensland, Australia). 1886.

Imports (A special charge is made on consignees' announcements inserted in this column). Nov. 20. p. 4.

• **Summary:** "Tannadine, from Hongkong: 10 baskets and 6 chests bean sticks [probably dried yuba sticks],... 1 basket bean curd [tofu], 10 baskets [soya] bean sauce, 3 baskets salt bean [probably fermented black beans / fermented black soybeans],... 6 boxes preserved plums,... 4 boxes beans,... 15 chests soy [sauce], 1 chest Joss sticks,..."

104. Yule, Henry; Burnell, Arthur Coke. 1886. *Hobson-Jobson: Being a glossary of Anglo-Indian colloquial words and phrases, and of kindred terms; etymological, historical, geographical, and discursive*. London: John Murray, Albemarle Street. xlviii + 870 p. See p. 651 ("soy"). 23 cm. [1166\* ref. Eng]

• **Summary:** "Soy, s. A kind of condiment once popular. The

word is Japanese *si-yau* [sic] (A young Japanese fellow-passenger gave the pronunciation clearly as shō-yu–A.B.), Chinese [Cantonese] *shi-yu*. It is made from the beans of a plant common in the Himalaya and E. Asia, and much cultivated, viz. *Glycine Soja*, Sieb. and Zucc. (*Soya hispida*, Moench.) boiled down and fermented.”

The authors then quote passages relating to soy from Lord King’s *Life of John Locke* (1679), Dampier (1688), Ovington (1690), Kaempfer (1712), and Thunberg’s *Travels* (1776).

Yule lived 1820-1889. A small illustration shows Arthur Burnell (lived 1840-1882).

Contents: Dedication to Sir George Yule, C.B., K.C.S.I. Address: 1. Living in Palermo; 2. Madras Civil Service, one of the most eminent modern Indian scholars.

105. Whitney, William Dwight. ed. 1890. The century dictionary: An encyclopedic lexicon of the English language. New York, NY: The Century Co. See the entry for “Soy” in Vol. 5, p. 5790.

• **Summary:** This dictionary contains three entries related to the soy-bean in Volume 5: (1) “Soy (soi), noun. [Also *sooja*; = F. *soy*, *soui* = G. Sw. Dan. *soja* (NL. *soja*, *soya*); Jap. *si-yan*, Chinese *shi-yu*, soy.] 1. A kind of sauce prepared in the East from the soy-bean (see def. 2). It is eaten with fish, cold meat, etc. There are two or three qualities of soy [sauce], but the Japanese soy is reckoned the best.

‘I have been told that *soy* is made with a fishy composition, and it seems most likely by the Taste; tho’ a Gentleman of my Acquaintance who was very intimate with one that sailed often from Tonquin [Tonkin, in today’s Vietnam] to Japan, from whence true *Soy* comes, told me that it is made only with Wheat, and a sort of Beans mixt with Water and Salt.’ Dampier, *Voyages*, II, 28.

‘From travellers accustom’d from a boy / To eat their salmon, at the least, with *soy*.’ Byron, *Beppo*, vii.

2. The soy-bean or -pea, *Glycine Soja* (*Soja hispida*, etc.). It is an annual leguminous plant with stout nearly erect or somewhat climbing stems covered with rusty hairs, bearing trifoliate leaves and from their axils two or three pods 1½ or 2 inches long. The seeds are made into the above sauce and variously used in cookery; an oil is also expressed from them, and the residue is extensively used in China for feeding cattle and as a fertilizer. The plant is native from northern India to Japan. The cultivated plant differs somewhat from the wild, and by some authors is distinguished as *Glycine hispida*. Also *Sahuca bean*.

(2) soy-bean (soi’bên), noun. See *soy*, 2.

(3) soy-pea (soi’pê), noun. See *soy*, 2.

Note 1. James Platt (1899) says: The word “Soy” has been badly treated by all our dictionaries. The best is the ‘Century,’ where it is traced to ‘Japanese *siyan*, Chinese *shiyu*,’ but even that involves two errors. One is a misprint (‘*siyan*’ should be *siyau*); the other is that it accounts for

only half the English word.

Note 2. “Miso” is not mentioned in this dictionary. Address: Prof. of Comparative Philology & Sanskrit in Yale Univ.

106. Giles, Herbert Allen. 1892. A Chinese-English dictionary. London: Bernard Quaritch; Shanghai, Hongkong, Yokohama & Singapore: Kelly and Walsh, Ltd. xlvii + 1416 p. 31 cm. [4 ref. Eng; chi]

• **Summary:** This massive volume, weighing almost 12 lb, contains more than 1,450 pages and 13,848 Chinese characters. Contents: Dedication (to the Honourable C.P. Chater). By the same author (17 books). Preface: Number of characters, the characters numbering, duplicate characters, phonetic arrangement, orthography, the tones, the dialects (Beneath the number attached to each character will be found its rhyme (R) as given in the *P’ei-wên-yün-fu*. The romanization of each character is given in Cantonese, Hakka, Foochow, Wênchow, Ningpo, Peking, Mid-China, Yangchow, and Ssuch’uan {Szechwan} dialects, as well as in Korean, Japanese, and Annamese, each being distinguished by its initial letter), the definitions, the entries, etymology, grammar, difficulty of Chinese, personal. Philological essay (incl. tones, ranging from 4 to 9, in ten dialects). Table of sounds.

Examples of soy-related characters:

*Chiang* (p. 122, No. 1220). “A soy made by mixing salt with bean-flour. Sauce. Pickled food.” Fourteen compounds using this character are given, including: Bean sauce, soy. Pickled bean curd [fermented tofu]. Bean sauce. Soy [sauce] is of two kinds, the clear and the thick. Dry relishes. Soy colour—a dark reddish drab. He won’t use money for vinegar to buy soy.

*Ch’ih* (p. 205, No. 1996). “Salted fruits, etc., dried and used as relishes.” Four compounds incl.: Salted beans. Soy, sauce.

*Ch’ou* (p. 259, No. 2521). “Sweet-smelling; strong-smelling. Stinking. *Ch’ou fu*. “stinking bean-curd; noxious.”

Note 1. This is the earliest English-language document seen (Oct. 2011) that mentions *Ch’ou fu* which it translates as “stinking bean-curd.” This is also the earliest document seen (Oct. 2011) that uses the term “stinking bean-curd.”

*Fu* (p. 458, No. 3686). “Rotten; putrid; worthless.” Eleven (p. 458, No. 3686). “Rotten; putrid; worthless.” Eleven compounds and sayings include: Bean curd, see No. 11,417. Bean curd officials—a term of contempt applied to certain of the poorer classes of official servants who are compelled to feed largely on this cheap food. Also explained as flabby or unenergetic officials. A Mongol name for cheese. A kind of milk made from beans (*rufu* = milk + fu) [Note: Probably fermented tofu, *not* soymilk].

*Huang* (p. 522, No. 5124). Yellow. Compounds: Yellow beans [soja].

*Mao* (p. 778, No. 7,679). “Hair, down, feathers.” But the

word “Hairy beans” = edamame does not appear here.

Shih (p. 988, No. 9999). See No. 1996.

*Ta* (p. 1,036-37, No. 10,470). “Great.” But the word “Great bean” = soybean does not appear here.

*Tou* (p. 1,127, No. 11,417). “Beans; pulse.” See also No. 11,412. Thirty compounds, incl.: Bean-sprouts. Bean-curd. A cheap restaurant (a bean-curd restaurant). Bean-cake. Bean oil. Big bean, black bean, or yellow bean = the soja bean (*Glycine hispida*, Max.), used for making bean-curd, soy, oil, etc. Ground-nuts.

*Yu* (p. 1,316-17, No. 13,409). “Oil, fat, grease.” 45 compounds incl. Sesamum-seed oil. Linseed. Wood oil. An oil factory. Oil dregs. But “bean-oil” = soybean oil does not appear here.

Note 2. This is the earliest English-language document seen (Aug. 2007) that contains the term “sesamum-seed oil.”  
Note 3. Herbert Giles lived 1845-1935.

Note 4. Unfortunately, the pronunciation of the compounds is not given (as in Mandarin).

Note 5. This is the earliest English-language document seen (April 2001) that uses the term “Bean sauce” to refer to soy sauce.

Note 6. This is the earliest English-language document seen (Oct. 2001) that uses the term “bean-flour” to refer to soy bean flour.

Note 7. This is the earliest English-language document seen (Oct. 2011) that uses the term “pickled bean curd” to refer to fermented tofu.

Note 8. This is the earliest English-language document seen (Oct. 2002) that uses the term “Wood oil” to refer to what would later be called “China wood oil” or “tung oil,” a pale yellow drying oil obtained from the seeds of tung trees (any of several trees of the genus *Aleurites*), and used mainly in quick-drying varnishes and paints, and for waterproofing. Address: H.B.M. [Her Britannic Majesty’s] Consul at Ningpo [Zhejiang province, China].

107. 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 Cochin China: 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.

108. Bretschneider, Emil V. 1893. *Botanicon sinicum*. Notes on Chinese botany from native and Western sources. II. *J. of the Royal Asiatic Society, North China Branch. Series 2*. 25:i-ii, 1-468. 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 objects 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.

109. Schlegel, Gustave; Cordier, Henri. 1894. The Chinese bean-curd and soy and the soya-bread of Mr. Lecerf. I. Tofu. *T’oung Pao (General Newspaper)* 5:135-46. March. [11 ref. Eng]

• **Summary:** “Of late these Chinese preparations have again attracted the notice of Europeans. The *Temps* in France published last November a note upon the subject after an article in the *Avenir de Diego-Suarez* of 2 March 1893, and Dr. Vorderman, of the civil medical service in Java and Madura... We will add to these notices what is written about the subject by the Chinese themselves.

“I. Tao-fu or Bean Curd. According to ‘Collected Omissions of *Sieh-choh*’ nothing had been ever heard of the confection of bean-curd before or after the period of the three dynasties of antiquity (B.C. 2205-250), and it was only mentioned for the first time in the work of *Liu-ngan* [*Liu An*] king of Hoai-nan [Huai Nan] of the Han (second century before our era) Cf. Mayers, Chinese Readers Manual, No. 412, Cap. 24.”

“The *Tao-fu* or Bean-curd was also called ‘Leguminous milk’, and was prepared by boiling curds or milk from beans.

“It is further related that when *Shi-tsih* [pinyin: Shi Ji] was governor of *Ts’ing-yang* [pinyin: Qing Yang] (Latitude 30°45’, Longitude 115°26’) he, in order to purify himself and to rouse the population, did not permit himself the use of meat, but bought every day in the market several pieces of bean curd, so that the townpeople called these curds ‘The little slaughtered sheep.’

“The bean of which this curd is prepared is known in science by the name of *Soja hispida*, and has been imported in the form of a meat-sauce from Japan to Europe under its Japanese name of *Sho-yu*, the corrupted Japanese pronunciation of the Chinese *tsiang yu* or ‘relish-oil’ which this sauce bears in some parts of China, and which has been further corrupted by the Dutch into *Soja*, by which name (also written *soya* and *soy*) it became known all over Europe. We will return to this by and by.

“According to Dr. Vorderman (loc. cit. p. 354) the soy-beans are distinguished in light-colored (cream-color, straw-yellow, light ochre-yellow and amber-yellow), brown and black. The first two sorts are roundish, the last either roundish or oblong, as they come from the one or the other variety of the plant. Accordingly, the plant with roundish seeds is called *Soja hispida, tumida* and that with oblong seeds *Soja hispida, platycarpa*, amounting, with the differences in color, to four varieties: 1. *Soja hispida, tumida Beta pallida*; 2. *Soja hispida, tumida Beta atropsuma* [atrosperma]; 3. *Soja hispida, tumida Beta castanea*; 4. *Soja hispida, platycarpa Beta melanosperma*.

“No. 2 and 4 are black and serve especially for the fabrication of Soy or Ketchup, whilst No. 1 (pale-yellow) and No. 3 (brown) are used for other culinary purposes.

“Since the Vienna [Austria] exhibition of 1873, when several samples of Chinese, Japanese and Indian soybeans were exhibited, their great nutritive proprieties and richness of azote [nitrogen] and fat have been shown by chemical analysis, and the culture of this plant has been largely introduced into Europe, especially in Hungary.” Note 1. This is the earliest English-language document seen (July 2003) that contains the word “soybeans”—spelled as one word.

König in his work *Die menschlichen Nahrungs und Genussmittel*, 2nd Ed., Vol. II, p. 372, gives an analysis of the composition of 4 types of soybeans. “Dr. Vorderman says that he has not been able to detect amyllum [starch] in the Soybeans of Java, China and Annam in applying the reaction of jodium [iodine] upon the section of the bean. The texture of the cotyledons consists principally of oblong, radiating parenchyme-cells, about five times longer than broad.

Note 2. This is the earliest English-language document seen (Oct. 2004) that uses the word “cotyledons” in connection with soybeans.

“II. *Tao-kan* or Preserved Bean Curd. The Chinese make of the Soy-beans two preparations, one called in Java *Tao-hu* and the other *Tao-toa*. They both consist of leguminous cheese, obtained from the light-brown beans, principally those obtained from Annam. But at present many Chinese in Batavia prefer the so much cheaper *kadele putih* grown in the *Preanger* and the *Ommelanden* (circumjacent territory of Batavia).

“These lightcolored beans are macerated during five hours in rainwater, when they swell up to about twice or thrice their original size. After having been cleansed from accidental dirt or admixtures, they are ground in a stone handmill, very much resembling that in which Europeans ground colors. One Chinese turns the mill, whilst the other throws the macerated beans, still in their husk, with a little water into the mill, so that the stuff runs as a white, thin mass, by a small gutter, into a tub prepared for its reception. This mass is then heated upon the fire in a large iron open cauldron, until it reaches the boiling-point. The froth is skimmed, and the fluid strained, after boiling, through a

cotton cloth, in which a white, doughy residu [sic, residue = okara] remains, having a peculiar oily smell, and which serves as food for ducks and fowl.

“The filtrated fluid, which has a milkwhite color, is mixed, whilst it is being cooled, with a certain proportion of common Madura-salt or with a little calcined gypsum. Note 2. This is the earliest English-language document seen (Oct. 2003) that refers to soymilk, which it calls the “milk from beans” and “The filtrated fluid, which has a milkwhite color...”

“This gypsum is imported from China in the form of large lumps of radiated gypsum. As it is specially used for preparing the leguminous cheese of the soybeans, it is called by traders in Batavia by the Malay-Chinese hybrid word *Batu-tao* i.e. ‘bean-stone.’\ “The salt (or, as in China, the chloride of magnesium) and gypsum change the juice, by precipitation of the legumine [legumin], into a white, gelatineous [gelatinous] mass, which, when sufficiently cooled, obtains a certain consistency, allowing it to be cut into flat square pieces. This can, however, not be done for after two hours after the precipitation. These squares are then laid upon plantain-leaves protected by a white cotton cloth against dust, and hawked about in the streets.

“They have an unpleasant raw bean-flavor, but when mixed with other victuals, this taste is lost. It is used as well in the preparation of Chinese victuals, as in that of the so-called Indian rice-dish.

“In order to preserve the *tao-fu* for continuous use, it is made to *tao-koa* (or dried beans) by the following method.

“The *tao-fu*, cut into flat squares, is plunged into a decoctum of *Curcuma longa*, which colours it intense yellow. These yellow cakes are then wrapped up in white square pieces of cotton, laid between boards and exposed to a certain pressure. Generally they are at the same time stamped with Chinese characters.

“By this pressure a good deal of water is lost, but the cakes can be preserved much longer.

“Dr. Vorderman says that both *tao-fu* and *tao-koa* can be successfully used in the nourishment of feeble children, who refuse to take eggs. *Tao-koa* is also imported from China, but these cakes are much larger than those prepared in Java, and are always stamped with Chinese characters.”

Note 2. This is the earliest document seen (Aug. 2002) that mentions Liu An of Huai Nan in connection with tofu.

Note 4. This is the earliest English-language document seen (Aug. 2010) that uses the word “Tao-fu” (or “Tao fu”), or the word “Tao-hu” (or “Tao hu”), or the word “Tao-kan” (or Tao kan”) to refer to Chinese-style tofu.

Note 5. This is the earliest English-language document seen (Sept. 2004) that uses the term “pale-yellow” or the term “straw-yellow” to describe the color of soybean seeds.

Note 6. An article in this same issue, titled “The Chinese in Boston” [Massachusetts], notes that presently “1,000 Chinese live in Boston, of which 700 work in the 180



laundries, and about 300 are merchants and traffickers, all dwelling on Harrison Ave. Here one also finds 63 gambling dens (or houses of ill repute) and several others where opium is smoked—visited in part by the most vile class of Americans.” We wonder if there wasn’t at least one tofu shop in Boston at this time. Address: 1. Professeur de Chinois à l’Université de Leide [Leiden]; 2. Professeur à l’École spéciale des Langues orientales vivantes et à l’École libre des Sciences politiques à Paris.

110. Schlegel, Gustave; Cordier, Henri. 1894. The Chinese bean-curd and soy and the soya-bread of Mr. Lecerf. III. Tao-yu or soy oil. *T’oung Pao (General Newspaper)* 5:135-46. March. See p. 140-43. [10 ref. Eng]

• **Summary:** This section is not about soybean oil, but about various types of Chinese soy sauce. “But the Soy-bean does not only serve for the preparation of beancurd, but also for the renowned condiment and sauce known as *Soya*, not only in the far east, but also over all Europe and America. It is known by the name of *Shi* which is explained in the *Yih-ya* as being a homonyme of the word *Shi* or ‘taste’ and was known by the people of *Thsi* because it is a combination of the five tastes.

Note: This is the earliest English-language document seen (Nov. 2011) that uses the word *Shi* to refer to fermented black soybeans.

“In the dictionary *Shwo-wen [Shuowen]* (about A.D. 100) the condiment is described as ‘Salt-mixed dark pulse.’ Bretschneider (*Botanicon Sinicum*, II, 165, Shanghai 1892) says he cannot understand what the character (dark) is intended to mean.

“If he had looked up the word in our Dutch-Chinese dictionary published in 1884, i.v. *Soya*, he would have found its explication given according to the *Tan-yuen-luh*, written by *Yang-shin*, one of the most prominent scholars of the Ming-dynasty (Wylie, Notes, p. 130), who says: ‘*Shi* is properly a bean; it is mixed with salt and *darkly* shut up into jars and pots, wherein it is fermented; this is why it is called dark pulse.’ In fact, this is the way the *Soya* is made. The beans are first boiled soft, mixed with an equal quantity of wheat or barley, and left to ferment; a portion of salt, and three times as much water as beans, are afterwards put in, and the whole compound left for two or three months, when the liquid is pressed and strained.

“As we have said above, the mass is fermented in large stone covered jars, and any-one who has visited Canton will have, if not seen, at least smelled the disagreeable stench emanating from the large jars with fermenting *Soy* in the *Soymakers-lane*.

“The Chinese say that the character *Shi* does not occur in the nine classics, but that in the commentary of the ‘Great bitter, the salt and the sour of the Nine discussions of Sung-yuh,’ the ‘Great bitter’ is explained as being the *Shi* or *Soy*; and that in the Chapter on Aliments in the Annals

is spoken of a thousand measures of salted soybeans (*shi*): whilst, according to the History of Aliments of the former Han-dynasty, soy was sold in (the capital) Chang-ngan by a certain *Fan Shau-ung*, who was on that account called the *Soy-Fan*.”

“In the Elegies of Thsoo (Wylie, Notes, 181) 4th Century B.C., is equally spoken of the Great bitter, the salt, the sour, the pungent and the sweet, where, according to the commentary, the great bitter is the Soy, the pungent are Pepper and Ginger and the sweet Sugar and Honey; and that it means that the juice of the Soybean was mixed with Pepper and Ginger, and that the salt and sour was mixed with Sugar and Honey, so that the pungent and sweet flavor was produced.

“In the book ‘Antiquities of Wu-lin’ (Wylie, Notes, p. 45), written during the southern Sung-dynasty (13th century), we find mentioned among the victuals in the market: birdsnests (?), gingered soy (*shi*) and honied and gingered soybeans.

“This is the native soy; but the *Poh-wuh chi* (Wylie, Notes, p. 153), published in the latter part of the 3d century, says that Soy is also prepared in foreign countries. The beans are steeped in bitter wine and afterwards dried very hard; they are then boiled in and again dried, which process is thrice repeated. Afterwards the mass is mixed with a proportional quantity of powdered pepper. This species of Soy is called in China *Khang-pih* (Man-strengthening) because it pushes down the humours and composes them.

Bretschneider thinks that though the character *Shi* does not occur in the Classics, Soy was very probably known in olden times under the name of *Tsiang* [chiang or jiang] which occurs in the *Li-ki*, the *Chow-li* a.o. The common name for Soy in Peking, he says, is *Tsiang-yu* or *Tsiang* oil. This name, imported into Japan, but pronounced there *Sho-yu*, from which our word *Soya* has been corrupted, was first imported by the Dutch from Japan to Europe.

“But this supposition is not supported by Chinese authorities, who describe the *Tsiang* as a salted condiment or sauce made from all sorts of meat, fishes, fruits, etc., but never from beans.

“According to the *Fan-tsze-ki-jen* the *Tsiang* was introduced from *Toung-hai*, the modern *Hoai-ngan fu*. The first quality cost 200 pieces a pound; the middling sort one hundred, and the inferior quality thirty. This condiment was so expensive that we read in the Annals that a thousand jars of briny *tsiang* were put upon a par with a state of a thousand carriages.

“In the *Ping-tsih* are mentioned Briny *Tsiang* of stewed chicken, Briny *Tsiang* of stewed fishroe (Footnote: With reference to this condiment, we may mention the *Ké-tsiap*, brine of pickled fish or shell-fish, prepared in Fuhkian [Fujian, W.-G. Fukien] {Douglas [1873], Dict. of the Amoy dialect}, and which is most surely the origin of the word *Ketchup*, another name for soy [sauce]. It has nothing to do

with the Malay, though the Malay word *Ketjap* 'to taste' has a family-air.), of stewed turtles, of hashed fish mixed with mustard, and of the fat of the elk.

"In old *Nan-yueh* people ate *Tsiang* made of the *Kow-fruit*, a kind of mulberry according to some, but the betelpepper according to others.

"A condiment was also made of the peony roots of the elmseeds which was called *Mut*, of bitter squash and of the bottle-gourd [gourd].

"In like wise a sauce was made of the *Yu-tsih* fish, and even of salted bees, crabs, shrimps, or rather lobsters, and ant-eggs. But not a single writer speaks of *tsiang* made of beans, and more particularly of the soyabean" (p. 143).

Note: This is the earliest English-language document seen (Feb. 2007) that contains the word "soyabean" (or "soyabeans"), written as one word. Address: 1. Professeur de Chinois à l'Université de Leide [Leiden]; 2. Professeur à l'École spéciale des Langues orientales vivantes et à l'École libre des Sciences politiques à Paris.

111. Shimada, Koichi. 1894. Kansai shōyu oyobi tamari shiken seiseki [Results of tests on shoyu and tamari from Kansai, or Western Japan]. *Yakugaku Zasshi (J. of the Pharmaceutical Society of Japan)* No. 146. p. 297-327. April. [Jap]

• **Summary:** Early information on the chemical composition of soy sauce in Japan. The term "tamari" (with furigana attached) is written with the characters "kuki" plus "sho or chiang." Very revealing.

112. Bretschneider, Emil V. 1895. *Botanicon sinicum*. Notes on Chinese botany from native and Western sources. III. Botanical investigations into the materia medica of the ancient Chinese. *J. of the Royal Asiatic Society, North China Branch. Series 2.* 29:1-623. See p. 9-13, 385-86, 389. [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: Introduction (p. 1-9). Abbreviated references to Chinese, Japanese and European books (p. 9-12). Medicinal plants of the *Shen Nung Pan Ts'ao King* [pinyin: *Shennong Bencao Jing*] and the *Pie Lu* [pinyin: *Mingyi Bielu*] (p. 13-). Pages 385-86: Section "229.-ta tou, Soy-bean, *Soja hispida*, Moench. P., XXIV, 1. T., XXXV.

"Comp. *Rh ya*, 29, *Classics*, 355.

*Pen King*:—*Ta tou*. The seed of the (3 Cc = Chinese characters given) *hei dadou* [black soy bean] is used in medicine. Taste sweet. Nature uniform. Non-poisonous. When eaten it causes the body to become heavy.

*Pie lu*:—The *ta tou* is produced in T'ai shan [in Shan tung, App. 322] in marshes. It is gathered in the 9th month.

Su Sung [11th cent.]:—The *ta tou* is now generally cultivated in two varieties—the white and the black. The latter

is used in medicine.

Li Shi-Chen:—There are many sorts of the *ta tou*—the black, white, yellow, gray, green and spotted [according to the colour of the seeds]. The black sort is used in medicine, is also a valuable food, and is employed in making Cc shi (Soy [nuggets]. V. infra, 234, and Bot. sin., II, 355). From the yellow sort oil is expressed and Cc tsiang [jiang] (sauces) and Cc fu (beancurd [tofu]. See l.c.) are prepared. These beans are also eaten roasted. Besides the seeds of the *ta tou*, and the oil expressed from them, other parts of the plant are likewise officinal, viz. the Cc *ta tou* p'i (the valves of the legume), the leaves, the carbonized straw and the flowers.

"See P. Smith, 88, *Dolichos soja*. -

"230.- Cc [yellow soybean sprouts] *ta tou huang kuan*. P., XXIV, 7.

This drug is noticed in the *Pen king*. As T'ao Hung-King and Li Shi-Chen explain, this consists of the germs of the black Soy bean, produced by steeping the beans in water and causing them to germinate. These germs are used as food.

"This is still an article of food at Peking, but produced from the yellow Soy bean and called *Cc huang tou ya*.

Pages 389-90: "234.-Cc [fermented black soybeans] *ta tou shi*. P., XXV, 2. Comp. Bot. sin., II, 355:—Soy. It is noticed in the *Pie lu*. Li Shi-Chen says it is prepared from the black soy bean.

"In the *Cust. Med.* the *Cc tou shi* is mentioned as an article of import, p. 110 (183) Wu hu,—p. 164 (368) Shang hai,—p. 216 (89) Wen chou. It is said to come from Han kow and Ning po, and is identified there with salted black beans.—See also *Hank. Med.*, 45 [by R. Braun, 1888].

Appendixes. Chinese geographical names (p. 547). Alphabetical index of Chinese names of plants (p. 606). Alphabetical index of genus names of plants (p. 616). Address: Late physician to the Russian Legation at Peking.

113. Guo Yunsheng. 1896. *Jiuhuang jianyishu* [Treatise on simple methods of alleviating famine]. China. Passage on soy reprinted in C.N. Li 1958 #344, p. 243-47. [Chi]

• **Summary:** Wade-Giles reference: *Chiu Huan Chien I Shu*, by Kuo Yün-Shêng. Qing dynasty. The major division titled "Monthly ordinances for famine relief" contains the following sections: In the third month, you can plant large-seeded black soybeans (*heidou*). In the third month, plant small-seeded yellow soybeans (*huangdou*): they can be used cooked as a main dish / grain (*fan*) or as a side dish / vegetable (*cai*), or they can be used for making jiang, fermented black soybeans (*shi*), soy oil, or tofu (*fu*). In the third month, plant large-seeded yellow soybeans (*huangdou*): they can be used in all the same ways as small-seeded yellow soybeans, described above.

In the fourth month, plant large-seeded black soybeans, small-seeded yellow soybeans, and large-seeded yellow soybeans: In the early fall, they young pods can be eaten [as green vegetable soybeans].

In the fifth month, plant the large-seeded black soybean, the small-seeded yellow soybeans, and the large-seeded yellow soybeans: everybody knows what to do with them.

The major division titled “Saving the soil when it is depleted” contains the following sections: Plant large-seeded black soybeans, small-seeded yellow soybeans, or large-seeded yellow soybeans: Do not till the soil [which could cause erosion]. Note: Planting these legumes will help enrich the soil with nitrogen.

Plant large-seeded black soybeans, small-seeded yellow soybeans, or large-seeded yellow soybeans on land which has been infested by insects: Soybean seedlings contain no sugar, so the insects do not like to eat them.

New beans [those on land that has not been previously planted to beans] should be planted in a shady place: These new beans came from a place named Fanxian in Sichuan province. Note: This is apparently a famous soybean variety from a place where soybeans are apparently grown a lot.

Large-seeded black soybeans, small-seeded yellow soybeans, and large-seeded yellow soybeans should be planted in a shady place.

Barley can use black or yellow soybeans as green manure. Wheat can use black or yellow soybeans as green manure.

Barley can use dried black or yellow soybean leaves as manure. Wheat can use dried black or yellow soybean leaves as manure. Note: In times of famine, recycle all possible crop wastes.

In sandy places, use the dry empty pods of black soybeans or yellow soybeans as manure.

In hard soil, use dried leaves of black or yellow soybeans as manure.

Black soybeans and yellow soybeans should not follow (fears) the red flowered plant [safflower?] in rotations—according to certain old farmers. Note: Safflower has orange-red flowers, which were long used in China as a source of red dye. Southern melons (*nangua*) should not follow black or yellow soybeans in rotations. Bamboo shoot melons (*sungua*) should not follow black or yellow soybeans in rotations. False southern melons (*jianangua*) should not follow black or yellow soybeans in rotations. *Nuogua* melons should not follow black or yellow soybeans in rotations: in the midst of their growth, the melons will wilt. Black soybeans should not follow yellow soybeans in rotations, and vice versa.

The major division titled “Planting for famine relief” [plants which yield a crop quickly] contains two sections: Quick-maturing / early soybeans (*dadou*) or plum soybeans (*meidou*) can be planted any time (and staggered) from the 2nd month to the 5th month: Soybeans planted in the 2nd month will be ready to harvest in the 5th month. Small-seeded yellow soybeans whose seedlings are to be used as a vegetable (*huangdou miaocai*) can be planted for 3 months / three times [meaning unclear]: The grain changes into a vegetable;

they are grown everywhere. (Translated by H.T. Huang, PhD, March 2003).

Bray (1984, p. 641): “A treatise on simple methods of alleviating famine.” 1896.

114. Scott, Charles Payson Gurley. 1897. *The Malayan words in English*. New Haven, Connecticut: The American Oriental Society. 93-144, 49-124 p. See p. 64-67. Index. 25 cm. [73\* ref]

• **Summary:** The word “ketchup” is discussed in detail (p. 64-67). It is a well-known name for various kinds of sauces. The word *catchup*, which first appears in English in 1690, is defined as a “high East Indian Sauce.” This word is found in Malay as *kechap* or *kichap*, and in Dutch transliteration as *ketjap*. It is also found in Lampong as *kichap* and in Sundanese as *kechap*. In Malay dictionaries from 1884 to 1895 it is defined as soy [sauce], Japanese soy [sauce], or indigenous/native soy [sauce]. The earliest Sundanese entry found (Rigg 1862) states: “*Kéchap*, Catchup, a dark coloured sauce prepared by the Chinese.”

But what is soy? The word comes from the Japanese *shō-yu* (Hepburn 1867). The Chinese form, in Mandarin, is *sh'-yiu* (Williams 1874) or *shi-yu* (Doolittle 1872), Canton *shi-yau* (Chalmers 1870; Williams 1856), Ningpo *tsiang-yiu* (Morrison 1876). The Chinese forms are probably original.

Other words that have come into English from Malay or other languages of the Malay archipelago (Javanese, Lampong, Sundanese, etc.) include: agar-agar (a sea-weed), amuck (frenzied, homicidal rage), bantam (a dwarf fowl), batik (spotted cloth), catchup (see ketchup), cockatoo (a parrot), compound (from campong, a village), gecko (a lizard), gingham (cotton cloth), gong (instrument of sound), gutta-percha (a gum or resin produced by a tree), junk (a boat), kacang (a legume), ketchup (a condiment), lorikeet (a parrot), lory (a parrot), orang-utan (primate animal), padi (rice), picul (a weight), rattan (part of palm stem used for walking sticks and wickerwork), sago (pith of a palm), sambal (a curry).

Note: Reprinted from the *Journal of the American Oriental Society* vol. 17 (1896) and vol. 18 (1897).

115. Platt, James. 1899. “Soy.” *Notes and Queries (London)* 4:475. Dec. 9. 9th Series. [2 ref]

• **Summary:** “This word has been badly treated by all our dictionaries. The best is the ‘Century,’ where it is traced to ‘Japanese *siyan*, Chinese *shiyu*,’ but even that involves two errors. One is a misprint (‘*siyan*’ should be *siyau*); the other is that it accounts for only half the English word.

“To explain this, I must draw a distinction between three kinds of Japanese. (1) In Japanese as written with the native character *soy* would not be *siyau*, but *siyau-yu*. (2) In the Romanised Japanese this is simplified to *shoyu*. (3) Colloquially this is still further reduced by dropping the final vowel, to *shoy* or *soy* (*sh* in Tokio, *s* in some other dialects).

Of this monosyllable only the *so* represents the classical *siyau*; the final consonant (*y*) is a relic of the termination *yu*. Hence my remark that the ‘Century’ accounts for only half the English word. The English word is derived from the Japanese, the latter from the Chinese. The Chinese form given by the ‘Century’ is Northern Mandarin. At Shanghai it becomes *sze-yu*, at Amoy, *si-iu*, at Canton *shi-yau* [fermented black soybean sauce]. The first element is defined by Williams, in his ‘Dictionary,’ p. 764, as ‘Salted beans, or other fruits, dried and used as condiments’; the second element merely means ‘oil’ (Williams, p. 1111).”

116. Douglas, Carstairs. 1899. Chinese-English dictionary of the vernacular or spoken language of Amoy, with the principal variations of the Chang-chew and Chin-chew dialects. New edition. London: Presbyterian Church of England. xix + 612 p. 27 cm. [2 ref]

• **Summary:** The Preface begins: “The vernacular or spoken language of Amoy, which this dictionary attempts to make more accessible than formerly, has been also termed by some ‘The Amoy Dialect’ or ‘The Amoy Colloquial;’ and it particularly coincides with the so-called ‘Hok-kien Dialect,’ illustrated by the Rev. Medhurst in his quarto Dictionary under that title.”

On page 58, under the character for *chiang-chiu* a sort of sauce or condiment. *tau chiu* sauce made from beans and flour. *chiu-chheng* the thinner part of *tau chiu*. *koan-kiu-chiu* this sauce seasoned with cayenne pepper. *chiu-liau* various sorts of vegetables preserved in *tau chiu*. *chiu-koe* pumpkins so preserved. *chiu-kiu* ginger so preserved. *chiu-mia-chia* wheaten dough balls in this sauce.

On page 156, under the character for *hu-tau-hu* bean curd shaped into squares (from the pulpy “tau-hoe”), but not yet pressed. See *tau*.

On page 176, under the character for *iu* meaning oil or fat. On the last line of the right column—*tau-iu* soy [sauce]. *e-tau-iu* dark-colored soy. *seng-iu* the common oil from ground-nuts. *moa-iu* oil from hemp-seed.

On page 423, under the character for *shi-si* salted vegetables and fruits. *tau-si* pickled and salted beans [soybeans]. *tau-si-pe* black beans [soybeans] boiled, dried, and kept till mouldy, to be made into soy [sauce]. *tau-si-phoh* beans from which soy has been made, broken down small. *mi-si* (Cantonese) = *tau-chiu* (Amoy), sort of salted sauce.

On page 480, under the character for *tou-tau* peas or beans; pulse. *tau-khe* bean cake from North China, used as manure. *tau-iu* soy (see *iu*). *tau-chiu* a thick salt sauce made from pulse. *tau-si* salted beans [fermented black soybeans]. *tau-hoe* soft bean curd not yet pressed or shaped. *tau-chiu* same. *tau-hu* bean curd shaped but not yet pressed. *tau-hu-phe* same, but made into thin sheets for wrapping around eatables. *teh tau-hu* to shape the *tau-hoe* into pieces of *tau-hu*. *tau-koa* bean-curd that has been pressed in a cloth. *tau-ju* same cut into smaller squares and salted. *tau-kiam*

(Cantonese) same. *tau-che* refuse from manufacture of bean-curd [okara]. *tau-thau* same. *the-tau* = lok-kha-seng, the Arachis, ground-nut, or pea-nut, from which oil is made. *tho-tau* same.

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “pickled and salted beans” to refer to fermented black soybeans.

Note 2. The first edition of this book was published in 1873. In 1970 the Ku-T’ing Book Store in Taipei published a photoreprint of the 1899 London edition; it was bound with a Supplement photoreprinted from the 1923 Shanghai ed. (612 p., 27 cm). Carstairs Douglas lived 1830-1877. Address: Rev., M.A., LL.D. Glasgow, Missionary of the Presbyterian Church in England.

117. 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 Cochin China: 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 hypogæa (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 (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.

118. Boorsma, P.A. 1900. Scheikundig onderzoek van in Ned.-Indie inheemsche voedingsmiddelen. De sojaboon [Chemical analysis of some indigenous foodstuffs in the Netherlands Indies. The soybean]. *Geneeskundig Tijdschrift voor Nederlandsch-Indie* 40:247-59. [18 ref. Dut]

• **Summary:** Contents: Literature review. Introduction (Boorsma is living in Java). Chemical composition of indigenous soybeans: Table giving figures (based on Boorsma's original research) for large black, large yellow, small yellow, unripe or immature black soybeans, soy protein (*eiwit in de soja*) or legumine, the oil (*De vette olie*), analysis of the ash, starch, the black soybean (*zwarte kedeleh*), use of soybeans in Java and Japan. Japanese soya preparations (*soja preparaten*): Shoyu (soja) made with koji, tofu, yuba, miso and natto. Indigenous (Chinese) preparations: Tempeh (*tempe kedeleh*), Indonesian soy sauce (*Ketjap-Bataviasche soja*), tofu and pressed tofu (*Tao-hoe en Tao-koan*), Indonesian miso and fermented black soybeans (*Tao-tjo en Tao-dji*).

Note 1. This is the earliest Dutch-language document seen (Nov. 2011) that mentions fermented black soybeans, which it calls *Tao-dji*.

Note 2. This is the 2nd earliest document seen (March 2009) that mentions Indonesian-style miso, which it calls "Tao-tjo." This is the earliest Dutch-language document seen (Feb. 2009) that uses the word "Tao-tjo" to refer to Indonesian-style miso.

This excellent article contains a 4½-page description (the best seen to date) of the traditional process for making soybean tempeh (*Tempe kedeleh*). The soybeans are parboiled, soaked in water for 2-3 days, drained, steamed in a steamer (*koekesan*), spread in a layer several centimeters thick on woven bamboo trays in shelves, and covered completely with banana leaves. They are then inoculated with the *bijang*, which is the "mold containing residues of a previous preparation." This is mixed in here and there, then the trays are covered lightly with banana leaves so as to let in some air. "Rampant growth of the mold soon begins. In the evening the mass is molded a little and after two 24-hour periods one will obtain a coherent cake, which is cut into pieces and taken as is to the market."

The cotyledons are stuck together by a dense mycelium, which has grown into a somewhat white covering. According to Prinsen Geerligs (cited above), the name of the mold is *Chlamydomucor Oryzae*.

During the two days of rampant mold growth, a radical conversion takes place in the components of the seeds; a lot of water, carbonic acid, and heat start to develop... A thermometer inserted into the fermenting mass shows a temperature 10-12°C above that of the environment.

As the preparation is finished, the banana leaves are

taken away; the temperature drops slowly to normal, the rampant mold growth stops, and the mass dries out slightly. In this condition, the tempeh can be kept for several days with spoiling.

When the rampant mold growth is allowed to continue for a third day, simply by leaving the banana leaves in place, the conversion will soon become much stronger as noted by the formation of ammonia. Also poisonous products start to form; a monkey, given a little bit [of overripe tempeh] among his other foods that day was vomiting violently one hour later. Thus we should admit that the stories about poisonings caused by various sorts of tempeh [such as bongkrek, made from coconut presscake] probably have some foundation. But there is little fear of this from soybean tempeh.

After microscopic examination, Boorsma concluded that Prinsen Geerligs and others were wrong in stating that (1) the mold hyphae penetrate and dissolve the hard soybean cell walls, and (2) cellulose is decreased during tempeh (*tempe*) fermentation. He studied the chemical and compositional changes at four stages during a 3-day tempeh fermentation; a table shows his findings. He observed that fats and soluble carbohydrates decreased substantially, while nitrogen decreased only slightly. He also discussed the hydrolysis of soybean lipids, and why tempeh is easier to digest than whole soybeans.

Note 3. This is the earliest Dutch-language document seen (Sept. 2011) that uses the term *tempe kedele* or the word *tempe* to refer to tempeh.

Note 4. This is the earliest document seen (Sept. 2011) that describes how to make tempeh on a commercial scale.

On page 258 Boorsma briefly discusses *Ketjap* (which he called *Bataviasche soja*, or Jakarta soy sauce) and *Tao-hoe* and *Tao-koan* (tofu and firm tofu), based on information from Prinsen-Geerligs (for both) and Vorderman (for firm tofu). For each he gives a nutritional composition. On page 259 Boorsma briefly discusses *Tao tjo* and *Tao-dji* (Indonesian-style miso and fermented black soybeans). Note 5. This is the earliest Dutch-language document seen (Dec. 1999) that uses the term *Tao tjo* to refer to Indonesian-style miso or tauco / taucho.

Note 6. This is the earliest document seen (April 2001) that contains the term *Tao-koan*.

Note 7. This is the earliest Dutch-language document seen (Feb. 2004) that contains the term *natto*.

Note 8. This is the earliest Dutch-language document seen (Oct. 2008) that mentions yuba, which it calls *Yuba* and describes as *een nog vetrijker product dat verkregen wordt bij uitdampen van de roomloog, die zich bij de zoeven genoende boonenmelk aan de oppervlatke verzamelt.*"

Note 9. Boorsma was a Dutch naturalist who lived in Indonesia in the early 1900s. Address: Netherlands.

119. *New York Times*. 1901. From city highways and byways: How to make chop suey. Nov. 3. p. SM7.

• **Summary:** “W.E.S. Fales, who for several years was Vice Consul at Amoy, China, is a cook of superexcellence. Said he: ‘There is a growing taste on the part of New Yorkers for Chinese dishes. Chinese restaurants have sprung up all over the city, and they are well patronized, especially at night. The dish mostly in demand is chow chop suey, a delicious concoction, if properly prepared.’”

The recipe concludes: “The See Yu sauce [Mandarin: Shiyou or Shih-yu is fermented black soybean sauce] which is eaten with this delectable dish can be procured at any Chinese grocery.”

120. Bie, H.C.H. de. 1901. De landbouw der inlandsche bevolking op Java [The agriculture of the indigenous people in Java]. *Mededeelingen uit 's Lands Plantentuin (Buitenzorg)* No. 45. 143 p. See p. 97, 99, 138-43. [Dut]

• **Summary:** The soybean is discussed in the chapter titled “Cultivation of crops other than paddy rice: Cultivation of secondary crops (*Palawidja*).” Soya bean is one of the secondary foods served with rice, but it is mostly used to make soy sauce and tempeh (*tempe*). One variety of soybean, which originally came from Japan, is widely grown as a second crop on the wet rice fields (*sawahs*), and it is easy to cultivate at altitudes of 1,200 to 1,500 feet above sea level. It is called *katjang kedele* in Central and East Java, but *katjang djepoen* in Sunda or West Java (*de Soedalanden*). A description of the plant and the method of cultivation in Java is then given. It is planted much more on wet rice fields than on dry (non-irrigated) fields (*tegalans*) near the rice fields used for vegetables and secondary crops. Usually the soybean seeds are planted right after the paddy stumps have been cut away, but sometimes they are planted just before or during the paddy harvest, and pressed into the earth under the feet of the paddy cutters. They are rarely weeded, excepted when the crop is suffocated by tall weeds. At harvest, the plants are pulled completely out of the ground and bound into bunches. At night they are stored under a specially-constructed roofed shelter in the field, and during the day they are sun-dried on bamboo structures or on the ground. This takes at most 3-4 days, if the plants are really ripe and the weather is good, after which the bunches are put on bamboo mats in heaps and threshed. To protect the seeds from damage, one preferably uses piece of banana tree branches which still have woody veins. The woody plant stems and branches are removed together with the soybean pods and burned on the sawah fields. Poor people first sort out the pieces good enough for fuel and take these home. Immature green leaves are fed to animals. Sometimes soybeans are planted on the dikes of the paddy fields at the same time as or a few days later than the paddy rice. The fresh seeds from this harvest are then planted in the sawah fields after the paddy is harvested. Soybeans planted in this way are called *katjang apitan*.

There are two varieties of soya: one has an ivory yellow

seed coat and the other is black. The latter is used almost exclusively to make soy sauce; the former to make pastry and condiments for rice or as a vegetable (*sayur; sajoer*). Soya is cooked with salt in the green pod and eaten as a snack.

The indigenous people do not occupy themselves with the production of soya (soy sauce) or *ketjap* or other products made from soybeans such as *taoetjo* [*tao tjo, tauco, taucho* = Indonesian style miso], *taoehoe* [*tao hoe, tahu* = tofu], *taoekwa* [*tao koan, taokoan or takoa* = fermented tofu], and *taoetji* [*tao dji, tausi* = fermented black soybeans]. The work is too involved and takes too long before the product is ready to be sold. Most people are too inexperienced and there is not enough of a market for the product.

The only food that most people make out of soybeans is tempeh (*témpé*), which plays the same role in Central and East Java as does ontjom in Sunda or West Java, and is prepared similarly. The tempeh-making process is described. It takes place indoors, out of the light. It is sometimes cut into smaller pieces. It is usually eaten pan-fried after being soaked in a solution of tamarind and salt. It is also cooked with vegetables.

Most soybean seeds are sold to the Chinese, who export them or process them to make soy sauce and other products. To make soy sauce, the seeds are roasted to aid in removing the hulls. Some people pound the seeds instead. They are cleaned, boiled in water, drained, spread on flat bamboo trays (*tampah* or *njiroe*) and dried daily for a week in the wind. They are washed again then soaked for 30-40 days in salt water which has been boiled then cooled. This mash is mixed thoroughly and strained through a cloth. To the black liquid is added a boiled and cooled mixture of cane sugar and water, then the mixture is boiled until its volume is reduced by 20%. If the solid residue removed by filtering still tastes salty, it is put into water, kneaded and strained again. A sugar solution is added and all is boiled down as before to make second-grade ketjap.

To make *taoetjo* (*tauco, taucho* or Indonesian-style miso), the soybeans are soaked in fresh water, the hulls are removed, the seeds boiled and spread on bamboo trays to cool. Rice or glutinous rice flour is roasted until golden brown, then mixed with the seeds and set aside for 2-3 days to ferment between hibiscus (*waroe*) leaves on flat trays. When the mass has molded, it is sun dried for a few days until very hard. Note: This is the soybean koji used making taucho.

Remove the leaves and put this mass of soybean koji into salt water. On the third or fourth day, add some yeast (*gist*) and some cane sugar syrup. Continue the soaking and fermentation in salt water for 2-3 weeks. Place it [in crocks] daily outside in the dew, taking care that no rain gets on it.

To stimulate the fermentation, take steamed rice or glutinous rice that is only half cooked. Add *ragi* starter and allow it to ferment for 2-3 days until a sweet, alcoholic flavor

develops. This kind of fermented rice is called *peujeum* in West Java, or *tapé* in Central or East Java. Now add this fermented rice to the soybeans in salt water to enhance both the fermentation and the product.

After 3-4 weeks the soybeans should be very soft like porridge; then the taicho is ready to be used. It is eaten raw with cooked or raw vegetables, or mixed with meat or rice dishes; other condiments are also made from it.

Another product that the Chinese make out of soybeans is tofu (*tahoe* or *tauwhoe*). Soaked soybeans are ground and the puree is mixed with fresh water. Then a milky liquid (*melkachtige vloeistof*) is filtered off and coagulated. The Chinese use a coagulant called *tjiogo* (gypsum or calcium sulfate), which is specially imported from China and is not always available, even to the Chinese apothecary. It is first burned, then cooled before being added to the milky liquid. The white mass which is precipitated is called tofu. A similar product can be made from mung beans. Address: Batavia (Jakarta), Java.

121. Sawa, S. 1902. Note on Hamananatto, a kind of vegetable cheese. *Bulletin of the College of Agriculture, Tokyo Imperial University* 4(5):419-20. March. [1 ref. Eng] • **Summary:** “This peculiar product is prepared from soybeans, as are also two other kinds of vegetable cheese manufactured in Japan, the *Miso* and the *Natto*; but it has a different flavour and taste, and lacks the slimy character of the common *Natto*. It is manufactured only in the central provinces of Japan—especially in those of Mikawa and Totomi, from which it finds its way all over the country. It has an agreeable salty taste and a peculiar odor somewhat resembling that of the fresh crust of brown bread. There is not any mycelium discernible with the naked eye. The soy-beans composing it form no compact mass, and are of a brown colour with a thin layer of a salty taste and a somewhat sticky consistency.

“In preparing this product, the soy-beans are well washed, boiled to softness, spread on straw mats, and mixed with wheat flour (6 liters flour to 10 liters soybeans). Moldfungi will now develop, but soon afterwards this mixture is exposed to the direct sunlight for three days, probably to kill the fungi, and is then put into flat tubs. After 12-13 days some common salt and ginger are added. The entire mass is then kept in tubs under pressure for about thirty days.

“A portion, carefully freed from the pieces of ginger and particles of straw mats used in its manufacture, was dried, pulverized and sifted through a 0.5 mm sieve. I found the chemical composition of the dry matter to be as follows: Albuminoid nitrogen 3.57%. Crude fat 3.44%. Crude fibre 6.87%. Total carbohydrate excluding cellulose 8.40%. Total ash, including salt added 18.54%. The fresh sample contained 44.73% water and 55.23% dry matter.

“There exist at least three different kinds of bacteria in

this product. The most numerous colonies on agar are of two kinds.” A detailed microbiological description is given.

Note: This is the earliest document seen, and also the earliest English-language document seen (Nov. 2011) that contains the word *Hamananatto* (or “Hamanatto”).

122. Whitehead, Jessup. 1903. The steward’s handbook and guide to party catering. 6th ed. Chicago, Illinois: Jessup Whitehead & Co., Pubs. v + 464 + 29 p. Illust. No index.

• **Summary:** Page 60: “Those everlasting relishes” mentions catsups, soys, Worcestershire sauce, mushroom and walnut catsups, Harvey’s sauce, India soy.

Page 87: Relishes: Tomato catsup, Worcestershire sauce. Page 214: Worcester sauce.

Alphabetical: Carp (p. 267): Baked carp; gravy made with Worcestershire sauce. Chinese cookery (p. 278-80): Chinese chop soly [chop suey], a savory ragout, is the national dish of China. Incidental ingredients include “salted black beans.” Chop sticks.

Cucumber (p. 299) and eggs, with vinegar and Worcestershire sauce. Devil sauce (p. 303), with Worcestershire. Drinks (p. 305): Prairie oyster, with dash of Worcestershire sauce. Garum (p. 324): “One of the two principal sauces used by the ancient Romans...; a kind of soy,...” Horseradish (p. 343): Napolitaine sauce, with Worcestershire sauce.

Japanese cookery (p. 350-51): Mentions “Japanese misoshiru [miso soup]... This is made from miso, a fermented mixture of soy, beans [sic, soy beans], wheat and salt. It has a gamey flavor all its own.” “Hachimono, ... a piece of sole stewed in soy.” “... the brown soy-colored beans and strips of Kukirage, or ear-shaped mushrooms.” “Fu, a kind of biscuit made from the glutinous part of wheat flour.” A gravy “thickened with a transparent, starchy substance, obtained from the root of a climbing plant (*Pueraria Thunbergiana*), called by the Japanese Kuzu.”

Sauces (p. 430-34): “Harvey’s sauce—A fair imitation of Harvey’s sauce may be produced by working the following recipe. Mince a clove of garlic very finely, add 6 chopped anchovies, ¼ oz. cayenne, 3 tablespoonfuls of Indian soy, 3 tablespoonfuls of mushroom or walnut ketchup...” “Soy—An East Indian bottled sauce; it is made of purple wrinkled morels, galangal root and spices.” “Bottled table sauce—The recipe for making the genuine Yorkshire relish is probably known only to manufacturers. However, the following is said to yield a good imitation of that popular sauce: 1 oz. garlic, 1 teaspoonful cayenne, 2 tablespoonfuls Indian soy, 2 tablespoonfuls mushroom ketchup, and 1 pint vinegar.”

Scottish cookery (p. 438): Mince collops—incl. a “dessertspoonful Worcester sauce...”

“Soy—A bottle sauce imported from China and India; composition uncertain.”

Tripe (p. 461): Tripe a la Creole, with Worcestershire sauce. Address: Chicago, Illinois.

123. Yule, Henry; Burnell, Arthur Coke. 1903. *Hobson-Jobson: A glossary of Anglo-Indian colloquial words and phrases, and of kindred terms, etymological, historical, geographical, and discursive. A new edition edited by William Crooke, B.A. London: J. Murray. New York: Humanities Press. New Delhi: Munshiram Manoharlal. 1021 p. See p. 858-59 ("soy"). Index. 22 cm. [6 ref]*

• **Summary:** "Soy, s. A kind of condiment once popular. The word is Japanese *si-yau* (A young Japanese fellow-passenger gave the pronunciation clearly as *shō-yu*), Chinese *shi-yu*. [Mr. Platts (9 ser. N. & Q. iv. 475) points out that in Japanese as written with the native character, *soy* would not be *siyau*, but *siyau-yu*; in the Romanised Japanese this is simplified to *shoyu* (colloquially this is still further reduced by dropping the final vowel, to *shoy* or *soy*) Of this monosyllable only the *so* represents the classical *siyau*; the final consonant (*y*) is a relic of the termination *yu*. The Japanese word is itself derived from the Chinese, which at Shanghai is *sze-yu*, at Amoy, *si-iu*, at Canton, *shi-yau* [fermented black soybean sauce], of which the first element means 'salted beans,' or other fruits, dried and used as condiments; the second element merely means 'oil.'] It is made from the beans of a plant common in the Himalaya and E. Asia, and much cultivated, viz. *Glycine Soja*, Sieb. and Zucc. (*Soya hispida*, Moench.) boiled down and fermented. [In India the bean is eaten in places where it is cultivated, as in Chutia Nagpur (Watt, Econ. Dict. iii. 510 Seq.)]"

The authors then quote passages relating to soy from Lord King's *Life of John Locke* (1679), Dampier (1688), Ovington (1690), Kaempfer (1712), Thunberg's *Travels* (1776), and Mrs. Frazer, a Diplomat's Wife in Japan (1900).

Yule lived 1820-1889. Burnell lived 1840-1882. Address: 1. Living in Palermo; 2. Madras Civil Service, one of the most eminent modern Indian scholars. Died 1882.

124. Hosie, Alexander. 1904. *Manchuria: Its people, resources, and recent history. London: Methuen & Co.; New York: C. Scribner's Sons. xii + 293 p. Plus 16 unnumbered leaves of plates. See p. 180-87, 218-24, 240-45, 252-53. Illust. Map. Index. 23 cm.*

• **Summary:** For details, see the original 1901 edition; the two editions are very similar and contain the same number of pages.

This book contains information about Manchuria's railways including the Central Manchurian Railway, Imperial Chinese Railway, Siberian Railway, South-Baikal Railway, Trans-Baikal Railway, Trans-Manchurian Railway, and Ussuri Railway. However neither the South Manchuria Railway nor the South Manchuria Railway Company are mentioned. Address: Once Acting British Consul, Tamsui; Now at Aberdeen (Scot or HK).

125. Stuerler, F.A. von. 1906. *Nederlandsch Oost-Indische*

*cultuurgewassen: Hunne kenmerken, teelt en bereiding* [Crops of the Dutch East Indies: Their characteristics, cultivation and preparation]. Tiel: A. van Loon. ii + 373 p. See p. 341-43. Illust. Index. 25 cm. [5 ref. Dut]

• **Summary:** The subsection on the hibiscus plant (*De Waroeboom, Hibiscus tiliaceus*, p. 334) states that the leaves are used in making foods from soybeans [tempeh].

In the chapter on crops that yield oils and fats (*Vette oliegewassen*, p. 335-44), the section titled "Soja" (p. 341-43) has the following contents: General botanical characteristics: Introduction, the plant, stem, leaves, flowers, fruit, seeds. Cultivation. Chemical composition of the seeds, preparation, and uses.

The main product made with soybeans is soy sauce (*kètjap*). The Chinese in Java cook the soybeans and inoculate them between hibiscus leaves (*Hibiscus tiliaceus*) to make tempeh (*tèmpé*). They also make *tao-tjo*, a sort of bean paste (Indonesian-style miso). And with the black soybeans they make a sort of bean cheese, *tao-djie* (fermented black soybeans). Also discusses peanuts (*aardnooten*, p. 335-37), sesame seeds (*sesam*, p. 337-39), the castor oil plant (*ricinus*, p. 339-41), other crops that yield oils and fats (p. 343-44).

Note: This is the earliest document seen (Sept. 2011) stating that molds grown on Hibiscus leaves are used in Indonesia to inoculate tempeh. Address: Leiden.

126. Chalmers, John. 1907. *English and Cantonese dictionary. 7th ed. Revised and enlarged by T.K. Dealy. Hongkong: Kelly & Walsh, Ltd. xi + vii + 822 p. 23 cm. [Eng; Chi]*

• **Summary:** On page 20 are the Cantonese characters and term for bean-curd (tau-foo). On page 437 are the Cantonese characters and terms for soy [sauce], shi-yau, and for soy bean (*Soja hispida*) (taai tau, paak tau) or *Dolichos soja* (wong taai tau, or mo tau [literally "hair beans" = green vegetable soybeans]).

A 5th edition was published in 1878 in Hongkong, and a 7th edition in 1907 in Hongkong.

Note: This is the earliest English-language document seen (Feb. 2004) that uses the word "tau-foo" (or "tau foo") to refer to Chinese-style tofu. Address: Chalmers: LL.D; Dealy: Queen's College, Hongkong.

127. Macgowan, John. 1907. *Sidelights on Chinese life. London: Kegan Paul, Trench, Trübner & Co., Limited. viii + 367 p. Illust. (12 in color by Montague Smyth and 34 others). 26 cm.*

• **Summary:** Chapter 1, "The Chinaman," begins (p. 1): "The Chinaman's mind is a profound and inexplicable puzzle that many have vainly endeavoured to solve. He is a mystery not simply to the foreigner, who has been trained to more open methods of thought, but also to his own countrymen, who are frequently heard to express their astonishment at



some exhibition of character, that has never occurred to them during the whole of their oblique life.”

Page 9: “A coolie, for example, in [sic, is] engaged by you to do general household work. He comes to you from an inland country where poverty is the prevailing characteristic of the whole population. Sweet potatoes are the staple food three times a day, year in, year out, helped down perhaps by salted turnip, bean curds [tofu] and pickled beans [fermented black soybeans]—for it is only on special occasions that they have the rare happiness of indulging in the luxury of rice.”

Page 163: “At the same time he placed before him a tiny little platter in which were some nicely browned strips of fried bean curds [fried tofu] to act as appetizer to the rice, and to arouse his flagging appetite.”

Page 170: “In addition to this precious crop [rice] that needs so much attention, the cultivator has others that claim his thoughts and time. These are the beans that are used in the manufacture of soy [sauce] and in the making of bean curds [tofu] that are considered so important as condiments to be eaten with the rice.

Page 183: “The Chinese, who are connoisseurs in the art of cooking rice, can never tolerate it being boiled to a pulp... There are also bean curds [tofu] and cucumbers pickled crisp and juicy, and celery and lettuce, and salted beans [fermented black soybeans] and plates of various kinds of fish, and different kinds of soy, which are sprinkled with a sparing hand over the bowl of rice to give it a flavour in order to induce an appetite with the first sip that the customer takes of the savoury compound.” Address: Rev., London Missionary Society.

128. *St. Louis Post-Dispatch*. 1908. Notes and queries: Answers to questions from readers of the Post-Dispatch. Feb. 9. p. 2.

• **Summary:** “Z.Y.O.D. To make enough Mo Goe chop suey (chop suey with mushrooms) for five persons.” The recipe ends: “Drain off superfluous liquor, add teaspoon brown see yu sauce [Mandarin: Shiyou or Shih-yu is fermented black soybean sauce], also obtainable at the Chinese grocers, and serve with bowls of boiled rice.”

129. Ball, James Dyer. 1908. *The Cantonese made easy vocabulary: a small dictionary in English and Cantonese*,... 3rd ed. Hongkong: Kelly & Walsh, LD. [viii] + 294 p. See p. 241. [Eng; Chi]

• **Summary:** Under “Soy” (noun, p. 241) are the Chinese characters and the Cantonese term for soy sauce, *shi-yau*, with tones shown.

Note: *Shi-yau* is, more precisely, “fermented black soybean sauce.” Address: Exmouth, Devon, England.

130. Imperial Hygienic Laboratories. 1909. *Inshoku-butsumarabini shikō-hin bunseki-hyō* [Analytical tables of food and luxury items]. *Eisei Shikenjo Hokoku (Bulletin of the*

*Imperial Hygienic Sciences)* No. 10. p. 1-78. Miso, see p. 27-28. Shoyu, see p. 28-28. Soymilk, see p. 39-45. [Jap]

• **Summary:** Gives a detailed analysis of the nutritional composition of these basic foods, including analyses of various well-known brands, which are clearly specified. The number of products analyzed are: Miso 30 products, shoyu 122, fermented black soybean Chiang (Shoyu shisho) 4, shoyu moromi 2, shoyu presscake (kasu) 1, Thick (noko) shoyu 11, shoyu second generation products and imitation products 16, soymilk (containing only soybeans) 6, other soymilk products 89. Address: Eisei Shikensho (National Institute of Hygienic Science), Tamagawayoga-machi, Setagaya-ku, Tokyo, Japan (in 1962).

131. Jingu Shicho. 1911. *Koji ruien* [Encyclopedia of early references to things Japanese]. Tokyo: Koten Kokyusho. Revised editions publ. in 1931 and 1971 by Yoshiko Bunkan; 51 volumes. Key volumes are *Inshoku* (#39) and *Shokubutsu* (#50). [50+ ref. Jap]

• **Summary:** *Koji* means “ancient things” or “origins.” *Rui* means “varieties” or “description.” *En* means “dictionary.” This is one of the best books for doing historical research on Japanese culture, including foods. The book is divided into 30 major subject areas, such as Food and Drink. Within that section all basic Japanese foods and beverages are listed. After each one is listed many of the important early works in which that food is mentioned, with a quote of what is said. Furigana are used liberally to assist with pronunciations of hard-to-pronounce early document names and terms. Compiled from 1896 to 1914, volume 1 of the original edition is dated 1908. The works cited are from ancient times to 1867. The final volume is an index to the whole.

The volume on Food and Drink is titled *Inshoku-bu* (Vol. 51). Whole soybeans, p. 229-35. Black soybeans, p. 235-36. Green soybeans (*ao-daizu*), p. 236-37. Green vegetable soybeans (*edamame*), p. 239-40. Soybean cultivation, p. 240-42. Soybean utilization, p. 243-47. *Daizu-ko Mochi*, p. 555. *Amazake*, p. 695-97. *Shirozake*, p. 697-98. *Hishio* (Chiang), p. 836-40. *Shoyu*, p. 840-49. *Miso*, p. 851-68. *Kuki* (fermented black soybeans), p. 868-71. *Natto*, p. 871-74. *Tofu* (incl. *Dengaku*), p. 984-1005. *Yuba*, p. 995-96.

132. Stuart, George A. 1911. *Chinese materia medica: Vegetable kingdom*. Shanghai, China: American Presbyterian Mission Press. 558 p. See p. 189-96, 411. 23 cm. Reprinted in 1928 in Shanghai at the Presbyterian Mission Press. [6 ref]

• **Summary:** Below the title is written: “Extensively revised from Dr. F. Porter Smith’s work.” This excellent book contains good summaries of the information on soyfoods 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. He began to write this revision of Dr. Smith’s 1871 work

in 1900 when the Boxer trouble (movement) drove him to Shanghai. He died shortly before the work was published and before he was able to finish the Preface. The section on the soy bean (p. 189-96) begins: “*Glycine hispida* [sic, *hispida*].—(Ta-tou), (Shu), (Jên-shu), (Jung-shu), (Shih-tou), (Hei-tou), (Huang tou) (Chinese characters given before each term). This is the same as *Soja hispida* [sic, *hispida*] and *Dolichos soia* [sic, *soja*], and is the Chinese and Japanese *soy bean*. It has been known in China from ancient times, and has always been considered by the Chinese as the most important of the cultivated leguminous plants. A very large number of varieties is found throughout the Empire, especially in the north. The name ‘great bean’ applies to the plant, not to the seeds, as these are quite small. It is employed in China and Japan in the preparation of three products which are of almost universal use in oriental cookery. These are ‘bean oil,’ ‘bean-curd,’ and ‘soy.’ There are many varieties of this bean, which the Chinese distinguish by the color of the seeds; these being black, white, yellow, gray, azure, and spotted.”

“The black sort [of soybean] is used in medicine, and the yellow is especially valued in the preparation of bean-curd [tofu] and soy [sauce]. The black kind is not used much as food as it is thought to render the body heavy. The Chinese regard those things which give lightness to the body with more favor than those which promote flesh and sluggishness. The characters (Shu) (three separate Chinese characters are given) are the classical name, while (Jên-shu) and (Jung-shu) (Chinese characters given before each) are equally ancient compound names for this plant. (Chinese characters given) (Shih-tou), ‘bean-relish bean,’ indicates its use in making the bean relish and soy [fermented black soybeans and soy sauce].

“Medicinally, the black beans are considered to have much value. Their frequent use is thought to have a most beneficial effect upon the body, giving strength and vigor, albeit with heaviness. This latter fact is the only objection offered to the use of these beans. They are regarded as an admirable counter-poison against most of the vegetable poisons, such as *Aconite* and *Croton tiglii*. Carminative and quieting properties are also ascribed to them. They are prescribed in a large number of difficulties, notably post-partum and sexual disorders; but as they are always in combination with other active drugs, it may be readily supposed that the beans play no very important part in these prescriptions. The green bean hulls, 1317, chewed into a pulp, are applied to small pox ulcers, corneal ulcer, and the excoriation produced in children by urine. The bruised leaves of the plant are used as a local application in snake bite. The flowers, 1310, are used in blindness and opacity of the cornea.”

“The *bean sprouts*, called (Ta-tou huang-chüan) and (Tou-nieh) (Chinese characters are given before each term) are also mentioned in the *Pentsao*. Bean-sprouts (Chinese

characters are given, Tou-ya) are a common article of diet with the Chinese, but these former are made with the black bean and are especially used in medicine. Li Shih-chen gives the following method of preparation: “On a water day (Three Chinese characters) soak black beans in clear water, and after the sprouts have grown, take off the hulls and dry the sprouts in the shade.” Their medical properties are considered to be laxative, resolvent, and constructive. They are reputed to have special influence upon the growth of the hair, and to be curative in ascites and rheumatism.

Note 1. *Webster's Dictionary* defines ascites (pronounced uh-SAIT-ez, and first used in the 14th century) as “accumulation of serous fluid in the spaces between tissues and organs in the cavity of the abdomen.”

“The yellow variety of beans is also given a separate discussion in the *Pentsao*. As was before said, these are used for the most part in the preparation of bean oil, bean-curd, and soy [sauce]. The beans and pods of this variety are larger than those of the black kind, and in the green state they are highly esteemed by the Chinese as an article of food [green vegetable soybeans]. But they are also considered ‘heavy,’ and if partaken of too freely they are thought to produce jaundice. They are considered to be carminative and deobstruent, and are recommended in ascites. Locally they are applied to smallpox ulcers. The ashes of bean stalks are specially recommended as an application to unhealthy granulations in hemorrhoids (possibly fungous growths of the anus).

“The [soy] oil, (Chinese characters for bean + oil) (Tou-yu), is considered to be very slightly deleterious, and is used as a local application to ulcers and skin diseases, and for removing bandoline (defined by the *Oxford English Dictionary* as “a gummy preparation for fixing the hair or a moustache” and in use by 1846) from the hair. This oil is manufactured in large quantities, especially in Manchuria, and is shipped to every part of China. It is used as food, chiefly by the poorer people, and was formerly used as a burning oil; but kerosene has now almost superseded it for this latter purpose. It is usually dark colored, and has a not very pleasant odor.”

On page 411 we read: “*Soja hispida*—(Chinese characters for white + bean) (Pai-tou). Also called (Chinese characters are given) Fan-tou. This is a small bean, a variety of *Glycine hispida* [sic, *hispida*], the stalks of which, when young, are eaten as a pot-herb. The bean is sometimes used to make soy [sauce] and bean-curd, and is eaten boiled and as a congee. It is considered to belong to the kidneys, therefore those suffering from diseases of this organ should use it. The bean is regarded as very nutritious, and both it and the leaves benefit the viscera.”

Note 2. Congee is rice cooked with excess water to make a porridge. In China, there are many types of medicinal congee (*jook*) containing grains, vegetables or herbs, eggs, meat, etc. See: Flaws, Bob. 1995. *The Book of Jook: Chinese*

*medicinal porridges*. Boulder, Colorado: Blue Poppy Press. \$16.95. Address: Rev., M.D., Shanghai, China.

133. Stuart, George A. 1911. Chinese materia medica: Vegetable kingdom. Bean relish (Document part). Shanghai, China: American Presbyterian Mission Press. 558 p. See p. 191-93. 23 cm. [2 ref]

• **Summary:** “Bean relish (*Salted beans*) (Chinese characters given) (Ta-tou-shih) is a product much valued by the Chinese. The meaning of the character (Shih) is difficult to render in English. It refers to salted and fermented beans, and is applied to both the prepared beans themselves and to other preparations made from them, some of which are in liquid form. For this last reason, this character is sometimes thought to refer to ‘soy.’ But the term ‘relish’ will be used for this product to distinguish it from soy, which will be found described a little later. T’ao Hung-ching (V Century) says that Puchou in Shansi and Shenchou in Honan were places noted for the excellence of this product. He says that at Shenchou there is produced a liquid bean relish which in 10 years will not spoil, but for medical purposes it is not so good as other kinds, as no salt was used in its manufacture. On the other hand, Meng Shen (VII Century) says that the Shenchou liquid bean relish is better than the ordinary kind. He gives its composition as follows: ‘Use *Hispidia* [sic, *Hispidia*] beans which have been fermented, first steaming them soft. To each peck add of salt four pints, pepper (Chinese characters given), four ounces. In the spring time, let stand three days; in summer, two, when it will be half ripe. Then add five ounces of ginger (Chinese characters given), and let stand to clarify. Use only the clear part.’ Li Shih-chen says: ‘All sorts of beans can be used in making this product, but that made from the black bean is used in medicine. There are two kinds of this relish: one called insipid relish (Tanshih, Chinese characters given), and the other salty relish (Chinese characters given, *Hsien-shih*). The liquid form of the former is the one most used in treating diseases. To make this, in the sixth month take two or three pecks of the black *Hispidia* beans, wash clean and soak in water over night. Drain off the water and steam soft. Spread out upon matting, and after it has become slightly cool, cover with artemisia stalks. Examine it every three days to note the process of fermentation. The layer of *Mycoderma* which grows on top should not be allowed to become too thick. When sufficiently fermented, take out and dry in the sun and sift clean. Use clean water and mix into a half-dry-half-moist condition, just so that the juice will exude between the fingers when the material is squeezed in the hand. Put into an earthenware jar and pack firmly, cover with a layer of mulberry leaves three inches thick, and seal up with clay. Set the jar in the sun every day for seven days. Then take out and dry for a little while in the sun, and again moisten with water and repack in the jar as before. This do seven times, and then boil again, spread on matting, dry with fire, pack again into

the jars, and seal up for future use.’

“The method of making the salty relish is as follows: Take one peck of *Hispidia* beans and soak them in water three days. Wash, steam, and spread out in a store room, and when they have fermented, take them up, sift them clean and wash in water. For every four catties take one catty of salt, half a catty of shredded ginger, and of peppers, orange peel, thyme, fennel, and apricot kernels, a sufficient quantity. Put all into an earthen jar and cover with water to the depth of an inch. Cover with bamboo skin, and seal up the mouth of the jar. Place in the sun for one month, when it will be finished. To prepare the liquid bean relish, between the tenth and first moons take three pecks of good salted beans. Boil fresh hempseed oil until it smokes; then put in the beans and cook thoroughly. Spread the mixture out on matting and dry in the sun. When it is dry, steam again. Repeat this process three times, and then add a peck of white salt and pack all well together. Pour on hot water and percolate three or four gallons. Put into a clean caldron and add pepper, ginger, onion, and shredded orange peel, and boil all together until it is evaporated one-third. Then put into a whole vessel and let stand, and it will develop an exceedingly fine flavor.’ In addition to the bean relish several other kinds are made, such as bran relish, melon relish, and soy relish; but these are for food and are not used in medicine.

“These salted beans and their derivatives are used medicinally in various ways. The insipid relish is used in the treatment of colds, headache, chills and fever, malaria, noxious effluvia, irritability, melancholy, decline, difficult breathing, painful and cold feet, and for the destruction of poisons in pregnant domestic animals. In the treatment of fevers and perspirations, it should be cooked into a paste. For driving away melancholy, the uncooked article should be made up into pills and taken. For chills and fever, colds on the chest, and for ulcers, it is boiled and eaten, as it also is in the case of dysentery and colic. It may also be used for the treatment of ague, bone disease, poisons, marasmus, and dog bite. It is useful in expelling gas, benefiting the internal organs, treating colds and cold poisons, and for nausea.

“The Puchou relish has a very salty and cooling taste. It corrects irritability, fever, poison, cold, and decline. It benefits all of the internal organs, is diaphoretic, opens up the passages, destroys astral influences, and clears the breathing (‘opens up the nose’). The Shenchou liquid relish also allays irritability and feverishness. These are employed medicinally in obstinate dysentery, hematuria, locomotor ataxia, (Chinese characters given, *Shou-chio-pu-sui*), excessive hemorrhage in abortion, threatened abortion, difficult labor, tinea, venereal sores, stings of insects, scorpion bites, horse bites (anthrax?), wine drinkers’ disease, foreign objects in the eye, and thorns in the flesh.”

Note 1. This is the earliest document seen (Oct. 2008) in which soybeans are referred to as “*Hispidia* beans.” The term is used three times.

Note 2. This is the earliest English-language document seen (Nov. 2011) that mentions unsalted / bland fermented black soybeans, which it calls “insipid relish (Tanshih,” Chinese characters given).

Note 3. This is the earliest English-language document seen (Nov. 2011) that uses the term “bean relish” or the term “Ta-tou-shih” or the term *Hsien-shih* to refer to fermented black soybeans. Address: Rev., M.D., Shanghai, China.

134. Stuart, George A. 1911. Chinese materia medica: Vegetable kingdom. Soy [Chinese miso and soy sauce] (Document part). Shanghai, China: American Presbyterian Mission Press. 558 p. See p. 195-96. 23 cm.

• **Summary:** “Soy.—(Chinese character given) (Chiang). Common names are (Chinese characters given) (Chiang-yu [soy sauce]) and (Chinese characters given) (Shih-yu [fermented black soybean sauce]). Li Shih-chen says that the Chinese name indicates the power of this substance to counteract the poison which may exist in food. Several forms of soy exist, such as flour soy, made of wheat or barley flour; sweet soy, of similar composition, but varying slightly in the method of manufacture; and bean soy, made of various kinds of beans, but more particularly of the *Hispidia* [sic, *Hispidia*] bean. One method of manufacture is as follows: ‘Take of *Hispidia* beans three quarts, and boil in water. Mix with twenty-four catties of flour and allow to ferment. To every ten catties of the mixture take of salt eight catties, of well water forty catties; mix and allow to stand until it is ripe.’

“Several other methods of manufacture are given in the *Pêntsao*, differing in various respects from this, but the method here given will suffice to illustrate the mode of manufacture. Soy is a black, thin liquid, having an agreeable saltish flavor, and frothing up of a yellow color when even slightly shaken. It is the universal sauce of the Chinese and Japanese, and is largely exported to India and Europe as a convenient menstruum for other flavoring substances used as condiments. In China it is both made in large quantities by shops and in smaller quantities by domestic manufacture. It is considered to provoke the appetite and to correct any injurious qualities of food. It is laxative, cooling, and antidotal to various poisons, according to Chinese estimation. It is often applied to burns, scalds, eczema, and leprosy sores. Its use is considered beneficial in threatened abortion and the hematuria of pregnancy.

“Two other kinds of soy are mentioned in the *Pêntsao*, each made from the seeds of different species of elm tree. One is called (Yü-jên-chiang) and the other (Wu-i-chiang) (Chinese characters given before each term). In regard to these two terms for elm, see the article on *Ulmus*. Both these kinds of soy are considered to be laxative, diuretic, and anthelmintic [expelling or destroying parasitic worms esp. of the intestine]. They should not be used to excess, as they are considered to have some deleterious properties.” Address: Rev., M.D., Shanghai, China.

135. Li, Yu-ying; Grandvoinnet, L. 1912. Le soja [The soybean]. *Agriculture Pratique des Pays Chauds (Bulletin du Jardin Colonial)* 12(107):120-32. Feb. [12 ref. Fre]

• **Summary:** Contents (continued): 2. Soy flour and its derivatives: Soy flour (preparation, chemical composition), soy bread (*pain de soja*), wholemeal bread (*pain complet*), other products based on soy flour (as biscuits and cakes for diabetic diets). 3. Soy oil and by-products of the oil mill: Soy oil (physical and chemical properties, usage, price), residue of the oil mill: the cake (price, uses). 4. Use of the soybean as a legume: Whole soybeans (composition, digestibility), soy sprouts (*germes de soja*), green vegetable soybeans (*le soja frais*). 5. Fermented soy condiments—Solid condiments from Japan: Tokyo natto (*Le Tokio-Natto*, whole fermented soybeans, without salt) and Ping-Ming natto. (*Le Ping-ming-Natto*; fermented black soybeans with salt, ginger, orange rind, etc. A similar product is made in China and called *tao-tche*).

Note 1. This is the earliest French-language document seen (Feb. 2004) that uses the term *Tokio-Natto* to refer to natto.

Note 2. Footnote 2 under Soy bread (p. 122) states: “M. Dujardin-Beaumetz, *L’Alimentation et les Régimes*,” Soy bread constitutes a major step forward in the feeding of diabetics; it has a long shelf life and a relatively agreeable flavor.

Note 3. The book referred to here is probably: Dujardin-Beaumetz, Georges Octave. 1889. “L’hygiène alimentaire: Aliments, alimentation, régime alimentaire dans les maladies. Deuxième édition revue, corrigée et augmentée” [Food hygiene: Foods, feeding, special diets for illnesses. 2nd ed., revised, corrected, and expanded]. Paris: Octave Doin. viii + 239 p. Series: Conférences de Thérapeutique de l’Hopital Cochin, 1885-1886. Illust. Address: 1. Conseiller de 1ere classe au Ministère de l’Agriculture de la Chine; 2. Ingénieur agricole (G.).

136. *New York Times*. 1912. This is not in China, but in New York City: Farms in Steinway, near Long Island City, where natives of the Far East raise supplies for the chop suey restaurants of New York. Aug. 25. p. SM11.

• **Summary:** “Chow chop-suey is, next to rice, the Chinese national dish. Rice is, of course, on every table. The Chinese eat it instead of bread, and no one can cook rice like a Chinaman. Every grain is distinct, yet perfectly soft, and it is piled up in the bowls like mounds of snow. It is boiled, or rather steamed, without seasoning, and the condiments are supplied by the seow [Cantonese: *shi-yau* or *si-yau*, meaning “fermented black soybean sauce”], the immediate progenitor of the soy of the English East Indies and the Gastronomic father of Worcestershire sauce.”

Six photos show Chinese at work on their farms on Long Island.

Note that the term “chop suey restaurants” in the title is apparently synonymous with “Chinese restaurants.”

137. Li, Yu-ying; Grandvoinnet, L. 1912. *Le soja: Sa culture. Ses usages alimentaires, thérapeutiques, agricoles et industriels* [The soybean: Its culture. Its food, therapeutic, agricultural, and industrial uses]. Paris: Augustin Challamel (Rue Jacob 17). 150 p. Illust. Index. 25 cm. Translated into French and expanded from the Chinese edition, published by la Société Biologique d'Extrême-Orient (1910). [151 ref. Fre]

• **Summary:** One of the earliest, most important, influential, creative, interesting, and carefully researched books ever written about soybeans and soyfoods. Its bibliography on soy was larger than any published prior to that time. It was first published as a series of eight articles in *Agriculture Pratique des Pays Chauds (Bulletin du Jardin Colonial)* from September 1911 to April 1912. Before being published as a book, it was revised slightly by adding a table of contents at the back, dividing the material into 5 parts with 19 chapters, and adding several photos (p. 16-17), a world map showing the distribution of soybean cultivation (p. 21), and an interesting 2-page table (p. 66-67).

Contents: The soybean: Origin and history. Part I: Soybean culture. 1. Species and varieties of soybeans: Botanical characteristics, species, varieties (Chinese, Japanese, Indian, Indochinese, Hawaiian, USA, European). 2. Needs of the soybean: Climatic, geographical area of the soybean by region worldwide, agrological/soil needs, fertilizers, soil preparation, the place of the soybean in crop rotations. 3. Soybean seeds: Study of seeds (by weight, by germination rate, selection of seeds), time of planting, plant spacing, depth of seeding, rate of seeding per hectare, method of seeding (broadcasting, in rows, in mounds). 4. The soybean during its vegetative stage: Germination, transplanting, types of care (e.g., second dressings), irrigation, flowering and fruiting, enemies of the soybean (e.g., insects). 5. Harvest of soybeans: Time for harvest (forage or grain), methods of harvesting (forage or grain; mechanical mower), threshing (use of machine), yields of soybeans (forage and grain in various countries, ratio of seeds harvested to straw is about 1 to 2, yield of nutrients). 6. Fixation of atmospheric nitrogen by soybeans, and improvement of the soil. 7. The soybean in mixed cultures and alternate rows: With corn, cowpeas, rice, sweet sorghum, or millet.

Part II: Chemical composition of the soybean. 1. Composition of the plant: Minerals in the leaves and total plant. 2. Study of the seed: Composition, chemical composition, microscopic comparisons, table of analyses by 28 previous researchers, albumins, sugars, starch, dextrin or dextrine, diastase, lipids, ash/minerals.

Part III: The soybean as human food and animal feed.

1. The soybean as feed for animals: Green forage and hay.

2. The soybean in human feeding: From the viewpoints of physiology, economy, and gastronomy. The role of soya in special diets: Vegetarianism, remineralization, diabetic, and lactose intolerant.

Part IV: Food products based on soya. 1. Soymilk and its derivatives: Soymilk (Methods of manufacture, Chinese and modern at l'Usine de la Caséo-Sojaïne, nature and properties [physical and chemical] and composition of the milk, action of ferments and diastases (enzymes) on the milk, uses of the milk, the residue from the soy dairy [okara], condensed soymilk, powdered soymilk, fermented soymilk (kefir, yogurt, etc.), tofu (called Caséo-Sojaïne, or fromage de soya; methods of production, coagulants, yield of tofu, storing tofu, composition and comparison with various meats, digestibility, culinary preparations made from tofu (smoked tofu, tofu pâté, tofu sausages)), Soy casein (food and industrial uses). 2. Soy flour and its derivatives: Soy flour, soy bread, wholemeal bread, other products based on soy flour (as biscuits and cakes for diabetic diets). 3. Soy oil and its by-products: Soy oil, physical and chemical properties, usage, residue of the oil mill: the cake, price, uses. 4. Use of the soybean as a legume: Whole soybeans (composition and digestibility), soy sprouts (*germes de soja*), green vegetable soybeans (*le soja frais*). 5. Fermented soy condiments: Solid condiments from Japan: Tokyo natto (*Le Tokio-Natto*) and Ping-Ming natto or tao-tche (*Le Ping-ming-Natto*; fermented black soybeans with salt, ginger, orange rind, etc. A similar product is made in China and called tao-tche). Paste condiments: Miso (four types and composition), tao-tjung (Chinese miso). Sauces: Shoyu (its production, varieties, properties, composition), chiang-yu (*tsiang-yeou*), ketjap [kechap, from Java], tuong (from Annam, with rice or corn), tao-yu (widely used in China and Japan, described by Prinsen Geerlig). 6. Confectionery products: Comparison with chestnuts, roasted soy flour to replace chocolate. 7. Soy coffee (with analysis by Kornauth). 8. Special fermented products: Kiu-tsee (a special commercial ferment from Canton described by Thiersant), fermented soymilks.

Part V: Industrial uses of soybeans. Oil based: soap, wax candles (*bougie*), and paint oils. Protein based: sojalithe or soy stone which corresponds to lactite, insulators for electrical apparatus, glue, etc. Conclusion. Addendum (*Complément*) to Part III, Chapter 1: Soybean straw and stems. Composition of various seeds, including soybeans. Soy flour. The cakes from oil mills. Soymilk and the cake from soy dairies (*tourteau de laiterie*, okara).

A very interesting table (p. 66-67, which does not appear in the original 8 articles) shows earlier nutritional analyses of the composition of soybeans by Steuf (from Hungary, Mongolia and China), Schroeder, Caplan, Pellet (from China, Hungary, Etampes), Muntz, Nikitin (black soybeans from Russia, 2 samples), Lipski [Lipskii] (yellow, from Russia), Giljaranski (yellow from Russia, China and Japan; black from China and Japan; green), König (*Hispida platycarpa*

black, Tumida yellow, brown and black), Prinsen (white from Java and China), Goessmann, Kellner, USDA, Chemiker Zeitung (white from Java and China, 29 Jan. 1896), Scuff (misomame; miso soybeans), Zulkovski (yellow from China, reddish brown from Mongolia), Institut Agr. de Vienne (Austria; yellow from Vienna, reddish brown from Tirol), Ecole Imp. et Roy d'Ag. Hong (yellow from Mongolia and China, reddish brown from China), Chez M. Olivier Lecq (from Moravia), Lechartier (Etampes and black), Joulie (yellow), Stingl and Morawski, Bloch (yellow, green, and black), Balland, Cavendish Evelyn Liardet (yellow, brown, green, black, and white), Jardin Colonial (Laos, Tonkin, China), Aufray (Tonkin, Yun-nan), Homes Laboratory (black from China, or white). Photos and illustrations are the same as those referenced in individual sections of the book, except for the following: A field of soybeans (p. 16). A soybean plant growing in Europe (p. 17). Color illustrations appear facing pages 12, 22, and 64. Address: Li is from Societe Biologique d'Extreme-Orient (Chine). Grandvoinnet is from Ingenieur Agricole (G.).

138. Giles, Herbert Allen. 1912. A Chinese-English dictionary. 2nd ed., revised & enlarged. 2 vols. Shanghai, China: Kelly & Walsh, Ltd.; London: Bernard Quaritch. 33 x 26 cm. Reprinted in 1964, 1978. [4 ref. Eng; chi]

• **Summary:** These two massive volumes, each weighing about 9½ lb, contain more than 1,800 pages and 13,848 Chinese characters. Contents of Vol. I: Part I. By the same author (25 books). Dedication. Preface. Extracts from preface to first edition. Dialects (The romanized pronunciation of each character is given in Cantonese, Hakka, Foochow, Wenchow, Ningpo, Peking, Mid-China, Yangchow, and Ssueh'uan {Szechwan} dialects, as well as in Korean, Japanese, and Annamese, each being distinguished by its initial letter). Tables: Insignia of official rank, the family names, the Chinese dynasties, topographical, the calendar, miscellaneous (the Chinese digits, the Chinese decimal system). The 214 radicals. Radical index. Part II. A Chinese-English dictionary (p. 1-1711, in two volumes). Examples of soy-related characters:

*Chiang* (p. 149, No. 1220). "A soy made by mixing salt with bean flour. Sauce." Fourteen compounds using this character are given, including: Bean sauce, soy. Pickled bean curd. Bean sauce. Soy is of two kinds, the clear and the thick. Dry relishes. Soy [sauce] colour—a dark reddish drab. He won't use money for vinegar to buy soy.

*Ch'ih* (p. 249, No. 1996). "Salted fruits, etc., dried and used as relishes." Four compounds incl.: Salted beans. Soy, sauce.

*Fu* (p. 458, No. 3686). "Rotten; putrid; worthless." Eleven compounds and sayings include: Bean curd, see No. 11,417. Bean curd officials—a term of contempt applied to certain of the poorer classes of official servants who are compelled to feed largely on this cheap food. Also explained

as flabby or unenergetic officials. A Mongol name for cheese. A kind of milk made from beans (milk + fu) [Note: Probably fermented tofu].

*Huang* (p. 635, No. 5124). Yellow. Compounds: Yellow beans.

*Mao* (p. 955, No. 7,679). "Hair, down, feather." But the word *Maodou* ("Hairy beans") = edamame does not appear here.

*Ta* (p. 1,294-96, No. 10,470). "Great." But the word "Great bean" = soybean does not appear here.

*Tou* (p. 1,412, No. 11,417). "Beans; pulse." See also No. 11,412. Thirty compounds, incl.: Bean-sprouts. Bean-curd. A cheap restaurant (a bean-curd restaurant). Like making bean curd—very tedious. A tongue like a knife, but a bean-curd heart (soft). Bean-cake. Bean oil. Big bean, black bean, or yellow bean = the soja or soya bean (*Glycine hispida*, Max.), used for making bean-curd, soy, oil, etc. Ground-nuts.

*Yu* (p. 1,661, No. 13,409). "Oil, fat, grease." 45 compounds incl. Oil, salt, soy, and vinegar = condiments generally. Sesamum-seed oil. Linseed. Wood oil. An oil factory. Oil dregs. But "bean-oil" = soybean oil does not appear here.

Note 1 (see p. vii): Other earlier important Chinese dictionaries are: Morrison (1819, English). Medhurst (1843, English). Williams (1874, American). Giles (1892, English). Giles lived 1845-1935.

Note 2. Unfortunately, the pronunciation of the compounds is not given (as in Mandarin). Address: Prof. of Chinese, Univ. of Cambridge, Cambridge, England; and sometimes H.B.M. Consul at Ningpo.

139. Grimme, Clemens. 1914. Die Sojabohne und ihre Verarbeitung zu Nahrungs- und Genussmitteln [The soybean and its processing for food and stimulants]. *Konserven-Zeitung* 15(1):1-3, 10-11. Jan. 2. [1 ref. Ger]

• **Summary:** The author discusses the many food uses of soybeans and how they are made and use, drawing heavily on *Le Soja* by Li & Grandvoinnet (1912). He notes that there is a steadily rising interest in soyfoods in almost all branches of the German food industry [perhaps in anticipation of World War I].

Foods made from natural [unfermented] soybeans include: Soymilk (*Sojamilch*), tofu (*Sojakäse*), frozen tofu (*Kori-Tofu*), soy flour (*Sojamehl*), soy bread (*Sojabrot*), soya confections (*Sojakonfekt*), soy chocolate (*Sojaschokolade*), soy coffee (*Sojakaffee*), and green vegetable soybeans (*Soja als Gemüse*). Foods and seasonings made from fermented soybeans include: (1) Solid seasonings: Natto (Japan; Tokio Natto, Ping-Ming Natto). Tao-tche (China [fermented black soybeans]). The process for making this Chinese food is exactly the same as that used to make natto in Japan [sic, almost completely different!]; (2) Seasonings in paste form: Miso (4 types), and Tao-tjiung (Doujiang, Chinese miso); (3) Liquid seasonings: Shoyu (Schoyou), Tsiang-Yeou (Chinese

soy sauce), Ketjap (Javanese soy sauce), Tuong (Annamite soy sauce, made with rice or corn), Tao-Yu (soy sauce made with black soybeans in China and Japan).

Note 1. This is the earliest German-language document seen (June 2009) that mentions green vegetable soybeans, which it calls *Soja als Gemüse*.

Note 2. This is the earliest German-language document seen (Oct. 2003) that uses the term *Sojamilch* to refer to soymilk. As of Jan. 2009 *Sojamilch* is the modern German word for soymilk.

Note 3. This is the earliest German-language document seen (Jan. 2009) that uses the word *Sojaschokolade* to refer to soy chocolate. The German word for “chocolate” is *Schokolade*.

Note 3. This is the earliest German-language document seen (Dec. 2011) that mentions fermented black soybeans, which it calls *Tao-tche*. Address: Dr.

140. United States Dept. of the Treasury. 1914. Abstracts of decisions of the Board of General Appraisers: Before Board 3, February 13, 1914. No. 34831.—Prepared beans—Hamanatto. *Treasury Decisions under the Customs and Other Laws* 26:299-305. Jan/June. See p. 305.

• **Summary:** “Protest 669529 of Okada & Ichida Co. (San Francisco). Opinion by Waite, G.A.

“A commodity called ‘hamanatto’ classified as prepared beans under paragraph 251, tariff act of 1909, was claimed dutiable as a nonenumerated manufactured article (par. 480). Protest overruled.”

Note 1. This document shows that hamanatto was in the United States by 1914.

Note 2 This is the earliest English-language document seen (Nov. 2011) that contains the word “hamanatto” (spelled just like this, lowercase). Address: San Francisco.

141. Hagerty, Michael J. trans. 1917. The beans: Imperial encyclopedia (T’u shu shih ch’eng. Published, 1728). 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*). 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*.

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.

142. Hagerty, Michael J. trans. 1917. The soy bean (ta tou), by Wu Ch’i-chün, in *Chih wu ming shih t’u k’ao*, Published 1848 at T’ai-yüan-fu, Shansi [China]. Translated and indexed by M.J. Hagerty, Chinese translator, Office of Crop Physiology and Breeding Investigations, May, 1917. Washington, DC. 6 + 96 p. May.

• **Summary:** See: Wu, Ch’i-chün. 1848. Ta tou [The soy bean]. Address: Translator of Chinese, Office of Crop Physiology, Bureau of Plant Industry, USDA; Berkeley, California.

143. 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-chou (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. Ju fu. Tsao ju fu. 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: *Ju fu* refers to fermented tofu.

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, baibiandou, qingbiandou, zibiandou, longzhao biandou). Asparagus beans [cowpeas] (*Vigna catiang*; 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 (Aug. 2002) 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 (2002), 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 (Aug. 2002) 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.

144. Shih, Chi Yien. 1918. Beans and bean products: Bean relish or tou shih (Document part). Shanghai, China: Soochow University Biology Dept. 13 p. See p. 7-8. [Eng] • **Summary:** (Cc) = Chinese characters inserted in text; pinyin romanization has been added. “Bean Relish or Tou Shih (Cc = douchi / doushi): This term refers to salted and



fermented beans, and is applied to both the prepared beans themselves, and to other preparations made from them. All kinds of beans can be used in making the relish.

There are two kinds of bean relish, one is the salty relish (Cc = xiandouchi / xiandoushi) and the other is the relish without salt (Tan Shih, Cc = danchi / danshi).

The method of making the [unsalted] relish is as follows: Take one peck of any kind of [soy] beans and soak them in cold water over night. Then wash them thoroughly and steam them until they are soft. Spread them out upon matting, and after they have become slightly cooled, cover them with the leaves of reeds. After about one week, then they are usually sufficiently fermented. If the fermentation takes place too rapidly the length of time must be made shorter for the pellicle must not be allowed to become too thick. They are taken out and dried in the sun and sifted clean. Then clean cold water is used to moisten the beans until they will exude between the fingers when the material is squeezed in the hand. Then it is put into an earthenware jar and packed firmly, a cloth and the leaves from bamboo shoot are laid across the mouth of the jar and bound together around the neck of the jar with a cord. This is then sealed up with clay. The jar is placed in the sun every day for seven days. Then the contents of the jar are taken out and dried for a little while in the sun, and again moistened with water and repacked in the jar as before. This is done several times, and then they are boiled again, spread on the matting, dried by fire, packed again into jar, and sealed up for future use. It is used to cook with meat. It is called unsalted relish (Cc = danchi / danshi).

“The method of making salty relish is as follows: Take one peck of *Hispidia* [sic, *Hispidia*] beans and soak them in cold water for three days. Wash, steam, and spread out upon matting to allow fermentation. When they have fermented, take them up, sift them clean, and wash in cold water. Four catties of beans requires one catty of salt, half a catty of ginger, and of pepper, orange peel, thyme, and apricot kernels, a sufficient quantity to give the desired flavor. They are put into an earthenware jar all together and covered with cold water to the depth of an inch. Then the jar is sealed as above. Place the jar in the sun about one month, and then this is used in the same way as the bean sauce, or *Tou Chiang*.”

Note 1. Shih appears to have borrowed the term “*Hispidia* beans” from George A. Stuart (1911).

Note 2. This is the earliest English-language document seen (Nov. 2011) that uses the term *tou shih* to refer to fermented black soybeans. Address: Biology Dep., Soochow Univ., China.

145. Palen, L.S. 1919. The romance of the soya bean. *Asia and the Americas* 19(1):68-74. July. Illust.

• **Summary:** The author, who begins by acknowledging his indebtedness to Dr. Yamei Kin, Dr. John Harvey Kellogg, and Mr. W.J. Morse for much of the material in this article,

gives an overview of the soya bean worldwide. The article contains excellent photos (many by Adachi): (1) Stacks of soya bean cake in open storage on Dairen wharves, South Manchuria. (2) Horses plowing soybean fields in North Manchuria. (3) Modern machinery [a huge steam-powered tractor] used in bean cultivation in remote parts of Manchuria where foreign interests are involved. A Western man and woman ride horses nearby. Caption: “To the Manchurian farmer, with his laborious methods of hand cutting and hand winnowing, the introduction of modern Western farming methods would spell many-fold prosperity.” Note: This is the earliest document seen (Feb. 2003) that shows a photo of a tractor in connection with soybeans. (4) Stacks of soybeans piled high in sacks in Manchuria as far as the eye can see. (5) Soybeans stored in huge cylindrical, 20-foot-high osier bins, each covered with a conical top.

Soy oil is purified and flavored with an admixture of olive oil for use as a salad oil. It also forms the basis of some of our butter and lard substitutes. “What Mr. Li Yu-ying accomplished in Paris in the establishment of a Laboratory of Research and of a factory for the production of all the products derived from the soya has been the forerunner of activity on the part of certain independent Chinese companies in America and of government and private investigations.”

“In general the use of whole soya beans has not been attended with much success because of the ever present flavor of the oil content and because, with the ordinary method of cooking, they remain hard and unpalatable; but it has been found that cooking at a temperature somewhat above the boiling point, say from 220 to 230 degrees, breaks up the cellulose structure and develops a richness of flavor that is not obtainable with the lower temperature.”

“By far the most extensive use of the soya is in the products manufactured from it. And it is here that Dr. Yamei Kin, the talented Chinese physician, is making her chief studies under the direction of the Pure Foods Division of the Department of Agriculture, with the purpose of spreading a knowledge of the soya among Americans. For convenience of consideration the products studied may be divided into sauces, curds, cheeses and milk.

“Of the sauces the liquid form is already familiar, although unrecognized, perhaps, by a large percentage of Occidentals through the work of early English traders in bringing back the base of the now famous Lea and Perrins Worcestershire Sauce. This original Chinese *shi-yu* was highly spiced and became a well recognized adjunct to many an English meal. Following the example of Lea and Perrins, others have put out sauces with the same base without, however, attaining the same success, because the makers did not understand that there are many kinds of soya sauce. While they are all made by the same ferments and in the same general way, they differ very greatly in quality according to the locality and to the manufacturer, just as

wine, though made from the identical kind of grape and by the same process of fermentation, may be a very different article from different hands. It takes several months to make this liquid form of sauce, while the best kind requires a year or more to attain the finest flavor and mellowness. The hot condiment added by Lea and Perrins is not favored by the Chinese, since according to their taste it detracts from a wide use of the soya sauce.”

Tofu (spelled to-fu) is discussed in detail. “There are records to show that it has been used since at least nine hundred years B.C. *To-fu* making is a staple industry in every little community. Usually it is done at night so that the fresh curd will be ready for the morning demand in the market, or for peddling around the streets. It provides, for the fraction of a cent, the indispensable equivalent of meat and affords very often the explanation of how the Chinese laborer does so much work on what is purely vegetable diet, popularly supposed not to contain much protein. *To-fu* is made in many different forms and the bean stalls occupy quite as large and prominent places in the city market as the fish and meat stalls...

“Cheeses are also made from the growth of cheese-making moulds on *tofu*. The Chinese resident in America regularly import a certain highly flavored red bean cheese for their own use...

“Perhaps the greatest contribution of the soya to the life of the Occident will be in its form of milk. Back in the golden era of peace there had been established in London a soya bean milk factory which was prepared to place its product regularly on the market, and there were said to be plans consummated for the erection of two others at Manchester and Liverpool; but of what the development has been we have no definite information. In Shanghai, Peking and Dalny Chinese companies are supplying hospitals and individuals with an 8 or 10 ounce bottle of concentrated milk per day at a cost of \$1.00 Mex per month.

“In its competition with the cow the legume has in its favor the following facts: Soya milk can be produced with less contamination; it is tuberculosis-free; its caseins break down much more readily than the caseins of cows’ milk and do not form curds in the stomach in the same degree...

“By those who advocate and urge a vegetarian diet, a very strong bill can be drawn in favor of this oriental substitute. In these days when war has thrown new light on many of our life problems, it will be easier to secure acceptance for their contention that the world must for both economic and physiological reasons adopt the biological diet. It has been calculated that, roughly speaking, it takes 100 pounds of foodstuffs to produce 3 pounds of beef and that a given acreage of land can support five times the population if the necessary protein can be derived directly from vegetable sources rather than going through the roundabout way of an animal form, imposing upon the body the burdens incident to taking in the toxins [toxins]

resultant from the catabolism of the cells of the animal, and from possible putrefaction. In China the Buddhist priests and people who enter the various temperance societies all depend on varieties of *to-fu*.”

146. Koenig, Franz Joseph. 1919. *Chemie der menschlichen Nahrungs- und Genussmittel*. 4 Aufl. Nachtrag zu Band I. A. Zusammensetzung der tierischen Nahrungs- und Genussmittel [The chemistry of human foods and food adjuncts (stimulants / enjoyables) 4th ed. Supplement to Vol. I. A. Composition of animal foods and food adjuncts]. Berlin: Verlag von Julius Springer. 594 p. See p. 286-87, 346, 528. [6 ref. Ger]

• **Summary:** On pages 286-87 is a section on “Sunflowerseeds, soybean cake and soybean meal (*Sojakuchen und-mehl*) as fodder for milk cows,” by Nils Hansson. A table shows the weight of the feed and the resulting milk, and the fat content of that milk. Soybeans (*Sojabohnen*) are also mentioned in two places on p. 346 as a raw material for soymilk—which is described in German as a “fluid resembling cow’s milk” or a “soybean emulsion” (*Sojabohnenemulsion*) (Footnote: *Die Sojabohnenmilch, Sojamilch, Sojaglobulin*).

A table titled “Plant cheeses (*Pflanzenkaese*)” gives the composition of tofu, kori-tofu (frozen tofu), Hamananatto, three types of soybean cheese (*Sojabohnenkaese*; from the year 1912, one type prepared in a laboratory), Chinese tofu, and Daua-Daua (Dawa-Dawa) cheese made from the seeds of *Parkia africana*. The source of all data is given, and the lengthy footnotes accompanying each entry in this table take up more space than the table itself.

Note: This is the 2nd earliest German-language document seen (Dec. 2011) that mentions fermented black soybeans, which it calls *Hamananatto*. Address: Germany.

147. Yamazaki, Momiji. 1920-1925. *Shinasan hakkô kinrui oyobi hakkô seihin no kenkyû* [Fermentable fungi and fermentation products of China]. *Shina Kenkyu (Reports of the Study of China)* No. 1. p. 1-219. Aug.; No. 2. p. 1-105; No. 3. p. 1-104; No. 6. p. 1-144; No. 7. p. 1-158; No. 8. p. 1-168; No. 9. p. 1-193. [Jap]

• **Summary:** In No. 1 (Aug. 1920), soybeans and soyfoods are discussed in the following sections (p. 218-19): (7) Yellow soybeans. (8) Fermented black soybeans or shi (explanation, about the name). (9) Jiang or shô (explanation, about the name). (14) Fermented tofu. Since the text is written in Chinese characters, it is hard to tell the meaning of sections 10-13.

No. 2 was published in Nov. 1921. No. 3 in May 1922. No. 7 in March 1924. No. 8 in Sept. 1924. No. 9 in Oct. 1925. Address: Kyôju Nôgakushi, Tôadôbunsho-in Shina Kenkyû-bu.

148. Rouest, Leon. 1921. *Le soja et son lait végétal*:

Applications agricoles et industrielles [The soybean and its vegetable milk. Agricultural and industrial applications]. Carcassonne (Aude), France: Lucie-Grazaille. 157 p. Illust. No index. 25 cm. [42 ref. Fre]

• **Summary:** This is a summary of interesting points throughout this book. The main early use of soy in Europe was more therapeutic than nutritional (p. 3); it was used mainly in diabetic diets.

Nothing remains of the early trials conducted 20 years ago in France and Austria. The reasons for the crop's failure were lack of understanding of the laws of acclimatization and genetics, and the fact that soya (*soja*) was introduced as a new food legume, when actually it can only be utilized as a forage plant and industrially (for oil, cakes, and casein). Later, when the plant has been adapted, when it is understood that soya is not being propagated to compete with other dry legumes, that it is not being cultivated to extract from the seeds a vegetable milk for people, but simply as a forage plant—and the most remarkable one that exists (p. 3).

The English are trying to acclimatize soya to their colonies, especially those in southern Africa. In 1908 some 200,000 tonnes (metric tons) of soybeans were exported from China [including Manchuria] to Europe, followed by 500,000 tonnes in 1909. One can extract from soybean seeds a vegetable milk (*lait végétal*) which has the same value as animal milk for use in raising young animals. Its seeds and forage are also fine for raising farm animals and for industrial products. The author thanks all those who have helped him to acclimatize the soybean to France and to create new varieties of soya in France (p. 4).

Introduction of the soybean to France and to Europe (p. 6-7): A good but brief review of the literature on this subject. In 1739 Buffon was made director of the Jardin des Plantes in Paris. Shortly thereafter, Christian missionaries in China sent him specimens of seeds and plants. The soybean must have been among them. The soybean has very probably been cultivated at the Museum since 1779, certainly in 1779 and later from 1834 to 1880. In 1855 Baron de Montigny was charged by the Society for Acclimatization to distribute five varieties of soya sent from China by Mr. Montigny; these were from northern China. The plants first bore seeds in France in 1854; their acclimatization is assured. In 1857 Mr. Lachaume transmitted to the Society for Acclimatization details of the success he obtained at Vitry-sur-Seine with soy culture. The seeds were planted in 1856. In 1858 a report to the Society for Acclimatization indicated that the acclimatization of the soybean was complete. In 1859 Mr. de Vilmorin reported on cultural trials sent from China by Mr. Perny. The varieties matured to late. The same year Dr. Turrel harvested soybeans at Toulon. In 1862 the Society for Acclimatization received seeds from Mr. Guillemin; the yellow soybean was said to be used for making tofu. Following the events of 1870, the cultivation of the soybean in France was apparently. Note: The brief war of 1870

between France and Bismark's Germany ended in France's defeat and the ceding to Germany of Alsace-Lorraine.

In the long section on Prof. Haberlandt's work with soya, starting with his cultivation of it there in 1875, is a quotation from him: "I don't know, in this history of cultivation, any example of a plant which has, in so few years and to such a high degree, excited such general interest" (p. 8).

From 1876 to 1881, the soybean was the object of numerous trials in France by the Society of Horticulture at Etampes (Seine-et-Oise). During this same period, one Dr. H. failed with varieties sent from Japan but succeeded in cultivating a yellow soybean sent from China, and used the latter to make his own tofu (*fromage végétal*) for use at home. In 1880 Messrs. Vilmorin-Andrieux introduced in their catalog a species cultivated in Austria-Hungary (p. 17-18).

In 1878, Japan, China, and the Indies (*les Indes*) presented all the varieties of Soya at the Universal Exposition, and their seeds filled more than 20 boxes. In 1880 the National Society for Acclimatization was able to distribute soy in France and tests were conducted in 24 regions; they were largely successful, especially in central and southern France (p. 19-22).

Tests were then abandoned from this time until about 1888, when the soybean started to grow in the southern states of the USA. That same year Messrs. Lecerf and Dujardin-Beaumetz first had the idea of using soy bread in diabetic diets (p. 22).

Causes of setbacks in soybean culture (p. 24-27): First, the varieties used matured too late and were not acclimatized in a progressive manner. We must choose varieties from northern China and adapt them to the south of France (*le Midi*) [which is on the same latitude as Toronto, central Wisconsin, or southern Minnesota]. From these, we must develop hybrids, and gradually move them northward.

The soybean has been ostracized in France. Major commercial, financial, and social interests have viewed with terror the production of an inexpensive food and have retreated into the egotistical "Malthusian agriculture. This is the truth!

Soy cheese is even feared by the cheese industry in France. They ask if they should abandon their excellent cheeses in order to adopt a vegetal cheese (*fromage végétal*).

A long quotation from the *Chinese Imperial Encyclopedia of Agriculture* gives the various colors of soybeans, including black, white, grey, and even some speckled / mottled with blue. The black ones can be used for medicine. And they are used as an ingredient in the condiment called fermented black soybeans (*Chi [douchi]*), made of soybeans, ginger, and salt.

In 1910-1913 a factory named "La Caséo-Sojaïne" was installed near Paris. I (Rouest) visited this factory in which were installed all the modern conveniences (*tout le confort*

*moderne*), and presented the best guarantees of hygiene. The milk was filtered using a filter press similar to those used in sugar factories (p. 99).

Note: Rouest has borrowed a great deal of material from earlier publications by Li Yu-ying, usually without acknowledgment and often arriving at very different conclusions, especially on the question of using soya to make human foods (Li) vs. foods and milk for animals (Rouest).

Rouest strongly recommends the use of soymilk to feed young domesticated animals. For us, soy will not replace green beans, milk or cheese. During World War I, the Germans were actively involved with the study of soymilk. A translation of an article from the *Schweizerische Milchzeitung* (Nov. 1918) tells how to make soymilk and tofu (p. 102). By using soymilk, there is no fear of transmitting tuberculosis. Address: Directeur des Fermes Expérimentales de Néoculture, Carcassonne (Aude), France.

149. 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 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 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.

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, Manchurian, botanical classifications, vital characteristics, descriptions of important varieties, 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, hamanatto [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). Address: 1. Agrostologist; 2. Agronomist. Both: United States Dep. of Agriculture, Washington, DC.

150. 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). Amaranthus (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.

151. Piper, Charles V.; Morse, William J. 1923. Hamananatto (Document part). In: Piper and Morse. 1923. *The Soybean*. New York: McGraw-Hill. xv + 329 p. See p. 245. [1 ref]

• **Summary:** "Hamananatto, a kind of vegetable cheese prepared from soybeans, is manufactured principally in the central provinces of Japan. Although prepared much like miso and natto, it has a somewhat different flavor and texture from either of these. It has an agreeable salty taste and a peculiar odor somewhat resembling that of the fresh crust of brown bread. The soybeans composing it form no compact mass and are of a brown color with a thin layer of a salty taste and a somewhat sticky consistency.

"In preparing Hamananatto the soybeans are thoroughly washed, boiled to softness, spread on straw mats and mixed

with wheat flour (6 liters of flour to 10 liters of soybeans). Molds soon develop, after which the mixture is exposed to direct sunlight for 3 days, probably to kill the fungi, and then is put in flat tubs. After about 12 days some salt and ginger are added. The entire mass is then kept in tubs under pressure for about 30 days.

“Sawa [1902, citation not in bibliography] in his investigations found that at least three different kinds of bacteria are present in this product. According to this investigator [Sawa] Hamananatto has the following composition [sic, composition of dry matter only]: Albuminoid nitrogen 3.57%. Fat 3.44%. Fiber 6.87%. Total carbohydrates, excluding cellulose 8.40%. Total ash, including salt added 18.54%. Moisture of fresh sample 44.73%.”

Note: This is the earliest document seen (Nov. 2011) in which Piper or Morse describe Hamananatto [Hamanatto].

152. Piper, Charles V.; Morse, William J. 1923. Tables (Document part). In: Piper and Morse. 1923. *The Soybean*. New York: McGraw-Hill. xv + 329 p.

• **Summary:** Tables: (1) Acreage, production and yield of soybean seeds in the United States. Gives statistics for each for 1918, 1919, and 1920 for 14 states, other, and total. The states are listed in descending order of soybean acreage in 1921, as follows: North Carolina, Virginia, Alabama, Illinois, Ohio, Kentucky, Missouri, Tennessee, Wisconsin, Indiana, Georgia, Pennsylvania, S. Carolina, Mississippi.

(2) Estimates of soybean production of Manchuria for various years (in million tons): 1906 = 0.6. 1907 = 0.6 to 0.9. 1908 = 1.150. 1909 = 1.150. 1910 = 1.4. 1913 = 1.2 1921 = 4.52.

(3) Cost of production of soybeans per acre in Manchuria, 1910. (4) Monthly capacity of steam oil mills at Newchwang, Manchuria, 1917. (5) Export of soybeans, bean cake, and bean oil from the principal ports of South Manchuria, 1909 to 1913, inclusive. (6) Five-year averages of acreage, production, and yield per acre of soybeans in Japan. (7) Amount and value of soybeans imported by Japan. (8) Importations of soybean cake and bean oil into Japan. (9) Quantity and value of exports of soybeans and soybean oil from Japan to foreign countries, 1913 and 1914. (10) Quantity and value of exports of miso (bean cheese) and shoyu sauce, 1903 to 1907, inclusive. (11) Quantity and value of imports of soybeans, bean cake, and bean oil by European countries, 1912 to 1914, inclusive. (12) Comparative prices per ton of cottonseed and soybeans in European markets, 1911 to 1914, inclusive. (13) Quantity and value of soybeans, soybean cake, and soybean oil imported into the United States, 1910 to 1920, inclusive. (14) Quantity of imports of soybeans in the world's trade, 1920-1919 inclusive. (15) Quantity of imports of soybean oil in the world's trade, 1910-1919 inclusive. (16) Quantity of exports of soybean oil in the world's trade, 1910-1919 inclusive. (17)

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meals. (90) Digestion coefficients of soybean meal obtained with sheep. Massachusetts Experiment Station. (91) Fertilizing constituents of soybeans, soybean meal, and cottonseed meal. (92) Analyses and calories of soybeans compared with those of other legumes and foods. (93) Composition of soybean flour in comparison with wheat flour, corn meal, rye flour, graham flour, and whole wheat flour. (94) Composition of the sprouts from the soybean and mung bean. (95) Composition of soybean milk compared with cow's milk. (96) Yields of bean curd obtained from different varieties of soybeans. (97) Compositions of tofu and tofu products. (98) Nitrogenous substances in natto. (99) Composition of hamananatto. After Sawa. (100) Composition of yuba. (101) Composition of red and white miso. (102) Composition of shoyu or soy sauce. (103) Composition of soybeans of the same variety dried, soaked, and roasted.

153. 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 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.

154. *Nautical Gazette*. 1924. Sidelights. 106:457. April 26.

• **Summary:** The third full paragraph on the right side of the page reads: "When the *President Adams*, the first steamer in the new around-the-world service of the Dollar Line to arrive at the Panama Canal reached Colon [a sea port on the Caribbean Sea coast of Panama] she gave an order for the following supplies, intended for her Chinese crew: Chinese cabbage,... black beans (salted) [fermented black soybeans], bean sticks [dried yuba sticks], salted eggs, seaweed, salted ginger,... bean sauce, plum sauce, dried flat fish..."

155. Minami Manshû Tetsudô K.K. Kôgyô-bu. Nômu-ka. [South Manchuria Railway Co., Industrial Div. Bureau of Agriculture]. 1924. Daizu no kakô [Soybean processing]. Dairen, Manchuria: SMRC. 777 p. 30 cm. (Sangyo Shiryo 21). [250 ref. Jap]

• **Summary:** Name of company with diacritics is: Minami Manshû Tetsudô K.K. Kôgyô-bu. Nômu-ka. This important, major work was written by Yoshitane Satô. Contents: Photos (on unnumbered pages at the front of the book) show 16 scenes of soybean transportation, storage, and processing in Manchuria, as follows: (1) Mule drivers whipping mules trying to pull carts loaded with large sacks of soybeans over muddy roads. (2) Cylindrical osier storage bins for soybeans. (3) Row upon row of sacks of soybeans piled high in storage near docks. (4) Soy sauce being made in a courtyard; each earthenware jar is covered with a woven conical lid. (5) The inside of a huge and modern soy sauce plant. (6) Wooden kegs and glass bottles of Yamasa shoyu. (7) Soy sprouts growing in round woven baskets. (8-11) Soy oil



being pressed using vertical screw presses [as an alternative to hydraulic presses]—four views. (12) Boilers used in a soybean mill. (13) A wooden barrel of soybean oil being sealed. (14) Soy oil packaged in many small containers, each surrounded by a wicker basket. (15) Round soybean cakes stacked high on railway flatcars. (16) The inside of a modern soy oil factory.

Contents: 1. Current status of soybean production and consumption: A. Production: Overview (p. 2), Japan (p. 4), Korea (p. 12), Manchuria (p. 16), China (except 3 eastern provinces, but including Eastern Inner Mongolia, p. 31), USA (p. 34), British colonies (p. 37), European countries (p. 40). B. Consumption: Japan (p. 41), Korea (p. 52), Manchuria (p. 57), China (p. 59), Dutch East Indies (Indonesia, p. 60), USA (p. 61), European countries (p. 63).

2. Characteristics of soybeans: A. From a physical sciences viewpoint (p. 67): Structure (overview, cotyledons, hypocotyl, seed coat), contents of each system (p. 70), appearance (p. 73; color, gloss, shape, size, hilum (*fusuma*) color, young plumule leaf color, ratio of seed to seed coat). B. From chemical viewpoint (p. 82): General composition, structure of each component (p. 109; protein, oil, carbohydrate, ash/minerals, vitamins). C. Appearance and relationship between oil and protein content (p. 126): Oil and protein color related to color, glossiness, shape, size, hilum color, young plumule leaf color. D. Evaluating soybean quality (p. 140): Overview, key points (sizes, shapes, colors, glossiness, hilum color, young plumule leaf color, ratio of seed coat to seed, dryness of seed, volume, weight, smell, mixing of different varieties, ratio of imperfect seeds, amount of other types of seeds), collection of materials for testing, testing and evaluating commercial soybeans.

3. Soybean usage and processing (p. 175). A. One view of main usage of soybeans. B. Nutritional value of soybeans as food (p. 183): Nutritional value of soy protein. C. Processed soyfoods (p. 208): Soy sprouts (p. 208), natto (*itohiki nattô*, p. 212, Hamanatto, p. 224), types of tofu (regular tofu [*nama-dôfu*, p. 226], *kori-dofu* or *koya-dofu*, p. 240, aburaage, p. 245, tofu curds [*tofu nô*, p. 247], hard tofu [*tofu-kan*, p. 247], fragrant hard tofu [*kô-kan*, p. 248], *senchô tofu*, p. 249, fermented tofu [*nyûfu* or *funyû*, p. 249]), *tofu-p'i* or yuba (p. 256), soymilk and artificial cow's milk, p. 259, soybean flour raw, or roasted (kinako, p. 263), shoyu (p. 266; overview of miso and shoyu, Japanese traditional regular shoyu, p. 267, Japanese traditional special shoyu and tamari, p. 269, Chinese soy sauce, p. 272, recent shoyu research and development, p. 274), miso (p. 280; Japanese traditional regular miso, Japanese traditional special and processed miso, p. 282, Chinese miso, recent miso research and development, p. 285). D. Soybeans as feed or fodder (p. 287; green soybeans as feed, p. 290): Fresh forage, dried forage or hay. E. Soybeans as manure or fertilizer (*hiryô*, p. 297; in the Kaijô area of Manchuria, have been roasted and steamed, and mixed with compost, and used for green manure (*ryokuhi*) or

soybean cake (*daizu kasu*). This method has also been used in the northeastern provinces (*Tohoku chiho*) of Japan in rice fields). F. Soybeans as oilseeds (p. 302). G. Use of soybean protein in industrial products (p. 304).

4. The soy oil extraction industry (p. 305): A. Methods of removing the oil (origins, traditional methods, hydraulic pressing, extraction method, p. 340). B. Advantages and disadvantages of each method (p. 348). C. The soy oil industry in Manchuria (p. 357): History of development, important places for soy oil on the Manchurian Railway, economic condition of the Manchurian oil industry (p. 420), oil extraction in Japan (history, p. 437, commercial factories, p. 442, development of these factories, p. 451).

5. Soybean meal or cake and its composition (p. 464). A. The varieties of soybean meal or cake and the composition of each. B. Evaluation of quality (p. 473). C. Soybean meal or cake as a fodder (p. 478): Feeding value and digestibility, incorrectness of the theory that there are bad effects from feeding soybean meal or cake (p. 479). D. Soybean meal or cake as a fertilizer (p. 490). E. Soybean meal or cake as food (p. 504): Use as a raw material for shoyu production (p. 506), use to make soy flour (p. 509). F. Soybean meal or cake as a source of protein in industrial products.

6. Soy oil and its processing (p. 526). A. Characteristics of soy oil: Composition, physical characteristics (p. 535), chemical characteristics, testing and evaluating soy oil (p. 564), the quality of commercial soy oil products (p. 577). B. Refining soy oil (p. 587). C. The use and processing of soy oil (p. 631): Overview, refined soy oil as a food, substitute for salad oil, or for deep-frying oil, as an illuminant, as a cutting oil, lard substitute, margarine, in paints, soap, hardened oil, for waterproofing, substitute for petroleum oil, glycerin, fatty acids, stearine.

7. Exports and imports of soybeans, soybean meal or cake, and soy oil (p. 708). A. Manchuria. B. Manchurian exports. C. China. D. Japan. E. Korea. Appendix: Bibliography of soybeans (Japanese-, German, and English-language works; p. 748). List of photos.

Note 1. This is the earliest Japanese-language document seen (Oct. 2011) that mentions fermented tofu, which it calls *nyûfu* or *funyû*.

Note 2. This is the earliest Japanese-language document seen (Feb. 4) that uses the term *itohiki nattô* to refer to natto. Address: Dairen, Manchuria.

156. Ochse, J.J. 1925. Tropische groenten. Geteelde en in 't wild groeiende gewassen, die door de Indische bevolking worden gegeten [Tropical vegetables: Cultivated and wild plants eaten by the Indonesian people]. Weltevreden: Uitgave en Druk Volkslectuur. 215 p. July. See p. 92-95. Illust. Also listed as series #686. [Dut]

• **Summary:** This is the original Dutch-language edition, which was revised in 1931 as *Indische Groenten* and translated into English in 1931 as *Vegetables of the Dutch*

*East Indies*. Ochse lived 1891-1970. After describing the plant, the author notes that there are two varieties of soybeans: one is yellowish brown and the other is black. The first is used to make tempeh and tofu; the second to make k tjap. Very popular soy products in the Indonesian market are tofu and firm tofu (*tahoe* and *tako h*). Also discusses *tao tjo* (Indonesian-style miso; has a consistency like paste or porridge), *tao dji* (fermented black soybeans), *t mp *, and *ontjom*. The process for making each of these soyfoods is described.

Illustrations show: (1) A young soybean plant with leaves and pods (half size).

(2) A bamboo scaffolding or curing frame, in tripod form with 3 horizontal supports, used for drying bunches of soybeans.

Note: This is the earliest document seen (April 2001) that contains the word *tako h*. Address: Buitenzorg [Bogor], Java.

157. Carqu , Otto. 1925. *Natural foods: The safe way to health*. Los Angeles, California: Carqu  Pure Food Co., Inc. 359 p. Illust. Index. 20 cm.

• **Summary:** Contents: Part I: Fundamental facts about food and health. 1. The old and new conceptions of the cause of disease. 2. Drug medication, vaccination, and serum therapy. 3. Nature’s healing factors: Sunlight, fresh air, exercise, rest, water, the importance of natural foods for life and health, why denatured foods (white flour, refined sugar, candies, etc) are injurious. 4. The constituents of food considered in the light of modern physiology and biology: Proteins, carbohydrates, fats and oils, cellulose, fruit acids are organic acids, organic salts, the alkaline or base-forming elements (iron, sodium, calcium, magnesium, potassium, manganese, and aluminum), the acid-forming elements (phosphorus, sulphur, silicon, chlorine, fluorine, iodine, bromine, arsenic), the vitamins. 5. Rational soil culture essential for the production of superior foods. 6. The conservation of vital force (stimulants, narcotics, elimination of waste, quality of foods, prolongation of life, alkaline and acid-forming foods). 7. Why the calorie theory is misleading. 8. Fruit, man’s best friend (the fruit of the tree, sulphured and unsulphured fruits). 9. Nuts–Nature’s most concentrated foods. 10. Vegetables–Nature’s blood purifiers (Great hygienic value of green leaves, proper soil fertilization most essential to vegetable culture, loss of organic salts in cooking, classification of vegetables–5 classes). 11. Cereals and legumes (Cereals falsely called “The staff of life,” whole grain products are the best, the great waste of food elements by modern milling processes, legumes–an important food). 12. Milk and dairy products (Milk not a perfect food for adults). 13. Meat–the least essential and most expensive of all foods (the vegetarian alternative).

Part II: Practical dietetics. 14. How to live well on less food. 15. The feeding of infants and children (lactation,

almond milk, soy bean milk). 16. The rational preparation of foods. 17. Rational food combinations (importance of simplicity of eating, the mono-diet and its advantages). 18. Simple and well balanced menus for all seasons. Appendix: Tables and statistics. A1. Analyses showing the amount of sodium, calcium and iron in foods. A2. Amount of food materials necessary to supply one ounce of protein. A3. Amount of calories contained in one pound and one ounce of 200 food products. A4. Average time required for gastric digestion of foods. A5. Annual consumption of sugar, soft drinks, salt, spices, coffee, tobacco, drugs, alcohol, etc., in the United States. A6. Regulations for the enforcement of the Food and Drug Act. Important information about chemical preservatives and artificial colors.

The Preface (and the book) begins: “Two powerful superstitions are impeding the welfare and progress of the human race. The one is the conviction that disease is an entity, a mysterious something that attacks us without warning from the outside, either in the form of germs or as inclemency of weather. The other—perhaps the more harmful of the two—is the belief that for each disease specific remedies must be found, such as drugs, serums, vaccines, glandular extracts, etc., and that, when we are afflicted, we have to submit to a specialist’s treatment or even to the affected parts or organs.”

The average individual tries “to shift the responsibility for his sins of omission or commission to some imaginary cause, rather than to hold himself accountable for the violation of nature’s laws.” There is “almost universal ignorance of the fact that disease is merely an effort on the part of nature or the universal life force to restore normal conditions in the organism. Our present system of commercialism has taken advantage of this situation by misleading people through clever advertising to persist in their errors in order to maintain the demand for drugs and serums, proprietary medicines,…”

Chapter 11, “Cereals and Legumes,” briefly discusses many types of soyfoods—soy sprouts, milk, flour, tofu, soy sauce, and oil (p. 142). Page 196 discusses the use of soy bean milk and almond milk for feeding infants and children. Chapter 16, titled “The Rational Preparation of Foods,” contains a long and detailed section on soy beans (266-71), with subsections on boiled soy beans, soy bean milk, tofu, soy sauce, and soy bean sprouts. Home preparation of each is described. Miso, yuba, natto, and hamananatto are also mentioned (p. 268). Soy-related recipes include: Baked soy beans (p. 269). Soy bean loaf. Soy bean croquettes. Soy bean bread (p. 270).

Chapter 9, about nuts, states: “The making of nut butters is not a difficult process. At present peanuts and almonds are chiefly used for this purpose... The blanching of peanuts and almonds is now done on a large scale by special machinery, and the blanched nuts can be procured in nearly all the larger cities.” Break the blanched nuts into small pieces by

running them through the Climax Grater or a food chopper. Put them into a moderately hot oven for a few minutes to make them dry and crisp, then run them through a tightly adjusted nut mill to create a “smooth, palatable nut butter.” A large table (p. 122) compares the composition of various nuts and nut butters (almond butter, peanut butter) with meat, cheese, eggs, cow butter, and whole wheat bread. “The pecan contains the largest amount of fat, about 70%, closely followed by the hickory nut, brazil nut, filbert and pine nut, which all contain over 60% of fat. The pignolia imported from Spain ranks highest in the amount of protein, containing nearly 34%; the peanut comes next with 29.8%; the butter nut, almond, pistachio, all contain over 20% protein, excelling the best cuts of meat in that respect. The almond does not contain any starch as is, therefore, the nut best suitable for infants, especially in the form of almond milk.” Chufa contains 3.5% protein and 31.6% fat.

The section titled “Fruit and nut confections” (p. 212-15) discusses and has recipes for natural candies and confections.

The section titled “How the American people deplete their vitality by their favorite poisons: The tremendous waste of our material wealth” (p. 328-43) discusses (p. 338-43): The amount spent in 1924 on each of 15 “adulterated foods and drinks and of poisonous stimulants and narcotics” (\$5,040 million) compared with the amount spent on foods and vegetables (\$850 million, or 16.8% as much). Refined sugar. Coffee. Tobacco. Condiments, etc. Alcoholic beverages. Drugs. Regulations for the enforcement of the Food and Drug Act (due to untiring efforts of Dr. Harvey W. Wiley, former chief of the Bureau of Chemistry, USDA). Sodium benzoate and sulphur dioxide. Salt. Saltpeter. Boric acid and borax. Saccharine. Mineral and coal tar dyes. Laxity in enforcement of the Pure Food Law.

On pages 344-47 is information about the Carque Pure Food Company (incorporated 1912) and its founder and owner Otto Carque, including a brief biography of Otto, a list of leading Carque food products, and a full page photo of the company’s new home at 729 Seward St., on 1 Oct. 1925 (2 story brick building).

The food products are arranged by groups: Fruits: Sun-dried and dehydrated, without bleaches or preservatives (Black mission figs, white Smyrna-type figs, prunes, dates, olives, raisins, apricots, peaches, pears). Nuts: Fresh, selected and unroasted (almonds, walnuts, Brazil nuts, pecans, pignolias, pistachios, peanuts). Confections: Of assorted fruits, nuts and honey, without sugar, salt, glucose or preservatives (delectables, fruit nuggets, Kandy-Andy). Stamina and laxative foods (Nut-Fruto, Prunola {prunes and olives}, fruit laxative). Nut butters: Ground from whole nuts, uncooked and unsalted (almond, nut cream, peanut). Cereals and products: Made from re-cleaned whole grain (wheat flour, yellow corn meal, brown rice, breakfast food, crackers). Miscellaneous (olive oil, strained honey, raw

sugar, fig-cereal breakfast drink {instead of coffee}). Price list and descriptive circulars on request.

Note: This is the earliest English-language document (or book) seen (June 2004) with the term “Natural foods” in the title that also discusses soy. Address: Los Angeles.

158. Lecourt, Henri; Nachbaur, Albert. 1925. *La cuisine Chinoise* [Chinese cuisine]. Peking: Published by the authors. 141 p. (on double leaves—unnumbered). 26 cm. [Fre] • **Summary:** The section titled “Sauces fermentés et condiments” notes that this 8th chapter is the indispensable complement to the preceding recipes, for it discusses the condiments and fermented sauces which are widely used in Chinese cuisine and which are included in almost all the recipes in this book. Here you will find the recipe for *mienn tsiang* (Cc = Chinese characters given) [mian jiang], a sauce of wheat flour fermented with salt, more commonly known as *t’ienn mi tsiang* [tian mian jiang].

Each person should be able to make the famous *ts’ing tsiang* (Cc), also known as *tsiang yeou* [jiang-you; soy sauce], which is used in almost all the recipes mentioned.

The generic sauce is *tsiang* (Cc) [jiang], which refers to a fermented sauce of soya or beans, a condiment used for seasoning. This product is the base of all fermented things.

159. *Chinese Economic Bulletin*. 1926. Soy industry in Foochow. 9(301):316-17. Nov. 27.

• **Summary:** Soy manufacturers in Foochow [pinyin: Fuzhou], the capital of Fukien [pinyin: Fujian] province, “total about 250, including 100 in the city and suburbs and 150 in the surrounding villages. The leading ones are Kwo Pen-yi (Cc = Chinese characters given), Tang Sen-hsing (Cc), and Tung An (Cc), the first two capitalized at upward of \$100,000, and the third a little below \$50,000. Mr. Kwo is an experienced soy manufacturer of Yuki (Cc), and Mr. Tang of Kwantow (Cc [pinyin: Guantou]). The former started the Foochow branch manufactory at Shangtuwei (Cc), Nantai (Cc), in 1920, and the latter at Tientangchieh (Cc) in 1925. Tung An is the oldest establishment in Foochow, having been operated at Howyangli (Cc), Nantai, by a Chuanchow (Cc) man for about half a century.”

“These manufacturers are organized into two guilds: The City Guild (Cc) and the Nantai Guild.”

The small manufacturers try to compete with the large manufacturers by offering a better product, but so far they have not been successful.

“Soy is a sauce manufactured from soya beans. The name ‘soy’ is derived from the Japanese *shoyu*, the Chinese name being *shi yiu* (Cc [for fermented black soybean sauce]) *chiang yiu* (Cc [for soy sauce]). The raw material used, especially by the manufacturers in Kwantow, is the green [soy] bean from Newchwang, sold in Foochow at \$10 per 100 catties. The Foochow manufacturers, however, prefer the yellow [soy] beans from Tengchow (Cc), Shantung province,

where they are cheaper than the green variety by several hundred cash per hundred catties.

“The method of manufacture is briefly as follows. The beans are first cooked, then mixed with wheat flour and table salt, and put in a slightly closed wooden jar. The contents of the jar are afterward sprinkled with salt solution, and then transferred into a porcelain *kong* [earthenware vessel], in which they are hard pressed. Finally they are heated in the sun: the longer they are exposed to sunlight, the better the taste of the soy produced.

The soy [sauce] produced in Foochow is inferior in quality to the Kwantow product. The general processes of manufacture are practically the same, the only difference being in details, which remain a commercial secret among the manufacturers.”

Other reasons for the superiority of Kwantow soy sauce “may be enumerated as follows: (1) Absence of adulterants. Soy [sauce] is generally divided by its color into two kinds, the light color soy and the dark color soy. The former is pure and has a pleasant taste; it is sold at 1,280 cash per catty. The latter is adulterated with molasses, so as to reduce the cost of manufacture; it is therefore much cheaper in price, not exceeding 32 cash per oz.

(2) Longer exposure to the sun. The Foochow manufacturers are less spacious and less sunny than the Kwantow manufactories. The soy in the former is exposed to the sun for eight or nine hours a day, while the soy in the latter is exposed from sunrise to sunset.” This partly accounts for the superior quality of the Kwantow soy.

(3) Long period of preservation. Having been prepared, the soy should remain in the sun for a year before being sold. Old soy is better than fresh soy, as old wine is better than new. However, small manufacturers cannot afford to keep their output for such a lengthy period and often sell it after a few months.

“While Tang Sen-hsing and Kwo Pen-yi confine their business to soy, the Tung An also deals in the following: Table salt; *chiang* [jiang] (Cc) a semi-solid soy, distinguished from *chiang-yiu*, which is a liquid soy; distiller’s grain; vinegar; dried bean curd [probably Chinese-style pressed tofu, *doufu-gan*], pickled bean curd [probably fermented tofu]; salt eggs; salt vegetables and melons; prawn oil; samshu; sesame seed oil; salt turnip; &c. Tang Sen-hsing and Kwo Pen-yi are the best soy makers in Foochow, while Tung An produces excellent pickles.

“Soy and pickles in store are kept in porcelain *kongs* or sometimes wooden barrels. Soy to be transported to other cities is packed in glass bottles or bamboo bottles, the former having a capacity between half a catty and two catties, the latter between three catties and ten catties.

“Owing to the increase in the price of salt from \$6 to \$8 per 10 catties, soy manufacturers in Foochow have raised the price of soy by 16 cash pr catty in May. Prices of other products have also been advanced by the following rates.

Dried bean curd, from 8 cash to 10 cash a catty. Pickled bean curd, from 20 cash to 24 cash a catty...”

160. Heyne, K. 1927. *De nuttige planten van Nederlandsch Indië* [The useful plants of the Netherlands Indies. 3 vols.]. The Hague, Netherlands: W. van Hoeve. 1662 + CCXLI p. See vol. 2, p. 789-90, 814-20. Index. 28 cm. See also 3rd ed. 1950. [14 ref. Dut]

• **Summary:** Contents: Ontjom. Dagé. The soybean (Sojaboon, Kedele). Cultivation. Seeds. Utilization: Témpe [tempeh], tao hoe [tofu], tao koan [pressed tofu; doufu-gan], tao tjo [Indonesian-style miso]. including tao tji [Fermented black soybeans; according to De Bie (1901) tao tji is tao tjo], soja (kètjap).

Note: One other edition of this work (same author and title) was published in 1927: 2nd improved and expanded edition, 3 volumes, published in the Dutch East Indies (Buitenzorg) by Departement van Landbouw, Nijverheid en Handel. Printed by Ruygrok & Co. (Batavia) (1662 + ccxli p.). OCLC Accession No.: 756-9335 and 588-3707. Owned by 30 + 24 = 54 libraries worldwide. Address: Hoofd van het Museum voor Economische Botanie te Buitenzorg (Bogor).

161. Read, Bernard E.; Liu, Ju-ch’iang. 1927. *Flora Sinensis. Series A. Volume 1. Plantae medicinalis Sinensis*. 2nd ed. Bibliography of Chinese medicinal plants from the Pen Ts’ao Kang Mu... 1596 A.D. Peking, China: Dept. of Pharmacology, Peking Union Medical College. xi + 106 p. In collaboration with the Peking Laboratory of Natural History. [39 soy ref. Eng; chi]

• **Summary:** References related to soybeans are given in the chapter on Leguminosae under the genus *Glycine* on p. A.I.30. References are given for the soybean (*ta tou* or *huang ta to*), the wild soybean (*pai tou*), soy bean sauce (*chiang*), bean curd (*tou fu* [tofu]), bean ferment (*tou huang*), bean relish (*ta tou ch’ih* [fermented black soybeans]), and bean sprouts (*ta tou huang chüan*).

Also discusses kudzu (ko, 1: #372 “*Pueraria hirsuta* *Schneid.*”), which is reported to grow in the provinces of Chihli, Shantung, Kiangsi, Kwangtung, Chekiang and Hupeh. Address: 1. Prof. and Head of; 2. Asst. of. Both: Dep. of Pharmacology, Peking Union Medical College, Peking, China.

162. Grey, Egerton Charles. 1928. *The food of Japan*. Geneva: League of Nations, Health Organization. 161 p. May. Index. 22 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.

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 (June 2011) that uses the word *gammodoki* to refer to deep-fried tofu burgers, or that uses the word *namaage* to refer 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). Misozuke [miso pickles]. Narazuke. 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 (March 2009) 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 (Feb. 2004) that uses the term “kori dofu” to refer to dried-frozen tofu.

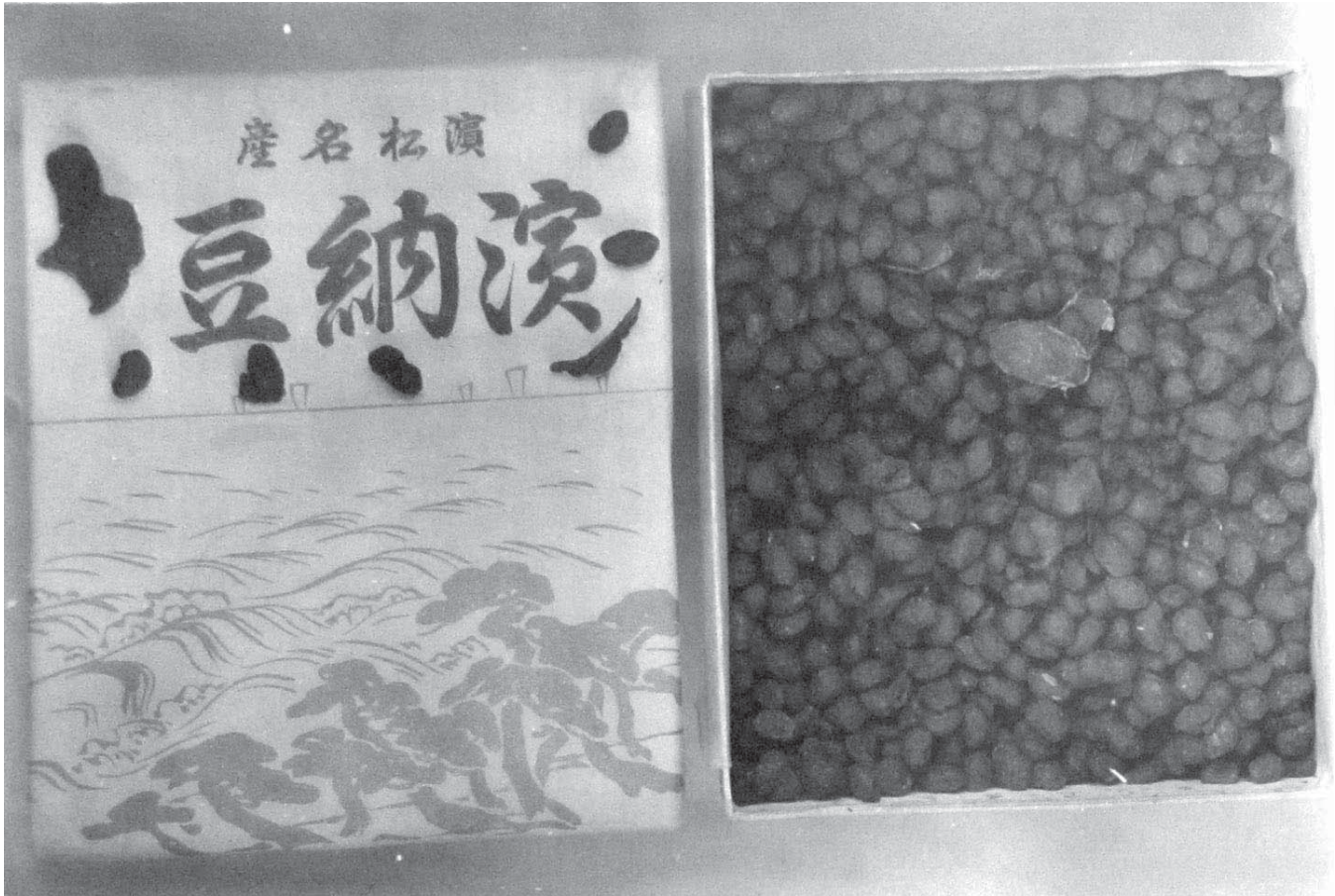
Note 6. This is the earliest English-language document seen (Dec. 2006) that uses the term “pickled plum” to refer to umeboshi salt plums.

Note 7. This is the earliest English-language document seen (Nov. 2011) that uses the term “Hamana natto” to refer to fermented black soybeans.

163. Dorsett, P.H.; Morse, W.J. 1929. Hama Natto and Daitokuji Natto in Japan and salted soybeans in Peiping, China (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: USDA Bureau of Plant Industry, Foreign Plant Introduction and Forage Crop Investigations. 8,818 p. Unpublished log.

• **Summary:** Page 1053 and 1055 (16 May 1929). Tokyo, Japan. A photo shows: “A little more than one-half sized picture of a box of Natto—native name ‘Hama Natto.’ It is made in the Hamamatsu District [Shizuoka Prefecture, central Japan]. It is known as dry natto. The beans are soft and of a flavor like dill pickles. The beans are eaten as a relish. D. & M. #246” (neg. #43660).

Note: This is the earliest English-language document seen (Nov. 2011) that contains the term “Hama Natto” (unhyphenated, regardless of capitalization); it refers to a



type of traditional Japanese fermented black soybeans.

Pages 3229, 3230, and 3231 (10 Dec. 1929, Kyoto). Contains long lists of the vegetables and fruits seen in the Kyoto morning market. “We got two nice soybeans, one a fine large black one, the other as nice a yellow one as we’ve seen.”

“We then went to a Natto manufacturing place near an old temple known as Daitokuji. Here we tried out a kind of natto [Daitokuji natto = fermented black soybeans] which we think might take with the American people, also miso, both are different from any we have previously seen. A detailed account of the manufacture of these products is to be found in our special report concerning the soybean and its products.”

Note: This is the earliest document seen and the earliest English-language document seen (Nov. 2011) that mentions Daitokuji as a place that manufactures fermented black soybeans in Kyoto, Japan, near the old temple named Daitokuji. Daitokuji is a Rinzaï Zen Buddhist temple in northern Kyoto. Here “Daitokuji natto” have long been made as both a seasoning in the vegan diet of the monks and as a well-known souvenir for tourists.

Page 3231. “We left Kyoto on the 10:14 p.m. train and are due to arrive in Tokyo about 9:00 a.m. tomorrow morning, Wednesday, December 11, 1929.” Pages 3469 and

3483 (8 Jan. 1930). Tokyo, Japan. A photo shows: “Box of dried form of Natto sold under the name of ‘Hamannatto.’ Purchased at the railway station of Hamamatsu, Japan, December 11, 1929. This form is only made in the Hamamatsu district. Eaten as it is, when one drinks tea. Box 7½ inches long and 4¼ inches wide. D. & M. #3442” (neg. #44743).

Page 3484. “Box of soybean ‘Natto’ purchased from a Natto factory in Kyoto, Japan, December 10, 1929. Native name ‘Tsubunatto’ [Tsubu-natto; slightly crushed natto] or ‘Daitokuji’ Natto. This is a dried form of Natto, commonly known as ‘Hamannatto,’ and is only made in Kyoto and Hamamatsu, Japan. The name ‘Daitokuji’ Natto is taken from the Daitokuji Temple, of which a priest first made this product. Generally eaten when drinking tea. Box is 7 inches long and 4 inches wide D. & M. #3071” (neg. #44744).

Page 3486. Box of Natto, known as ‘Hamannatto,’ purchased at a small store in Tokyo, Japan, December 24, 1929. This is a dried form of Natto and is made in Hamamatsu, Japan. Hamannatto is eaten when one drinks tea. Box 6 inches wide; 7½ inches long. D. & M. #3073” (neg. #44746).

Page 6264 and 6274 (24 Oct. 1930). Peiping, China. P.H. Dorsett. A photo shows: “Soja max. Salted soybeans... Life sized pictures. Dry form, D. & M. #47531; moist form

D. & M. #47530. Dry form consists of small flat black beans cured like string natto and then dried. Moist form, soybeans cured like string natto” (neg. #46124). Note: Natto (stringy natto) is unknown in modern China. The salted black soybeans may well be fermented black soybeans (fermented, salted black soybeans).

Page 6945 and 6946 (13 Jan. 1931). Kyoto, Japan. “Notes by Mr. W.J. Morse... We were taken to the Chemical Laboratory where Mr. Katagiri is doing some work on soybean products, especially soy sauce. Concentrated soy sauce is shipped to the United States in rather large amounts and then diluted and bottled. We were shown a sample of soyamint which is a practical soysauce product and made in about three months. It is said that the soybeans are treated with an acid solution, then neutralized and rice Koji added. After three months of curing, the soy sauce is ready for use.

“After lunch we went to the Taitokuji [sic, Daitokuji] Temple where the famous Taitokuji Natto [sic, Daitokuji Natto] is said to have been originated by one of the Temple priests more than 400 years ago.

“Mr. Sekkai Ota, one of the temple priests, very kindly explained the history of the dried form of Natto as well as the whole process of its manufacture. This form of Natto will keep indefinitely and is eaten when sprinkled with a mustard sauce or sweet liqueur. The Hamamatsu Natto is made in the same manner but is allowed to dry more.”

Page 6947 (13 Jan. 1931). Soybean Natto. Photo shows: “Group at the Kyoto Imperial College of Agriculture: Prof. Matsumoto, Prof. Kamikawa, W.J. Morse, U.S. Department of Agriculture, Washington, D.C. and Mr. Sekkai Ota, Priest of the Taitokuji [sic, Daitokuji] Temple at Mr. Morse’s right, who explained the method of manufacture of Taitokuji [sic] Natto. A dried form of Natto originated at the Temple more than 400 years ago” (neg. #46446). Address: Agricultural Explorers, USDA, Washington, DC.

164. Mihori, S. 1929. [Digestive enzyme of hamanatto]. *Eisei Kagaku (J. of Hygienic Chemistry)* 1:7-. [Jap]\*

165. Sprecher von Bernegg, Andreas. 1929. Tropische und subtropische Weltwirtschaftspflanzen; ihre Geschichte, Kultur und volkswirtschaftliche Bedeutung. II. Teil: Oelpflanzen [Tropical and subtropical plants in international commerce; their history, cultivation, and economic significance. Vol. II. Oilseeds]. Stuttgart: Verlag von Ferdinand Enke. See vol. 2, p. 128-70. Illust. Index. 25 cm. [48 ref. Ger]

• **Summary:** The soybean (p. 128-70). Contents: Introduction. Name, place of origin and history. Description of the plant: Systematic, morphology, varieties, selection. General conditions for growth: Climate, soil. Cultivation of the plant: Planting, care. Harvest and storage. Composition and products. Utilization: As a fodder plant, as a coffee substitute, industrial non-food uses, as a food (as a green

vegetable, soy sprouts, soy chocolate, soymilk, casein, tofu and soybean quark {*tofu oder Sojabohnenquark*}, natto {*Buddhistenkäse*}, hamananatto, yuba, miso, shoyu or soy sauce {*Sojasaucen*}. Production and trade.

Concerning green vegetable soybeans, the author states: “Three-quarter ripe soybean seeds yield a good, green vegetable (*Dreiviertelreife Sojabohnen geben ein gutes, gruenes Gemuese*).” Address: PhD, Titularprofessor an der Eidgenoessischen Technischen Hochschule, Zurich, Switzerland.

166. Shen, Chennen. 1930. The importance of soybean. *China Critic (The) = Chung-kuo Ping-lun Chuo Pao (Shanghai)* 3(18):416-19. May 1. [Eng]

• **Summary:** Contents: Introduction. Domestic consumption of soybeans. Foreign consumption of soybeans. Future prospects.

Soybean, called yellow bean in China, is “cultivated in all parts of the country, but most abundantly in Manchuria. While in 1913 the export of soybean amounted only to about ten percent of the total export and ranked next to silk and tea in importance, it has in sixteen years increased five times in value, risen to twenty percent of the total export and taken the premier place in our export trade! No other commodity has ever experienced such an overwhelming prosperity in such a short time in the history of China.”

“Everybody knows that we Chinese live on rice and wheat. But not everybody realizes that we live just as much on soybeans. The soybean is consumed in large quantities by the northerners as well as by the southerners. Its numerous forms of preparations are common articles of food found in every household. Recent scientific investigations have shown that the soybean satisfies a particular requirement in the Chinese dietary.”

The human body is like a machine. It needs carbohydrates and fats for fuel and motive power, and protein for repairing worn-out parts. A table compares the nutritional composition of soybean, rice and wheat. “It is evident that soybean is entirely different from either wheat or rice. Whereas wheat and rice supply carbohydrates in the form of starch, soybean is mainly the source of protein. It is interesting to note that the poorer class of people in China consumes very little meat but seems to have sufficient amount of protein. Remembering that every Chinese takes a large amount of soybeans in various forms of preparation, we can readily understand how the protein requirement is satisfied. As soybean contains more than twice as much protein as does any meat and is much cheaper, we can satisfy our protein requirement at one-tenth of the cost of meat.”

Exact data regarding soybean production in China are lacking. “The Manchurian crop is more accurately estimated at 5,200,000 tons [probably metric tons] in 1928. The production of soybean in all other provinces has been estimated at 2,000,000 tons by Horvath and 10,000,000

tons by Marakujew [in Russian]. The total exports of soybeans, soybean oil and soybean cake is about 3,500,000 tons, leaving 3,750,000 to 11,750,000 tons for domestic consumption. The consumption per capita is thus 20 to 65 lbs. per year. These two figures at least represent the two extremes. Marakujew's figure is probably nearer to the actual. These 65 lbs. of soybean are used: -"

1. As soybean oil. 2. As soybean milk, "a very popular drink in China," "which is to the Chinese as cow's milk is to the Westerners." The process for making this milk is described briefly and a table compares its nutritional composition with human milk and cow's milk. The composition of the three are "very similar. One of the products of "soybean milk is the pellicula (Cc = Chinese characters given) (doufu-pi [yuba]) which is a thin sheet coagulated on the surface of the milk when it is heated. It is especially rich in protein and fat and used as a table delicacy."

"4. As soybean curd (Cc: doufu), one of "the most universal preparations" of the soybean. "It is relished by the poor as well as the rich. When a coagulating agent like gypsum is added to the bean milk, a thick mass separates out." "It is very similar to meat in chemical composition." A table compares the composition (only protein, fat, and carbohydrate on an "as is" basis) of soybean curd, beefsteak, pork chops, and eggs. "Although the protein content of 'tofu' is only half of that of meats, we see the economy of it even if we have to use a double quantity of it. The solid bean curd (Cc: doufu gan) is more like meat as it contains less water than 'tofu' and is also extensively used in China.

"4. As soy sauce, another popular soybean preparation..." "Other fermentation products like the fermented soybeans (Cc: douchi) and the fermented 'tofu' (Cc: furu) serve similar purposes." Note: This is the earliest English-language document seen (Nov. 2011) that uses the term "fermented soybeans" to refer to these Chinese-style "fermented black soybeans."

"5. As a vegetable. Cooked [green vegetable] beans are also used by the Chinese but not very extensively. Experience has taught us that the cooked whole beans are not so digestible as 'tofu' or other preparations. However, soybean sprouts, obtained by germination in water, are highly digestible and contains the antiscorbutic vitamin C, which is lacking in the original seed."

"The chief demand for soybean in foreign countries is for the oil and the bean cake." "The oil is used for either edible or technical [industrial] purposes and the cake is used as a fertilizer or as cattle feed. "The soybean owes its popularity to its resemblance to cottonseed oil which is widely used in making soap, lard [substitutes] and oleomargarine. The first shipment to Europe was attempted by Japanese in 1908. It was warmly received..."

"Due to its peculiar smell, the raw soybean oil is rarely used in western countries for cooking. But now it is possible

to refine this oil and render it entirely palatable to the western taste. It has been put on the market as salad and cooking oils. By the process of hydrogenation, the liquid oil can be transformed into a solid fat, which is an excellent substitute for animal lard" [or butter].

"Thus we see that in a period of twenty years, soybean has extended its usefulness from the Chinese dietary into industries of world-wide importance and is now one of the most valuable agricultural products not only of China but of the whole world."

"In Germany and Denmark artificial milk is regularly manufactured from soybean and sold on a commercial scale. Soybean milk powder is also being manufactured.

"The soybean curd has also a good future, as it can be used to make meat substitutes. Artificial meat has been prepared by a German soybean factory.

"The biggest possibility in the popularization of soybean as a food is the soybean flour. From the bio-chemical point of view, white bread made from the wheat flour is deficient in protein and vitamins. Therefore a substance like soybean should be a valuable addition to the wheat flour. In fact, half a dozen kinds of soybean flour are already on the market in Europe and America."

"The phenomenal rise of the soybean as a universal article is not a matter of accident: It is the result of years of intensive scientific research. We should be thankful that we Chinese are not only the biggest consumer but also the biggest producer of this valuable article. But in the face of keen competition at the present time, we should look out lest this leguminous seed should fall into the same pit as did our silkworm and the tea plant. Up to the present we have been benefited by the researches of foreign countries and also the laboratories of the South Manchuria Railway and the Chinese Eastern Railway, whose immediate interests are not purely Chinese. Are we going to lead the world in soybean production? The future is by no means bright. Already the Chinese soybean oil mills are suffering due to their out-of-date equipment and inefficient process. America is rapidly increasing the acreage for soybean planting. When the American soybean crop is big enough to supply herself and other countries, China will have a difficult battle to fight. China should take an active part in studying and widening the usefulness of soybean as a food and as an industrial raw material."

167. Dorsett, P.H.; Morse, W.J. 1930. Soybean chiang and salted black beans in Manchuria and China (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: USDA Bureau of Plant Industry, Foreign Plant Introduction and Forage Crop Investigations. 8,818 p. Unpublished log.

• **Summary:** \* = Best photos. Page 4620 (2 May 1930,



Hsiungyaocheng, Manchuria). The South Manchuria Railway agricultural experiment station here is testing about 60 soybean varieties under the direction of Mr. Kaneyasu Hisatake [Japanese name], agricultural engineer. "About 90% of the soybeans planted in this area consists of a greenish yellow variety called *Te-cha-chin* which is used for oil and is also utilized by the farmers for bean curd, miso, and other food purposes." Page 4641 to 6142 (May 8, Kungchuling, Manchuria). Mr. Kanda [Japanese name] is director of the Kungchuling experiment station. Kungchuling is the center of a very extensive soybean growing section and the experiment station is doing much work with the improvement of native [indigenous/domestic] soybean varieties. Over 500 varieties are under test yearly and more than 2,000 varieties have been experimented with. "The great range in size, color, and shape of the seed was very interesting." Visited "some Chinese stores where Chinese soybean miso and 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."

Page 6252 to 6255 (23 Oct. 1930, Peiping, China). Went to the "pickle factory of Chang Shun Kung, where we got information about soybean jam [*chiang / jiang*], pickles, etc." Photos taken at the factory of Mr. Chuang Shun Kung: (1) "View across soybean jam and pickle jars covered with matting." Factory buildings in the background. (2) "Looking along a portion of a line of large earthen jars filled with soybean jam [*chiang*].\* These jars hold about 800 cattles of jam." (3) Same factory. Mr. W.J. Morse standing by the end jar in one of the rows of jars.\* (4) "The end and half the length of a dry brick of wheat and soybeans, curing stock for Chinese jam made of soybeans." This product is used in making soy sauce and three forms of soybean jam or paste. Chinese name *Ton chih* [sic, *Tou chih*] meaning "salted beans" [fermented black soybeans]. Note: This is the earliest English-language document seen (Nov. 2011) that uses the word "jam" or "soybean jam" to refer to *chiang / jiang*.

Pages 6339, 6344 to 6345 (3 Nov. 1930, Peiping, China. P.H. Dorsett's notes). "After tiffin we went to the soy sauce, soy jam and pickle establishment of a Mr. Wang in the outer city to the southwest. This establishment is some 300 years old and many of the large earthen glazed jars are of the age of the establishment." Photos of Mr. Wang's Lan Hsin Chai Soy Sauce Factory: (1) "View from the northeast corner of the compound just in front of the soy sauce processing room, looking over the large earthen jars of jam [*jiang*], pickles, etc." Some jars are covered with reed grass matting or conical lids.\* (2) Another view from the southwest corner of the compound.

Note: This is the earliest English-language document seen (July 2003) that uses the term "soybean jam" or "soy jam." Address: Agricultural Explorers, USDA, Washington, DC.

168. Shi, Shenghan. 1930. Ch'i-min yao-shu [Ch'i-min yao-shu (6th century Chinese agricultural encyclopedia)]. Reprinted by Commercial Press, Shanghai, China. [Chi]\* Address: China.

169. Ochse, J.J. 1931. Vegetables of the Dutch East Indies. Buitenzorg (Bogor), Java: Archipel Drukkerij. xxxvi + 1005 p. See p. 366, 389-93, 398, 407-08, 732, 943-71. An entirely revised and greatly enlarged second edition of his *Tropische Groenten* (1925). Translated by Mr. C.A. Backer. Illust. 25 cm. Index. [10 ref. Eng]

• **Summary:** This translation (by Mr. C.A. Backer, the reputed ex-Botanist for the flora of Java) of Ochse's classic "may be taken as an entirely revised and much enlarged second edition of '*Tropische Groenten*' (Tropical Vegetables), which booklet was published in July 1925." The author, a Dutchman who confined his research to Java and Madoera, described the tempeh-making process in detail, saying that the mold used was *Aspergillus oryzae* and that it was obtained from a former batch of tempeh.

Page 366 discusses ontjom (témpe boongkil in Javanese), tetempè, and dagè, all made from peanuts. Page 372 notes that the pigeon pea (*Cajanus cajan*) can be used to make témpe bosok.

Pages 389-93 discuss the soya bean, which has various names in local languages. Malay: Katjang djepoon or Kedele. Javanese: Dekeman or Dekenan, Dele, Demekan, Gadele, Kedele, Kedoongsool, or Dangsool. Sundanese: Kadele, Katjang boooloo, Katjang djepoon, Katjang kadele. Madura: Kadhele, Kadhellee, or Kedeleh. A description of the plant is given.

Illustrations show: (1) A young soybean plant with leaves and pods (half size). (2) A bamboo scaffolding or curing frame, in tripod form with 3 horizontal supports, used for drying bunches of soybeans.

Soybeans come in two main forms: Light yellowish-brown seeds, and black seeds. The latter are used to make *ketjap* (Indonesian soy sauce). "Of the ripe seeds *pélas* (Jav.) is made, by mixing them with grated young coconut [coconut], salt, and other ingredients. The mixture is wrapped in a banana leaf and steamed.

"The seeds can also be roasted and afterwards pounded. The *boobook* [*bubuk*, roasted soy flour], *boobook* or *boobookan* (Jav.) is eaten in the shape of powder, usually with the addition of lombok and other ingredients.

"The seeds are mixed with a porridge of rice-meal and water and afterwards fried in coco-nut oil. This dish is called *rempeyek* (Jav.). It consists of brown slices in which the black *kedele*-seeds are scattered. *Rempeyek* is eaten either as a delicacy or with the rice table. "Témpe [tempeh, p. 391] is a much used product. In East- and Central-Java it takes the same place as the ontjom in West-Java. It is prepared in much the same way as *ontjom*, and the reaction is brought about by the same fungus, *Rhizopus Oryzae*, Went

et Prinsen Geerligs, which is transmitted by *ragi*. The seeds are cooked and, after they have cooled, put in a basket. By stirring, rubbing and even by treading, coupled with repeated washing with fresh water, one tries to remove the testa [seed coat / hull] from the seeds. When this has been done, the seeds are put on hurdles (*sasak*) covered with banana- or waroo-leaves. Now the so-called *beeang*, i.e. rests of the fungus used for a former batch, is sprinkled over them and the mass is turned over on other *sasaks*. The *témpé*-cakes treated in this way are kept indoors and after two or three days the fungus has spread sufficiently for giving a light grey colour to the cakes, which then are soft and dry and ready for use. They are sold on the markets either cut into small pieces or divided at pleasure, according to the amount of money the buyer wishes to spend. *Témpé* is used, fried, in the *sayor* or prepared with all sorts of ingredients.

“Other products for the native market are *tahoo* [tofu] and *takoäh* [pressed tofu; Chinese: doufugan]. Both are eaten either boiled or cut into small slices, fried and added to *gado-gado* or, lombok rawit being added, as a side dish.

“For the preparation of *tahoo* or *takoäh* the seeds are soaked, ground fine, boiled and pressed through a cloth. The juice which is pressed out is mixed with salt, vinegar, coconut milk or with unburned gypsum (so-called *batoo tao*), imported from China. By this treatment a white gelatinous mass is formed, which, after cooling, can be cut into pieces.”

“Wet *tahoo* does not keep well for a long time. For this reason it is soon made into *takoäh*. For this purpose the *tahoo* is cut into pieces, folded in pieces of cloth, pressed in order to remove part of the water and next boiled in a decoction of koonir [turmeric]. The product obtained in this way has an intense yellow color and is a much relished delicacy, especially with lombok rawit [fiery dwarf chilies].”

*Taotjo* [Indonesian-style miso] is a porridge made of soybeans and rice meal. The soybeans are soaked, dehulled (the testa removed), cooked, and left to cool. Then they are mixed with the meal of rice (regular or glutinous), which has been previously roasted. “The porridge obtained in this way is poured on winnows (*tampah* [winnowing trays]) covered with waroo-leaves, sprinkled with *ragi* or *beeang*, probably of *Aspergillus Wentii*, Wehmer, and covered with leaves. The filled *tampahs* are piled on each other and left alone till the cakes are very mouldy. Then they are dried in the sun, soaked in brine and mixed with sirup of *arèn* [sugar palm] and with *tapè* [*tapai*; a sweet fermented cake] of rice or glutinous rice. Next the porridge is placed out of doors. After the seeds have become soft by this treatment, which takes three or four weeks, the *taotjo* is ready for use.

“*Taotjo* must be boiled, otherwise the smell is too strong. It is eaten with cooked or raw vegetables. It is used for dressing some dishes of meat or fish, whilst it is also a material of which diverse side dishes are made.”

Note 1. This is the earliest English-language document seen (March 2009) that uses the word “*taotjo*” to refer to

Indonesian-style miso.

“According to De Bie (1901), *tao djee* [*tao dji*; *doushi*, *douchi*] is *taotjo* alternating with layers of cooked whole *kadelè*-seeds. This stuff is put into a pot or basin with some salt and boiled *arèn*-sugar. The mass is left to itself during a few days till the *taotjo* has become pervaded by the salt and the sugar and has assumed a uniformly brown colour. Note 2. *Tao djee* [*doushi*] is fermented black soybeans, which are not the same as *Taotjo* [Indonesian-style miso]. De Bie (1901) seems to have made a mistake.

“Of the black *kadelè*-seeds *soya* [soy sauce] is made, exclusively by the Chinese and the natives. First the seeds are cooked in a strong solution of salt. After diverse manipulations the cooked seeds are mixed with *arèn*-sugar and so-called *soya*-condiments and the mixture is concentrated till the salt begins to crystallize. By diluting this product with more or less water one obtains the diverse qualities of *kètjap* or *soya* found in commerce.”

The “Pemimpin Pengoesaha tanah” of 15 Jan. 1915 lists various ingredients that can be used with black soybeans in making *ketjap*. “Young seedlings, obtained, like *taogè* [*taugé*, soy / bean sprouts], by fermenting, are called *ketjambah kedele*; they are cooked and eaten as *petjel* (Jav.) with the rice (*ganteng*, Jav.)”

“Finally young leaves of *Kadale* can be eaten, raw or steamed, as *lalab*.

Page 398 describes *dagè* and *témpé bengook* made from these seeds of the velvet bean (*Mucuna pruriens*). Roasted *tempeh* are also discussed.

Pages 407-08 states that the seeds of the *Katjang oji* (rice bean) can be used for the preparation of *tempeh*.

Pages 414-15 state that, when they have no soybeans, the Chinese use mung beans (*Katjang eedjo*) to make tofu and *takoah*, but they are most widely used to make mung bean sprouts (*taogè*). Page 634 mentions *témpé bosok* (overripe *tempeh*) made with the foul-smelling bruised leaves of the plant *Paederia foetida*. Page 732 also mentions overripe *tempeh*.

Note 2. This is the earliest English-language document seen (Dec. 1998) which contains detailed information about *tempeh*, or which refers to *tempeh* as “*témpé*.”

Note 3. This is the earliest English-language document seen (Feb. 2004) that uses the word “*tahoo*” or the word “*takoäh*” to refer to tofu. Address: Buitenzorg (Bogor), Java, Indonesia.

170. Ochse, J.J. 1931. Indische Groenten [Vegetables of the Dutch East Indies]. Buitenzorg (Bogor), Java: Department Landbouw. 1005 p. See p. 388-92. Index. Illust. 27 cm. [10 ref. Dut]

• **Summary:** For details, see the English-language translation, also published in 1931.

Under soybean utilization, the following food products are discussed in detail on pages 390-92: *Tempeh* (*témpé*),

tofu (*tahoe*) and firm tofu (*takoä*), Indonesian-style miso (*taotjo*), fermented black soybeans (*tao dji*), and Indonesian-style soy sauce (*kètjap*). “Témpé is a much used product. In East- and Central-Java it takes the same place as the ontjom in West-Java. It is prepared in much the same way as *ontjom*, the reaction is brought about by the same fungus, *Rhizopus Oryzae*, Went et Prinsen Geerligs, which is transmitted by *ragi*.”

On pages 943-970 is an alphabetical “List of Vernacular Names of Objects, Properties or Actions.” For example: Kedele oongaran (p. 390, Jav.) is a soybean plantation on a sawah, immediately following the paddy [rice] harvest. Kedele apeetan (p. 390, Jav.) is the second harvest of the year or the second plantation in the same year of Kedele (soybeans; *Glycine Soja*). Address: Buitenzorg (Bogor), Java.

171. Meade, Mary. 1932. Dessert served first at real Chinese dinner: The birds nest soup is second course. *Chicago Daily Tribune*. Aug. 24. p. 14.

• **Summary:** “China, for thousands of years mysterious, inscrutable, aloof, today has taken up a new job—that of counselor and inspiring genius in many of America’s swankiest cuisines.”

“Miow, an oil like our peanut oil, seow, a black salty sauce [Cantonese: *shi-yau* or *si-yau*, meaning “fermented black soybean sauce”], and queow, a thick, black, molasseslike flavoring sauce, are one or all found in most chow meins, chop sueys and war meins.”

A recipe for Chop suey with pineapple states: “Let the mixture simmer for fifteen minutes, then stir in enough seow or seasoning sauce to flavor,…”

172. Au, Man Sing. comp. 1932. Chinese cookery. Honolulu, Hawaii: Creart Publications. 46 p. Index. 21 cm.

• **Summary:** Subtitle on cover: “Genuine Chinese dishes you can prepare in your kitchen.” Chapter 1, “The nine-course dinner,” states (p. 7): “A small plate is used to hold soyu [shoyu] or Chinese sauce. A morsel of food is picked up in the chopsticks, dipped into the sauce and then put into the mouth.”

The section titled “Seasonings and gravies” (p. 10) notes: “Chinese sauce or soyu, used instead of salt, adds zest and delicacy.”

“Bean sauce, which is mashed preserved white beans, comes in white and red varieties. The white sauce is salty, while the red has a sweet taste. Both give meat that strange ‘aging’ taste.”

“Tou-see, a preserved and cured Chinese black bean [soybean], tones down the strong smell and taste of deep ocean fish when used with it.”

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “Tou-see” or the term “preserved and cured Chinese black bean” to refer to

fermented black soybeans.

On pages 33-34 is a section titled “Bean curd.”

173. Orosa, Maria Y. 1932. Soybeans as a component of a balanced diet and how to prepare them. *Manila (Philippines) Bureau of Science, Popular Bulletin* No. 13. 53 p. [16 ref]

• **Summary:** Contents: Introduction. The cooking of soy beans (89 Filipino recipes, p. 7-35), incl. roasted soy beans, soy-bean soups etc.—most recipes use whole soybeans, but quite a few use tofu (*tokua*), soy sauce (*toyo*), soy-bean flour, or soy-bean milk, and a few use *tahuri* (brine fermented tofu) or soy-bean sprouts. Some common foods made from soy beans and methods of preparing them (p. 35-53): Soy-bean milk, condensed soy-bean milk, soy-bean milk powder, soy-bean casein, soy-bean curd (tofu; *tokua* or *toqua*). *Tahuri* or *tahuli* (fermented tofu). Frozen tofu. Bean curd brains or *tofu nao*. Dry bean curd or *topu khan* (tofu-kan, dipped in burnt millet sauce and rubbed with fine salt). Fragrant dry bean curd. Thousand folds (thin layers of fresh tofu pressed in cheesecloth. “On standing, the thousand folds mold and develop a meatlike flavor. This is fried in sesame oil and served in place of meat”). Fried bean curd. Soy sauce (called by the Chinese “ch’au yau,” or drawing oil; or “pak yau” or white oil” by the Japanese “shoyu”; and the Filipinos, “toyo”). Natto. Hamanatto (p. 49). Yuba. Miso. Soy-bean flour. Soy-bean oil (used in the manufacture of lard and butter substitutes; also in paints, printing inks, etc.). Soy-bean meal. Soy-bean coffee. Soy-bean sprouts.

Note 1. This is the earliest English-language document seen (Oct. 2008) that uses the term “soy-bean casein” (or “soy bean casein” or “soybean casein”), probably to refer to soybean protein.

“When and by whom the soy bean was first introduced into the Philippines, no one can ascertain. The Filipino people have long known some important soy-bean preparations, such as soy sauce, or ‘toyo,’ bean curd, or ‘tokua,’ fermented bean curd or ‘tahuri,’ not knowing that they were prepared from this bean. The seed is known in some parts of the Philippines, where it is grown, as ‘utao.’”

“The main object of this pamphlet is to encourage the Filipino people to use more soy beans, and preparations made from them as food” (p. 3-4).

“Soy beans are grown in some parts of the Philippines. According to Doctor Roxas, Director of the Bureau of Plant Industry, 2,481 tons were grown in Batangas in 1921 and 4,218 tons, in 1930. However, the importation of soy beans in 1924 was 4,657 tons. Doctor Roxas says that soybeans can be grown in all parts of the Philippines” (p. 6). “Immature soy beans may be cooked in the same way as lima beans (*patani*)” (p. 7).

“The soy-bean curd was first produced by Whai Nain Tze, before the Christian Era and was introduced into Japan from China by the Buddhists. It was introduced into the Philippines by the Chinese and has become a very popular

food in Manila and in places where there are Chinese who manufacture it for sale. 'Tokua' on account of its high fat, protein, and mineral content, is called by the Chinese as 'meat without bone,' or 'the poor man's meat.'" The Chinese use burnt gypsum (about 1.5% by weight) as a coagulant. In some cases, the curds are wrapped in individual pieces of fine cheesecloth about the size of a small handkerchief, then pressed lightly for a few minutes. They are "unwrapped, spread on shallow bamboo trays (*bilao*) and partially dried at room temperature. Then they are dipped in a weak solution of turmeric to coat the outside in light yellow coloring. Some manufacturers soak the small cakes of curd in brine solution for a short time, then dip them in a solution of burnt sugar or molasses and bake them slightly before putting them on the market." 100 gm of dry soybeans typically yield 350 gm of tofu (*tokua*) (p. 41).

The section titled "'Tahuri' or 'Tahuli'" begins with 2 paragraphs and ends with a table very similar to those from Gibbs and Agcaoili (1912): "'Tahuri' is manufactured in China and exported to the Philippines in large stone jars or in small tin cans. There are some 'tokua' manufacturers in Manila that manufacture 'tahuri' for local consumption. Those that are imported from China are preserved in strong brine solution and the cakes are broken during the shipment so the liquid becomes like a thick emulsion containing pieces of the cured curd." It then contains a new paragraph: "In Manila, the Chinese method of manufacture is to pack the large pieces of soy-bean curd, about 5 inches long, 4 inches wide, and 2.5 inches thick, with much crude salt, in empty gasoline cans. The curd is allowed to cure for a period of several months. During the curing period the bean curd changes from white to a brownish yellow color and develops a peculiar salty flavor to which the Chinese and many Filipinos are educated" (p. 42). Note 2. No information about a fermentation microorganism or process is given.

"The bean curd brains known to many Filipinos as 'tojo' is the unpressed soy-bean curd. The method of making 'tojo' is almost the same as the method used in making 'tokua', only that a smaller amount of the coagulating agent is used, and the very soft but solid mass formed is left undisturbed in the wooden container until used. The Chinese used to peddle this preparation in a wooden pail-shaped container, through different parts of Manila, but on account of the Philippine Health Service regulations, this product is now sold in the markets only. / "The 'tojo' is served with a few tablespoonfuls of medium thick brown-sugar syrup, which gives it flavor, the 'tojo' being almost tasteless. Sometimes it is eaten with sweet oil, sauce, and vinegar, or with finely cut meat and spices." (p. 43).

"Dry bean curd: The fresh bean curd when dipped in burnt millet-sugar sauce and rubbed with fine salt will keep longer than the 'tokua' and is called 'topu khan.' This preparation is usually eaten in soups."

Fragrant dry bean curd or *hsiang khan* ("fragrant

dry") has the consistency of smoked sausage. "It is made by subjecting the fresh bean curd to great pressure, which eliminates much of the water content. The pieces of semidry curd are soaked in a weak brine solution in which is dissolved burnt millet-sugar and to which is added powdered spices. The curd is then dried to hardness. This preparation keeps indefinitely and is used in soup making and in vegetable dishes" (p. 43).

Note 3. Cruz and West (1932, p. 78) state that as part of a campaign by the Bureau of Science to encourage the Filipino people to use more soy beans, Miss Orosa "has made excellent cakes, cookies, puddings, sauces, soups, custards, ice cream, and other tasty preparations from Philippine soy beans."

Note 4. The author pioneered the branch of the branch of the Home Extension Service in which home demonstrators helped women in solving their home problems. She started the organization as a food preservation unit under the Bureau of Science in 1923, starting with six home demonstrators that she herself trained. That group became the forerunner of the Home Extension Service in the Philippines. For details on her work see: In: *A Half Century of Philippine Agriculture*. Manila, Philippines: Liwayway Publishing. p. 236-37.

Note 5. This is the earliest English-language document seen (Nov. 2003) that contains the word "meatlike." Address: Chief, Div. of Food Preservation, Bureau of Science, Manila.

174. Carqué, Otto. 1933. *Vital facts about foods: A guide to health and longevity with 200 wholesome recipes and menus and 250 complete analyses of foods*. Los Angeles, California: Published by the author. 208 p. Index. 24 cm. [20+\* ref] • **Summary:** This manual of food reform discusses the importance of a simple vegetarian diet of natural foods, sunlight and sunbaths, fresh air, pure water, exercise and rest. Also talks about acid and alkaline foods, the influence of mind on health, the failure of synthetic foods, why refined sugar is injurious, the dietetic value of sea plants, table salt is unnecessary and harmful, fruit is man's best food, sulphured and unsulphured fruits, nut butters, food preparation, and the treatment of disease.

The germ theory of disease has not been proven since potentially harmful germs are omnipresent yet often fail to harm healthy individuals (Pasteur was a chemist and laboratory worker, not a physician. Germ action is always secondary; "when germs invade a living organism it is a sign that the organism is enervated and its chemistry perverted." p. 114-15).

The section titled "Fruit and nut confections" (p. 133-35) begins: "Fruit and nut confections made without refined sugar and glucose should take the place of candies." These "sweet-meats"... "should be the only kind of confections allowed to growing children, which have a natural craving for sweets." Recipes include stuffed dates, date caramels, nut fruitose, carob confection, raisin-nut balls, and honey

cocoanut balls. For Nut fruitose: Mix dates, figs, raisins, almonds and walnuts. “Run through a food chopper twice. Press the mixture into a flat pan in a layer about 1 inch thick, let stand overnight, and cut into convenient sizes.” Note: Carque was a pioneer in the development of healthy, natural treats. The last recipe could be considered a forerunner of the less-healthy “nutrition bar” of the 1990s.

The next section, titled “Nuts and nut butters,” states that “salting and roasting greatly impair the nutritive value of nuts and prevent their proper assimilation. The proteins become coagulated by roasting, and the fats split into glycerine and free fatty acids, while the vitamins are destroyed. Nut butters made from salted nuts should, therefore, have no place in our dietary.” Rather, the peanuts or almonds should be blanched (scalded or parboiled in water or steam). “Since few people, on account of defective teeth, can masticate nuts well enough to be acted upon by the digestive juices, the mechanical emulsification of nuts by means of nut butter mills is quite dispensable.”

The section titled “Melba toast” and “Melbettes” (p. 156) states: “These are delicious dextrinized whole wheat products made by the Cubbison Cracker Co., Los Angeles.” Melbettes are also made from whole rye. “Calavo Melba Toast is another tasty whole wheat product; it contains the natural fruit fat of the California Avocado or Alligator Pear as shortening.”

The section titled “Natural whole rice” (p. 156) notes: “Whole rice, also called brown rice, contains the bran, cuticle, and germ of the cereal. In milling nothing has been removed but the husk and dirt.”

The section titled “The Soy Bean, a Remarkable Food” (p. 158-61) discusses boiled soy beans, soy bean milk, tofu (“it is called by the Chinese ‘the meat without a bone...’ Other preparations of the soy bean, which are but little known in this country, are *natto*, *hamananatto* [*hamanatto*], *Yuba* and *Miso*. The principal use of miso, which is a slightly [sic] fermented mixture of soy beans and rice or barley, is for making soups and for cooking vegetables”), soy sauce, soy bean sprouts, and various recipes. Under “Ready made soy bean products” (p. 161) we read: “As the preparation of the soy bean in the average household is often not convenient, the author has arranged to supply the following products at reasonable prices: Canned Soy Beans, Soy Bean Spread, Soy Bean Stew, Soy Bean Loaf, Soy Vegetable Onion Soup, Soy Bean Vegetable Bologna, Soy Bean Tasty Lunch, to which others will be added in the course of time. These products have met with ready approval, as they fill a long felt want for tasty, nutritious and wholesome vegetable protein foods to substitute meat and dairy products.”

The author’s signature appears at the end of the Preface. Address: Los Angeles, California.

175. Sia, Mary Li (Mrs. Richard H.P. Sia). 1935. Chinese chopsticks: A manual of Chinese cookery and guide to

Peiping restaurants. Peiping, China: Printed by Peiping Chronicle. Published by the author. x + 106 p. 20 x 25 cm.

• **Summary:** Contains 100 recipes. The names of dishes, restaurants, and their addresses are in English and Chinese (with Cc = Chinese characters given). A recipe (p. 37) for “Steamed fish with black salted soy beans” (Cc tou ch’ih) calls for “1 T. [tablespoon] black salted soy beans, 1 small piece ginger, chopped, 1 piece garlic, chopped.” The instructions read: “Clean and smear fish with wine, salt, sugar and soy sauce mixture (which includes wine, salt, and sugar). Place on deep plate. Cover fish with black salted soy beans, onion, ginger, garlic and lard. Steam for 20 minutes.”

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “Black salted soy beans” to refer to fermented black soybeans.

Tofu recipes: Bean curd and shrimp egg (p. 1). Bean curd and prawns (p. 30). Bean curd, eggs and chicken blood (p. 57).

Among Mutton Restaurants the Tung Lai Shun (p. 99) offers Huo-kuo (Hot Pots), including “Tou-fu (Bean Curd)... per plate .06.”

A full page menu (p. 100) for Vegetarian shen lung fan chuan (Cc). The price is \$6.00 per table; the price of each of the 12 dishes is also given.

A full page “List of foodstuffs” (p. 101) gives for each English name, Chinese name (in characters), Chinese name (in Wade-Giles romanization). Soy-related foods include: Bean curd (tou fu). Black salted soy bean (tou ch’ih).

176. Ikkyuji. 1935? Ikkyuji ryaku den engi [Ikkyuji fermented black soybeans]. Kyoto, Japan 3 p. Unpublished manuscript. Undated. [Jap]

• **Summary:** At some time during the 1930s, these three documents were donated (apparently by Ikkyu-ki) to the Kyoto Prefectural Library and Archives (Call No. K272 188.85 Sh 99). Since all three were from the same source, the library decided to catalog them together under one call number.

Makiko Kageura, who found these documents for Soyinfo Center, says they are written in the “old style” and thus a difficult for her to translate into English. She writes: “Shu oh an, or ikkyuji is a sister temple of Daitokuji. So it is said that the Daitokuji natto was originated from ikkyu-ji natto, or takigi natto (the area name of ikkyuji). I can’t see the name Daitokuji natto in any of the three documents but I can see ‘ikkyuji natto’ or ‘takigi natto.’” Address: Kyoto, Japan.

177. *Chicago J. of Commerce and La Salle Street Journal*. 1936. Etymology—Soy bean. June 20. p. 16.

• **Summary:** Many readers of the current series of articles in this newspaper have asked about the etymology of the plant’s name. “Also many, pointing to the different terms and spellings—soybean, soy bean, soya bean, soja bean, soja

beban, sojox max, soja plant—which appear in the limited but highly specialized literature on the plant, ask what is the correct term.”

For salted soybeans, the early Chinese used a word pronounced *shi* [fermented black soybeans]. Another word, *yu*, was given to the oil used as a condiment. Later the term *shi-yu* was applied to the plant and to the raw beans. “Outside of Manchuria the term became *shi-yau* [Note: This is the Cantonese term meaning “soy sauce”].

The rest of the article contains incorrect information about the etymology of the term “soy bean.”

Note: In 1689 John Ovington, who traveled to Suratt, in India, coined the word “soy” to refer to soy sauce.

178. Cheng, Shao-ching. 1936. Shanghai Restaurant Chinese cookery book. London: Published by the proprietors of The Shanghai Restaurant. 4 + 102 p. 19 cm.

• **Summary:** The recipe for “Dow see jeung (Salted black bean paste)” states (p. 5): “Dow See (salted black beans). Small piece garlic.

“(a) Soak the salted black beans in warm water for 10 minutes. (b) Pound the salted black beans and the garlic together into a fine paste.”

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “Dow See” to refer to Chinese-style fermented black soybeans.

179. Institut International d’Agriculture (International Institute of Agriculture). 1936. Le soja dans le monde [The soybean in various countries of the world]. Rome, Italy: Imprimerie de la Chambre des Deputes, Charles Colombo. viii + 282 p. Bibliography, p. 276-82. No index. 25 cm. [90 ref. Fre]

• **Summary:** A superb early work, containing extensive original information, looking at developments with soybeans and soyfoods country by country, worldwide. Contents. Preface (p. 1). A. Culture of soy (*soja*; p. 4): 1. Botanical description, selection, classification of the varieties. 2. Culture properly said. 3. Enemies and illnesses.

4. Culture in the various countries: 4a. The Americas (p. 38): Antigua, Argentina, Bermuda, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, USA (gives details on all varieties grown, and describes production, history, varieties, and cultural practices in North Carolina, Illinois, Indiana, Iowa, Maryland, Massachusetts, Mississippi, Missouri, New York, Ohio, West Virginia, Wisconsin, Conclusion), Guadeloupe, Guatemala, British Guiana, Dutch Guiana, British Honduras [Belize], Jamaica, Barbados, Martinique, Mexico, Montserrat, Peru, Puerto Rico, El Salvador, Trinidad and Tobago, Uruguay.

4b. Europe (p. 101): Germany, the Danubian countries, Austria, Spain, France, Great Britain, Hungary, Italy, Netherlands, Poland, Romania, Switzerland, Czechoslovakia, Turkey, USSR.

4c. Asia (p. 128): Ceylon, China and Manchuria, Cyprus, Federated States of Malaysia, British India (incl. Punjab, Bihar and Orissa, Burma, Berar, Madras Presidency, Bombay Presidency, Bengal (incl. Nepal, Bhutan, Sikkim, and the district of Darjeeling), Assam, North-West Frontier Province, United Provinces), Netherlands Indies, Indochina (incl. Tonkin, Annam, Laos, Cambodia, and Cochinchine), Japan, Palestine, Siam.

4d. Africa (p. 146): French West Africa, Algeria, Belgian Congo, Cyrenaica, Egypt, Eritrea, Madagascar, Morocco, Mauritius (Ile Maurice), Reunion (Réunion), Rhodesia, Anglo-Egyptian Sudan, Tripolitania, Tunisia, Union of South Africa.

4e. Oceania (p. 153): Australia, Fiji Islands, Hawaii, New Caledonia, New Zealand, Philippines.

B. Utilization of soya (p. 158): 1. The soybean in human nutrition and in industry: Whole soybeans, chart of the uses of whole soybeans, use of soya in the green state (green vegetable soybeans), soy sauce (*dau-tuong* of the Annamites, or *toyo*, named shoyu by the Japanese, or *chau-yau* or *chiang yoo* by the Chinese), condiments and sauces based on soya in the Netherlands Indies (*tempe*, *ontjom*, *tempemori* and *tempe kedele* [various types of tempeh and onchom, p. 168-70]), *tao tjo* [Indonesian-style miso], *tao dji* [fermented black soybeans], *ketjap*, *ketiap benteng* [Indonesian-style soy sauce], soymilk (*le lait de soja*), yuba (*crème de lait de soja*), tofu (*le fromage de soja*) and fermented tofu (*des fromages fermentés*, made by Li Yu-ying near Paris), soymilk casein (*caséine du lait de soja*, for industrial use, including vegetable albumin, or galalithe [galalith]) [isolated soy protein], and artificial wool), soy lecithin (*lécithine de soja*), soy flour (*la farine de soja*, incl. soy bread, soy pastries, and soy cocoa).

Note 1. This is the earliest document seen (Sept. 2010) that uses the term *benteng ketiap benteng* to refer to an Indonesian-style soy sauce.

2. Soy oil (p. 194): Food uses, industrial uses (including soaps, products resembling petroleum, paints, varnishes, linoleum, and artificial rubber), extraction, directory of U.S. manufacturers of materials and equipment for soybean processing, directory of U.S. and Canadian manufacturers of food products based on soya (*produits alimentaires à base de soja*, p. 205-06), directory of U.S. manufacturers of industrial soy products (p. 206-07).

3. Soybean in the feeding of domestic animals (p. 207): Forage, hay, silage, pasture, soybean seeds, the minerals in soybeans, soya as a feed for dairy cows, cattle, buffaloes, sheep, hogs, horses and mules, poultry.

4. Use of soya as fertilizer (p. 257). C. The trade of soya and of its by-products (p. 363): Production of soybeans in the principal countries, economic importance of soybean culture in the USA, soybean trade/commerce including tables of the major importers and exporters, and amounts traded annually in 1931-1934, price of soybeans, cost of production.

List by region and country of people and organizations that responded to a questionnaire sent by IIA (p. 273-76). Bibliography of main publications consulted, listed by region and country of publication.

Reunion (*Ile de la Réunion*): “The soybean (Le Soja) is only cultivated as an experimental crop, on a few square meters at the agronomic station” (p. 148).

Fiji (*Iles Fidji*): Soybean cultivation is not yet practiced in this colony; however soybean seeds are currently being imported in order to conduct a trial.

New Caledonia: In 1928 soybean cultivation was introduced to New Caledonia.

Note 2. This is the earliest document seen (Dec. 2007) concerning soybeans in Bhutan, Costa Rica, Dominican Republic, El Salvador, Guatemala, Israel, Jamaica, Madagascar, Morocco, New Caledonia, Palestine, Peru, or Réunion, or the cultivation of soybeans in Bhutan, Costa Rica, Dominican Republic, El Salvador, Guatemala, Israel, Jamaica, Madagascar, Mexico, the Middle East, Morocco, New Caledonia, Palestine, Peru, or Réunion. It is also the earliest document seen (Dec. 2007) concerning soybeans in connection with (but not yet in) Cyprus; it is stated that soybeans are not grown on the island of Cyprus. Soybean culture is not practiced in the Italian colonies of Eritrea (Erythrée, now part of Ethiopia) or Cyrenaica (Cyrénaïque, now part of Libya).

Note 3. This document contains the earliest date seen (June 2007) for soybeans in Bhutan, New Caledonia, or Réunion, or the cultivation of soybeans in New Caledonia (1928), or Bhutan or Réunion (1936) (One of two documents).

Note 4. This is the earliest French-language document seen (Sept. 2011) that mentions tempeh, which it calls “tempe” (p. 168). It notes that, in general, the indigenous people of the Netherlands Indies use soybeans mainly to make *tempe*, a product which, throughout central and eastern Java, takes the place reserved for *ontjom* in western Java. Tempeh is found in two forms: either in large flat cakes which are cut at the time of sale into small square morsels, or wrapped in folded banana leaves. A detailed description of the preparation of each of these two types of tempeh is given as well as another type of tempe, called *tempemori*, which is made with soybeans and coconut presscake.

Soybean culture is not known to be practiced in the following countries or colonies: Antigua, Barbados, British Honduras (renamed Belize in about 1975), Trinidad and Tobago. Address: Rome, Italy.

180. 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.

• **Summary:** 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. Index of Romanized Chinese names modified from Wade’s system. Index of common English names, with foreign names given in italics. Latin index.

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 Chüan). Bean relish, black variety (Ta Tou Ch’ih). Bean ferment, black variety (Tou Huang; Natto in Japanese). 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 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.

181. Kale, F.S. 1937. Soya bean: Its value in dietetics, cultivation and uses. With 300 recipes. 2nd ed. Baroda State, India: Baroda State Press. xxx + 375 p. Illust. (35 leaves of plates, described in a separate record). Index. 22 cm. 2nd ed. 1937. [66 ref]

• **Summary:** Contents: 1. Deficiencies in the Indian diet and soya bean as a means to rectify them. 2. History of the origin and growth of soya bean: Derivation of the word soya bean, origin of soya bean, literature, primitive man and soya bean, name of the plant, home of soya bean and its expansion, varieties of soya bean, the culture of soya bean is very remote (It “has been the chief article of diet in China for over 7,000 years.”), reference of soya bean in old Chinese records, how and when soya bean became known to Europeans, soya bean in England (from 1890; J.L. North and Henry Ford), soya bean in France (from 1739), soya bean in Italy, soya bean in other countries of Europe, soya bean in United States of America, India and soya bean.

3. The use of soya bean: Importance of soya bean, dietetic importance, industrial importance, agricultural importance (Russia, Mussolini in Italy), medical importance,

soya bean is alkalising in its effect (“Soya bean milk as well as its flour is used in foods for invalids and infants, like Nestle’s food”), longevity and soya bean.

4. World trade in soya bean: Imports to Europe, production of soya bean in Manchuria (58% in North Manchuria), exports from Manchuria, oil and cake industry in Manchuria, soya bean production in Japan, in America, in Africa, in Australia, in Europe, in Java, in India, in other British possessions, estimate of world production of the soya bean, the desirability of the expansion of soya bean cultivation, imports and exports of soybeans, soya bean oil, and soya cake—1913-1927: Denmark, Holland, United States, Great Britain, Japan, France, Russia, China, Germany, Norway, Korea. Source: International Institute of Agriculture, Bureau of Statistics, 1921, p. 420-21. A table (p. 38) shows statistics for world production of soybeans “as estimated by the leading firm of London soya bean dealers” for various years from 1923 to 1929. This includes individual statistics each year for China [incl. Manchuria], Japan, and USA. The world totals in tons are: 3,095,000 (for 1923-25). 3,397,000 (for 1926). 4,325,000 (for 1927). 6,000,000 (for 1928), and 6,570,000 (for 1929; incl. China 5,250,000; Japan 550,000; USA 250,000; Java & Dutch East Indies 120,000; Other Asiatic countries & Africa 400,000).

5. Botany of the soya bean plant. 6. Classification of soya bean. 7. Cultivation of soya bean. 8. Diseases and pests of soya bean. 9. Cultivation of soya bean in India. 10. The constituents of soya bean. 11. Soya bean milk. 12. Soya bean flour. 13. Industrial uses of soya bean. 14. Enriching soil by addition of nitrogen and use of soya bean as fodder. 15. Food requirement of the human body. 16. European and American soya bean recipes. 17. Diabetic dishes, Mahatma Gandhi’s experiments at Magan Wadi and opinion of scientists on soya bean. 18. Chinese and Japanese soya bean dishes: Toffu [tofu] or soya bean curd: Digestibility, utilization, toffu khan, toffu nao, tze toffu (fried bean curd), chien chang toffu (thousand folds), hsiang khan, kori toffu (frozen toffu), preservation of toffu. Natto. Tokio natto and Kyoto natto etc. Hamanan natto [Hamanatto]. Yuba. Misso [miso]. Soya sauce. Soya bean confectionery. Roasted beans (Chinese).

19. Indian soya bean dishes: Hindustani dishes, Moglai dishes, Gujarati dishes, Maharashtrian dishes, Bengali dishes, Goa dishes, Tanjore dishes. Appendixes. 1. Acreage of soya bean in Manchuria during the last 5 years. 2. Total figures of export during last 5 years. 3. Bibliography. 4. Some opinions about the first edition of this book.

The preface begins (p. iii): “This little book is written in response to innumerable inquiries I have had from time to time after the inauguration of the plantation ceremony of Soya Beans at the State Agricultural Experimental Station by H.H. the Maharaja Gaekwar of Baroda in November 1933.

“A few months after this a food exhibition was held in Baroda where many Soya Bean dishes—Indian, European and Chinese—were exhibited. The leading papers and journals all

over the country spoke in very glowing terms about the Soya Bean dishes that were exhibited... Later on at the request of Messrs. Mitsui Bussan Kaisha Ltd., a leading Japanese Firm in Bombay, a Soya Bean Exhibition and Restaurant were run in the Japanese village at the H.O.H. fete. So keen was the interest and enthusiasm evinced by the cosmopolitan public of Bombay that seats in the restaurant had to be reserved in advance. The presence of H.E. the Governor and Lady Brabourne and many Indian princes was an additional evidence of the ever growing popularity of the tasty Soya Bean dishes served there.

“At the closing of the H.O.H. fete many prominent people of Bombay requested me to continue the restaurant at a convenient place in the city, and asked me to open soya-bean milk centres for the children of the poor who could not afford to buy cow’s milk. Many were ready to finance any scheme that I would propose, but unfortunately my time was not my own as I had to attend to my duties in the State and could not take advantage of their generous offer.

“The Departments of Agriculture of the various provinces of India as well as many Indian States asked me to supply them with literature regarding the cultivation and the uses of this most useful bean. The Department of Commerce and Industry of the Government of Bombay inquired if I could furnish them with information about the machinery for the extraction of Soya-bean milk. Letters of inquiries from private individuals kept pouring in daily from all parts of India. All this has induced me to undertake the preparation and the publication of this book...

“From the number of experiments carried on in the Baroda territories and outside it, I feel sure that the Indian soil is most suitable for the cultivation of soya bean...

“The leading thought of the day in India is, ‘Village uplift,’ and ‘Rural reconstruction.’

“Baroda, 7th January 1936, F.S.K. (p. iv)

“Preface to the Second Edition: I feel grateful to the public for having given such a hearty reception to the first edition of my book. It is running into a second edition within a year...

“Now, Soya Bean Bakeries and Restaurants have been started in the city of Bombay and in many other towns in India, and Soya Bean products are exhibited in almost all the exhibitions...

“I feel highly thankful to His Highness the Maharaja of Baroda who gave me an opportunity last year of visiting Russia, where I have seen that seven to ten per cent. of Soya Bean flour was being added to the wheat flour in order to enhance the nutritive value of the bread. The Soya Research Institute at Moscow is making researches into the nutritive, industrial and economical values of Soya Bean. I have seen there the actual working of the Soya-bean milk extracting plant. They make casein out of Soya-bean milk. Soya-bean cream is sold in the market.

“I visited the dietetic clinics in England, France,



Germany, Austria and other European countries, where doctors prescribe Soya Bean bread for diabetic patients. In Russia, rickets and consumption are treated by Soyolk extracted out of Soya Bean...

“France is growing Soya Bean on còlt de jura [sic, Côte d’Azur, on the Mediterranean?]. In England, through the efforts of Mr. J.L. North, Soya Bean is realised as a field crop for the last two years.

“Paris, 3rd April 1937. F.S.K. (p. ix).” Address: Food Survey Officer, Baroda State, India.

182. Kishlar, Lamar. 1938. Soja max—The soybean. In: Soybean Nutritional Research Council, ed. 1938. The Composition and Nutritive Properties of Soybeans and Soybean Oil Meal; A Literature Review. Chicago: SNRC. 62 p. See p. 7-9. Oct. [9 ref]

• **Summary:** “This is the success story of an immigrant plant which came in to America and made good. This is the story of Soja Max, the soybean, who waited 5,000 years for his big chance, and, when opportunity knocked, made a lasting place for himself in American agriculture and commerce on the basis of merit and merit alone.

“The soybean is a native of Asia. It is one of the oldest crops grown. How long ago man started to cultivate the soybean no one knows. Some say that soybeans have been grown for 25,000 years (Breedlove, 4 June 1936, p. 12). The first written record seems to be a Chinese book on Materia Medica, *Pen Ts’ao Kong Mu* written by Emperor Shen-nung about 4,800 years ago (Horvath, May 1931, p. 36).

“Even the name is cloaked with mystery. For the salted soybeans [fermented black soybeans], the early Chinese had a word pronounced ‘Shi.’ Another word, ‘Yu,’ was given to the oil used as a condiment. Later the term ‘Shi-yu’ [fermented black soybean sauce] was applied to the plant and to the raw beans” (Chicago J. of Commerce, 20 June 1936, p. 14).

“Linnaeus, the first botanist to make a scientific study of the leguminous plants, applied the Greek word, glycine, meaning sweet, to all the ground nut species of legumes. Since the soybean had very large nodules on the roots, he called it Glycine Max. Many years later Moench found that the soybean was a distinct genus. He renamed it Soja Hispida. More modern authorities have shown a preference for Soja Max, the name which has become generally accepted.

“The soybean was a long time in coming to America. In 1804 a Yankee Clipper ship, searching the Chinese ports for a return cargo, loaded several bags of soybeans as reserve food supply and brought the first importation to America” (Burlison 1936).

“More than one hundred years passed. A few soybeans were raised mostly as botanical curiosities. In 1907, Dr. C.R. Ball of the United States Department of Agriculture, described twenty-three varieties of soybeans, all that were

then known in the United States.” Address: USA.

183. Low, Henry. 1938. Cook at home in Chinese. New York, NY: Macmillan. [xiii] + 274 p. Foreword by Lin Yutang. 21 cm.

• **Summary:** The names of recipes and ingredients in this cookbook are in Cantonese. The Preface begins with an old Chinese saying:

“To be born in Soo Chow,  
“To be clothed in Hangchow,  
”To be fed in Kwanchow.”

It suggests that the food of Kwanchow [Guangzhou, Kuang-chow, formerly Canton] is well known to be the best in China. “Only within the last few years has the American public realized the deliciousness of Chinese foods, prepared in the original Chinese style.” It is not necessary to keep a large number of Chinese ingredients on hand in order to enjoy these recipes. “If gourmet powder (*mei jing* [MSG]), soy sauce (*see yeou*), black beans (*dow see* [fermented black soybeans]), brown bean sauce (*mien see*), and black sauce (*gee yeou*) are added to the ordinary household supply they will see one through quite well.” “The author has had forty years of cooking experience and is considered an authority on real Chinese food.” Note: Most recipes call for 1-2 teaspoons “gourmet powder” (*mei jing* [MSG]). Some recipes call for bean sprouts, but it is not clear from what kind of beans they are sprouted; probably mung bean.

A “Glossary of ingredients” (p. 5-18) lists the major ones called for in this book, with the Chinese name romanized in Cantonese and the Chinese characters for each. Soy-related ingredients are: Beans, black (*dow see*). Cheese, Chinese (*foo yu*) [fermented tofu]. Cheese, red (*nom yu*) [red fermented tofu]. Curds, bean (*dow foo*). Curds, bean, dried (*tiem jook* [sweet dried yuba sticks]). Sauce, black [black bean sauce; see p. 162. It appears to be a commercial product] (*gee yeou*). Sauce, brown bean (*mien see*). Sauce, soy (*see yeou*).

Note: This is the earliest English-language document seen (Oct. 2011) that uses the term “nom yu” to refer to fermented tofu.

Soy-related recipes: Bean curd soup (Dow foo tong, with “2 bean curds (*dow foo*),” p. 27). Bean curd and hairy melon soup (Jeat kuar tong, p. 27). Bean curd and mushroom soup (Dow foo tso koo tong, p. 28). Chinese okra and bean curd soup (Sing kuar dow foo tong, p. 29-30). Snails with black beans (Chow tien lor, p. 67). Sea bass with black beans (Dow see yu, with “4 teaspoons black beans (*dow see*). 1 piece green ginger, 2 cloves garlic.” “Soak black beans until soft, then add ginger and garlic. Crush until fine.” Later the crushed mixture is added to the other ingredients and all are brought to a boil, p. 74).

Note: This use of fermented black beans, with garlic and/or ginger, to make a sauce in the kitchen would, in later recipes, be given a standardized name: “black bean sauce.”

But in this book, Low uses the term “black bean sauce” (p. 162) to refer to somewhat a different commercial sauce.

Sea bass and vegetables with black beans (Sy wu yu, p. 75). Fried fish with bean curds (Dow foo yu, p. 76). Steamed fish with bean curds (Dow foo jing yu, p. 76-77). Smelts with brown bean sauce (Jui suut yu, p. 84). Sturgeon with bean curds (Mun leung dun, p. 84-85). Crab meat with bean curds [and soy sauce] (Dow foo hai, p. 90). Shrimps with bean curds (Dow foo gee ha, p. 99).

Boiled chicken with soy sauce (See yeou gai, p. 107-08). Duck with soy sauce (Tung tze op, p. 141). Squab with soy sauce (Tung tse gop, p. 156-57). Beef with bean curds (Dow foo ngow yuk, with “4 bean curds {dow foo}” and “½ teaspoon black bean sauce {gee yeou},” p. 162). Roast pork with bean curds and oyster sauce (Tar sheou ho yow dow foo, p. 172). Pork with bean curds (Dow foo chow gee yuk, p. 172). Pork with lotus root and red cheese (Leen gnou nom yu gee yuk, p. 179-180). Steamed spareribs with black beans (Chow pii yuk, p. 187-88). Scrambled eggs with bean curds (Dow foo chow don, p. 199-200). Spinach with Chinese cheese (Chow bor choy foo yu, p. 209).

The chapter titled “Cheese” (p. 221-23) has only one entry and no recipes: “Chinese cheese (foo yu). The Chinese do not serve their cheese as a separate course at the end of the meal as Americans do, but see it as a main course. It is eaten with hot rice. This cheese (foo yu), strictly speaking, is not a cheese at all because it contains no milk. It is the bean curd (dow foo) aged in Chinese wine. The flavor is marked, and a taste for it is easily acquired by cheese-lovers.”

The author has an entire chapter titled “Chow mein” (p. 243-52). Plain chow mein is almost the same as Chicken chow mein, but with ½ cup less chicken. Fried noodles in called “Jow mein.” Chow mein Cantonese is one of the most popular luncheon dishes among the Chinese. Recipes are given for Beef chow mein, Chicken chow mein, Lobster chow mein, Shrimp chow mein.

Another entire chapter (p. 253-62) is devoted to “Chop suey, including Plain, Chicago, Mixed vegetable, Mushroom, Beef, Pineapple, etc.”; none of these recipes call for rice or noodles.

184. Sia, Mary Li (Mrs. Richard H.P. Sia). 1938. Chinese chopsticks: A manual of Chinese cookery and guide to Peking restaurants. 2nd ed. Peking, China: Peking International Women’s Club. xvii + 144 + 6 p. Frontispiece. Illust. Index. 19 cm. [Eng; chi]

• **Summary:** Tofu recipes: Bean curd and shrimp egg (p. 1). Stewed pork with red bean curd and pork (with “1 large piece of red bean curd” [red fermented tofu], p. 28). Stewed spare ribs (with “2 T. [tablespoons] preserved red bean curd,” p. 30). Bean curd and prawns (p. 45). Bean curd, eggs and chicken blood (p. 77). Oxtail Soup (with black beans) (p. 81).

The “List of foodstuffs” (p. 130-36) mentions: Bean

curd, Bean Curd dry, and Bean curd preserved.

A recipe (p. 52) for “Steamed fish with black salted soy beans” (Cc = Chinese characters given) (tou ch’ih) calls for “1 T. [tablespoon] black salted soy beans, 1 small piece ginger, chopped, 1 piece garlic, chopped.”

Note: This 2nd edition has a lovely cover. The names of dishes, restaurants, and their addresses are in English and Chinese.

185. Loeb, August. 1939. The kitchen god returns to the Chinese home: And Chinatown, on this New Year’s Day, pays its tribute to the cuisine for which it is known. *New York Times*. Feb. 19. p. 110.

• **Summary:** Dried chicken bones can be served “with sweet and pungent sauce or black bean sauce.”

Confucius taught the Chinese that the ideal dish should be one-third meat and two-thirds vegetables [i.e. non-meat].

Chow mein is not a particular dish, but rather a general term for fried noodles.

The great majority of Chinese who live in New York come originally from Canton. So their food represents that of southern China more than northern China.

Every Chinese meal begins and ends with tea.

Note: This is the earliest document seen (Nov. 2011) that mentions “black bean sauce.” It is also the earliest document seen (Nov. 2011) in all major U.S. newspapers digitized by ProQuest that uses the term “black bean sauce” to refer to a sauce made in the kitchen as part of a recipe by crushing fermented black soybeans. The new term appears in 1,338 documents between 1939 and the present, including this one in 1939, none in the 1940s, 6 in the 1960s, 21 in the 1960s, etc.

186. A handbook of Philippine agriculture. 1939. Manila, Philippines: College of Agriculture, University of the Philippines. vii + 803 p. No index. 18 cm.

• **Summary:** On the title page: “Issued in commemoration of the thirtieth Anniversary.” The University of the Philippines was founded in 1908. The Foreword (by L.B. Uichanco, Dean, College of Agriculture) states that its College of Agriculture opened on 14 June 1909, at which time “scientific Philippine agriculture was virtually nonexistent.” The idea for the book originated with the former dean of the College of Agriculture, Dr. B.M. Gonzalez, before he was appointed president of the University of the Philippines. Soybeans and soyfoods are discussed extensively.

“Coffee adulterants” (p. 104), commonly mixed with ground coffee, include roasted ground corn, soybean, peanut, mungo, cashew, and sometimes ipil-ipil (*Leucaena glauca*).

In Chapter 1, “Field crops” is a long section titled “Peanut, soybean, cowpea” (p. 132-43). Contents of “Culture of soybean” (p. 134-41): Varieties. Preparation of the land. Planting. Cultivation. Harvesting and threshing. Yield. Green and yellow seeds of Ami soybean. Soybean sprouts. How to

prepare—Soybean coffee, soybean cake [dessert, with baking powder], soybean milk, “tao-si” (salted soybean [fermented black soybeans]; Method furnished by Superintendent of the Davao Penal Colony), “toyo” or soy sauce.

Note: This is the earliest document, and the English-language document seen (Nov. 2011) that mentions fermented black soybeans from the Philippines, or that uses the term “tao-si” to refer to this type of salted, fermented soybean food.

The “Method of preparing ‘tao-si’” (p. 139-40) gives a full-page description on a small commercial scale—as follows: Wash dry soybean seeds and soak in clean water overnight. In the morning, remove the water. Transfer the soaked soybean seeds into a pot containing fresh clean water; boil until beans are soft. Remove boiled beans from the pot and place in shallow baskets to drain the excess water; allow them to cool. Dry beans in the shade for about one-half hour or one hour in the sun. For every 2½ petroleum cans of boiled soybeans, add 1-2 kg of wheat flour. Stir the mixture until beans are thoroughly coated with flour, then dust over about ½ kg of yellow fungus known as *Aspergillus oryzae*; thoroughly stir again. Cover open mouth of basket with a piece of abaca cloth or clean Manila paper and place in a dark room to allow the fungus to incubate. After 2-3 days the mixture will be thoroughly covered with a thick growth of yellow fungus and is now ready for salting. Transfer mixture into an earthen jar (*tapayan*), and to every 2½ petroleum cans of it, add 16 kg of native salt dissolved in two petroleum cans of water. Sun the jar for five days to facilitate curing, then move jar into a shed for further fermentation. “The ‘tao-si’ is ready for use after two months, but the longer it is left to cure, the better the quality becomes.”

The two main kinds of insecticides in 1939 (p. 223-31) were stomach poisons (which kill when eaten; incl. lead arsenate, calcium arsenate, Paris green) and contact poisons (incl. concentrated tobacco decoction, as in Black Leaf “40”).

“Diseases of beans and other legumes (p. 319+) include downy mildew of soybean and rust of soybean.

A table (p. 448) gives the content of five vitamins found in various feeds incl. soybean seeds, soybean leaves, soybean meal, peanut meal, and peanut seeds.

“Leguminous silage” includes that from cowpea, soybean, and mungo [mung bean] (*Phaseolus aureus*). Tables give: (1) The “Average digestible nutrients in feeds” incl. soybean (p. 459, 462).

(2) The “Nutritive value of foods” incl. seaweeds (ara-rosip, *Gracilaria crassa*, p. 534), mungo sprouts (p. 536), green soybeans (p. 537), seguidilla or kalamismis (*Psophocarpus tetragonolobus*, fresh and sun-dried seeds, p. 538), soy products (p. 538-39) incl. soy sauce (toyo, Superior {Senkee and Co.}, Commercial), soy milk—boiled, soy residue (sapal), soy residue after second drawing of toyo, soy curd (toqua [tofu]).

(3) “Foods as sources of minerals” (calcium, phosphorus, iron; p. 580-81), incl. miso or soybean mush, soybeans—baked flour, soybeans—baked sprouts, soy curd or toqua, soy sauce or toyo (four brands: Solo, Great Eastern, Violin, Rooster), tahuri or soybean curd preserved in strong brine solution (solid portion).

(4) “Foods as sources of vitamins” (p. 593-94) incl. bean—asparagus or cigarillas (*Psophocarpus tetragonolobus*), bean—mungo (in pods or sprouts), bean—soy (dry, green, or leaves), peanut butter, seaweed, sesame (p. 601). Address: Manila, Philippines.

187. Giraud-Gilliet, J. 1942. Le soja, aliment d’avenir: manière de le cultiver; 2 à 300 façons de le consommer [Soya, food of the future: How to cultivate it; 200-300 ways to consume it]. Saigon: Imprimerie de C. Ardin. 285 p. Index. [Fre]

• **Summary:** Contents: Dedication. Introduction. Part I: Summary study of soya (the soybean): Its cultivation. 1. The nature of soya: Its area of expansion. 2. Cultivation of soya: Soil, manure & fertilizer, seeds. 3. Interest in soya: Its richness in nutritive elements and comparison with other foods. Various possibilities for utilization: therapeutic uses for hygiene and diseases (vegetarian diet, diabetes, beriberi, diseases of the nervous system, anemia, slimming, milk diet), agricultural uses for fixation of nitrogen in the soil and as a fertilizer, use in the feeding of animals (green forage, dry forage, soybean cake, flour, seeds, germinated seeds, straw and pods, soymilk, milk), industrial utilization (soybean oil and its derivatives, glycerine, soy casein), use as human food (whole dry soybeans, soy sprouts, soybeans mashed or ground after they are cooked, soybeans cracked or crushed before they are cooked, fermented soybeans, soymilk, soymilk derivatives / foods made from soymilk {tofu / *dâu-phu*, yuba / *tao hu ky*, dry yuba rolls / *phu chuc*, beverages}, edible oil), utilization for social work (drops of milk, bowls of soya, inexpensive restaurants, battle against malnutrition and degeneration, for school gardens, pagodas, waste lands).

Part II: The main soyfood products and how to prepare them at home. 1. Soymilk, soymilk curds (*tau hu hoa*), small white cheeses (*petits fromages blancs {dâu-hu miêng}*), folded sheets of yellow yuba (*feuille jaune plissée de crème de soja {dâu-hu ky vang}*), white sheets of yuba (*feuille blanche unie {dâu-hu ky trang}*), dried or smoked yuba (*plquettes séchées ou fumées {dâu-hu ky ngot}*), fermented tofu—like cream cheese (*fromages fermentées: cancoillotte comtoise au soja*). 2. Soy flour: Roasted soy flour, soy bread, sojenta (soy polenta), pasta (soy vermicelli and vermicelli of mung beans *{dâu xanh}* or *song than*). 3. Soy condiments. Solid condiments: natto and douchi (*taotché*), condiments that are pastes: miso and doujiang (*tao tjiung*) and koji [sic, not a paste but used to make miso, doujiang, shoyu, and jiang-you], liquid condiments: shoyu, jiang-you (*tsiang yeou*), (*tao yu*), ketjap (Indonesian soy sauce), Vietnamese

soy sauce (*tuong*).

Part III: Recipes. 1. Introduction: Essential recommendations, the cookery of the poor, comparative cuisine, general recipes. 2. Soups and paps. 3. Hors d'oeuvres and salads. 4. Vegetables. 5. Meat, fish and egg dishes. 6. Breakfasts, sweets, and desserts.

Conclusion. Appendix. Errata. Address: Administrateur des S.C. de l'Indochine; Vietnam.

188. *Wall Street Journal*. 1943. Beatrice Creamery asks listing of more shares: Application to NYSE follows purchase of La Choy Food Products, Inc. Sept. 28. p. 24.

• **Summary:** From the Wall Street Journal Chicago Bureau. Chicago—The first part of this article is similar to that published in the Chicago Daily Tribune today.

La Choy owns and operates its main plant on 23 acres of land in Archbold, Ohio. Its business consists of processing and packing [mung] bean sprouts, tomato products, salted black beans, chow mein noodles, meat products of all kinds, Worcestershire sauce [soy sauce], fruit butters, and other food specialties.

In the future, Beatrice will distribute many of these products. This is a step in Beatrice's further diversification, according to president Clinton H. Haskell.

La Choy's net worth is \$564,086 and net plant value is \$442,687. Current assets are \$267,558 and current liabilities are \$65,407. Beatrice will assume a long-term loan of \$115,000.

The president of La Choy, French Jenkins, will continue as general manager of the La Choy division of the Beatrice Creamery Co. The reorganization will be voted on by La Choy stockholders at a special meeting to be held on 30 Sept. 1943.

189. Mathews, R.H. comp. 1943. A Chinese-English dictionary. Revised. American ed. Cambridge, Massachusetts: Harvard Univ. Press. Published for the Harvard-Yenching Institute. xxiv + 1226 p. Index. 26 cm. [3 ref]

• **Summary:** This excellent dictionary, which romanizes Chinese words using the Wade-Giles system and arranged them in alphabetical order by sound, is a condensed version of the multi-volume dictionary by Giles, and a revised version of Matthews' 1931 dictionary. Soy-related characters include:

Chiang (No. 661, p. 90)—Soy [sauce], pickled vegetables, pickled bean curd (*chiang toufu*) [fermented tofu].

Fu (No. 1930, p. 285)—Tofu.

Ju (No. 3144, p. 473)—Milk. The breasts; a teat, a nipple. To suckle. *Fuju* ("rotten milk")—A milky preparation from beans. [Note: Probably fermented tofu].

Shih (No. 5805, p. 813)—Cantonese soy [sauce], salted beans [fermented black soybeans] eaten with rice, gruel, etc.

Tou (No. 6478, p. 939-40)—See No. 6481.

Tou (No. 6481, p. 940)—Beans, oil expressed from beans, young bean plants, bean stalks, bean flour, bean curd, dried cakes of bean curd usually flavored with soy, underlings = bean curd officials, soft hearted, bean sprouts [mung]—used as a vegetable, bean pods, soy [sauce], bean-cake, four kinds of soya beans (ta-tou, hei-tofu, huang-tou), (*Glycine hispida*).

Note: At Mao (No. 4357, p. 614, meaning "hair") there is no entry for *Mao tou* = "green vegetable soybeans." Address: China Inland Mission, Shanghai.

190. Yamazaki, Momiji. 1945. *Tôa hakkô kagaku ronkô* [East Asian studies/theses on fermentation chemistry]. Tokyo: Daiichi Shuppan K.K. han. 436 p. Published 20 March 1945. [160\* ref. Jap]

• **Summary:** This remarkable work, published in a limited edition of 1,000 copies, was written by Dr. Yamazaki, a microbiologist, who graduated from the Department of Agricultural Chemistry, Tokyo University, in 1914. The book is a review of existing Asian literature on fermented foods, with a good bibliography. Dr. Yamazaki may have been employed by the laboratories of the Manchurian Railway.

Contents: Introduction: Preface, origin of alcoholic beverages, various alcoholic beverages of the world, summary. Chinese fermentation chemistry documents: Preface, Chinese ancient grains, Chinese ancient grain foods, Various types of Chinese-made koji, Various Chinese-made alcoholic beverages, summary. Japanese fermentation chemistry documents: Preface, Japanese land, inhabitants on Japanese land, Japanese New Stone Age culture, conclusions. Real papers: Japanese ancient foods, Various types of Japanese-made koji, Japanese-made various alcoholic beverages, summary. Korean fermentation chemistry documents: Preface, Korean produced grains, Various types of Korean-made koji, Various Korean-made alcoholic beverages, summary. Tables.

191. 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 chopstickles [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 in 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).

A table (p. 29) list widely used Chinese foods and seasonings in four columns: Chinese characters, Mandarin, Cantonese, and English. Soy related ingredients (in English, Mandarin, and Cantonese) are: (4) Oyster sauce: hao-yu, hou-yau. (6) Soy sauce (1): chiang-yu (M). Soy sauce (2): shi-yau (C). Soy sauce (3): ch'au-yau (C). (7) First quality soy sauce: sheng-ch'ou (M), shang-ch'au (C). Note 1. The first character means "fresh" or "live." (8) Flour jam: t'ienmien-chiang (M), t'inmin-cheung (C). (9) Bean sauce: Yuanshih chiang (M), yünshi-cheung (C). Note 2. The middle character (shih / shi) refers to fermented black soybeans. (10) Hoisin sauce: haihsien chiang (M), hoisin-cheung (C).

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). 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.

192. Platt, B.S.; Webb, R.A. 1946. Fermentation and human nutrition. *Proceedings of the Nutrition Society (London)* 4(1):132-40. [15\* ref]

• **Summary:** Fermented soy and cereal-soy products found in East Asia may have special nutritive properties as a result of microbial action and they may fall into the group of products of the process which the author calls “biological ennoblement.” Table 1 includes various fermented soy protein foods from Asia: Soya sauce, fermented whole soya beans, and fermented bean curd. Address: Medical Research Council Human Nutrition Research Unit, National Hospital, Queen Square, London, W.C.1, England.

193. Rodrigo, P.A. 1947. Soybean culture in the Philippines. *Philippine J. of Agriculture* 13(1):1-22 + 5 plates. Third quarter. Summarized in *Soybean Digest*, May 1948, p. 41. [14 ref. Eng]

• **Summary:** Contents: Introduction. Description and history. Climatic and soil requirements. Varieties. Propagation. Preparation of the soil. Fertilizers and lime. Inoculation. Planting. Care of the crop. Harvesting and production: For day, for seed. Cost of production. Uses of soybeans. Diseases. “In the big cities in the Islands, many of the soybean products like soy sauce or toyo, tokua, tajuri [fermented tofu], tojo [soymilk curds], miso, etc. are becoming more popularly used by the Filipinos, and will be more so as their nutritive values become more fully realized. Already, in some sections of the country where soybean is being grown, the seed is used either as a green or as a dry vegetable. The dried bean is roasted and is eaten offhand or is used in adulterating coffee, and the bean in the dough stage is boiled and eaten like peanut” (p. 2).

Note 1. This is the earliest English-language document seen (Oct. 2011) that uses the word *tajuri* to refer to fermented tofu.

Table 1 shows annual imports (in kg) of soybeans and soybean products into the Philippines from 1929 to 1940, including dried beans, soy sauces, soybean meal, tausi (fermented black soybeans, salted), paste (miso), and total. By far the leading import (by weight) from 1929 to 1937 was dried soybeans. In 1929 some 4,574,497 kg were imported. This figure rose gradually (with ups and downs) to a peak of 5,660,575 kg in 1937, then fell sharply to only 237,666 kg in 1940. Soybean sauces were the No. 2 import, starting with 606,231 kg in 1929, rising to a peak of 1,441,563 kg in 1932, then remaining above 1,000,000 for most years thereafter. Imports of soybean meal started in 1935 with 660,699 kg; they reached a peak 1,023,303 in 1936 (the next year), then remained near 1,000,000 thereafter. Tausi was first imported in 1940, the amount being 151,571 kg.

Table 2 shows the value of these items (in pesos). In

1940 the imports of greatest value were soy sauces (120,346 pesos), soybean meal (50,682), and tausi (20,280).

“In the Philippines, while the plant has been under cultivation since the Spanish regime [1571-1898], it has not gained much headway due mainly to the lack of a variety suitable for commercial planting, and perhaps due to want of interest among farmers” (p. 4-5). The Philippine Bureau of Plant Industry has, to date, introduced more than 200 soybean varieties to the Philippines from the USA, China, Japan, Hawaii, Java, and India, but it presently recommends only a few varieties for commercial planting. These include Ami, which has long been cultivated there and is well adapted to the varied soil and climatic conditions.

Based on the results of a number of years’ trials in different regions of the Islands, the following varieties have been found to be productive: Yellow Biloxi Hybrid (introduced from Hawaii in 1936), Mis 28 E.B. Str. 3910 (introduced from India in 1937), Mis 33 Dixi (introduced from India in 1937), Head Green (introduced from the USA in 1935), and American Black. All of these varieties are good for May and June planting, and all but Yellow Biloxi Hybrid are good for September to December planting (dry season).

“In the Philippines, the green but fully developed pods are harvested, and the seed is cooked and eaten in practically the same way as lima bean or patani... In Lipa, Batangas, soybean in the dough stage is boiled in the pod and sold and eaten offhand” like peanuts. The more common soy products made in the Philippines are soy sauce or *toyo*, tokua [tofu], tausi [fermented black soybeans], and miso. “Soybean milk is being manufactured by the Bureau of Plant Industry in a limited scale and a big modern firm has started putting soybean milk and other products in the local markets” (p. 15-16).

Note 2. This is the earliest English-language document seen (Nov. 2011) that uses the word *tausi* to refer to fermented black soybeans. Address: Chief, Horticulture Research Section, Bureau of Plant Industry.

194. Liang Shih-chiu [Shiqiu]. ed. 1947? *Zui xin shi yong Han Yin ci dan* A new practical Chinese-English dictionary. The Far East Book Co. Ltd. 1355 p. See p. 1037-38. 22 cm. [Eng; Chi]

• **Summary:** Gives the Chinese characters and their pronunciation for the following soy-related terms: Soybean cake; bean curd; a semi-transparent film formed on the surface of soybean milk; a store where bean curd is made for sale; spiced and dried bean curd; soybean cheese; legume; (said of girls) in teens; the pods of beans or peas; soybean milk; fermented beans in paste form; residue of soybeans in making bean curd; fermented and seasoned soybeans; pisolite [bean + stone]; legumin; bean sprouts as a vegetable; soybean oil. Address: Editor in Chief.

195. Wood, Morrison. 1948. For men only! Would you like

to try an authentic Chinese dish on home range? Its lobster Cantonese. *Chicago Daily Tribune*. Dec. 31. p. 14.

• **Summary:** Ever since he learned “that chop suey was not a real Chinese dish,” the writer has eaten only authentic Chinese dishes. His recipe for Lobster Cantonese calls for “1 teaspoon of black bean garlic sauce.” To make this sauce, which is a superb condiment, “Wash ¼ cup Chinese black beans thoroly under running water, then drain.” Combine the beans with garlic and fresh ginger, then chop the mixture very fine.

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “Chinese black beans” to refer to Chinese style fermented black soybeans.

196. Koens, A.J. 1948. Peulgewassen [Leguminous crops]. In: C.J.J. van Hall and C. van de Koppel, eds. 1948. *De Landbouw in de Indische Archipel* [Agriculture in the Indonesian Archipelago]. ‘S-Gravenhage: N.V. Uitgeverij W. van Hoeve. Vol. IIA. 905 p. See p. 241-42, 258-274, 473. In collaboration with G.G. Bolhuis. [79 ref. Dut]

• **Summary:** Contents: The plant. Varieties. Selection. Soil and climate. Methods of cultivation. Insects and diseases. Economics. Planting. Utilization. Value as a food (source of nutrients) for the people of Indonesia (*Indonesië*). Trade and commerce (*Handel*). Contains an excellent bibliography.

The section on “Utilization” mentions (and describes briefly how each is made): green vegetable soybeans (*de halfrijpe planten*), whole dry soybeans, roasted soybeans, ketjap (or soja or shoyu or taoyoe), tofu (*tao-hoe*, *bonenkaas*), baked tofu, firm tofu (*tao koan*; also simmered with *Curcuma longa*), sprouts (*taogè*), Indonesian-style miso (*tao-tjong*), fermented black soybeans (*tao-dji*), tempeh (*tempe*), MSG (*Vetsin*), soybean meal (*sojameel*).

197. Li, Ch’iao-p’ing [Qiaoping]. 1948. The chemical arts of old China. Easton, Pennsylvania: Journal of Chemical Education. viii + 215 p. See p. 170-80. Illust. 24 cm.

• **Summary:** Chapter 14, titled “Soybean products,” begins: “Three kinds of soybean products, fermented soybean, soybean sauce and soybean curd, have been largely produced in China and Japan and exported to other countries where they are used to a smaller extent. The first kind called in China ‘chiang’ or ‘shih’ (1 Cc = Chinese character of each is shown), the second ‘chiang yu’ or ‘chih-yu’ and the last one ‘tou-fu’ (2 Cc) are all considered by the Chinese and Japanese as important articles of diet.

“Both the fermented soybean and soybean sauce are made by the fermentation of either soybean alone or the mixture of soybean and wheat flour in salt solution. Their manufacture originated in the Chou Dynasty [pinyin: Zhou, 1045-256 BC]. It is stated in *Chou li* [pinyin: Rites of the Zhou dynasty, ca 300 BC] that an officer, i.e. the Imperial Cook, was appointed to take charge of making and providing one hundred and twenty of the fermented soybean per year

for imperial use. According to another book, the invention of this condiment was attributed to the Duke of Chou. The History of the Han Dynasty 91.7 and the *Shih shi* 129.15 also say that many merchants enriched themselves or obtained titles by the sale of these products in the time of the Ch’in [pinyin: Qin, 221-206 BC] and the Han [202 BC to AD 220] dynasties. From this it is obvious that they were already largely consumed by the Chinese people in ancient times.

Bean curd also had its origin in early times. It is said to have been made first by Liu An (2 Cc) (died 122 B.C.) and was early known as *li-ch’i* (2 Cc) *Shih wu yüan hui* 30.6, *Materia Medica* 25.2.

“During recent years a considerable amount of scientific investigation of soybean sauce has been carried on in China. Methods of manufacture described in early Chinese texts have been modified in many respects...”

“The ancient method of preparing fermented soybean:” A detailed (2¼-page) translation is given of the method for making jiang and shih described in the *Ch’i min yao shu* 8.2b-7a.

The introduction to the translation states: “The process of making the fermented soybean consisted of subjecting the mixture of soybean and wheat flour to the action of certain species of mold and mixing and storing the product with brine in a large container to allow the fermentation to take place.”

Note: This book was first written in Chinese, entitled “History of Chemistry in China,” and published by the Commercial Press Ltd., Shanghai, China. The 1st edition appeared in 1940 and the 2nd ed. in 1941. It was also translated into Japanese and published there in 1941. Address: 10A Hua Yuan Ta Yuan, Fu Ch’ien Chieh, Peiping, China.

198. Smith, A.K. 1948. Microorganisms collected in China, Japan, and Korea. 7 p. Unpublished typescript.

• **Summary:** Dr. Smith collected 100 samples in Shanghai (58 samples), Nanking (13), Hangchow, Canton, Tokyo, Noda (near Tokyo, Japan), Korea (7).

199. Harris, Robert S.; Wang, F.K.C.; Wu, Y.H.; Tsao, C-H. S.; Loe, L.Y.S. 1949. The composition of Chinese foods. *J. of the American Dietetic Association* 25(1):28-38. Jan. [12 ref]

• **Summary:** Pages 32-33 give a description of (including the place purchased and processing method) and page 35 gives the nutritional composition of the following products: Soybean cheese = Ch’ou tou fu lu. Soybean curd = Tou fu (coagulated with lime). Soybean curd, fermented = Tou fu lu. Soybean curd sheet = Ts’ian chang tou fu. Soybean curd, smoked = Tou fu kan. Soybean, fermented = Tou chi [fermented black soybeans]. Soybean, milk clot (oil skin) [yuba] = Yu pi. Soybean sprouts = Huang tou ya. Soybean, yellow (dried) = Ta tou. Soybean, yellow (fresh) = Mao tou.

A glossary on page 38 gives the Chinese name (in both Chinese characters, and in Wade-Giles romanization) for the soyfoods mentioned above.

“Soybean cheese, *Ch'ou tou fu lu*. Purchased in a shop in Sha Ping Pa. This curd is made by putrefying soybean curd, then sealing it in a preserve jar with wine and spices. After one month it can be eaten with sesame seed oil without cooking. The curd has a very strong odor and flavor and it is used as an appetizer by the wealthy and as a main dish by the poor in many provinces.”

Note 1. This is the earliest English-language document seen (Oct. 2011) that uses the term “*tou fu lu*” or the term “*Ch'ou tofu fu lu*” to refer to fermented tofu. Use of the character for “*Ch'ou*” may well indicate “stinky tofu.”

Note 2. This is the earliest English-language document seen (Feb. 2004) that uses the term “*Tou fu kan*” [pinyin: *doufugan*] to refer to smoked tofu. Address: Nutritional Biochemistry Laboratories, MIT, Massachusetts.

200. Smith, Allan K. 1949. Oriental use of soybeans as food: Notes on Oriental farming practices. II. China. *Soybean Digest*. March. p. 26-28, 30, 32, 34.

• **Summary:** Contents: Soy sauce in China. Sweet flour paste–Tien Mien Chang [Chiang]. Soy or vegetable milk (incl. Willis Miller, yuba). Soybean curd or tofu (incl. use in Buddhist restaurants to look like meat, poultry, or fish dishes).

Soybean cheese [fermented tofu]. Fen-t'iao from mung beans (vermicelli). Fermented soybeans [fermented black soybeans] (made from small black soybeans). Vinegar fermentation process. Address: Northern Regional Research Lab., Peoria, Illinois.

201. Smith, Allan K. 1949. Oriental use of soybeans as food: Fermented soybeans [Chinese-style] (Document part). *Soybean Digest*. March. p. 32.

• **Summary:** “Small black soybeans are used for this particular product which is a delicious appetizer with a characteristic flavor similar to that of soy sauce. In preparing the fermented beans for table use they are usually soaked in water for an hour and cooked with vegetables or meat. The period for fermenting beans is between October and April.

“For the fermentation process sound whole beans are cleaned and soaked in water for 24 hours and steamed for 5 hours at atmospheric pressure. The beans should be soft but not mealy.

“The steamed beans are spread on trays about ½ inch deep and inoculated with *Mucor* species [of mold] and placed in a [warm] room of constant temperature of 30°C. [86°F] and of high humidity. They are incubated for 7 to 15 days, depending on the conditions in the room, and the chief fermentation takes place at this time.

“The fermented beans are now transferred to an earthen jar and sealed. The jars are aged 6 months or longer but not

more than 6 years. Some further fermentation takes place during this period and the flavor and taste improve with time of aging. The product may now be seasoned and packed in tins or paper cartons. The seasoning for 150 pounds of beans may consist of 14-15 lbs. of salt, ½ to 1 oz. of spices, 4-8 oz. of wine or whiskey.

“The above process was described by Hi-Lieng Lin, department of agricultural chemistry, National Central University, Nanking, China.”

Note: Dr. Smith apparently never observed the process in person. Address: Northern Regional Research Lab., Peoria, Illinois.

202. Smith, Allan K. 1949. Oriental methods of using soybeans as food: With special attention to fermented products. Notes on Oriental farming practices. *USDA Bureau of Agricultural and Industrial Chemistry*. AIC-234. June. 40 p.

• **Summary:** Page 1 states: “The text of this bulletin, with slight revisions, is as it appeared serially in *The Soybean Digest*, issues of February through June, 1949, although many additional photos appear herein. It is processed with the publisher's permission.” Note: An enlarged 65 page edition was issued in July 1961.

Photos show: (1) Nine people in a field cultivating soybean with hoes near Nanking, China. All of these workers but one are women. July 1948. (2) “The three-man shovel, Korean version of the turning plow. The motive power is supplied by the man holding the ropes.” (3) A man and donkey threshing wheat with a stone roller. (4) A water buffalo and man pumping water from the rice fields. All parts of the pump and elevator are made of wood. Near Nanking, China, July 1948. (5) Windmill used for pumping water. The sails or vanes are mats woven from grass. (6) Children with baskets of soybean sprouts and inflated Chinese national currency in the market place at Canton, China. Aug. 1948. (7) Soybean milk for sale on the streets of Canton, China. Aug. 1948. It is in bottles, carried using a shoulder pole. (8) A wedge press for oilseed operations at Canton, China. Preformed disks of the flaked or ground meal are inserted in the slot and turned clockwise in the hollow log; pressure is applied with wooden wedges. July 1948. (9) Equipment for steaming soybeans preparatory to making soy sauce. Steam is passed upward through the wooden tanks from a boiler beneath. Peiping, China. 1948. (10) Soy sauce preparation. Steamed soybeans are placed in woven baskets or trays for 3 to 7 days to permit the growth of the mold *Aspergillus oryzae*. Nanking, China. July 1948. (11) Many earthenware jars for soy sauce production in a courtyard surrounded by houses. “Following the growth of a thick mold on the soybeans, they are mixed with parched and cracked wheat and placed with salt solution in earthenware jars for fermentation, which lasts 3 months to 2 years. Soy paste [chiang] is fermented in a similar manner but it contains



less water and the fermentation period is about 3 months. Shanghai, China. Aug. 1948.” (12) “Soybean curd and vegetables displayed for sale in market place, Seoul, Korea. Aug. 1948.” (13) Squares of soybean curd covered with white mold on round, woven bamboo trays. “This is the first step in making soybean cheese. Canton, China, Aug. 1948.” (14) Two rows of large hydraulic presses in the mill of the China Vegetable Oil Company, Shanghai. June 1948. (15) Men loading round, hydraulic-pressed soybean cakes onto a truck, on the Bund. Shanghai, July 1948. (16) Men and an ox preparing a seed bed at a Japanese agricultural experiment station near Tokyo. 1948. (17) “A miso plant in Tokyo. The large tubs [vats] in foreground are used for the fermentation of miso. A part of this plant was destroyed by bombs during the war. Aug. 1948.” (18) Three men standing by presses destroyed during bombing raids over Tokyo. These presses formerly were used for filtering monosodium glutamate. July 1948. (19) Many stacked wooden tubs of ajinomoto (monosodium glutamate) ready for shipment at a plant located between Tokyo and Yokohama, Japan. Aug. 1948. This plant had a maximum production of 7.5 million pounds of ajinomoto in 1937. (20) Agricultural Experiment Station near Seoul, Korea. This station was built by the Japanese during their occupation of Korea. Later it was taken over and administered by the newly formed Korean Government. Aug. 1948. (21) A Korean boy standing in a field of sorghum interplanted with soybeans; this is a common practice in Korea. 1948. (22) A boy using a shoulder pole to carry two wooden buckets of night soil to the land. Korea. 1948. (23) A wooden shopper looking over the different varieties of soybeans in the market place at Seoul, Korea. Aug. 1948. (24) Outline map of Korea showing where principal varieties of soybeans are grown, the section in which each variety is found, the acreage, and production. Address: Head of Meal Products Investigations, Oilseed Crops Lab., Northern Utilization Research and Development Div., Peoria, Illinois.

203. Feng, Doreen Yen Hung. 1950. The joy of Chinese cooking. New York: Greenberg. 227 p. Illust. Index. 24 cm.  
 • **Summary:** The section on “Ingredients” describes each basic ingredient, and gives the Cantonese name plus Chinese characters, including: (1) “Soya sauce” (*jeung yow*) is an absolutely essential basic ingredient. It “can nowadays be found in almost all neighborhood delicatessen or grocery shops” (p. 21). (2) “Bean sprouts” (*dow ngaah*). “They are usually golden yellow in color and possess a strong flavor and a rather crunchy texture.” An illustration shows these sprouts, which appear to be soybean sprouts (p. 22-23).

(3) Two types of dried yuba (*fooh jook* and *tiem jook*), both illustrated. When soya bean milk is boiled, it separates into various layers; “the rich cream that rises is called *fooh jook*, and the settling sediment is called *tiem jook*. When dried, they look like stiff boards glazed with enamel, but after they have been cooked they become creamy and

gelatinous. *Tiem jook* is used in fish dishes; while *fooh jook* is usually cooked in soup” (p. 30-31).

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term *fooh jook* to refer to dried yuba sticks, or the term *tiem jook* to refer to sweet dried yuba—specifically to the thicker, sweeter, less expensive bottom yuba, called *ama-yuba* in Japan. In the illustration, the shapes of the two types of dried yuba are completely different. The *tiem jook* looks like a stiff rectangle about 1/4 inch thick.

(4) Chinese sauces (*jeung*) come in bottles or cans (p. 32): (4a) Soya sauce (*jeung yow*) is an almost black sauce made from soya beans. The best substitute is Maggi. (4c) Bean-curd cheese (*fooh yü*) [fermented tofu] “Grayish-white little cubes of pressed bean-curd fermented in strong wine.” It may be used in cooking. (4d) Bean-curd cheese, Eastern style (*naam yü*) [fermented tofu]. Fermented in a brick-red sauce, it is usually used for cooking. (4f) Tiny black fermented beans (*dow see*) [fermented black soybeans]. In cooking, these are generally crushed and used to season other strong-smelling ingredients such as fish. They add “a delightful spiciness to the sauce.”

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “black fermented beans” to refer to *dow see* or fermented black soybeans.

(4g) A famous red sauce (*hoy sien jeung*) [Hoisin sauce]. This famous red sauce is often used in cooking shellfish and duck; it is widely served with Peking roast duck. There follows a description (p. 33) of how to make bean-curd cheese from fresh bean curd. (5) Oils and fats, incl. vegetable oils like soya bean oil, peanut oil, or sesame oil.

Note 1. This is the earliest English-language document seen (Oct. 2011) that uses the terms “Bean-curd cheese” (with hyphen) or “fooh yü” or “naam yü” to refer to fermented tofu.

Note 2. This is the earliest document seen (Sept. 2008) that mentions Hoisin sauce, whose Chinese name is *hai-hsien chiang* (Wade-Giles) or *haixian jian* (pinyin). Its main ingredient is soybeans.

Soy related recipes include: Pig’s feet soya bean soup (*Jüh gerk fooh jook tong*, with yuba, p. 80). Oyster sauce bean curds (*Ho yow dow fooh*, with fresh bean curd, p. 155). Many other recipes use soya sauce as a seasoning.

Note: This book was first published in 1950 by Greenberg in New York City (227 p., 24 cm). It was next published in 1952 by Faber and Faber in London (227 p., 23 cm). Grosset & Dunlap (1954) appears to be the third.

204. Morse, W.J. 1950. History of soybean production: 2. Ancient history (Document part). In: K.S. Markley, ed. 1950. Soybeans and Soybean Products. Vol. I. New York: Interscience Publishers or John Wiley & Sons. xvi + 1145 p. See p. 4-6.

• **Summary:** “The early history of the soybean, like most

important food crops, is lost in obscurity. Story tellers of the Far East for centuries have related with untold variations story book tales of the remarkable history of the soybean. One of the oft-repeated tales tells of the saving of a bandit besieged caravan from starvation by the food of the beans of a wild vine-like plant—a plant then unknown but later identified as the wild soybean. From that date the soybean is said to have become the very staff of life of China.

“Ancient Chinese literature reveals that the soybean was extensively cultivated and highly valued as a food for centuries before written records were kept. It is said to be one of the grains planted by Hou Tsi, one of the gods of agriculture. The first written record of the plant is contained in the books *Pên Ts’ao Kong Mu*, describing the plants of China by Emperor Sheng-Nung in 2838 B.C. The soybean is repeatedly mentioned in later records and was considered the most important cultivated legume and also one of the ‘Wu Ku’ or five sacred grains—rice, soybeans, wheat, barley, and millet—essential to the existence of Chinese civilization. Seed of the soybean was sown yearly with great ceremony by the emperors of China, and poets before the Christian era extolled the virtues of the soybean in its services to humanity.

“Many of the early writings record the advice of agricultural experts on soil preferences, proper time of planting, methods and rates of planting, the best varieties to plant under different conditions and for different uses, time to harvest, methods of storage, and utilization of the many varieties for different purposes. Some of this expert advice goes as far back as 2207 B.C., indicating that the soybean was perhaps one of the oldest crops grown by man.

“The soybean was included in the second class of drugs in many of the old Chinese books and was regarded as having many medicinal virtues. It is learned from a materia medica text written about A.D. 450 that the soybean was not poisonous but was regarded as a specific remedy for the proper functioning of the heart, liver, kidneys, stomach, and bowels. It was also used as a remedy for constipation, as a stimulant for the lungs, for eradication of poison from the system, improving the complexion by cleaning the skin of impurities, and stimulating the growth and appearance of the hair. In the older records the fresh or green beans were said to be used as a remedy for dropsical affections, gastric fever, bladder trouble, improper circulation of the blood, catarrh, or improper flowing of the fluids of the vital organs, heart, liver, kidneys, and stomach.”

“The earliest mention of making ‘Tou fu,’ or soybean curd, is found in the Han Dynasty Taoist work, *Huai Nan Tsu*, or writings of Liu An (a prince of Huai Nan, who died 122 B.C.). ‘Tou fu’ was regarded as an excellent delicacy among foods and was considered suitable for offering in sacrifice. The loyal and honest officials were said to enjoy this food as much as they did the fresh-killed lamb.

“The making of ‘Shih’ (a bean relish or paste [fermented

black soybeans]) was mentioned in records 33 B.C. to A.D. 23. Soybean sprouts have been in use for many centuries in both the green and dried forms... A fundamental rule of farming was to count the number of persons in the family and plant five acres of soybeans for each person.

“In reviewing the old records it is most interesting to note that many of the qualities attributed to the soybean as a food and as a remedy for certain human ills by the Chinese have been proved by modern scientific research in America and Europe. Further research by medical and nutritional workers may reveal many more valuable qualities of the soybean mentioned in early Chinese literature.”

Note 1. This early history of the soybean was written before truly scholarly and critical study of the subject was begun by Hymowitz in 1970. Many of the statements above have subsequently been shown to be without basis in historical fact and incapable of being documented. Unfortunately, because Morse was probably the world’s leading authority on the soybean at this time, the above statements were later cited or quoted repeatedly.

Note 2. This is the earliest English-language document seen (Nov. 2011) that uses the word *Shih* (alone) to refer to fermented black soybeans. Address: 6809 Fifth St. N.W., Washington, DC; formerly Principal Agronomist, Div. of Forage Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, USDA, Beltsville, Maryland.

205. Morse, W.J. 1950. History of soybean production: 9. Varieties and variety improvement (Document part). In: K.S. Markley, ed. 1950. Soybeans and Soybean Products. Vol. I. New York: Interscience Publishers or John Wiley & Sons. xvi + 1145 p. See p. 17-23.

• **Summary:** “Varieties of soybeans are very numerous [especially in East Asia], no doubt because of the fact that the soybean seems to be peculiarly sensitive to changes of soil and climatic conditions.” Differences in behavior of the same pure-line variety in different locations are often so striking that it is difficult to believe that the variety is the same.

In China, soybean varieties are quite numerous and “are classified according to color, size, shape, time of planting, method of planting and use. The local names of varieties differ in different localities so that it is very difficult to obtain a variety which is widely known.” There has not been much organized research on soybean varietal improvement in China. “The University of Nanking has done more work of this kind than any other organization.”

Although many soybean varieties are grown in Manchuria, only three types are distinguished: yellow, green and black. This has apparently been found adequate for commercial purposes. In detail, these three groups are:

(1) Hwang Tou—yellow beans. (a) Pei Mei (white eyebrow, pale hilum). (b) Chin Huang (golden yellow or golden round). (c) Hei Chi (black belly), dark hilum. These

three varieties are highly prized for the quality of their oil, but Pei Mei and Chin Huang are also valued for the soybean curd [tofu] made from them.

(2) Ching Tou—green beans. (a) Green with yellow germ or cotyledon. (b) Green with green germ or cotyledon. The green bean with the yellow germ yields more soybean curd but of an inferior quality compared to that of the yellow varieties. The green bean with the green germ is preferred for making sprouts.

Hei Tou or Wo Tou—black beans. (a) Ta Un Tou (large, black), green germ. (b) Hsia Un Tou (small, black), yellow germ. (c) Puen Un Tou (flat, black), yellow germ. The Ta Un Tou is used for oil, the Hsia Un Tou for oil and Horse feeds, and the Puen Un Tou for salted fermented soybeans [fermented black soybeans].

“Most of the varieties grown by Manchurian farmers consist of a mixture of varieties of which more than 90% are yellow-seeded types.” The distribution throughout Manchuria of the various types is discussed. Native Korean soybean are classified into eight different groups.

Since 1898 the USDA had brought into the United States more than 10,000 introductions from China, Manchuria, Korea, Japan, India, Netherland Indies [Indonesia], South Africa, and several European countries.

Table 1 (two pages) shows the “Characteristics of soybean varieties most generally grown in the United States,” arranged into seven groups from very early to very late maturity. For each variety in every group is given: Seed color (black, brown, green, olive or greenish yellow, straw yellow), hilum color (black, brown, dark brown, light brown, pale), seeds per lb., oil %, protein %, iodine value (range: 119 to 140), pubescence color (gray, or tawny), flower color (purple, white, or purple & white), shattering (little, medium, or much), and use (commercial {grain or oil and meal}, forage, or vegetable). The groups are: (1) Very early: Agate, Capital, Cayuga, Flambeau, Goldsoy, Habaro, Kabott, Mandarin, Mandarin 507, Mandarin (Ottawa), Minsoy, Ontario [developed in USA], Pridesoy, Sac.

(2) Early: Adams, Bansei, Earlyana, Hawkeye, Illini, Kanro, Lincoln, Manchu, Manchu 3, Manchu 606, Manchukota, Mendota, Montoe, Richland, Seneca.

(3) Medium Early: Chief, Dunfield, Hokkaido, Hongkong, Jogun, Mandell, Mingo, Mukden, Scioto, Viking.

(4) Medium: Aoda, Boone, Funk Delicious, Gibson, Kingwa, Macoupin, Mount Caramel, Patoka, S100, Virginia, Wabash, Wilson.

(5) Medium late: Arksoy, Arksoy 2913, Haberlandt, Laredo, Ogden, Ralsoy.

(6) Late: CNS, Mamloxi, Mammoth Yellow, Palmetto, Roanoke, Tanner, Tokyo, Volstate, Woods Yellow.

(7) Very late: Acadian, Avoyelles, Gatan, Ootootan, Pelican, Seminole, Yelnando.

“Varieties now grown in the United States may be divided into three general groups, namely commercial

(grain), vegetable, and forage. Varieties for commercial seed production are preferably yellow-seeded and are used largely for processing for oil, meal, and soybean flour, but these varieties may also be used for forage purposes if heavier rates of seeding are used. The varieties used principally for forage and green manure are the black- and brown-seeded varieties, which for the most part are low in oil but yield a finer and heavier forage than the commercial and vegetable varieties.

“The term ‘vegetable varieties’ has been applied to varieties introduced from oriental countries where they are used solely as green vegetable or dry, edible soybeans. In extensive tests of the quality of the green and dry beans made by the Bureau of Human Nutrition and Home Economics, Department of Agriculture, and by departments of home economics of various agricultural colleges, the vegetable varieties have proved much superior to the field or commercial varieties in flavor, texture, and ease of cooking. Many of these vegetable types have been found through experiments to be superior to commercial types for soybean milk, soybean flour, soybean curd, salted roasted soybeans, and other food products. (See Chapter XXV). The varieties used for processing and forage purposes usually do not cook easily and have a raw ‘beany’ flavor. Nearly all vegetable varieties cook easily and have a sweet or bland nutty flavor. The most suitable vegetable varieties are those with straw-yellow, greenish-yellow, or green seed, although a few black, brown, and bicolored varieties do have superior qualities as green shelled beans. Vegetable varieties, ranging in maturity from 75 to 175 days, have been developed for all soybean-producing areas in the United States.

“Several commercial companies have canned large packs of the green shelled beans of the vegetable varieties. Quick-frozen green shelled beans alone and in succotash have been placed on the market by several companies, the frozen product being highly satisfactory in color, texture, and flavor. For canning or quick freezing in the green stage, the yellow- and green-seeded varieties make a more attractive product than the black-, brown-, or bicolor-seeded varieties. Vegetable varieties have also become quite popular with the home gardeners and many seedsmen in various sections handle two or more varieties” (p. 22).

Listed from very early to very late, vegetable varieties include: Agate, Sac, Bansei, Kanro, Mendota, Hokkaido, Jogun, Aoda, Funk Delicious, and Seminole. Address: 6809 Fifth St. N.W., Washington, DC; formerly Principal Agronomist, Div. of Forage Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, USDA, Beltsville, Maryland.

206. Pan Ku. 1950. Han Shu [The Han dynasty book]. Translated and edited by Nancy Lee Swann. In: Food and Money in Ancient China: The Earliest Economic History of China to A.D. 25. Han Shu 24 with related texts Han Shu 19

and Shih-chi 129. Princeton. [Chi]

• **Summary:** See Nancy Swann 1950. Address: China.

207. Swann, Nancy Lee. trans. 1950. Food and money in ancient China: The earliest economic history of China to A.D. 25. Han Shu 24, with related texts, Han Shu 91 and Shih-Chi 129. Princeton, New Jersey: Princeton University Press. xii + 482 p. Plus 79 unnumbered pages of illustrations. Illust. Maps. 25 cm. Plus unpaginated Chinese text at end. [1 ref. Eng]

• **Summary:** This translation of the ancient Chinese book titled *Han Shu* contains extensive annotation and footnotes by the author. The *Han Shu*, written by members of the Pan family (father, son, and daughter), is one of China's most important early historical works, rivaled only by its great predecessor and model, the *Historical Record (Shih-chi)* written by Ssu-Ma Ch'ien and his father, Ssu-Ma Tan, completed between 100 and 90 B.C. Pan Ku (A.D. 32-92), the son, to whom the work is generally attributed, inherited his father's writings. The book is basically a treatise on certain economic phases of the Western/Former Han period (206 B.C. to A.D. 8; HS 24AB) together with sketches of 41 rich merchants and wealthy industrialists (HS 91). It is similar in many ways to the *Historical Record*.

Page 419 notes that "the poor only had soybeans to chew and water to drink."

The section on the "Wealth of Ch'in Han Times" (Han Shu 91), which describes the period from about 250 B.C. to A.D. 24, it is stated (p. 434): "[Whoever in] market towns and commercial metropolises [sold] annually [any one of the following categories to the specified quantity] was also equal [in wealth with the head of a great hereditary] family *chia* of a thousand chariots. 1. Liquor, a thousand brewings. 2. Pickles and sauces *chiang-yu*,\* a thousand jars. 3. Sirups *chiang*\*\*\*, a thousand jars. 4. Slaughtered cattle, sheep, and swine, a thousand [animals including] skins."

The square brackets are in the translation. This is sections 91:7a/4 and 8b/1 of the original Chinese text. The authors two footnotes, indicated here by asterisks, read as follows: \* "Consult *Li-Chi* 2:23b, Sacred Books of the East, xxvii, 79. The west has learned of the sauce under the Japanese pronunciation *soy*. It is a 'black, thin liquid, having an agreeable saltish flavor (Stuart 191-195). There are several forms, such as that made from wheat or barley flour, and from various kinds of beans. It is the universal sauce of the Chinese and Japanese, and is to be distinguished from bean relishes *shih*, HS91:11b/5."

\*\* "Chiang, consult *Li-Chi* 2:24a, SBE xxvii, 79. The *Chou Li* listed four drinks and sirups (5:16a), and also six drinks and sirups (5:24b), and in both lists *chiang* is included. Commentators gave opinions that *chiang* was obtained in part from meats."

On page 459, in the section on "Nos. 26-32. Seven Wealthy Men of the Capital," we read that Fan Shao-weng

(no. 31), and Wang-sun Ta-ch'ing (no. 32), were both merchants of bean relishes [shih, fermented black soybeans]' they lived in the city of Ch'ang-an. Address: Princeton, New Jersey.

208. Burnett, R.S. 1951. Soybean protein food products. In: K.S. Markley, ed. 1951. Soybeans and Soybean Products. Vol. II. New York: Interscience Publishers or John Wiley & Sons. xvi + 1145 p. See p. 949-1002. [125 ref]

• **Summary:** Contents: 1. Soybean flour, grits, and flakes: Introduction, early history, types of soybean flour—standard definitions, amount of soybean flour and related products produced, methods of manufacture, soybean flour in bread, soybean flour in other baked goods, soybean flour in the meat industry, soybean flakes in breakfast foods, soybean flakes and derived peptones as brewing adjuncts, miscellaneous uses of soybean flour. 2. Isolated and modified soybean proteins: Aerating agents for confections and related products, neutral spray-dried soybean protein [isolates], soybean protein in [whipped] toppings, soybean protein and flour in confections, soybean protein and flour in ice cream, soy sauce, monosodium glutamate from soybeans, soybean vegetable milk, tofu, miso, yuba, and other Oriental soybean foods (incl. natto and Hamanatto).

The soy flour industry in the U.S. has grown steadily in recent years. Deliveries of soy flour "from the years 1930 to 1940 averaged about 25 million pounds annually. The deliveries have increased considerably since 1940 partly as a result of an increase in domestic use and partly as a result of deliveries of soybean flour to various government agencies, largely for export. In 1941, Federal purchases amounted to about 10 million pounds of soybean flour. In 1943, the amount increased to 170 million pounds when large shipments were made to Great Britain and the U.S.S.R. under lend-lease. Purchases of soybean flour by the Federal government decreased for several years, but increased in 1946 to an estimated 200 million pounds under the UNRRA [United Nations Relief and Rehabilitation Administration] program. Total soybean flour deliveries for 1946 were approximately 380 million pounds. In the domestic market the bakery industry was the largest consumer. About 40% of the domestic sales of soybean flour were for bakery use. Since the Bureau of Animal Industry has legalized the use of soybean flour as a binder in meat products, about 20% of domestic sales are to the sausage industry. The balance is used in prepared dough mixes, macaroni, candy, and in institutional feeding.

"In 1947, domestic sales of soybean flour were over 60 million pounds. This amount, plus government purchases and exports, amounted to about 415 million pounds. Two-thirds or more of the present domestic consumption of soybean flour is by the bakery, meat processing, and pet foods industries."

Table 155 (p. 953) shows Bushels of soybeans used

for U.S. soy flour production (1942-1947). In 1942-43, the amount of full-fat soy flour produced in the USA was roughly 40% of the amount of defatted. In 1944-45 it was about 49%, but thereafter the percentage dropped rapidly to only 5% in 1946-47.

Note: These statistics relate to Soya Corporation of America, Dr. Armand Burke, and Dr. A.A. Horvath.

Concerning soybean flakes and derived peptones as brewing adjuncts (p. 974-77): "Soybean flakes and grits have been employed by the brewing industry to improve the body and flavor of beer, to increase foam stability, and to stimulate yeast growth.

"Improvement in foam stability and flavor can also be attained by adding directly to the finished beer a hydrolyzed soybean protein which has been broken down to the peptone and proteose stage...

"The early history of the use of soybean products as whipping agents is of interest since this work stimulated the development of processes which eventually led to the production of the present soy albumens. In 1939, Watts and Ulrich pointed out that an active whipping substance could be prepared from solvent-extracted soybean flour in which the protein had not been heat denatured, by leaching it at the isoelectric point of the protein. This extract was found to whip more readily and to a much greater volume than suspensions of the original flour... The active principle in the whipping substance prepared by Watts and Ulrich was probably the nonprotein nitrogenous material present in the soybean flour which is soluble at the isoelectric point of the protein."

Tables show: (155) Soybeans used in the production of low-fat and full-fat flour and grits (1942-1947, 1,000 bushels). (156) Peroxide value of fat extracted from pastries stored at -17.8°C. (0°F.), containing different percentages of soybean flour for periods of 0-6 months. (157) Analysis of uncooked liverwurst emulsion and of processed (water-cooked) sausage containing added soybean flour and water. (158) Losses in cooking liverwurst containing added soybean flour and water. (159). Analysis of frankfurter emulsion and of smoked sausage made with 3.5% of various binders. (160) Losses in smoking frankfurters made with 3.5% of various binders and after consumer cooking. (161) Effect of the addition of soybean peptone on volume and life of foam on beer. (162) Composition and pH of soybean albumens. (163) Composition of ice creams containing soybean flour. (164) Comparison of soybean milk with cow milk. One sample of cow's milk is compared with 4 samples of soybean milk (probably Oriental) and 3 samples of modern U.S. soybean milk reconstituted (Soyalac for infants, all purpose Soyalac, Soyagen canned from Loma Linda Food Co., California).

Figures show: (199-201, p. 981) Comparison of whipping ability of egg albumen and soybean albumen in different proportions and combinations. (202) Flow sheet for the acid hydrolysis process used in making HVP soy

sauce. Address: Protein By-Products Research, Research and Technical Div., Wilson & Co., Inc., Chicago, Illinois.

209. Small, Marvin. 1952. The special diet cookbook. Greystone Press. 511 p. \*

210. David-Perez, Enriqueta. comp. and ed. 1953. Recipes of the Philippines. Philippines: Published by the author. Printed by Capitol Publishing House, Inc. (Philippines). 124 p. Illust. by S. Serna. No index. 23 cm.

• **Summary:** Almost all the recipes in this book have Filipino names, with no English translation of those names. A surprisingly large number contain soyfoods, especially *toyo* (soy sauce). The glossary (p. 121-23) states: Miso is miso—a paste made of fermented rice and soy beans. Tajure is "fermented soy beans, caked" [fermented tofu]. Tausi is "fermented [black] soy beans" with salt [fermented black soybeans]. Tokua is "soy bean curd" [tofu]. *Toyo* is Filipino-style soy sauce. Recipes followed by an asterisk (\*) call for *toyo*.

Soy-related recipes include: Chicken relleno—I \* (p. 15). Chicken pastel \* (p. 27). Lengua (with soy sauce, p. 20). Morcon \* (p. 21). Pancit molo \* (p. 22). Adobo \* (p. 24). Arroz caldo with chicken (with 3 tbsp. patis or soy sauce, p. 28). Bañgus en tocho—I (with 1 cube tajure, p. 34), Bañgus en tocho—2 (with 2 tbsp. each tajure and tausi, and 1 cake tokua cut into pieces 3/4 inch long and 1/8 inch wide, p. 35). Bulanglang—1 (with 1 cup tokua, cubed and fried, p. 38). Burong isda (with 1 tbsp. angkak—fermented red rice, p. 39). Sauce for pipi-an (with 1 small jar peanut butter, p. 41). Escabecheng apahap (with 4 pieces tokua, p. 46). Escabeche—Macao style \* (p. 71). Escabeche with papaya \* (p. 48). Fritada \* (p. 50).

Kari-karing pata (with ½ cup ground toasted peanuts or peanut butter, p. 51). Lengua estofada \* (p. 53). Lumpia labong—Bamboo shoot (with 5 bean cakes—tokua, p. 55). Lumpia sauce (with ½ cup *toyo* sauce, p. 56). Lumpia with papaya \* (p. 56). Lumpia with peanuts (with 2 squares tokua—diced, 2 tbsp. *toyo*—soy sauce, and 1 cup ground peanuts, p. 57). Lumpia with ubod—2 (with 2 cakes tokua, and *toyo* to taste, p. 58). Meat balls with "sotanghon" \* (p. 59). Menudo de rabo \* (p. 60). Miso-tomato sauce (with 2 tbsp. miso—soy bean paste, p. 61). Paksiw na pata \* (p. 64). Paksiw—pork (with soy sauce, p. 64). Paksiw na lechon (with 3 tbsp. soy sauce, p. 65). Pancit guisado \* (p. 65). Pancit "luglug" (with ½ cup soy bean cake—tokua—cut into small cubes, p. 66). Pork tapa \* (p. 72). Umba (with 2 tbsp. *toyo* and 1 heaping tbsp. tausi, p. 80). Pastillas de mani (with 1 can ground peanuts, p. 89).

A glossary at the end contains brief definitions of uncommon ingredients. Definitions of the soy-related ingredients above are taken from this glossary. Angkak is "red-colored grains of rice used as coloring for fermented fish."

Note 1. This is the earliest English-language document seen (Oct. 2011) that uses the word *tajure* to refer to fermented tofu, or the word *misu* to refer to miso.

Note 2. On the title page is printed “4th printing–May 1956.” Address: P.O. Box 3288, Manila, Philippines.

211. Chang, Yet-oy. 1954. Soybean products as supplements to rice in Chinese diets with special reference to their protein and calcium content. PhD thesis, Columbia University, New York. 67 p. Page 1201 in volume 14/08 of Dissertation Abstracts International. [30+ ref]

• **Summary:** The diet containing “soybean curd (Tou fu)” gave the best growth and calcification, followed by diets containing “dried yellow soybeans (Ta tou),... soybeans, fermented (Tou chi) [fermented black soybeans], then soybean fermented curd (Tou fu lu)” (also called “fermented soybean curd” in this abstract) [fermented tofu], last. Soybean curd production is encouraged where animal proteins are in short supply.

Note: This is the earliest English-language document seen (Oct. 2011) that uses the term “soybean fermented curd” to refer to fermented tofu. Address: Columbia Univ.

212. Feng, Doreen Yen Hung. 1954. The joy of Chinese cooking. New York: Grosset & Dunlap. 226 p. Undated. Illust. Index. 21 cm.

• **Summary:** This hardcover Chinese cook book retails for \$3.95. The contents and pagination are the same as in the original 1950 edition of the same title.

213. Millstein, Gilbert. 1955. On a Sunday in Chinatown. *New York Times*. Feb. 27. p. SM22-23, 53.

• **Summary:** A fascinating study of New York City’s Chinatown on a typical Sunday. It takes place on Mott Street, and Pell, Doyers, Bayard, and the Bowery; there the Chinese gather to talk, shop, visit, and eat. People typically enjoy a late breakfast, which is large and with many dishes, including “*dow foo sui mei* (bean curd and meat bun).” One may also visit a coffee shop, tiffin house, or noodle shop. When finished, “the Chinese then goes to his family association. The outstanding family associations in Chinatown are those of the Chins, the Lees, the Wongs, the Ngs, the Leongs, the Chus,...” Chinese laundrymen may visit their laundrymen’s association.

While visiting Chinatown, visitors can buy “brown bean sauce, black bean sauce,... soy sauce,... and oyster sauce.”

214. Morohashi, Tetsuji. 1955-1960. *Daikanwa jiten* [Chinese-Japanese historical dictionary]. Tokyo: Taishukan Shoten. 12 vols. + index (alphabetic by phonetic Japanese pronunciation). Cites earliest references (usually in Chinese documents) for Japanese words. [25+ ref. Jap]

• **Summary:** This is widely regarded as one of the greatest Chinese dictionaries. Volume 11, pages 394-95. The

following pronunciations of Chinese words may not be correct. (33) Sho. Hishiomiso. Incubate rice or barley or beans, etc. Let them ferment and add salt to make these. (35) Chiang Yuan. Miso and shoyu shop. The shop where miso, shoyu, and pickles are sold. (36). Shoko. A big earthenware pot in which hishio is kept. (37). Shokyu. Shishibishio in a hot soup. (39). Chiang tsai. Miso pickled vegetables. (40). Shosho. Miso and shoyu craftsmen. (41). Shosui. Soup or porridge (Zosui) cooked with miso. Ruiju Meibutsuko, Shakuso orai. (42). Shosei. Hishio with flavor. (43). Shotsui. Hishio pot. (45). Chiang fang. Miso and/or shoyu shop. See (35). (46). Shobutsu Hishio. (47). Hishio no kame. Hishio vat. (48). Chiang-yu. Chinese soy sauce. Cooked soybeans, roasted barley and salt are fermented. The liquid is extracted; a salty seasoning, also called shitaji or murasaki.

215. Wood, Morrison. 1956. Chinese restaurateur shares his recipes with us: Savory treat in asparagus and beef dish. For men only. *Chicago Daily Tribune*. May 11. p. A4.

• **Summary:** While generally avoiding such Chinese food as chop suey and chow mein, Mr. Wood is fond of authentic Cantonese chefs. When he and his wife were in San Francisco, California, they visited Johnny Kan’s, a rendezvous for stage and motion picture people, where the food is superlative. They “had a most unusual dish, fresh asparagus beef with black bean sauce.” The recipe states: “Mash 1 tablespoon of Chinese salted spiced black beans and 1 clove chopped garlic together and add one tablespoon of soy sauce...”

Note 1. This is the earliest document seen (Nov. 2011) that mentions “black bean sauce,” made at home in the kitchen (not a commercial product).

Note 2. This is the earliest (and only) document seen (Sept. 2008) in all major U.S. newspapers digitized by ProQuest that uses the term “spiced black beans” or “salted spiced black beans” or “Chinese salted spiced black beans” to refer to fermented black soybeans. The term “spiced black beans” is rare, and usually refers to beans from Latin America.

216. Pineda, Felix A. 1956. The economic value of soybeans and its manufacture for food products. *Agricultural and Industrial Life (Manila)* 18(June):8-9, 30; 18(July):8-9, 37.

• **Summary:** Contents: Introduction. Economic food value of soybeans. The manufactured food products from soybeans and their utilization. Methods of food preparation from soybeans: Soybean-rice, Soyalac or soybean milk, soybean cheese [fermented] or cheap meat, soybean cocoa or Nutribean, soybean coffee, toyo sauce or toyo [includes detailed instructions for making this Philippine-style soy sauce], salted beans or tau-si [fermented black soybeans], “soybean flour or soyaflour,” soybean sprouts, dried and green beans (“The green soybeans with pods can be used for guly, like the green mongo.”). Conclusion and

recommendation.

“Soybean milk” is suitable for the diabetic. Its food value approaches cow’s milk.

Note: This is the earliest English-language document seen (Oct. 2001) that uses the word “soyafLOUR.” Address: Sugar Agronomist, Philippines.

217. *Chicago Daily Tribune*. 1956. Have you heard? For housewives only. Sept. 9. p. K12.

• **Summary:** The House of Eng is one of four local Cantonese restaurants owned and operated by Mr. Eng. The barbecued ribs he serves as appetizers are delicately flavored. “Those ribs, Mr. Eng tells me, are marinated overnight in black bean paste, flavored with a touch of garlic and a bit of Chinese liquor.”

Note: This is the earliest document seen (Sept. 2008) in all major U.S. newspapers digitized by ProQuest that uses the term “black bean paste.” It probably refers to what we call “black jiang” (*hei jiang* or *hei douban jiang* in pinyin). Apparently this paste is thicker than the commercial “black bean sauce.” The new term appears in about 40 documents between 1956 and the present, including this one in 1956, none in the 1960s, about 9 in the 1970s, etc.

218. 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.

219. Sia, Mary Li (Mrs. Richard H.P. Sia). 1956. Mary Sia’s Chinese cookbook. Honolulu, Hawaii: University of Hawaii Press. 148 p. Illust. Index. 23 cm. [Eng; chi]

• **Summary:** A recipe (p. 48) for “Steamed fish with black beans” calls for “1 T. [tablespoon] preserved Chinese black beans, 1 tablespoon chopped ginger, 1 button garlic, crushed.”

In this edition, tofu is called “taofu” instead of “bean curd” as in previous editions. There is paragraph about taofu (p. 21-22). Other soy related recipes: Taofu and shrimp eggs (p. 30). Oxtail Soup (with black beans, p. 36). Taofu, egg and chicken blood (p. 38). Taofu and pork soup (p. 38). Turnip and taofu soup (p. 39). Prawns and taofu (p. 55). Pork and red bean curd (red fermented tofu, p. 98). Pork hash, taofu and peas (p. 102). Red roast pork and taofu (p. 102). Roast pork and taofu (p. 103). Bean sprouts and dried taofu (with pressed tofu = doufu-gan, p. 110). Monk’s food (with red bean curd = red fermented tofu, p. 113) Stuffed taofu (p. 130).

Note 1. This is the earliest English-language document seen (Nov. 2008) that uses the word “taofu” to refer to tofu.

Note 2. An almost identical edition of this book was published in 1959 by the same publisher. The recipe for black beans (p. 48) cited above also appears on page 48 of the 1959 edition.

220. Stead, Evelyn S.; Warren, Gloria K. 1956. Low-fat cookery. New York, NY, Toronto, London: The Blakiston Division, McGraw-Hill Book Co. xv + 184 p. Illust. Index. 21 cm. [11 ref]

• **Summary:** The recipe for Shrimp—or lobster—with lobster sauce (p. 30) calls for “1 teaspoon Chinese black beans, washed and drained thoroughly.”

221. *Washington Post and Times Herald*. 1957. Chinese cuisine. May 3. p. C4.

• **Summary:** A daily reader writes to Anne’s reader exchange: “I have been trying to find a Chinese recipe for roast pork with black bean sauce or spare ribs with black bean sauce. I hope Anne readers can help me find them...”

222. Shi, Shenghan. 1957-1958. *Qimin yaoshu jinshi* [Modern Chinese edition of the *Qimin Yaoshu* (Ch’i-min yao-shu)]. Peking, China: Science (Kexue) Press. 4 volumes. [Chi]\*

• **Summary:** A key modern edition of this classic. Going chapter by chapter, Shi Shenghan first gives the original

classical text, followed by his translation and interpretation of it into modern Chinese, so that it can be read and understood today. In addition to these parallel texts, he has added extensive bibliographic commentaries and technical discussion.

This edition is extremely useful for the reader (like most scholars today) who is not competent in classical Chinese. However, it is not as scholarly or as up to date as the 1982 edition by Miao Qiyou (W.-G. Miao Ch'i-Yu). Address: China.

223. Benet, Sula. 1957. Festival menus 'round the world. New York, NY: Abelard-Schuman. 196 p. See p. 37, 39. Index. 23 cm. [1 ref]

• **Summary:** Page 37: A recipe calls for "2 cakes Foo Yu (Chinese cheese)."

Page 39: A recipe for Tiem shuen yu (Sweet and sour fish) calls for "1 tablespoon thick soy sauce." Note: *Shi yau* is *soy sauce*. More precisely, it is "fermented black soybean sauce."

224. Marks, Robert W. 1957. The horizontal hour. New York, NY: David McCay Company, Inc. 346 p. 22 cm.

• **Summary:** A novel / fiction. Dr. Bucholz is a New York psychoanalyst, born in Vienna. Page 193: "a dish of barbecued spare-ribs with black bean and garlic sauce. And then, as a side dish, some foo yee-fermented bean curd. It tastes like Stilton cheese."

Without looking at Leslie, Bucholz said, "We're having just a plain omelet.

"You mean you don't want any of the specialties here?"

Note: This is the earliest English-language document seen (Nov. 2011) that contains the term "black bean and garlic sauce."

225. Spier, Robert F.G. 1958. Food habits of nineteenth-century California Chinese. *California Historical Society Quarterly* 37(1):79-84. March; 37(2) 129-36. June. [40 ref]

• **Summary:** Large-scale immigration of Chinese to California began in 1850, shortly after gold was discovered. In California, the Chinese continued to eat their customary foods, which were imported from China. In 1857 J.D. Borthwick wrote, with reference to the period 1851-1854 (when he traveled in California), that Chinese stores were stocked with Chinese foods. Spier examined the records of the U.S. Custom House at San Francisco and found that "As early as 1852, substantial shipments of foods arrived from Hongkong, consigned to Chinese firms" in San Francisco. Items listed on the invoices included "salt beans" [probably fermented black soybeans], "dry bean curd," "shrimp soy" [soy sauce with shrimp], "bean sauce," as well as dried seaweed, oranges, bamboo shoots, plus staples such as rice, noodles, sugar, tea, and vinegar. "A check of invoices in this collection covering the years 1850 through 1854 reveals that

the majority of the shipments from the Far East contained food or potables (tea, brandy, etc.). Specifically, food or drink appeared on 79 of 118 invoices."

Within 2 decades of their landing in force, the Chinese on the West Coast were growing considerable amounts of food. "By 1872 Nordhoff wrote that the Chinese were producing two-thirds of all vegetables eaten in California... Seaweed was collected by members of the Monterey fishing colony before the turn of the century..."

"One receives the general impression... that during the 1850's and 1860's, the Chinese laborers ate a better diet than did whites in substantially the same lines of work." A Caucasian schooner captain in southern California told Nordhoff that, in his estimation, the Chinese fishermen he knew lived "far better, and at any rate have a more varied bill of fare, than most of the ranchmen in California." On the railroads, the Chinese drank mostly tea, while their white counterparts drank large amounts of alcoholic beverages. "Virtually every western town had its 'Chinatown,' large or small, which was essentially a self-contained separate entity."

Note 1. This is the earliest document seen (March 2011) concerning soybean products (soy sauce, and probably fermented black soybeans) in California. This document contains the earliest date seen for soybean products in California (1852); soybeans as such had not yet been reported by that date.

Note 2. Most of these Custom House records were destroyed by fire. Spier is no longer living. Address: California Historical Society, 2090 Jackson Street, San Francisco, California.

226. Smith, Allan K. 1958. Use of United States soybeans in Japan. *USDA Agricultural Research Service. ARS-71-12.* iii + 36 p. April. April. Illust. 28 cm. Typewritten.

• **Summary:** An extremely well researched, interesting document based on a survey conducted in 1957 in Japan. Contents: Definitions of Japanese food products. Introduction. 1. Problems of Japanese food processors in using U.S. soybeans: Food production problems, foreign material, broken and dark-colored soybeans in exports. 2. Analysis of the problems. 3. Research proposals. 4. Miso: Processing, uses, production, composition. 5. Tofu and its modifications: Processing fresh tofu and frozen tofu, aburage. 6. Natto. 7. Hamanatto. 8. Kinako. 9. New products research: Soybean "milk," fermented cheese, soybean flour and isolated protein for foods, isolated soybean protein. Acknowledgments.

A graph on the front cover (and on p. 6) shows soybean production in the USA from 1938 to 1957 (in millions of acres harvested). Photos show: (1) Drying soybeans before threshing in Japan. (2) Manually operated threshing machine. (3) Power operated threshing machine. (4) Modern small-scale equipment for cleaning soybeans and grading for



size. (5) Straw weaving equipment. Straw bags are used for soybeans, rice, and other farm products. (6) Cooling roasted soybeans and hand cleaning for making kinako. (7) Soybean varieties: Lincoln, White Hilum Iwate, and Acadian (six photos, showing each variety wet and dry). (8) Wooden vats used for fermenting miso; each stands a little taller than a man, and is bound with 4 bamboo hoops. (9) Miso in wooden tubs [kegs] ready for market. (10) Hand assembly of wooden tubs for shipping miso and shoyu. (11) Stone mill for wet grinding of soybeans to make tofu. (12) A modern tofu shop, with boiler, pressure cooker, filter, and precipitation vat. Photos 11 and 12 courtesy of Sugiyama Chemical Research Inst., Tokyo. (13) Deep fat frying of tofu for making aburage. (14) Wooden kegs used for fermenting hamanatto. Stone weights are used to compact the beans during fermentation.

Other figures: (1) Flow diagram of the miso manufacturing process (incl. koji). (2) Table showing total production of miso in Japan (about 1957) as reported by All Japan Miso Industrial Association. Factory made miso consists of: Rice miso 379,000 tonnes (metric tons), barley miso 146,000 tonnes, soybean miso 58,000 tonnes, total factory made 583,000 tonnes. Homemade miso of all types is 391,000 tonnes (67% of factory made). Total factory and home made: 974,000 tonnes. Ingredients used in this grand total: Soybeans 361,000 tonnes, rice 115,000 tonnes, barley 58,000 tonnes, salt 159,000 tonnes. (3) Table showing nutritional composition of rice miso, barley miso, and soybean miso. (4) Table showing composition of sweet miso, salty miso, and enriched miso. (5) Diagrammatic sketch of equipment used in making fresh tofu. (6) Flow diagram of a frozen tofu factory.

Note: The author was in Japan from Oct. 24 to Dec. 24, 1957. The principal localities visited were: Tokyo, Yokohama, Tochigi City, Nagano, Matsumoto, Suwa, Hamamatsu, Nagoya, Kyoto, Osaka, Fukuoka, Kumamoto, Nagasaki, and Sendai. His trip was sponsored by the Agricultural Research Service and the Foreign Agricultural Service of the USDA, and the American Soybean Association (Hudson, Iowa).

Note: This is the earliest document seen (July 2000) that mentions “barley miso”—a type of miso made with barley koji, soybeans, and salt. Address: Head of Meal Products Investigations, Oilseed Crops Lab., NRRL, Peoria, Illinois.

227. Smith, Allan K. 1958. Use of United States soybeans in Japan: Hamanatto (Document part). *USDA Agricultural Research Service*. ARS-71-12. iii + 36 p. April. See p. 29-31. April. Illust. 28 cm.

• **Summary:** “Hamanatto: Hamanatto, sometimes spelled hamananatto, is made by fermenting whole soybeans. Hamanatto is produced in a limited area in Japan in the vicinity of Hamanatsu [sic, Hamamatsu in Shizuoka Prefecture, central Japan]. Hamanatto should not be confused in any way with natto. The only resemblance between the

two products is that both are made by fermenting whole soybeans. Hamanatto has a pleasant flavor resembling miso or shoyu but is sweeter. Factors unfavorable to the popularity of hamanatto seem to be its very dark color (black) and its rather high cost. Hamanatto is said to cost four times as much as miso.

“Hamanatto is reported to have come to Japan by way of Korea about 350 years ago at the time of the Japanese invasion of that country. Natto means “contributed beans” and hamanatto was contributed to the Japanese warriors. The process is reported to have originated in Buddhist temples where it was developed as a source of protein. The ancestors of the people owning the Yamaya Brewery and the Saito Mido Plant of Hamanatsu [sic] are said to have inherited the process from the Buddhist monks.

“In making hamanatto the beans are soaked in water for 4 hours and steamed without pressure for 10 hours. The cooked beans are spread on the floor for cooling to 30°C. Koji prepared from roasted wheat or barley is sprinkled over the beans to cover their surface. The Japanese are very particular to cover the entire bean surface. The inoculated beans are placed in trays in a fermenting room for about 20 hours; during the fermentation the beans acquire a good coating of green mold. When taken from the fermenting room they are covered with a sticky material and must be separated and dried in the sun to about 12 percent moisture. This can be accomplished in one day if the weather is warm and sunny. At one factory the beans are carried to the roof for drying.

“The dry beans are placed in wooden buckets [kegs, bound with bamboo hoops] that have a capacity of about 15 gallons. Strips of ginger are placed in the bottom of the buckets before adding the beans and the salt water to cover them. A [wooden] cover that fits inside the bucket is placed over the beans and a very heavy weight placed on the cover. Rough stones estimated to weigh about 100 pounds are used for weights. Figure 18 [a photo] shows the buckets with the stone weights used during fermentation, which requires 6 to 12 months and must include one full summer. During fermentation the beans acquire a dark reddish color that is not unpleasing. After fermentation is completed and the beans are dried in the sun, they turn black. Hamanatto contains about 11 percent salt, said to be the cause of their turning black. Hamanatto will keep at room temperature for 1 year or longer.

“The makers of hamanatto, now using only Japanese soybeans, prefer a very select grade grown only in Hokkaido because they are large, are uniform in size, and are free of foreign matter. They claim to pay ¥4,500 for 60 kg. of specially selected beans; an equal quantity of U.S. [soy] beans would cost them ¥3,000. On this basis the relative cost per 60-pound bushel of Hokkaido and U.S. soybeans is \$5.65 and \$3.80, respectively.

“An analysis [of Hamanatto] supplied by the Yamaha

Brewery is as follows: Water 39 percent, total nitrogen 3.8 percent, water-soluble nitrogen 2.6 percent, reducing sugars 7.0 percent, total sugars 10 percent, crude fiber 12.5 percent, ash (including 11 percent sodium chloride) 12 percent, volatile acids 0.015 percent, total acids 1.2 percent, and pH of water suspension 5.1. The composition of hamanatto probably varies considerably.

“If hamanatto could be produced in dark red rather than black color and the process modernized to bring the cost more in line with other fermented soybean products, it should have much wider acceptance and use.”

Note: This is the earliest document seen (Nov. 2011) stating that Hamanatto [fermented black soybeans] were made at Yamaya temple in Hamamatsu. Address: Head of Meal Products Investigations, Oilseed Crops Lab., NRRL, Peoria, Illinois.

228. Claiborne, Craig. 1958. Food news: Simple decor asset to new restaurant. *New York Times*. Oct. 7. p. C4.

• **Summary:** The new restaurant is the East Horizon (116 East 57th St., New York City). Among the more interesting dishes are “shrimp, lobster or chicken in black bean sauce,...” “The outstanding entrée [that he ordered] was the [jumbo] shrimps in black bean sauce.” The black beans were served over the fried shrimp in a thin purée with garlic.

229. Caleva, Harry. 1958. Chinese cookbook for quantity service: Authentic professional recipes. New York, NY: Ahrens Publishing Co., Inc. 169 p. See p. 150-53. Index. 24 cm.

• **Summary:** This is basically a Cantonese cookbook; the Chinese words are written in Cantonese.

The chapter titled “Sauces” (p. 150-53) includes recipes for the following: Soy sauce (light) (*Yuen You*). With 1½ lbs. soy beans (crushed). Soy bean jam (*Mien-Shee Ding*). With 1½ lbs. soy beans. Rice jam (*Dow-Ding*). With 1¼ lbs. roasted soy beans (mashed). Subgum sauce (Sweet and sour) (*Sub Gum Tien-Soon Wu*). With “1 tsp. soy sauce (heavy).” Oyster sauce (*Hoo You*). With ¼ cup soy sauce (light). Chinese brown gravy. With 1 tsp. soy sauce (heavy). Onion sauce, Cantonese style. With ¾ cup soy sauce (light).

Black soy sauce (*Chow You*). With soy bean 1½ lbs. Salt 2 tbs. [tablespoons]. Water 3 quarts. Molasses 1 pint. Rice wine ½ cup.

“1. Combine soy beans, salt, and water; bring to a boil and simmer for five hours; remove and strain. Pour into a jar and seal airtight, then age in the sun for six months.

“2. At the end of six months, add remaining ingredients, reseal and let age in the sun another six months.

“Note: This sauce is used for seasoning food. Not used in cooking.”

Note: None of the many recipes that call for months of aging in the sun will work; they do not contain koji (*Qu*). Glossary of Chinese terms [Cantonese] (p. 161-64): *Dow*

*Foo*—Bean curd. *Dow Ngaah*—Bean sprouts. *Dow See*—Black bean sauce [sic, fermented black soybeans]. *Foo Jook*—Soy bean cream [dried yuba sticks]. *Foo Yu*—Chinese cheese [fermented tofu]. *Gee Yeou*—Black sauce. *Gna choy*—Bean sprouts. *Jeung*—Sauces. *Jeung Yow (you)*—Soy sauce. *Jook*—Congee. *Mien See*—Brown bean sauce. *Naam Yu*—Red bean curd cheese in red sauce. *Nom Yu*—Red cheese. *Saang Se Jeung*—Red bean sauce (thick). *See Yeou (you)*—Soy sauce [fermented black soybean sauce]. *Tiem Jook*—Dried bean curd [dried yuba]. *Woo Dow*—Dried black [soy] beans.

Note: This is the earliest English-language document seen (Oct. 2011) that uses the term *Foo Jook* to refer to dried yuba sticks.

230. Philippines, Bureau of Commerce. 1958. Directory of industrial establishments in the Philippines. Manila, Philippines: Bureau of Commerce, Philippines. See p. 140. \*  
• **Summary:** Page 140: Temple brand salted black beans.

231. Richards, Janet; Richards, Charles. 1958. Basic Chinese and Japanese recipes. 3rd ed. rev. and expanded. San Francisco, California: City Lights Books. 75 p. Index of recipes. 17 cm.

• **Summary:** Contents: Introduction (General. For epicures, vegetarians, and dieters). Chinese recipes. Japanese recipes. General information: Buffet, party foods & hors d’oeuvres. To brew tea. Special imported ingredients. Where to get ingredients & equipment.

Introduction: “Most of the recipes in this book appear constantly on the menus of the Chinese and Japanese restaurants of San Francisco, New York, and a few other cities that have a population segment with Chinese or Japanese ancestry.” Many recipes call for “soy sauce” and up to 1 teaspoon “MSG powder.”

The section “For epicures, vegetarians, and dieters” states: “Of the special foods of the Orient, the most versatile is the soy bean. The number of widely differing foods made from soy beans is very large, including bean thread, noodles, soy sauce, soy milk with its derivatives such as dofu, the fermented nam yu and fu yu of China and miso of Japan. Western food technology has also added to the list.”

Soy-related recipes—Chinese: Lo han chai (with dofu and seaweed, p. 19-21). Dofu with oyster sauce (“1 block of Japanese tofu, or 2 cakes of Chinese tofu,” p. 22). Steamed fish with dofu (p. 29-30). Chicken in soy (with 1 cup soy sauce, p. 31-32). Chinese sauce [commercial]: Foo yü (sharp thick sauce [fermented tofu]). Jeung yow (soy sauce).

Note: This is the earliest English-language document seen (Oct. 2011) that uses the terms “nam yu” or “fermented nam yu” or “Foo yü” to refer to fermented tofu.

Japanese recipes: Miso soup (with tofu. Miso is “fermented soy beans,” p. 48). Konbu salad (with soy sauce, p. 49). Egg plant with miso (p. 50). Turnips in soy (soy sauce, p. 50). Misoyaki (p. 54-55). Joints of chicken teriyaki

(with Teriyaki sauce, p. 56). Beef sukiyaki (with tofu, p. 59-60). Beef teriyaki (cook on a hibachi, p. 60). Teriyaki sauce (p. 61; Ingredients: ½ cup table syrup {light cane molasses}, 1 quart shoyu {high quality Japanese soy sauce}, ¾ lb. sugar, 2 pieces dashi konbu {dried kelp} 6 inches long, ½ teaspoon MSG powder, 2 tablespoons sake). Quick teriyaki sauce (p. 61; Ingredients: ¾ cup soy sauce, 3 tablespoons sake {or sherry}, ¼ cup sugar, 1 teaspoon grated ginger, ½ tsp. MSG powder). Buta dofu (with “soy bean curd,” p. 63).

Special imported ingredients (p. 68-71): Japanese—Canned foods: Bean curd, prepared black soy beans. Packaged foods: Miso (the light variety, fermented soy bean paste). Bottled foods: Fuyü (Chinese bean cake; Order top quality such as Quong Hop brand). Shoyu (soy sauce; Order top quality such as Kikkoman, Higeta, or Marukin). Chinese—Bottled foods: Soy sauce. Black beans (Dow Shee; for black bean sauce).

232. Shih, Shêng-han. 1958. A preliminary survey of the book *Ch'i Min Yao Shu*: An agricultural encyclopaedia of the 6th century. Peking, China: Science Press. iv + ii + 107 p. No index. 21 cm. 2nd ed. 1962. [Eng]

• **Summary:** A discussion in English of the contents and significance of this key Chinese agricultural work. Contents: Preface. The Book *Ch'i Min Yao Shu*. Analysis of its source books. Part I: Original material in the *Ch'i Min Yao Shu*. Realisation of the importance of proper choice of season and soil. Cultivation of cereals. Culinary vegetables (Chiang ts'ai or soya hydrolysate conserves, p. 53-54). Fruit trees. Timber woods. Other economic plants (fiber crops, tinctorial plants). Animal husbandry. Domestic economy: Food processing (refining table salt by recrystallization, preparation of fine starch from cereal, saccharification of starch to prepare “barley sugar,” fermentation [alcoholic fermentation, acetic fermentation, Chiang {incl. soybean Chiang; protein hydrolysates, p. 84-87}, shih {fermented black soybeans, interrupted and melanised protein hydrolysates, p. 87-88}, tsü {pickles, lactic fermentations from intrinsic carbohydrate}, cha {pickles, lactic fermentation from added carbohydrates}, lo {cheese lactic fermentation with casein}, fu and lah [jerked and salted meat]), other technical instructions for commodities of daily life (detergents {saponins}, extraction of pigments from bastard-saffron, dyeing with vegetable pigments, heating to accelerate “drying” of oils, glue-making, preparation of cosmetics). Part II: The influence of the *Ch'i Min Yao Shu* on agricultural science in China. Epilogue. Address: PhD (London), Prof. of Plant Physiology, Northwestern College of Agriculture [Wukung, Shensi], China.

233. Yen, K'o-chün. 1958. *Ch'üan shang-ku san-tai ch'in han san-kuo liu ch'ao wen* [Complete essays from the Shang, Chou, Ch'in, Han, Three Kingdoms, and Six Dynasties periods]. Peking, China: Chung Hua shu chü. See p. 676.

Also published in 1930 and 1965 in Shanghai. [Chi]\*

• **Summary:** Ying-shih Yü (1977, p. 69-70): Ying Shao, of the 2nd century A.D., reported that “sometimes it happened that when a feast was finished the host wanted to continue drinking with his guests. In such cases it was already too late for the kitchen to prepare any fresh food, so dried meat and fish, seasoned with fagara, ginger, salt, and *shih* (‘salted darkened beans’) were served instead.” Address: China.

234. Sapin, P. 1959. Le soja dans le monde [The soybean in various countries of the world]. *Bulletin Agricole du Congo Belge et du Ruanda-Urundi* 50(4):897-948. Aug. [39 ref. Fre; dut]

• **Summary:** This articles focus on soya at Yangambi in the Belgian Congo. Content: Introduction. Climatic adaptation: Comparison of the climates in Harbin (central Manchuria) and Yangambi (near the equator), photoperiodic and thermal characteristics of soybeans, comparative study of the behavior of soya at Yangambi and its main zones of cultivation, eco-climatic chart of soya, classification of soybeans (*des sojas*) into fundamental climatic types and directives for the realization of their introduction to Yangambi. Selection: Classification of the soybean varieties, genetics, and selection. The cultivation of soya. Characteristics of the seed and its utilization: Composition of the seed, Oriental preparations based on soya (soy sprouts, soymilk, tofu, natto, Hamanatto, yuba, miso, soy sauce or shoyu), soy oil and by-products, soybean cake, use of soya in the West. A glance at soybean production. The situation in the Belgian Congo.

The author identified a number of soybean varieties adapted to different ecological zones in the tropics, which helped soybeans spread to tropical countries, especially in Africa. Address: Assistant à la Division des Plantes Vivrières de l'INÉAC, à Yangambi [Belgian Congo].

235. Lee, Calvin. 1959. *Chinese cooking for American kitchens*. New York, NY: G.P. Putnam's Sons. 190 p. Illust. by Mabel Wong Lilienstein. Index. 22 cm.

• **Summary:** An excellent book, says Craig Claiborne. The many styles and forms of Chinese cooking “can be grouped into five schools: Canton, Fukien, Honan, Shantung [incl. Peking], and Szechuan. Cantonese cooking is the most popular, even in China itself.” This is a Cantonese cookbook. “Fukien probably produces the best soy sauce in China (p. 20). Canton is known for its steamed bass with black bean sauce (Jing yu) (p. 22).

Soy related recipes: Steak à la Lee (with “2 tablespoons Worcestershire sauce,” p. 33). Pork chops à la Lee (with “2 tablespoons Worcestershire sauce,” p. 35).

“Perhaps the most interesting of the condiments used in authentic Chinese cooking is the lowly soy bean.” It is a rich source of oil. “The pulp of the bean is ground to make a curd extremely high in protein content. These bean curds (dow

foo) look somewhat like little rectangles of white custard and can be boiled, stir-fried, or baked. Some of the fresh bean curd is permitted to ferment, making a richly aromatic and tangy cheese. Commonly called Chinese cheese, foo yu [fermented tofu] is sold in bottles and does not require any cooking.” “Dow see [fermented black soybeans] are small fermented [soy] beans which are used commonly for seafoods such as strong-smelling fish, shrimps or lobsters. They have a delightful spicy flavor and should be rinsed in water and crushed before using” (p. 46-47).

Vegetables: “Bean sprouts (ngar choy). Sold fresh by the pound. Also sold in supermarkets canned.” Used in many recipes (p. 50). Note 1. It is unclear what type of bean is used to make these sprouts.

“Black beans (dow see). Sold by the ounce. Wash and soak for 10 minutes before using. Recipes: Lobster Cantonese (Chow lung har). Beef with green peppers and tomatoes (Fon care lot tzu ngow). Pork with tomatoes (Fon care gee)” (p. 50).

Seasonings and sauces: Bean curds (dow foo). Sold fresh or canned in Chinese or Japanese groceries. Recipes: Beef with bean curds (Dow food ngow). Steamed fish with bean curds (Dow foo jung yu). Bean curd soup (Dow foo tong) (p. 52). Brown bean sauce (mien see). Sold canned in groceries (p. 52). Haisien sauce [Hoisin sauce]. Sold canned or bottled in Chinese groceries. Used chiefly as a condiment.

Fried fish with bean curds (Dow foo jeen yu, p. 106). Steamed fish with bean curds (Dow foo jing yu, p. 107). Soy sauce cooked chicken (See yow gai, p. 116). Beef with bean curds (Dow foo ngow, p. 135). Roast pork with bean curds (Dow foo char shu, p. 145).

Note: Most recipes call for ½ to 2 teaspoons “monosodium glutamate.” Address: [New York City].

236. The songs of the south: An ancient Chinese anthology of poems by Qu Yuan and other poets. Translated, annotated, and introduced by David Hawkes. 1959. Harmondsworth, Middlesex, England: Penguin Books Ltd. 352 p. 21 cm. 1st edition 1959 (Oxford, England: Clarendon Press). [1 ref]

• **Summary:** This is an anthology of poems first compiled in the second century, A.D. Called the *Chu ci*, it is southern China’s counterpart of the *Shi jing* (Book of Odes). Together, these two great ancestors of Chinese poetry contain all that we know of its ancient beginnings.

The poems in the *Chu ci* originated from the state of Chu and are rooted in Shamanism. The earliest poems were composed in the fourth century B.C., and almost half of them are traditionally ascribed to the poet Qu Yuan.

Also contains a good chronology of China from 2000 B.C. to A.D. 114, and 5 maps.

The poem “Zhao hun” (“The summons of the soul”) contains this line (p. 107, line 95): “Bitter, salt, sour, hot and sweet—there are dishes of all flavours:...” In the original Chinese, the characters for “Bitter” are *daku*. Classical

scholars interpret them as referring to fermented salted soybeans, also called fermented black soybeans.

Note: In *Food in Chinese Culture*, by K.C. Chang (editor, 1977), this line is cited (p. 32) in a long passage which shows the great variety of food dishes served in Zhou China. Chang does not question Hawkes’ translation of *daku*. Address: Prof. of Chinese, Oxford Univ., England.

237. USDA ARS Northern Utilization Research and Development Division, Peoria, Illinois. 1960. Definitions of foreign foods of current interest (Brochure). Peoria, Illinois. 4 p. 28 cm.

• **Summary:** The first section, titled “Japanese foods from soybeans” (p. 1-2) includes: Aburage, frozen tofu, Hamanatto, kinako, koji, kori tofu, miso, monosodium glutamate (a seasoning compound first isolated from soy sauce), nama-age, natto, satsumage, soybean milk or tonyu, soy sauce or shoyu, tofu, yaki-dofu, yuba.

The second section, titled “Indonesian fermented foods” (p. 3-4) includes: Arak, ketjap (soy sauce made with black soybeans), ontjom, ragi, sajur asin, tapé ketan (fermented glutinous rice), tapé katella (fermented arrowroot), tempeh (or témpé or témpé kedelé), tuwak. Address: Peoria, Illinois.

238. Lin, Tsuifeng Liao; Lin, Hsiangju. 1960. Secrets of Chinese cooking. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. xviii + 238 p. Illust. 21 cm. \*

• **Summary:** Lin Tsuifeng is married to the well-known author Lin Yutang, and Lin Hsiangju is their daughter. Both worked to popularize Chinese cuisine in the United States. Pickled black beans are mentioned.

239. 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}”).

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 1. This is the earliest English-language document seen (Nov. 2011) that uses the term “fermented black beans” to refer to fermented black soybeans.

Note 2. 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.

240. Smith, Allan K.; Wolf, Walter J. 1961. Food uses and properties of soybean protein. I. Food uses. *Food Technology* 15(5):4-6, 8, 10. May. [34 ref]

• **Summary:** Contents: Summary. Introduction. Commercial soybean protein fractions. Soybean foods: Soybean varieties (garden varieties vs. field varieties, main differences between them, U.S. soybean breeding program). Trends in protein requirements (worldwide protein shortage). Soybeans and fractions used in food: Whole soybeans, defatted soybean meal, isolated proteins, protein concentrate (called “protein concentrate 70” in the summary), Gelsoy.

Whole soybeans may be baked or boiled, or used to make sprouts, fresh or dried tofu, vegetable milk (or “soybean milk”), yuba, and many fermented food products, including “miso or soy paste, natto, hamanatto, shoyu (soy sauce), tempeh, and some less important foods.”

“Protein concentrate: Extraction of dehulled and defatted meal with dilute acid (pH 4.5) removes soluble sugars, nonprotein nitrogen, and other low-molecular weight components and a small amount of protein. The flavors are also mostly removed in the extract or in drying. The dried concentrate contains about 70% protein unless soybeans containing above-average protein are used.

“This product, having a manufacturing cost between that of soy flour and isolated protein, has been introduced recently into the food industry. This protein concentrate is a combination of the acid-precipitated protein plus the residue normally obtained in isolating the acid-precipitated protein... A protein concentrate can also be made by extraction of SOM [soybean oil meal] with about 70% ethanol at 50°C or higher. This type of product is finding its place in the food industry.”

Note: This is the earliest English-language document seen (Dec. 2005) that uses the term “protein concentrate 70” or the term “protein concentrate” to refer to a product containing 70% protein on a dry-weight basis. Address: NRRL, Peoria, Illinois.

241. *Washington Post*. 1961. Add zest to summer salads with special dressings: Anne’s reader exchange. June 29. p. C4.

• **Summary:** In the section titled “Lobster Cantonese,” Anne offers this recipe in reply to a request. “The black beans and fresh ginger” in Chinese grocery stores. The ingredients include: “2 tablespoons black fermented beans” [fermented black soybeans]. These beans are crushed, then mixed with soy sauce and other ingredients.

242. Smith, Allan K. 1961. Oriental methods of using soybeans as food. With special attention to fermented products and notes on Oriental farming practices. *USDA Agricultural Research Service*. ARS-71-17. 65 p. July. Illust. 27 cm.

• **Summary:** Contents: Part I: China. Introduction. Farming conditions in China. Oilseed production. Soy sauce in China. Sweet flour paste—Tien mien chang [Chiang]. Soybean or vegetable milk (incl. Willis Miller and the Henningsen Produce Co. in Shanghai). Yuba. Soybean curd or tofu. Soybean cheese [fermented tofu]: Chee-fan (“cheese” + “small cube”), tsüe-fan (“drunken cheese”), hon-fan (“red cheese”). Fen-T’iao from mung beans. Fermented soybeans [fermented black soybeans]. Vinegar fermentation process.

Note: This is the earliest document seen (Oct. 2011) that uses the term “tsüe-fan” (“drunken cheese”) to refer to a type fermented tofu.

Part II. China—Chinese Institutions. Henry Lester

Institute (in Shanghai; Dr. Bernard Read). Academia Sinica (headquarters in Nanking). China Vegetable Oil Corporation (CVOC, Shanghai). The China Oils and Fat Industries Ltd. (Shanghai). National Bureau of Industrial Research. Catholic University (Fu Jen, at Peiping). Yen Ching University (Peiping). Agriculture Experiment Station (Peiping).

Part III: Japan. Introduction. Production of miso in Japan. Soy sauce in Japan. Trends in soy sauce production. Part IV: With Raymond E. Culbertson. Korea. Introduction. Breeding work. Soybean varieties. Climatic relations. Soils of Korea. Topography. Land use. Cultural practices. Marketing. Soybeans as foodstuff. Soy sauce. Acknowledgment.

Page 19 states: “The China National Government has taken an active interest in soybean milk for use by its army. Mr. Willis Miller, with offices and business connections with the Henningsen Produce Company in the Dollar Building (7th Floor) at 51 Canton Road, Shanghai, had just completed, at the time of my visit, the building of a soybean milk plant for the Chinese Government. The process is patterned after that of the International Nutritional Laboratories at Mt. Vernon, Ohio, for making a powdered or spray-dried milk. Mr. Miller also was supervising the installation of a vegetable canning plant for the same purpose.”

The text of this bulletin was previously published, serially, with slight revisions, in *Soybean Digest*, from Feb. to June 1949. Address: Northern Utilization Research and Development Div., Peoria, Illinois.

243. Tung, Ta-Cheng; Huang, P-C.; Li, H-C.; Chen, H-L. 1961. [Composition of foods used in Taiwan]. *J. of the Formosan Medical Association* 60(11):973-1005. Nov. 28. [27 ref. Chi; eng]

• **Summary:** Gives the nutritional composition (food calories, moisture, protein, fat, carbohydrate, fiber, ash, calcium, phosphorus, iron, vitamin A, thiamine, riboflavin, niacin, and ascorbic acid) of 384 foods commonly used in Taiwan. In the section on “Legumes, seeds, and nuts,” the following soy products are included: Black bean (hei tou, black soybean; 37.1% protein, 15.2% fat), miso; soy bean (huang tou); soy bean curd (toufu); soy bean curd cake [pressed tofu] (toufu kan); soy bean curd cake, spiced (wu-hsiang toufu kan); soy bean curd cake, strip; soy bean curd, clot (toupì, yuba); soy bean curd, fermented (fermented tofu); soy bean curd, fried (yu toufu); soy bean curd, pickled (furu, hu-zu); soy bean, fermented (tou chi [fermented black soybeans]); soy bean milk (tou nai), soy bean extracted residue (okara). Address: 1-3. Dep. of Biochemistry, College of Medicine, National Taiwan Univ., Taipei, Taiwan, China; 4. Taiwan Provincial Hygienic Lab.

244. Mendoza, Jose M. 1961. Philippine foods, their processing and manufacture. Manila: Published by the author. 421 p. See p. 152-59. Chap. XV, Sauces and Similar

Products. [7 soy ref]

• **Summary:** Contents of Chapter 15 titled “Sauces and similar products” (p. 152-58): Soybean sauce (*toyo*). Japanese soya sauce: Preparation of the starter, preparation of the material, inoculation, fermentation. Modified Chinese soya sauce. Coco sauce or coprameal sauce (The taste compares favorably with Chinese soy sauce and Japanese soy sauce). Hints and suggestions. Philippine bean sauces. The tao-si [fermented black soybeans], tokua [tofu, not fermented], tahore [taori, taore; probably fermented tofu], the tajo (unpressed tofu curds, usually served with medium brown sugar), mungo [mung bean] sprouts, soybean sprouts, Vetsin (contains 1 part monosodium glutamate, 7 parts lactose, and 3 parts salt). Includes a formula for Worcestershire sauce (which contains no soy sauce).

Note 1. This is the earliest document seen (May 2003) that contains any Filipino word for unpressed tofu curds, usually served with medium brown sugar, tajo.

Note 2. The section titled “Tahore” (p. 157) states: “This product is simply taori whereby the already prepared taore is macerated to mass. Tokua [tofu] is used frequently with tahore. They are both popular food [sic, foods] among Chinese. The Chinese eat them with soft-boiled rice called ‘barabasa.’” Address: Lecturer in Food Technology and Fermentation Technology, Manuel L. Quezon Univ., Manila.

245. Mendoza, Jose M. 1961. Philippine foods, their processing and manufacture. Manila, Philippines: Philippine Educational Co. 524 p. See p. 186-93. Chap. XV, Sauces and Similar Products. [7 soy ref]

• **Summary:** The contents of this edition is basically identical to that of the other 1961 edition published by the author. However the typesetting and the page numbers are different. Address: Lecturer in Food Technology and Fermentation Technology, Manuel L. Quezon Univ., Manila.

246. Watson, Burton. trans. 1961. Records of the Grand Historian of China, translated from the *Shih Chi* of Ssu-ma Ch'ien. 2 vols. New York, NY: Columbia University Press. xii + 563 p. and viii + 543 p. See vol. II, p. 494-95.

• **Summary:** Volume I. *Early Years of the Han Dynasty: 209 to 141 B.C.* Volume II. *The Age of Emperor Wu: 140 to circa 100 B.C.* “Anyone who in the market towns or great cities manages in the course of a year to sell... a thousand jars of leaven or salted bean relish... may live as well as the master of an estate of a thousand chariots” (Vol. II, p. 494-95, Chapter 129, Bibliographies of the Money-Makers).

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “salted bean relish” to refer to fermented black soybeans.

Watson notes that this monumental book can be read not only as history but as literature, and is widely regarded as “the most important historical source for a knowledge of ancient China.” It is divided into five large sections: (1)

“Basic annals”—12 chapters on the history of early dynastic houses. (2) Ten “Chronological tables,” listing important events with their dates. (3) Eight “Treatises” on subjects such as rites, music, astronomy, religious affairs, and economics. (4) “Hereditary houses”—30 chapters of histories of the various feudal states of pre-Qin (221-206 B.C.) China. (5) “Biographies” or “Accounts”—70 chapters on the lives of famous historical figures, or the foreign peoples and countries with which China had contact. Within each section, the chapters are arranged chronologically. This basic format seems to have been created by Ssu-ma Ch’ien and it was adopted in the 24 “Dynastic Histories,” the official accounts compiled over all the dynasties from the time of Ssu-ma Ch’ien to the present.

The author was born in 145 B.C. and died around 90 B.C. He spent most of his life in the court of emperor Wu who brought the Han dynasty to its peak of power. Midway through his work, he aroused the ire of emperor Wu and was castrated. He chose not to take the honorable path of committing suicide so that he could finish writing this history, which his father had started.

Both Shen Nung and the Yellow Emperor are mentioned (Vol. II, p. 19; *Shi chih* Chap. 28) as historical figures who, in “the most ancient times,” had performed the Feng and Shan sacrifices on two different mountains.

Liu An, king of Huai-nan, is introduced (Vol. II, p. 85), was discovered to have been plotting a revolt and was brought to justice with his conspirators (p. 128), was sent into exile by his brother, Emperor Wen, and died (p. 363-67). Liu An, marquis of Fu-ling and “king of Huai-nan, was by nature fond of reading books and playing the lute; he took no interest in shooting, hunting, or dashing about with dogs and horses. (Footnote: It was at his court that the *Huai-nan Tzu*, a predominantly Taoist work on philosophy and statecraft, was compiled by scholars whom he had summoned). He hoped to win the support of his people by doing secret favors for them and to achieve a reputation throughout the empire.” In 139 B.C. he journeyed to the capital and was praised. “As you know, the present emperor has no son whom he could designate as heir apparent. Your highness is a grandson of Emperor Kao-tsu and there is no one who has not heard of your reputation for benevolence and righteous conduct. If some day the empire should be faced with the sorrow of an imperial demise, who but Your Highness would be fit to succeed to the throne?” Liu An was delighted with these words. In about 135 B.C. he began to plan a revolt to place himself on the Emperor Wu’s throne after the latter’s death (p. 368-71). Chuang Chu, a friend of Liu An, was implicated when Liu An was accused of plotting a revolt (p. 429n). Address: Columbia Univ.

247. Wong, Ella-Mei. 1961. Chinese cookery. London: Angus and Robertson; New York, NY: Arco Publ. Co. [xi] + 100 p. Illust. Index. 23 cm. \*

• **Summary:** *Foo Jook* [dried yuba sticks] and “red bean curd” are mentioned.

248. Lin, Yutang. 1962. The pleasures of a nonconformist. Cleveland and New York: The World Publishing Co. 315 p. See p. 129-30. \*

• **Summary:** This book is fiction. Page 129: “There are other very important ingredients which a good Chinese cook cannot do without. Among these are the pickled black beans (*toushi*) [fermented black soybeans] essential in preparing sea bass, as the soya bean sauce is essential to fried porgies. This (*toushi*) appears as tiny black spots in the sauce of ‘lobster Cantonese style,’ and is essential to its peculiar flavor.”

Page 130: “But above all, I place the greatest importance on *toushi*, pickled black beans,....”

Note: This is the earliest English-language document seen (Dec. 2011) that uses the term “pickled black beans” to refer to fermented black soybeans.

249. Shih, Shêng-han. 1962. 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. No index. 21 cm. First ed. 1958. Third ed. 1974. [Eng]

• **Summary:** A discussion in English of the contents and significance of this key Chinese agricultural work. Contents: Preface. The Book *Ch’i Min Yao Shu*. Analysis of its source books. Part I: Original material in the *Ch’i Min Yao Shu*. Realisation of the importance of proper choice of season and soil. Cultivation of cereals. Culinary vegetables (Chiang ts’ai or soya hydrolysate conserves, p. 53-54). Fruit trees. Timber woods. Other economic plants (fiber crops, tinctorial plants). Animal husbandry. Domestic economy: Food processing (refining table salt by recrystallization, preparation of fine starch from cereal, saccharification of starch to prepare “barley sugar,” fermentation [alcoholic fermentation, acetic fermentation, *chiang* {incl. soybean *chiang*; protein hydrolysates, p. 84-87}, *shih* {fermented black soybeans, interrupted and melanised protein hydrolysates, p. 87-88}, *tsü* {pickles, lactic fermentations from intrinsic carbohydrate}, *cha* {pickles, lactic fermentation from added carbohydrates}, *lo* {cheese lactic fermentation with casein}), *fu* and *lah* [jerked and salted meat]), other technical instructions for commodities of daily life (detergents {saponins}, extraction of pigments from bastard-saffron, dyeing with vegetable pigments, heating to accelerate “drying” of oils, glue-making, preparation of cosmetics). Part II: The influence of the *Ch’i Min Yao Shu* on agricultural science in China. Epilogue. Address: PhD (London), Prof. of Plant Physiology, Northwestern College of Agriculture [Wukung, Shensi], China.

250. Shih, Shêng-han. 1962. *Shih* (fermented black

soybeans; interrupted and melanised protein hydrolysates) (Document part). In: Shih Shêng-han, ed. 1962. A Preliminary Survey of the Book *Ch'i Min Yao Shu: An Agricultural Encyclopedia of the 6th Century*. Peking, China: Science (Kexue) Press. x + 107 p. See p. 86-87. [Eng]

• **Summary:** The *Ch'i Min Yao Shu* gives the earliest known instructions for the preparation of *shih* (1 Cc = Chinese character is given): “Shih is usually made in the 5th to 8th month—this is the timely season.” Take 1 *shih* (about 22 liters by volume) of soybeans, wash them well, then soak overnight. Steam them next morning. Rub a grain between your fingers; if the skin slips off, it is well done. Spread the beans on the ground to a thickness of 2 *ts'un* (6 cm) or on a mat if the ground is unclean; allow them to cool. Cover with rushes, also 5-6 cm thick. After 3 days, examine the beans to see whether all are yellow. If so, remove the rushes and spread the beans to form a thinner layer. Using your fingers, make grooves to divide the surface into “plots.” Mix the beans, spread and make “plots” again a few hours later. Repeat this process three times a day for three more days. Cook another portion of beans to get a syrupy decoction [of excess cook water]. Take 5 *shêng* (1 *shêng* is about 0.22 liters) smaller “starters” (made of glutinous rice) and 5 *shêng* good table salt, mix both into the yellowed beans, sprinkle with bean decoction. Knead with both hands until some juice begins to run out between your fingers. Then place the mixture in a pottery jar until full—but do not press it down! If there is any space left on top, stuff it with wild mulberry leaves. Tightly seal the mouth with mud. Place jar in middle of courtyard for 27 days. Then pour out the contents, spread, and dry in the sunshine. Steam as long as if to steam raw beans, and sprinkle with a decoction of mulberry leaves. When done, spread and sun again. After steaming and sunning three times, the *shih* will be ready [for use as a salty condiment or seasoning]. Address: Prof. of Plant Physiology, Northwestern College of Agriculture, China.

251. *Washington Post*. 1963. Kentucky bourbon cake is a holiday favorite: Anne’s reader exchange. Dec. 29. p. C2.

• **Summary:** The section titled “Lobster Cantonese” is identical to that which appeared in the 29 June 1961 issue of her column (p. C4). A portrait photo shows Anne smiling.

252. Chao, Buwei Yang. 1963. *How to cook and eat in Chinese*. 3rd ed. New York, NY: Random House. xxvi + 249 p. Foreword by Hu Shih. Preface by Pearl S. Buck. Illust. Index. 21 cm.

• **Summary:** This edition is quite similar to the original 1945 edition, except that it has some new front matter (such as introductions to the second [1949] and third revised editions), new pages added here and there plus 16 pages of recipes added between pages 228 and 229, and new cooking techniques. The page layout is basically unchanged, but when new pages were added, they were numbered 160a, etc;

thus the contents of page 203 is identical in all editions.

However, among the new pages added, there is a nice new chapter 22 titled “Soybean Foods” (p. 228c-228h). Its contents: Introduction and Buddhist mock meats. Homemade tofu: Equipment needed (electric blender, form for setting), ingredients (curded with gypsum), grinding and straining, heating and setting, forming, bean curd recipes. Homemade soybean milk. Using soybean lees (okara; dregs are the leftovers you throw away and lees are those you keep). Frozen bean curd. Soy sauce beans [Soybeans baked in soy sauce]. Preserved soybeans: Homemade fermented black soybeans with salt, ginger, and optional hot chili powder or hot red pepper.

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “Preserved soybeans” to refer to fermented black soybeans.

The introduction (p. 228c) states: “Under various guises the soybean is used in vegetarian restaurants, often under Buddhist auspices, to produce sumptuous dinners, featuring “sliced chicken breast,” “roast duck,” “baked ham,” that not only fool the eye, but also the tongue, almost, but as always, I want to concentrate on the important, everyday things and de-emphasize the fancy and elaborate. Dishes with bean curd are cheap and easy to prepare. Those who can afford fancy dishes can combine it with meat, etc., but just plain cabbage and bean curd connotes home sweet home.”

Pages 158-59 contain 3 new soy-related recipes: Fried bean curd. Oyster sauce fried bean curd. Sweet-sour fried bean curd.

Recipe 14.27 (p. 155-56), titled “Red-in-snow stirs fava beans” begins: “Horse beans look like lima beans but are not. They are also called Fava beans and frequently sold by Italians. In China they are known as ‘silkworm beans.’” Address: Berkeley, California.

253. Kan, Johnny; Leong, Charles L. 1963. *Eight immortal flavors*. Berkeley, California: Howell-North Books. 246 p. Illust. (by Jake Lee). Index. 24 cm. 2nd edition 1980.

• **Summary:** An interesting book, by a master cook and an excellent researcher and writer. Full of new and useful information.

From the publisher’s description: “This is the first cookbook—written by a Chinese-American to emanate from San Francisco’s Chinatown—the mecca for both Oriental and Occidental gourmets. It is the only cookbook dealing strictly with Cantonese cookery.” The Foreword, written by the famous food writer James Beard (of New York City) in Oct. 1963. notes that he grew up in Portland, Oregon, and was a close childhood friend of the Kan family and of their cousin Johnny Kan, who came to visit from San Francisco’s Chinatown [in California]—a “city within a city.” Kan’s mother was an excellent and ingenious cook. Beard considers Kan’s Restaurant “the outstanding Chinese restaurant today.”

The “Eight Immortal Flavors” of Chinese cookery are



*Hom*—salty. *Tom*—bland (like rice). *Teem*—sweet. *Seen*—sour. *Foo*—bitter. *Lot*—hot (as in chili peppers). *Heong*—fragrant (smell more than taste). *Gum*—golden (as in citrus peel or kumquat). They are always referred to in this order. Note: In Western cookery there are only four traditional flavors—sweet, sour, salty, and bitter. The Japanese add a 5th, “umami.”

The chefs and cuisine of Kwangchow (the ancient name for Canton, now spelled Guangzhou) are considered the finest in all of China (p. 28).

The chapter titled “Native condiments, sauces, and ingredients” (p. 43+) includes: Bean curd (*Dow Foo*): “One of the most useful of Chinese ingredients,” it is usually pressed into ½-inch by 3-inch squares. Bland in flavor, it is a great mixer for highly flavored foods. “It is even delicious in its fresh state with spicy condiments and is known as ‘the meat without bones.’”

Black [soy] bean, Dried (*Woo Dow*).

“Soybean skin (*Foo Jook*): Dried skin of soybean milk. Sold in packages, it is flat and thin, with a creamy-glaze appearance. Soak it before using in soups, or in smother-cooking recipes.” It has an enjoyable chewy texture and slightly nut-like flavor.

“Soybean skin, sweet (*Teem Jook*): Similar but thicker than *Foo Jook*, its taste is slightly sweeter.”

Illustrations (p. 46-47) show: Soy bean skin (*foo jook*). Bean curd (*dow foo*).

Condiments (p. 51-54)—“Black beans, salted (*Dow see*): Cured, fermented small black beans... Should be soaked briefly and washed before use. A common use is to mash beans with garlic, creating a seasoning popular for both seafood and meats.”

Monosodium glutamate (*Mei Jing*): This flavor accent powder had its origin centuries ago in old China. “A charming story, which we like to believe, involved a contest in which several monks with gourmet tastes competed with each other to produce the most delicious batch of *Loh Han Jai*, the standard monks’ food consisting of a variety of various vegetarian ingredients... The winner had added one precious secret ingredient the others did not have—a powdered dried seaweed [*konbu, Laminaria japonica*] which was later discovered to be the first crude source of monosodium glutamate. It was not until 1908 that Dr. Kikunae Ikeda, the great Japanese scientist successfully extracted Glutamic Acid from edible seaweed and from it crystallized monosodium glutamate and marketed it under the name of *Aji-no-Moto*. Then in 1921 Chinese scientist Poo-Nien Wu of Shanghai developed a process for extracting monosodium glutamate from wheat protein and was marketing his discovery, *Ve-Tsin*, in China, Singapore, Malaya, and the Philippines to the amount of 350,000 pounds a year. Other raw material sources are corn, soybean protein, and desugared beet molasses.

Sauces (p. 54-55)—Bean sauce (*Min See Jeung*):

A brown salty bean paste. Oyster sauce (*Ho Yow*). Red seasoning sauce (*Hoy Sin Jeung*): A thick red sauce that contains soybeans as an ingredient. “A table condiment for Peking duck.”

Spiced red bean curd (*Nom Yee*): “A variation of bean cake fermented.” It has a slightly harder consistency, a brick-red color, and a pungent, aromatic flavor.

Soy sauce (*See Yow*): “For Chinese cooking, soy sauce is the great all-purpose and most indispensable of all sauce.” There are many grades and types. “For the ‘red cooking’ method, ingredients are incarnadined by the dark sauce. It may be used as a table dip, by itself, or mixed with mustard.” Unlike salt, it has “the taste of a beef essence.” It is made by the fermentation of cooked soybeans, roasted wheat, a yeast mold and salt. The best grades of Chinese soy sauce are still made by the old-fashioned, aged, natural fermentation process, rather than by the quickly made chemical hydrolysis method [HVP soy sauce]. The type known as *Sang Chau*, light and color and density, is the premier kind for flavoring and dipping.” But unless you ask for it by name, “you will get the darker soy sauce or *See Yow*. There is no definitive record of the origin of soy sauce. “Reference to the sauce has been made as early as the Chou Dynasty [1045-256 BC], some 200 years before Christ!... Undoubtedly since its very origin soy sauce has been made in the home or as a village industry. As a manufactured product it started in 1688. With its long condimentary life, no wonder that, to the Chinese, soy sauce is the Sauce of Life.”

Vegetables (p. 81-87): Bean sprouts (*Ngah Choy*): This common and inexpensive little vegetable is overused in some Chinese restaurants as a “filler.” The name “literally means ‘vegetable for the teeth,’ implying a crunchy sensation. Bean sprouts are tiny shoots which grow from the soy bean. They are one of the trio of basic Chinese foodstuffs—bean sprouts, bean curd and soy sauce—derived from the wonder bean. The sprouts average two inches long, are opaque white and the bean head is yellow... Another variety of bean sprouts, germinated from a larger type of bean, is the *Dow Ngah*, or Big Bean Sprout. This variety grows a little longer, with a larger golden head, and the sprout is crunchier, but has a more raw ‘beany’ flavor. This variety is not used in Chinese restaurants.”

Soy-related recipes: Spinach with *foo yee* sauce (Baw choy *foo yee*, with “2 preserved bean cakes (*Foo Yee*) mashed with 2 teaspoons juice from jar,” p. 89). Shows how “any commonplace vegetable can be turned into an epicurean dish by simply adding preserved bean cake” [fermented tofu] and a touch of garlic. Try it “and you will discover why *Foo Yee* is often referred to as the miracle ingredient among Chinese condiments.”

Bean cake sauteed with meat (*Dow foo yuke*, with “8 bean cakes (*Dow foo*). Slice each bean cake into 6 pieces,” p. 99). Fresh asparagus chicken with black bean sauce (*Lei soon gai kow*, with “1 full tablespoon mashed fermented

black beans (*Dow see*), combined with 1 clove mashed garlic and 1 tablespoon soy sauce, with a dash of monosodium glutamate,” p. 100).

Note: This is the earliest document seen (Nov. 2011) that uses the term “black bean sauce” and clearly shows how to make it in the kitchen as part of preparing the dish.

Chinese cabbage with foo yee sauce (Siew choy foo yee, with “2 fermented bean cakes (*Foo Yee*) with 2 teaspoons juice from the jar,” p. 107). Mustard greens with foo yee sauce (Gai choy chow foo yee, with “2 fermented bean cakes (*Foo Yee*) mashed with 2 teaspoons juice from the jar,” and 1 teaspoon soy sauce, p. 109).

Steamed salmon with black bean sauce (*Dow see jing sah-mon yee*, with “2 tablespoons fermented Black Beans (*Dow See*), crushed to paste,” p. 131). Prawns with black bean sauce (See *jup hah kow*, with “2 tablespoons Black Bean Paste (*Dow see*), p. 133). Steamed fish with black bean sauce (*Dow see seen gee jing yee*, with “2 tablespoons fermented Black Beans (*Dow see*), crushed to a paste,” p. 141).

Dried oysters with bean curd skim (*Ho see munn foo jook*, with “6 sheets Bean Curd Skim (*Foo jook*) pre-soaked in cold water for 2 hours. Drain thoroughly. Cut in 2 to 3-inch pieces.” p. 143).

Note: This is the earliest document seen (Dec. 2010) that uses the term “Bean Curd Skim” to refer to dried yuba sticks. Continued. Address: 1. Chef, Chinatown; 2. Historian of Chinese life in America.

254. Kan, Johnny; Leong, Charles L. 1963. Eight immortal flavors (Continued–Part II). Berkeley, California: Howell-North Books. 246 p. Illust. (by Jake Lee). Index. 24 cm. 2nd edition 1980.

• **Summary:** Continued from page 146. Fish stuffed in bean cake (*Jow yeong dow foo*, with “8 square Bean Cakes (*Dow Foo*),” p. 146). Chicken wings with black bean sauce (See *jup gai yik*, with “¼ cup fermented black beans (*Dow See*). Rinse, drain and crush,” p. 158). Soy sauce chicken (See *yow gai*, with “10 cups soy sauce,” p. 170). Red bean curd chicken (*Nom yee gai*, with “2 tablespoons spiced red bean curd (*Nom Yee*),... 3 tablespoons soy sauce,” p. 171). Soy squab red fried (*Hoong siew bok opp*, with “2 quarts soy sauce,” p. 174). Taro root duck with *nom yee* sauce (*Nom yee woo tow opp*, with “1 square red bean cake (*Nom Yee*), mashed,” p. 184).

Spareribs with black bean sauce (See *jup pai gwut*, with “2 teaspoons fermented Black Beans (*Dow See*), crushed into paste, p. 192). Spareribs with red bean cake sauce (*Nom yee pai gwut*, with “2 tablespoons Red Bean Cake (*Nom Yee*),” p. 193).

Winter chafing dish (*Dah bin lo*, with “Pure soy sauce (*Sin Cho*) devoid of caramel coloring {soy sauce, (*See Yow*), contains caramel coloring} and with “2 squares of bean cake [tofu] cut in cubes, p. 212-13).

Note: In 1953 Johnny Kan opened his de luxe Kan’s Restaurant at 708 Grant Ave. in San Francisco, California. Address: 1. Chef, Chinatown; 2. Historian of Chinese life in America.

255. Keys, John D. 1963. Food for the emperor: recipes of Imperial China with a dictionary of Chinese cuisine. Los Angeles, California: Ward Ritchie Press. xxii + 121 p. Introduction by Kee Joon. Illust. Index. 18 x 18 cm.

• **Summary:** See the edition published this same year by Gramercy Publishing Co., New York, NY. Address: San Francisco.

256. 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 sticks; also spelled *tiem jook*]).

Note: This is the earliest English-language document seen (Nov. 2010) 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 were 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.

257. Sato, Makoto. ed. 1963. Kuki, hishio, misho, miso, shōyu nado ni kansuru shiryō [Historical documents about kuki (fermented black soybeans), hishio or chiang, misho, miso and shoyu]. Noda: Noda Kofukai Toshokan. 230 p. Illust. No index. 28 cm. [189 ref. Jap]

• **Summary:** Reprints of 189 old documents on shoyu and miso, and their progenitors, in chronological sequence. The alternate title is “Shoyu miso shiryō shusei.” Makoto Sato was born in 1907. Address: Head, Kofukai Library (Kofukai Toshokan Cho).

258. Aykroyd, Wallace R.; Doughty, Joyce. 1964. Legumes in human nutrition. *FAO Nutritional Studies* No. 19. xi + 138 p. Reissued by FAO in 1982 (152 p.). [119 ref]

• **Summary:** Contents: Preface. Introduction. History of legumes. Production and consumption. Composition and nutritive value. Methods of processing and cooking: Soybean preparations in East Asia (p. 48-52)—Germination (sprouted

soybeans), soybean curd (tofu, incl. *chou tofu* or “stinking soybean curd”), soy sauce (shoyu), soybean paste (miso), tempeh, natto, hamanatto, soybean “milk,” fermented preparations from groundnuts. Groundnut flour.

Effects of processing on nutritive value: Soaking, decortication, heating, germination, fermentation (mentions tempeh), effects of storage.

Toxic substances. Legume proteins. Observations on the value of legumes in human feeding. The place of legumes in human diets. Appendixes: (1) Legumes eaten by man. (2) Nutritive value of important legumes. (3) Amino acid content of legumes. (4) Account of lathyrism in central India by General Sleeman. (5) Bibliography of soybean (11 references). Some legume recipes. References.

Soybeans are also mentioned on pages 15 (Table 1, “Important legumes”), 23 (Indonesia, soybean curd, soy sauce, tempeh), 23-24 (Japan, miso, shoyu, natto, tofu, Korea, Taiwan), 39-40 (carbohydrates in soybeans include “galactans, pentoses, and hemicelluloses which are poorly utilized.” Fats: only the groundnut and soybean are important sources of it), 55 (heating and trypsin inhibitor, methionine and cystine, raw unheated soybean meal, saridele), 58 (fermentation, tempeh, PER), 75-76 (protein values), 81 (Dean used soybeans to treat a protein deficiency), 84 (soybeans in India), 97 (soybean curd).

Appendix 1, titled “Legumes eaten by man” (p. 101-14), lists the various legumes by their Latin names. The entry for *Psophocarpus tetragonolobus* gives its vernacular names as “Goa bean, asparagus pea, winged pea, winged bean, sesquidillas.”

Note: This is the earliest English-language document seen (Aug. 2007) that uses the word “sesquidillas” to refer to the winged bean. Address: 1. Dep. of Human Nutrition, London School of Hygiene and Tropical Medicine; Former Director, Nutrition Div., FAO, Rome, Italy.

259. Sia, Mary Li (Mrs. Richard H.P. Sia). 1964. Mary Sia’s Chinese cookbook. 3rd ed. Honolulu, Hawaii: University of Hawaii Press. xi + 172 p. Illust. Index. 24 cm. [Eng; chi]\*

• **Summary:** Reprinted in 1967 by the same publisher but without the xi pages of front matter.

260. 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 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 (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*] (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, 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 bongkreik, tempeh kedelee, thamnidium, thumba, tibi, tien mien chang [chiang], tojo, tokua, 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. This is the earliest document seen (July 2000) that mentions “mugi miso”—a type of miso made with barley koji. 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: NRRL, Peoria, Illinois.

261. *New York Times*. 1965. Directory to dining. June 16. p. 22.

• **Summary:** This is a brief review of the Chinese restaurant Lin Heong (69 Bayard St., in Chinatown). “The fish and sea food dishes, such as the poached sea bass with fermented black beans, are particularly recommended.” \

262. Brandemuhl, William. 1965. Soybean utilization in Japan. San Francisco, California. xxii + 478 p. Unpublished manuscript. 28 cm. [189 ref]

• **Summary:** A superb, in-depth, pioneering study, based on extensive original field research in Japan. It is carefully documented with hundreds of original interviews and published sources properly cited in two different lists of sources (numerical and alphabetical) Contains 30 tables and 190 excellent photos—including 7 of the author.

Table of contents: Preface. Notes. List of tables. List of figures. Map. Part I: Background. 1. The soybean: Birth and spread (legend, botanical inception, Nagata’s theory of origin, spread to Japan and beyond, the American story).

Part II: Japan’s production and supply of soybeans. 1. Japan the country and supply of domestic soybeans (Japan the country, domestic soybean production, planting and harvesting, marketing domestic soybean). 2. Importation of Red Chinese soybeans (background, mechanics, advantages, and prospects). 3. Importation of U.S. soybeans (history, method and mechanics of importation, the American shippers, concluding comments on importation). 4. Distribution (use in brief, super-wholesaler, wholesaler, retailer wholesaler, Japan’s grain exchange).

Part III: Soybean utilization in Japan. 1. Utilization of soybeans for oil and meal (oil crushing history, soybean source, delivery of soybeans, the crushing industry, liberalization of soybean oil and meal, oil utilization in Japan, meal utilization in Japan). 2. Tofu (history, use

of soybeans, manufacture, the tofu factory, marketing tofu products, recently developed tofu products, tofu as food, concluding comments). 3. Miso (importation, home production of miso, quantity of miso produced, soybean used for producing miso, kinds of miso, fermentation time, comparison of miso firms, manufacturing, packing and marketing, price, instant miso, use of miso, miso consumption outlook). 4. Shoyu (introduction, production and manufacturers, manufacture, raw materials, preparation of raw materials for natural shoyu, preparation of materials for chemical method shoyu, preparation of materials for mixed method shoyu, fermentation, filtering and pressing, sterilization, bottling, price, use of shoyu, miscellaneous shoyu products, concluding comments). 5. Natto (description, history, Daitokuji natto, the natto industry, consumption, natto soybeans, processing, making cost and price, marketing, use of natto, problems, new ideas and natto products). 6. Frozen tofu (history, development, frozen tofu soybeans, processing, freezing, defrosting, drying, treatment with ammonia and packing, marketing, preservation, use). 7. Kinako. 8. Yuba (history and development, the plight of the yuba industry, soybeans for yuba, manufacture, classification of yuba, use). 9. Tsukudani and nimame (description, soybean tsukudani, nimame). 10. Hamanatto (history, manufacture, use). 11. Edamame. 12. Moyashi (manufacture, use). 11. Miscellaneous products (fermented soybean curd, MSG, confectionary products, other products). Conclusion. Sources (numerically arranged). Sources (alphabetically arranged).

Tables: 1. U.S. soybean production, 1924-1963. 2. United States, Red China, and world production of soybeans (bushels), 1950-1963. 3. U.S. soybean importation, exportation and amount processed for oil and meal, 1924-1963. 4. U.S. exportation of soybeans (1,000 bushels) total, by continent, and to six largest importing countries, 1958-1962. 5. Japan's soybean acreage, production, and merchandising rate. 6. Japan's importation of soybeans, total, and Red China's portion, 1945-1963. 7. Japan's total importation of soybeans and U.S. portion, 1945-1963. 8. Soybean usage in Japan, 1963. 9. Japan's processing of oilseeds, 1963. 10. Crushing capacity of selected Japanese oilseed crushers. 11. Eight largest crushers of soybeans and amount of soybeans crushed per month in 1963. 12. Total quantity of soybeans crushed in Japan, 1950-1963. 13. Japan's daily per capita intake of edible fats and oils. 14. Japan's consumption of edible fats and oils, 1945-1961. 15. Use of soybean meal. 16. Chemical composition of tofu and aburaage. 17. Quantity of soybeans and soybean meal used for tofu-aburaage productions (all Japan), 1950-1963. 18. Miso production and quantity of soybeans and soybean meal used, 1950-1963. 19. Composition of miso. 20. Daily per capita consumption of miso in Japan, 1950-1963. 21. All Japan production of shoyu and use of soybeans and soybean meal, 1950-1963. 22. Composition of shoyu. 23. Yearly per

capita consumption of shoyu, 1950-1963. 24. Composition of natto. 25. Production of frozen tofu and use of soybeans. 26. Composition of frozen tofu. 27. Yearly per capita consumption of frozen tofu. 28. Composition of kinako. 29. Composition of yuba. 30. Monosodium glutamate production and use of soybeans and soybean meal. Continued.

This typed manuscript was sent to Soyfoods Center in July 2004 by Tomoko Brandemuhl, the wife of the author. About the author (based on several interviews with Tomoko, July 2004): William Victor Brandemuhl was born on 30 Nov. 1940 at Iron Mountain, Michigan. He grew up in Florence, Wisconsin, then attended the University of Wisconsin at Madison. He roomed for 3-4 years with various Japanese cancer researchers at the university. He also became close to Tomoko Arai (born 12 Dec. 1937 in Tokyo), a Japanese woman, who was doing graduate studies in social work there as a Rotary International Fellowship student. William initially intended to graduate in June 1962, but stayed an extra year in order to pursue independent studies in Japanese language and soybeans. He became interested in the soybean and its history in an anthropology class taught by Dr. R.J. Miller; William finished his excellent research paper on soybeans in Jan. 1963. He also took one year of Japanese language instruction (night classes). William graduated in Jan. 1963 with a BSc degree in economics.

William obtained a grant (no strings attached) from Honeymead Products Co. of Mankato, Minnesota, to study soybean utilization in Japan. Only one American had studied this subject in Japan after World War II—Alan K. Smith of the USDA, who visited Japan and wrote short but detailed reports in 1948-49 and 1958. In Jan. 1963 Brandemuhl arrived in Japan and became research fellow at the Department of Agricultural Economics, Kyoto University, Kyoto, Japan. Between Feb. 1963 and May 1964 (15 months) he conducted field research on soybean utilization in Japan. In June 1963 (after William had been in Japan for 4 months), Tomoko completed her graduate studies, graduated from the University of Wisconsin, and (since her scholarship was finished), returned to Japan—to be with William and to help him with his research in Japanese, which he spoke only moderately well. She traveled with him throughout Japan and translated for him during the many interviews he conducted. At each destination, she spoke about America to the local Rotary club—which paid her transportation, room, and board. William's monthly check from Honeymead paid for his room and board—but not for his travel and research, so he had to work part time doing English translation for a Japanese company. On trips, he took many photos using his expensive Nikon camera. Tomoko's family lived near Kobe, where she and William were married on 8 Aug. 1964—three months after he finished his field research. Several days after the marriage, they returned to the USA to visit his parents in Florence, Wisconsin, and enjoy a wedding party there.

William now knew he wanted to pursue a career in

international business. He was soon offered a job at Crocker Citizen National Bank (International Division) in San Francisco, California. They drove to San Francisco and got an apartment at 1701 21st Avenue; he began work that fall, and was soon learning the basics of international business. Every evening after work at the bank he returned home to work on transforming his field notes into a manuscript. As he wrote the rough draft, Tomoko (a skilled pianist but not a skilled typist) typed it on a manual typewriter. The next day he would correct any mistakes and she would retype each page into final form. In 1965 he had the best carbon copy bound and sent it to Honeycomb; he kept the original. It was never published and he received no academic credit for it.

On 26 May 1966 their first son and only child, Konrad Victor Brandemuhl, was born in San Francisco. They bought a house in Pacifica. In 1967 he was offered a job with Caterpillar Tractor Co. (International Div.) in Peoria, Illinois. In 1968 he moved with his boss to work at Allis-Chalmers Manufacturing Co., West Allis, Wisconsin. In 1969 he was transferred to Tokyo, Japan, as Far East Representative of the company. In 1970 he was transferred to Singapore as Far East Manager of the company.

William and Tomoko later lived for about 10 years near Tokyo, Japan (mostly in Mitaka), and for a while in Singapore. Over the years he showed his typescript on "Soybean Utilization in Japan" to many people, but nobody was interested. In 1986 he started his own trading company, specializing in textiles, natural rubber, latex thread, and various machine mechanisms. Tragically, William died on 2 April 1998 in Bangkok, Thailand, of pneumonia, during a business trip. He loved the excitement of international business and interaction with people of different cultural backgrounds. Address: San Francisco, California.

263. Brandemuhl, William. 1965. Soybean utilization in Japan: Figures (Document part). San Francisco, California. xxii + 478 p. Unpublished manuscript. 28 cm. [189 ref]  
 • **Summary:** 1. Black soybeans from Japan's Tanba region and American Harosoy soybeans. 2. Soybeans growing on a dike. 3. Soybean plants drying on rack. 4. Soybean plants drying just prior to harvesting. 5. Soybean plants drying just prior to harvesting. 6. Soybean harvester. 7. Depodding rack and pod filled stalk. 8. Depodding soybeans. 9. Entrance to the Red Chinese Trade Fair held in Tokyo, during April, 1964. 10. One of the agricultural exhibits at the Chinese Trade Fair (corn and soybeans). 11. Soybeans and soybean plants exhibited at the Chinese Trade Fair. 12. Soybeans and other bean products that Red China is capable of exporting (exhibition at the Red Chinese Trade Fair). 13. Soybeans on display at retail store. 14. Soybeans on display at retail store. 15. Barge unloading of soybeans at oil mill. 16. Barge unloading of soybeans at oil mill. 17 Soybean tank receiver at oil mill. 18. Multi-spout soybean feeder at barge side. 19. An oil gift assortment.

20. Selling oil at a small oil retail shop. 21. Dispensing oil. 22. Selection of oil at oil retail shop (notice birds in cage at right). 23. Vegetable oil displayed with petroleum products. 24. Vegetable oil displayed with petroleum products. 25. Bottling facilities at oil wholesaler's. 26. Bottling facilities at oil wholesaler's. 27. Prepackaged oil products displayed at wholesaler's. 28. Seafood fried in soybean oil. 29. Selling soybean oil fried products. 30. Temperature controlled fryer. 31. At a chicken farm. 32. Handling 20 kilograms bags of chicken feed. 33. Soybean meal on top of other components of mixed feed prior to hand mixing. 34. Bag fastener for mixed feeds packed at wholesaler. 35. Fermenting agent for bakery (contains equal quantities of soybean flour, yeast, and water). 36. Silk worms eating mulberry leaves. 37. Silk worms eating soybean protein mixed with mulberry leaves. 38. Tofu. 39. Soybean grinder.

40. Soybean grinder. 41. Soybean grinder. 42. Open pit live steam cooker. 43. Open pit wood-stoked cooker. 44. Okara tank and press. 45. Outdated okara press. 46. Tonyu [soymilk] receiving tanks (precipitation tanks). 47. Removing water from precipitating curd. 48. Pressing tofu with stone weights. 49. Yakidofu. 50. Yakidofu being dipped into a shaping box. 51. Mechanical press for pressing yakidofu. 52. Cutting yakidofu. 53. Roasting yakidofu. 54. Kinugoshi tofu. 55. Aburaage. 56. Aburaage prior to being deep fried. 57. Frying sushiage, a product similar to aburaage. 58. Frying aburaage. 59. Hiroso: left front; atsuaage: right front; sushiage: left rear; aburaage: center rear.

60. Okara for use as cattle feed. 61. Okara for food use. 62. Overall view of production portion of tofu plant. 63. Tofu peddler. 64. Tofu on display. 65. Bagged tofu. 66. Miso-shiru soup. 67. Dengaku (yakidofu covered with miso and placed over low heat). 68. Aburaage formed as a bag with rice inside. 69. Yudofu, Japan's most famous but not often eaten tofu dish. 70. Yudofu. 71. Miso. 72. Fermentation starting material (rice inoculated with bacteria). 73. The first step in making home miso. 74. Mashing soybeans for home miso. 75. Rice koji being used for home produced miso. 76. Salt being added to soybean and koji for the making of home miso. 77. Mixing home miso components. 78. Mixing home miso components. 79. Freshly made home miso.

80. Home miso after one year natural fermentation. 81. Koji maker. 82. Koji filled boxes. 83. Autoclave for steaming soybeans. 84. Koji mixed with salt. 85. Wooden vat for miso fermentation. 86. Weights for pressing miso. 87. Removing miso from fermentation vat. 88. Mixing and grinding miso. 89. Degraining [grinding] miso. 90. Miso on display. 91. Miso packing and sealing instrument. 92. Packing miso in a plastic bag. 93. Beef and rice miso preserver. 94. Seafood and rice miso preserver. 95. Receiving soybean meal at shoyu factory. 96. Saline solution for shoyu production. 97. Fermenting moromi. 98. Equipment used for bubbling

moromi. 99. Temperature control of moromi.

100. New moromi. 101. Moromi which has fermented nearly one year. 102. Hydraulic press for pressing moromi. 103. Running moromi into filter cloth. 104. Filter cloth containing moromi. 105. Raw shoyu storage tank. 106. Open press for previously pressed moromi. 107. Opening moromi filter cloth. 108. Removing shoyu kasu (shoyu presscake) from filter cloth. 109. Bagging shoyu kasu for sale as cattle food. 110. Quick method shoyu kasu. 111. Shoyu sterilization instrument. 113. Shoyu bottler. 114. Bottling shoyu by hand. 115. High speed labeling. 116. Hand labeling. 117. Preparing sauce for shipment. 118. Shoyu cold sauce. 119. Filling plastic bottles with shoyu for use in box lunches.

120. Broiled chicken coated with shoyu. 121. Fish marinated in shoyu. 122. Fish baked with shoyu. 123. Grilled eels basted with shoyu. 124. Daitokuji natto (look like raisins spread on a sheet of paper).

125. Cooker for steaming soybeans for natto. 126. Pressurized container for inoculating soybeans. 127. Inoculating soybeans for natto. 128. Traditional method of packing natto. 129. Traditional method of packing natto. 130. Incubation rack and traditional packages of natto. 131. Packaging inoculated soybeans prior to incubation. 132. Packaging inoculated soybeans prior to incubation. 133. Inoculated soybeans in recently introduced containers. 134. Natto incubation room. 135. Natto on display at egg shop.

136. Overall view of frozen tofu factory. 137. Precipitation containers for frozen tofu tonyu. 138. Smoothing frozen tofu curd. 139. Frozen tofu curd flowing into shaping box.

140. Shaping box for frozen tofu curd equipped with sheet metal guide. 141. Removing formed frozen tofu curd from sink. 142. Cutting formed curd into freezing size. 143. Sized curd in -20°C freezer. 144. Sized curd in -5°C degree freezer. 145. Defrosting frozen tofu. 146. Removing frozen tofu curd from centrifuge. 147. Inspecting frozen tofu curd for dryness. 148. Drying frozen tofu. 149. Grinding frozen tofu into marketable size. 150. Packing frozen tofu. 151. Frozen tofu on display. 152. Cooked frozen tofu displayed in food shop. 153. Cooked frozen tofu mixed with vegetables. 154. Packing kinako. 155. Kinako on display. 156. Covering pounded rice cake [mochi] with kinako. 157. Yuba. 158. Yuba hanging on rack above tonyu tank. 159. Lifting yuba from tonyu tank.

160. Fresh yuba. 161. Rolling fresh yuba into marketable form. 162. Combining fresh yuba with vegetables. 163. Rolling dry yuba. 164. Yuba on display. 165. Shoyu vats at tsukudani factory. 166. Tsukudani cooker. 167. Cooling tsukudani. 168. Nimame being marketed. 169. Nimame with shoyu and shrimp. 170. Nimame with shrimp. 171. Selling nimame. 172. Nimame as served. 173. Hamanatto. 174. Sun drying Hamanatto. 175. Close-up of sun-dried Hamanatto. 176. Pressing Hamanatto. 177. Grading Hamanatto. 178.

Hamanatto on display. 179. Edamame.

180. Sprouting soybeans. 181. Sprouting soybean covered with straw. 182. Close-up of sprouting soybeans. 183. Sprouting soybeans. 184. Wetting down sprouting soybeans. 185. Soybean sprouts. 186. Mapped sprouts [Note: "Mappe" is not a Japanese word; mappe beans are imported from Burma]. 187. Soybean roasting oven. 188. Roasting soybeans. 189. Soybeans and seaweed. 190. Black soybeans in pounded rice cake [mochi].

Map of Japan. Address: San Francisco, California.

264. Brandemuhl, William. 1965. Soybean utilization in Japan: List of interviews (Document part). San Francisco, California. xxii + 478 p. Unpublished manuscript. 28 cm. [189 ref]

• **Summary:** Between Feb. 1963 and May 1964 the author interviewed people from the following organizations (listed alphabetically) related to soybean utilization in Japan. In many cases he interviewed the owner, president, or managing director.

1. Agricultural Experimental Farm, Kamigori, Hyogo-ken. 2. Akutagawa Candle Co., Kyoto. 3. Aoki Miso Co., Nagano-ken. 4. Aoki Umbrella Co., Kyoto. 5. Aoyama Candy Co., Kyoto. 6. Bunge Far East Agent, Osaka. 7. Choko Shoyu Miso Co., Nagasaki. 8. Continental Overseas Corp., Tokyo. 9. Daiichi Trade Co., Kobe. 10. Dainihon Ink and Chemical Co., Osaka. 11. Dainihon Pharmaceutical Co., Osaka. 12. Daiya Frozen Tofu Co., Suwako-gun, Nagano-ken. 13. Daizu Yuryo Wholesale and Broker, Kobe. 14. Franceya Chocolate Co., Kyoto. 15. Fuji Oil Co., Osaka. Note: This is the earliest document seen (June 2009) concerning the work of Fuji Oil Co. (Osaka, Japan) with soy.

16. Genroku Brewing Co., Kyoto. 17. Gion Mameheto Candy Co., Kyoto. 18. Hamamoto Tofu Co., Kyoto. 19. Hamano Tofu Co., Kyoto. 20. Hanamura Bread Co., Kobe. 21. Harada Miso Co., Kyoto. 22. Hasegawa Oil Co., Kyoto. 23. Hashizume Tsukudani Co., Kyoto. 24. Hirota Sauce Co., Kyoto. 25. Hohnen Oil Co., Osaka. 26. Honda Miso Co., Kyoto. 27. Ishino Miso Co., Kyoto. 28. Itoh Trade Co., Osaka. 29. Itoh Trade Co., Tokyo.

30. Iwai Trade Co., Osaka. 31. Kaihara Natto Co., Kyoto. 32. Kamejirushi Shinshu Miso Co., Nagano-ken. 33. Kanegabuchi Chemical Co., Takasago-shi, Hyogo-ken. 34. Kanemasu Grain Wholesaling Co., Osaka. 35. Kanematsu Trade Co., Osaka. 36. Kansai Paint Co., Osaka. 37. Kansai Shoji Wholesale Co., Kyoto. 38. Kanto Miso Co., Kyoto. 39. Kasakura Natto Co., Tokyo. 40. Kato Kinako Co., Tokyo. 41. Kido Tofu Co., Tokyo. 42. Kobata Farm, Kyoto. 43. Kobayashi, Michiharu, Kyoto University, Kyoto. 44. Koyasan Frozen Tofu Co., Ito-gun, Wakayam-ken.

45. Kurosawa Miso Co., Nagano-ken. 46. Kyoto Prefectural Agricultural Cooperative, Kyoto. 47. Louis Dreyfus and Co., Tokyo. 48. Mame Masa Candy Co., Kyoto. 49. Marubeni Iida Trade Co., Osaka. 50. Meiji Chocolate

Co., Osaka. 51. Midori Natto Co., Tokyo. 52. Mitsui Trade Co., Osaka. 53. Mitsui Trade Co., Tokyo. 54. Moriguchi Natto Co., Kyoto. 55. Morita Frozen Tofu Co., Sasayama, Hyogo-ken. 56. Moriwaki frozen Tofu Co., Taka-gun, Hyogo-ken. 57. Nagata, T., Dept. of Plant Breeding, Hyogo University of Agriculture, Sasayama, Hyogo-ken. 58. Nagoya Miso Co., Nagoya. 59. Nakai Wholesale Co., Osaka.

60. Nakamura Yuba Co., Kyoto. 61. Nakayama Farm, Kamigori-cho, Hyogo-ken. 62. Nakazawa Soap Co., Kyoto. 63. Namikawa Tofu Co., Kyoto. 64. Naruse Natto Bacteria Co., Tokyo. 65. National Agricultural Cooperative Assoc., Osaka. 66. Nihon Paint Co., Osaka. 67. Nikka Oil Co., Tokyo. 68. Nisshin Meal Co., Kobe. 69. Nisshin Oil Co., Yokohama. 70. Noda Shoyu Co., Takasago-shi, Hyogo-ken. 71. Nomura Meal Co., Kyoto. 72. Nomura Tsukudani Co., Kyoto. 73. Nunoura, Hiroshi, Kyoto Women's University, Kyoto. 74. Oguchi, K., Nagano-ken Shinshu Miso Assoc., Nagano-ken.

75. Ohashi, Taiji, Japan Soap Assoc., Tokyo. 76. Okazaki Natto, Tokyo. 77. O-mame Candy Co., Kyoto. 78. Osaka Grain Exchange, Osaka. 79. Osaka Prefectural Miso Assoc., Osaka. 80. Otsuya Agricultural Brokers, Kyoto. 81. Ryo Tofu Co., Kyoto. 82. Sawai Wholesale Co., Kyoto. 83. Senmaru Yuba, Kyoto. 84. Shimamoto Tofu Co., Kyoto. 85. Shinseimame Candy Co., Kyoto. 86. Sugimori, T., Marukin Shoyu Brewing Co., Kyoto. 87. Tada, H., Kyoto Prefectural College, Kyoto. 88. Taiyozakoku Wholesale Co., Kyoto. 89. Takeya Miso Co., Suwako-shi, Nagano-ken.

90. Tanaka Narazuke, Kyoto. 91. Tatsuna Higashimaru Shoyu Co., Tatsuno-shi, Hyogo-ken. 92. Tawa Chicken Farm, Kyoto. 93. Tofu Aburaage Assoc., Kyoto. 94. Toyo Menka Trade Co., Osaka. 95. Uchida Tsukemono, Kyoto. 96. Ueda Miso Assoc., Ueda-shi, Nagano-ken. 97. Uemura Suhana Candy Co., Kyoto. 98. Uno Tofu Co., Kyoto. 99. Yamajirushi Miso Co., Nagano-ken. 100. Yamamoto Farm, Taki-gun, Hyogo-ken. 101. Yamanaka Oil Wholesale Co., Kyoto. 102. Yamato Bean Sprout Co., Kyoto. 103. Yamaya Hamanatto Co., Shizuoka-ken. 104. Yazura Yahata, Kyoto Textile University, Kyoto.

105. Yoshihara Oil Co., Osaka. 106. Yoshimura, Hyogo University of Agriculture, Sasayama-shi, Hyogo-ken. 107. Yoshizabaru Retail Co., Kyoto. 108. Yubahan Co., Kyoto. 109. Yubakichi Co., Kyoto. Address: San Francisco, California.

265. Brandemuhl, William. 1965. Daitokuji natto (Document part). In: Brandemuhl, William. 1965. Soybean Utilization in Japan. San Francisco, California. xxii + 478 p. See p. 304-06, Unpublished manuscript. 28 cm. [189 ref]

• **Summary:** "Daitokuji Natto: Sources: (1) Dr. Hiroshi Nonoura, asst. prof., Kyoto Women's Univ., interview on 6 May 1963. (2) Nomura Tsukudani Co., Kyoto, visit on 20 May 1963. (3) H. Tada, Kyoto Prefectural College, visits on May 19, June 17, 1963.

"Daitokuji Natto (see Figure 124) was developed by the Zen sect of Buddhism as a source of food value [and seasoning] because the Zen Sect observes strict vegetarian habits [incl. vegan diet]. Its name indicates its origin, Daitokuji temple in Kyoto, where it is still produced and used in the everyday diet of the priests as well as used in many of that temple's ceremonies. Although a few other temples may produce a similar product in extremely small quantity, Daitokuji temple is recognized as the only place of production. Production is accomplished in the early summer during the rainy season supposedly because that time promotes desired bacterial [sic, mold] growth.

"The exact method of processing is known only to the priests that manufacture it but it is made entirely by hand and makes use of a great amount of salt as evidenced by its extremely salty taste. Because of its saltiness, Daitokuji Natto cannot be eaten by itself but should be consumed [as a seasoning] with rice. Daitokuji Natto's black paste-like appearance does not in any way resemble regular [sticky] natto or the whole soybeans that are used to make it. Since Daitokuji Natto is not a commercial product, most Japanese although having a vague knowledge of what it is, have never seen or tasted it. Its use even among the priests of Daitokuji temple will decrease as even their diets have become increasingly modernized."

Note 1. This is the earliest English-language document seen (Nov. 2011) that contains the term "Daitokuji natto."

Note 2. The Daitokuji Natto in Fig. 124 look like individual whole and broken black raisins, rather than like a black paste.

Note 3. The author says that Daitokuji natto is not a commercial product; however by Oct. 2011 it was being sold. Address: San Francisco, California.

266. Burke, Helen; Tong, Fu. 1965. Chinese cooking for pleasure. London: Paul Hamlyn Ltd. 151 + 5] p. Illust. (some color). Index. 29 cm.

• **Summary:** Preface, by Fu Tong ("Food is my whole life"). Introduction, by Helen Burke. The recipes are largely Cantonese, and fermented black soybeans (*dow see*) appear in quite a few: Pacific prawns and black soya beans (with "2 tablespoons canned black soya beans," p. 40). Duck with black beans (with "1 tablespoon canned black [soya] beans," p. 65). Chicken and black beans (with "1 tablespoon canned black beans," p. 73). Soya eggs (with "2 tablespoons dark soy sauce," p. 138).

The "Glossary" (p. 150-51) includes: "Red bean curd;" comes in 6-oz cans. "Yellow and black soya beans;" sold in 6-oz. cans.

Note: Many recipes call for "Ve-Tsin or monosodium glutamate." It is known under many brand names; Accent (made in USA), Aji no Moto (made in Japan). Mei Yen (made by the Spice Islands Co. of California), Stress (made in Great Britain) and Ve-Tsin (made in Hong Kong). "Home



cooks, in the wake of food manufacturers, are realising, more and more, the virtue of 'M.S.G.' under whatever name it is bought and it is growing in popularity. Like all seasonings and flavourings, 'a little goes a long way.'" Address: 1. Food writer, London, England, and, British Columbia, Canada; 2. Owner of four Chinese restaurants in Europe.

267. David-Perez, Enriqueta. comp. and ed. 1965. Recipes of the Philippines. Philippines: Published by the author. Printed by Capitol Publishing House, Inc. (Quezon City). 86 + [14] p. Illust. No index. 22 cm.

• **Summary:** This is an expanded edition of the author's 1953 book of the same title. Almost all the recipes in this book have Filipino names, with no English translation of those names. A surprisingly large number contain soyfoods (See Glossary at end). Miso is "a paste made of fermented rice and soy beans" [miso]. Tajure is "fermented soy beans, caked" (fermented tofu). Tausi is "fermented soy beans" [fermented black soybeans or fermented black soybeans with salt]. Tokua is "soy bean curd" (tofu). Toyo is Filipino-style soy sauce.

Soy-related recipes include: Chicken pastel (with toyo, p. 26). Arroz caldo with chicken (with 3 tbsp. patis or toyo, p. 45). Bañug en tocho-2 (with 2 tbsp. each tajure and tausi, and 1 cake tokua, cut into pieces 3/4 inch long and 1/8 inch wide, p. 54). Bañug in soy sauce (with 2 tbsp. soy sauce, p. 54). Bulanglang-1 (with 1 cup tokua, cubed and fried, p. 57). Burong isda (with 1 tbsp. angkak-fermented red rice, p. 59). Escabecheng apahap (with 4 pieces tokua, p. 71). Escabeche-Macao style (with 3 tbsp. toyo sauce, p. 71).

Kari-karing pata (with ground toasted peanuts or peanut butter, p. 79). Lumpia labong (with 5 bean cakes-tokua, p. 83). Lumpia sauce (with 1/2 cup toyo sauce, p. 84). Lumpia with peanuts (with 2 squares tokua-diced, 2 tbsp. toyo-soy sauce, and 1 cup ground peanuts, p. 85). Lumpia with ubod-2 (with 2 cakes tokua, and toyo to taste, p. 87). Miso-tomato sauce (with 2 tbsp. miso-soy bean paste, p. 92). Pancit "luglug" (with 1/2 cup soy bean cake-tokua-cut into small cubes, p. 97). Umba (with 2 tbsp. toyo and 1 heaping tbsp. tausi, p. 118). Pastillas de mani (with 1 can ground peanuts, p. 133).

On the page facing p. 186 is a full page ad for Suki Soy Sauce, made by the Philippine Shoyu Co., Liloan, Cebu, Philippines. It is "Pure and fully aged."

Seven unnumbered pages later is a full-page ad for "Aji-no-Moto super seasoning... The purest vetsin ever."

A glossary at the end contains brief definitions of uncommon ingredients. Definitions of the soy-related ingredients above are taken from this glossary. Angkak is "red-colored grains of rice used as coloring for fermented fish."

Note: On the title page is printed "10th printing-1965" but no original publication date is given. Address: Philippines.

268. 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*.

269. *Los Angeles Times*. 1966. Fish dish with flavor of Orient. Oct. 13. p. D2.

• **Summary:** "Ginger root, black beans (a flavoring) and soy sauce are responsible for the distinctive flavor of Chinese steamed fish." A recipe for "Chinese steamed fish" calls for "1/2 tsp. [teaspoon] fermented black beans or salt."

270. Hesseltine, C.W.; Shotwell, Odette L.; Ellis, J.J.; Stubblefield, R.D. 1966. Aflatoxin formation by *Aspergillus flavus*. *Bacteriological Reviews* 30(4):795-805. Dec. [39 ref]

• **Summary:** Introduction. Fungi producing aflatoxins and other toxins of *A. flavus*. Natural occurrence of aflatoxin. Factors affecting aflatoxin formation in nature. Production of aflatoxin in culture. Aflatoxin studies at the Northern Regional Research Laboratory.

The occurrence of mycotoxins has been known for several decades. In 1913 Alsberg and Black of the USDA studied the biochemistry of toxins of certain molds isolated from corn meal. *Penicillium puberulum* was found to produce penicillic acid which was toxic. Interest in aflatoxins arose after the death of a large number of young turkeys in Great Britain in 1960. At least 4 aflatoxins are known to exist, produced by certain strains of *Aspergillus flavus* Link, *A. parasiticus* Speare, and *Penicillium puberulum* Bainier.

"*Aspergillus oryzae* and its near relatives are widely used in the preparation of koji for such food fermentations as shoyu (soy sauce), miso, black beans [fermented black soybeans / fermented black soybeans], and sake" (p. 802). *A. oryzae* is a close relative of *A. flavus*; they are distinguished on the basis of minor morphological characteristics. Aflatoxin has been found on only two commercial commodities: Peanuts and cottonseed cake. Although *A. flavus* can be made to grow on soybeans, none of the strains produced much aflatoxin regardless of the conditions. Aflatoxins have not been found in commercial soyfoods produced by *Aspergillus oryzae*.

The authors obtained very low toxin production (0.03

micrograms/milliliter) on pearled soybeans (Hawkeye variety) using a strain of *Aspergillus flavus*. Address: NRRL, Peoria, Illinois.

271. Miller, Gloria Bley. 1966. The thousand recipe Chinese cookbook. New York, NY: Antheneum. First Grosset & Dunlap edition 1970. xiv + 926 p. Illust. magnificently by Earl Thollander. Index. 26 cm.

• **Summary:** This excellent, massive volume, by the blond-haired wife (a professional writer; photo shown on dust jacket) of a Greenwich Village sculptor, offers an in-depth introduction to Chinese cooking and ingredients, though it is unusually heavy on flesh foods and light on grain and vegetable dishes—as the following listing of recipes will show. In describing “The Chinese Diet” (p. 3-4) the author notes, “Meat does not predominate, vegetables do:... There are no dairy products: Butter, cheese and milk are practically unknown to Chinese cooking. (Cattle, few and far between, were more profitably put to work as beasts of burden.) Yet, with nutritional ingenuity, the Chinese created their own ‘cow’ which produced its own ‘dairy’ products. They took the lowly soybean, whose protein closely resembles that of meat, and transformed it in innumerable ways. They softened and ground the soybean, then mixed it with water, converting it first to milk, then to curd, and finally to cheese. (They also put it to many other uses: made it into sauce and jam; served its sprouts as vegetables; fermented, dried and roasted it; used it salty as a condiment, sweet in pastries.)”

Page 75 notes: Soy sauce should be used discreetly in light soups. If possible, it should be light soy. The dark variety can destroy a soup’s lightness and clarity; its strong taste can overwhelm flavors.

Soy-related recipes include: Basic bean curd soup (p. 99-100). Basic cold bean curd (p. 114). Slivered bean curd and shrimp (p. 115). Stir-fried pork and bean curd (p. 133). Stir-fried pork with deep-fried bean curd. Stir-fried pork with pressed bean curd (p. 135). Stir-fried roast pork and bean curd I and II (p. 156-57). Basic steamed minced pork (with “fermented black beans,” p. 167-68). Steamed sliced pork with ham and bean curd (p. 170). Steamed sliced pork with white cheese [white fermented tofu] (p. 171). Basic braised pork with bean curd (p. 174-75). Braised pork with red bean cheese (p. 176). Braised pork with chestnuts, mushrooms and ginkgo nuts (p. 176-77) has a variation that calls for “¼ pound dried bean curd sticks.”

Note: This is the earliest English-language document seen (June 2011) that uses the term “dried bean curd sticks” to refer to dried yuba sticks. Braised pork and bean curd (p. 180). Braised five-flower pork and red bean cheese (p. 180-81). Red-simmered pork (with soy sauce, p. 186-88). Stir-fried spareribs with black bean sauce (with “1 to 2 tablespoons fermented black beans.” “Soak fermented black beans... Mince garlic and scallion stalk, then mash with soaked black beans. Combine with sherry, water and soy

sauce... Stir in black bean mixture” with other ingredients, p. 202-03). Steamed spareribs with black bean sauce (“Mince garlic and mash with soaked black beans; then combine with cornstarch, soy sauce and sugar. Pour mixture over ribs,” p. 206). Braised spareribs with black bean sauce (“Mince garlic and ginger root, then mash with soaked black beans,” p. 206). Braised spareribs with red bean cheese (p. 206). Stir-fried beef and bean curd (p. 215). Red-simmered beef (with soy sauce, p. 245-46). Red-simmered (or cooked) duck (with soy sauce, p. 267-71). Stir-fried chicken with soy jam (p. 325-26). Stir-fried chicken and tomatoes with black beans [“fermented black beans”] (p. 327-28). Stir-fried deep-fried chicken with brown bean sauce (p. 329). Stir-fried deep-fried chicken with soybean paste (p. 330-31). Red-cooked or soy chicken (p. 366-69). Steamed fish topped with black bean sauce [“fermented black beans”] (p. 411-12). Braised soy fish (p. 429-32). Braised fish with deep-fried bean curd (p. 434). Braised fish steaks with bean curd (p. 435). Deep-fried bean curd stuffed with minced fish (p. 448). Braised dried oysters with bean curd sticks [dried yuba sticks] (p. 483). Stir-fried shrimp with bean curd I and II (p. 496). Stir-fried shrimp with deep-fried bean curd (p. 497). Stir-fried shrimp with black bean sauce [“fermented black beans”] I and II (p. 500). Poached shrimp with ham and bean curd (p. 527). Basic omelet with bean curd I and II (p. 551-52). Fried eggs with soy sauce (p. 569). Soy eggs (also called pot-stewed or red-stewed eggs). Soy duck eggs (p. 574). Basic stir-fried bean curd (p. 593). Basic deep-fried bean curd (p. 594). Deep-fried bean curd with dried shrimp sauce. Steamed stuffed bean curd (with pork, p. 595). Miscellaneous bean curd (p. 595-96). Stir-fried spinach and white cheese [fermented tofu] (p. 618-19). Stir-fried string beans and white cheese [fermented tofu] (p. 620-21). Basic Buddhist vegetable dish (A vegetarian dish known as Lo Hon Ji or Lohan Tsai; “Variation: In step 4, stir 2 tablespoons Chinese red cheese, mashed, into the water-soy mixture;...” p. 623). Soy jam noodles (p. 660). Noodles in brown bean sauce (and hoisin sauce, p. 661). Dips (incl. Dip for deep-fried bean curd; many use soy sauce or hoisin sauce, p. 709-14). Soy-vinegar dressing. Soy-sesame dressing (p. 715, with soy sauce and sesame oil). Soy-oil dressing (with soy sauce and peanut oil, p. 716). Marinades (many use soy sauce, hoisin sauce, brown bean sauce, or red bean cheese, p. 717-24). Sauces (many use soy sauce or yellow bean paste, incl. Sweet-and-pungent sauces, p. 725-39).

The chapter titled “Other Useful Information” tells more about bean curd.

The extensive Glossary of Chinese Ingredients (p. 844-72) contains the following soy-related entries: Bean curd (bean cakes; note that recipes call for a certain number of “cakes” of tofu). Bean curd sauce (see cheese, Chinese white).

Bean curd sticks (dried bean curd [dried yuba sticks = foo jook]; “Long, dried, cream-colored sticks, about ½

inch wide and 20 inches long, but bent in two. Are stiff and striated with an enamel-like surface. Sometimes called 'Second Bamboo' because they come from the residue or second layer of creamy bean curd [yuba]. Must be soaked; then they become chewy in texture, nutlike in flavor. Used as a vegetable with soup, steamed fish, stir-fried and braised pork... Other dried varieties include sweet bean curd sticks [tim jook or tiem joke], which are similar but thicker, and are used in fish and vegetarian dishes; and glazed bean curd skin in the form of stiff thin sheets").

Bean paste, yellow (yellow sauce). Bean sauce, brown (see brown bean sauce). Bean sprouts. Yellow soybean sprouts are larger and coarser than mung bean sprouts, and must be husked. "They also have a stronger, more woody flavor." Because of their crunchiness, Chinese call them "teeth vegetable." Beans, black (Type of beans not given. "Note: Sweetened black beans used as a pastry filling sold in Chinese bakeries"). Beans, black fermented beans (black bean sauce or salted black beans). Brown bean sauce. Cheese, Chinese red (red bean curd cheese, spiced red bean curd, or southern cheese). Cheese, Chinese white (bean curd sauce, white bean curd cheese, or white bean sauce). Five Spices (five-flavored powder or five-fragrance spice powder; star anise, anise pepper, fennel, cloves, cinnamon). Hoisin sauce (haisien sauce, Peking sauce, red seasoning sauce, red vegetable sauce, sweet vegetable paste, or sweet vegetable sauce; another variety is called Ten-Flavored Sauce). Pickles, Chinese (pickled vegetables; pickled in soy sauce). Red bean sauce. Soy jam (soybean paste). Soy sauce (light, black, or heavy varieties). Hoisin sauce (p. 855) is a "Thick, dark brownish-red sauce, made from soy beans, spices, garlic and chili. Sweet and spicy." Used in cooking and as a table condiment.

The chapters titled "Storing Information" and "Soaking Information" include such information on many of the foods listed in the glossary.

The chapter titled "Chinese terminology" (p. 886-91) is especially valuable because it gives the Cantonese names of Chinese foods. It contains the following soy-related entries: Bean curd: Dow foo or dau foo. Bean curd, deep fried: Dow foo pok. Bean curd, spiced: Dow foo kon. Bean curd, watery: Dow foo fa [literally "tofu flowers"; tofu curds]. Bean curd sticks: Foo jook or foo joke. Bean curd sticks, sweet: Tim jook or tiem joke. Bean paste, red: Dow sha or dow cha [azuki]. Beans, black: Woo dow. Bean paste, yellow: Wong dow sa [soy]. Beans, black fermented: Dow see or doe shee. Beans, sweet black: Dow sa. Beans, red: Hoong dow [azuki]. Bean sprouts, soy: Dow gna or dow ngah. Brown bean sauce: Min see jeung or mien see jeung. Catsup: Fon ker jeung. Cheese, Chinese red: Nom yee or Narm yoo [fermented tofu]. Cheese, Chinese white: Foo yee or Foo yoo [fermented tofu]. Hoisin sauce: Hoy sin jeung or hoy sien jeung. Oil, peanut: Far sung yow. Oil, sesame: Jee ma yo or jee ma yow. Peanuts: Far sang or far sung. Red bean sauce: Saang

see jeung or shargn she jeung [azuki]. Sesame paste: Jee ma jeung. Sesame seeds: Jee ma. Soy jam [chiang]: Yewn she jeung. Soy sauce: See yu or shee yau or sho yu. Soy sauce, light: Sang chau. Soy sauce, dark: Chow yau or cho yo. Soy sauce, heavy: See yau or jeow yau.

Illustrations show: A bottle of Chou Soy sauce made by Amoy Canning Co. (p. 112). A brick-shaped can of "Thick Soy" made by Tung Chun Canning Co. (p. 126). An earthenware jug of "Ho Sang Yick Soy Sauce" (p. 203). A Mason-type jar of fermented bean curd made by Tung Chun Soy (p. 596). A bottle of Koon Chu\* soy [sauce] (p. 715). Address: Greenwich Village, New York City.

272. 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 *T'ien Kung K'ai Wu*, by Sung Ying-Hsing (pinyin: *Tiangong Kaiwu*, by Song Yingxing) was 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, paniced millet, and glutinous millet. Rise 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 (*liudou*) [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 (*liudou*), “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 ocyroides* ([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.

273. 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*.” 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].

274. Hewitt, Jean. 1967. With twelve nationalities in residence, the refrigerator is a melting pot. *New York Times*. March 18. p. 32.

• **Summary:** In this big old brownstone, an international residence owned by the YWCA of Brooklyn, each young lady keeps her own food in separate refrigerators or boxes. "Such separation helps to keep the fermented black beans [called *tausi*, *taosi*, or *tao-si*] used recently by Grace Esquerria of the Philippines from being mixed up with the beans served with a chicken dish" prepared by two ladies from Haiti.

275. Hesselstine, Clifford W. 1967. Fermented products: Miso, *sufu*, and *tempeh*. *USDA Agricultural Research*

*Service*. ARS-71-35. p. 170-80. May. Proceedings of International Conference on Soybean Protein Foods. Held 17-19 Oct. 1966 at Peoria, Illinois. [12 ref]

• **Summary:** Discusses: Miso. *Sufu*, or Chinese cheese [fermented tofu]. *Tempeh*. Absence of aflatoxin in fermented food products. Table 1 shows mold fermented food products tested for aflatoxin and found negative. These include *shoyu*, *miso*, Chinese black beans (Fermented black soybeans from Taiwan), *Hamanatto*, *moromi*, *soy tempeh*, *wheat tempeh*, *rice tempeh*, *wheat-soybean tempeh*.

Concerning *sufu*: "The *pehtzes* [molded tofu cubes] are next brined in various solutions depending on the flavor desired. A typical brine would consist of 12% NaCl and 10% ethanol (sometimes added as rice wine). In other instances, only a salt brine may be used. The molded cakes are allowed to age for about 2 months. The finished cheese along with the brine is bottled, sterilized, and marketed as *sufu*."

Of all the various *Mucor* species tested for use in making, the *Actinomucor elegans* used commercially is the best proteinase and almost the best lipase producer. "This same fungus is used in China to produce a food made by fermentation of wheat gluten" Address: Northern Utilization R&D Div., ARS, USDA, Peoria, Illinois.

276. Hesselstine, C.W.; Wang, Hwa L. 1967. Traditional fermented foods. *Biotechnology and Bioengineering* 9(3):275-88. July. [8 ref]

• **Summary:** Contents: Summary. Introduction. Fish fermentations. Soybean and peanut fermentations: *Koji*, *shoyu*, *miso*, *hamanatto*, *natto*, *ontjom*, *sufu*, *tempeh*. Discussion: Advantages of preparing foods by fermentation. Address: NRRL, Peoria, Illinois.

277. Li chi: Book of rites. An encyclopedia of ancient ceremonial usages, religious creeds, and social institutions. Translated from the Chinese by James Legge. 2 vols. 1967. New Hyde Park, New York: University Books. See vol. 1, p. 459-63. Edited with an introduction and study guide by Ch'u Chai and Winberg Chai. 24 cm. \*

• **Summary:** Ying-shih Yü (1977, p. 58) notes: "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)."

Note: "Except for the new material added by the editors, the text of this edition is that published by Oxford University Press in 1885 as volumes xxvii and xxviii of *The Sacred Books of the East* and also designated as parts iii and iv of *The Texts of Confucianism*."

278. Hewitt, Jean. 1968. Italian specialties all ready to cook. *New York Times*. Jan. 29. p. 34.

• **Summary:** A new mail order service, the Gourmanderie, in New York City, “has been started to supply such things as dried lotus roots and star anise from Taiwan, dried cuttlefish and fermented black bean [sic, beans] from Hong Kong, and abalone from Mexico.”

279. David-Pérez, Enriqueta. comp. and ed. 1968. Recipes of the Philippines. Philippines: Zone Printing Co. xiv + 170 p. Plus 8 leaves of plates on unnumbered pages. Illust (some color). No index. 23 cm.

• **Summary:** Mentions *tokua* [tofu, also spelled *tokwa*] as an ingredient in Lumpia. The glossary (p. 169-70) mentions: “Misu—paste made of fermented rice and soy beans.” “Tajure—fermented soy beans, caked.” [brine fermented tofu]. “Tausi—fermented soy beans (fermented black soybeans).” “Tokua—soy bean curd [tofu].” Address: Philippines.

280. 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. These include vegetarian “duck made from crisp beancurd 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).

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 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.

281. Hahn, Emily. 1968. *Recipes: The cooking of China*. New York, NY: Time-Life Books. 119 p. Illust. (many color photos). Index. 23 cm. Series: Foods of the World. Revised ed. 1973, 1980, 1981. [1 ref]

• **Summary:** A recipe for “Shua-yang-jou–Mongolian fire pot

(rinsed lamb)” (p. 28-29) calls for “1 tablespoon fermented red bean curd, mashed.”

Note: This is the earliest English-language document seen (Oct. 2011) that contains the term “red bean curd” or that uses the term “fermented red bean curd” (or “fermented red beancurd”) to refer to red fermented tofu.

The excellent “Guide to ingredients used in Chinese cooking” (p. 115-19) is identical to that found in the larger companion volume, *The Cooking of China* (Hahn 1968, p. 198-99). Address: Author, lives in England with her husband.

282. Kikkoman Shoyu K.K. 1968. *Kikkōman Shōyu shi* [History of Kikkoman Shoyu]. Noda, Japan: Kikkoman Shoyu K.K. 804 p. Illust. No index. 26 cm. [113 ref. Jap; eng+]

• **Summary:** This is the third (and best) major history of Kikkoman, written largely by Mr. Morio Ichiyama. Contents: Preface. I. Overview–1. Fermented foods. 2. Japanese shoyu. II. Present status: 1. Overview of Noda (p. 15): Location, overview photo of city area. 2. Main building and facilities (p. 18): Main office, Tokyo branch, Osaka branch, plant No. 7, Kansai plant, inside the fermentation plant, bottling plant, sake making plant, food manufacturing plant, Goyo Gura traditional shoyu facility, Central Research Center. 3. The distribution and view of the buildings (p. 36): Distribution chart of the main buildings in the Noda area, view of the plant, water providing facility. 4. Products (p. 41): Shoyu, products made by food manufacturing department and sake brewing department. 5. Sales and marketing (p. 44): Domestic, overseas. 6. Welfare facilities (p. 48): Health center house, attached hospital, cultural gymnasium, dormitory and company housing quarters. 7. Connected enterprises (p. 50): *K.K. Senshūya (Chiaki)*, foundational juridical person / (*kōfūkai*), foundational juridical person / (*Noda Sangyo Kagaku Kenkyusho*), *Sōbu-Tsūun K.K.*, Kikkoman International, Inc., Tone Coca-Cola Bottling Co., Kikko Food Industry K.K., Seishin Seiyaku K.K. (pharmaceutical company), Mann’s Wine K.K. 8. The staff members (p. 58).

III. History. 1. The history of shoyu (p. 61): History of shoyu, origin of character meaning shoyu, Daishokuzen and Shoin, Zashin of Shoin, the beginning of shoyu exports (p. 76), the first shoyu plant overseas, shoyu which was protected by the Lord of the Han (*Hanko*), references to Noda Shoyu in literature. 2. Trademarks (p. 86): The change of trademark, the origin of the Kikkoman trademark. 3. Management of the organization (p. 91): Changes in organization, changes in management, changes in bookkeeping. 4. Production (p. 118): History of the method, raw materials, processes, containers, sauce, new seasonings, various kinds of sake. 5. The plant (p. 231): Noda plant, Kansai (Osaka-Kyoto area) plant, sake making plant. 6. Research center (p. 265): History of the research center, achievements. 7. Businesses (p. 269): Sales,

wholesale, business customs, export, transportation, prices, advertising, business offices, overseas activities. 8. Labor (p. 375): Changes in labor conditions, the labor union, labor relations board. 9. Welfare (p. 393): Health insurance union, medical facilities, dormitories for single workers and company housing quarters, day care center, travel club, fire department, committee for funerals, weddings, etc. (*Kyozaikai*), athletic association, cultural committee, Noda Shoyu co-op.

#### IV. Pre-history—Before the company's establishment.

1. Natural and environmental history of Noda (p. 415).  
 2. Development of the shoyu industry in Noda (p. 432).  
 3. Family tree (p. 440). 4. Brief description of the major contributions (p. 448, incl. Kotohira Shrine, Kameo Mogi's theory of business, founding of the Senshu-kai, the man who emphasized thrift and simplicity, the 1st president of the company, the 2nd president—Mogi-Honke, the 3rd president Chu-do Kikkoman Kuramoto).

V. Company history. 1. Developmental stage and established stage (p. 469): Outline, foundation of the company, beginning of the business, developments and labor problems, overproduction and the business world. 2. The new order and the controlled economy during World War II (p. 494): Outline, changes during the war, process under controlled economy during the war. 3. The U.S. occupation period (p. 519): Outline, development of democracy, danger of the business world, changes caused by international conditions. 4. Development period of new Japan (p. 547): Outline, quickening of economic growth, advancing technology, a step forward to modernization, diversification of the business.

Appendixes: 1. Company time table (20 p.). 2. Charts and graphs concerning the company's history (5 p.). 3. Food history and shoyu (193 p., including many old illustrations, photos, a 38-page chronology of Japanese food culture {p. 137-75}, and a bibliography {p. 191-93}). Closing remarks (2 p.). Contains many photos, illustrations, and copies of early documents.

Note: Ichiyama is not listed in this book as the author, even though he wrote it. On the copyright page the author is given as Kikkoman K.K. Continued. Address: Noda, Japan.

283. Kikkoman Shoyu K.K. 1968. *Kikkōman Shōyū shi* [History of Kikkoman Shoyu (Continued—Document part II)]. Noda, Japan: Kikkoman Shoyu K.K. 804 p. Illust. [113 ref. Jap; eng+]

• **Summary:** The section on the beginning of shoyu exports (p. 76) states that the exporting of shoyu from Japan began when a group of merchants were allowed to do business after the closing of Japan during the Kan-ei era (1624–30) of the early Tokugawa period. In 1641 a group of Dutchmen moved to Nagasaki from Hirado. At that time, two merchants already in business were allowed to conduct trade: Their names were Koyanagi Heizaemon and Sameya

Hisazaemon. They established a stock company with 16 shares. The shareholders were called *Dejima shoshiki urikomi shōnin*. To the original two merchants, in 1653 four more were added and in 1666 ten more were added, making a total of 16. These were called the “Comprador Merchant Guild” (*Konpura Nakama*). They started exporting shoyu from Japan. According to documents in the Hague: 1668—It was exported to Coromandel on the southeast coast of India. 1670—To Ceylon. 1699—To Ceylon, Bengal, and Nakabatanam. 1716—To Coromandel. 1717—To Suratt, in northwest India. Furthermore, the Dutch took shoyu to Europe. So we can see that in the late 1600s and early 1700s the people of Europe started to use shoyu.

The section on exports (p. 294-99) states that it is difficult to tell when shoyu from Noda was first exported from Japan. In 1879 a person named Domoto (?) got one Kikkoman brand and its logo (in the shape of a hexagon, but not the current Kikkoman logo) registered in California, and then he started to sell the product there. In about 1899 the Saheiji MOGI family's Kikkoman brand shoyu began to be exported to Hawaii via Okada-shoten, a company with offices at Koamicho 3-5 in Tokyo. In 1907 the Verleysen-Nyssens company in Brussels, Belgium, began to import shoyu in large kegs. They repackaged it in grey ceramic bottles of their own design, then published a pamphlet in French (see p. 295) describing the product (which they called “Soya”) and showing a photo of two sizes of bottles. A 1.2 liter bottled retailed for 1.75 francs. Page 296 shows a gift coupon from the year 1922 from America. When a person buys a bottle of shoyu, he or she gets this \$0.50 coupon.

Excerpts from Appendix 3 (p. 152+): Chronology of food history. 1610—Tamari was made in Nagoya using only soybeans when the Nagoya Castle was built. 1615—Dried nori sheets invented in Edo. 1616—Shoyu started to be made in Choshi, Shimousa. 1661—Takanashi (1661) and Mogi (1662) families in Noda started to make shoyu and miso. 1666—Usukuchi shoyu started to be made in Tatsuno, Hanshu / Banshu by a certain man. And Bizen shoyu started to be made in Bizen. 1698—Shoyu wholesaler (*tonya*) first appeared in the literature in *Sonazaki Shinju*, by Chikamatsu Monzaemon. 1781—Kanro shoyu starts to be made. Mr. Takada offered shoyu to Yoshikawa-ko and received the admiration / appreciation of *kanro* (“sweet dew”). 1810—Choshi Shoyu received the *gozengoyō* Tanaka-gen han bakufu. 1829—The Takanashi house of Noda received the Bakufu's order for shoyu (*goryomaru*). Address: Noda, Japan.

284. Hesseltine, C.W.; Wang, H.L. 1969. Oriental fermented foods made from soybeans. *USDA Agricultural Research Service. ARS-74-50*. p. 45-52. Feb. Proceedings of the Ninth Dry Bean Research Conference.

• **Summary:** Contents: Introduction. Koji. Shoyu or soy sauce. Miso. Hamanatto. Sufu. Tempeh. Natto. Idli.



Conclusion. Flow sheets (without quantities of ingredients) show the basic process used in making the following foods: shoyu, miso, hamanatto, sufu (fermented tofu), and tempeh.

A photo taken in Aug. 1948 shows a miso plant in Tokyo, Japan, with large wooden vats in the foreground. A part of this plant was destroyed during World War II. Address: Northern Utilization Research and Development Div., USDA, Peoria, Illinois.

285. Banzon, Julian; Steinkraus, Keith H. 1969. How to use soybeans from your garden. College of Agriculture, University of the Philippines. 5 p. Mimeographed circular. Distributed through Los Banos Extension Dept.

• **Summary:** Introduction (the importance of protein, of which soybeans are a good source). How to grow soybeans in the Philippines, by Richard Bradfield of IRRI. How to make soybean milk and other nutritious soybean foods: Steamed green soybeans, mature dry soybeans, soybean milk, tokua–soybean curd, taosi (soybeans fermented with *Aspergillus oryzae* mold), tempeh.

Note: This is the earliest English-language document seen (Nov. 2011) that uses the word *taosi* to refer to fermented black soybeans. Address: 1. Prof. of Chemistry; 2. Visiting Prof., Microbiology and Food Science. Both: Univ. of the Philippines, College of Agriculture, Laguna, Philippines.

286. Stanton, W.R.; Wallbridge, A. 1969. Fermented food processes. *Process Biochemistry* 4(4):45-51. April. [34 ref]  
• **Summary:** “Fermentation of starch tubers such as cassava with fungal organisms such as *Rhizopus* can result in a food product with significant increases in protein content.” The cassava dough is inoculated then extruded (like noodles) into fermentation trays.

Table 1 shows many different “vegetable cheeses and related fermented foods.” The first such food mentioned is minchin, made from wheat [gluten] in China. The microorganisms used are *Paecilomyces*, *Aspergillus*, *Cladosporium*, *Fusarium*, *Syncephalastrum*, *Penicillium*, and *Trichothecium* species. This is an anaerobic fermentation of wheat gluten for 2-3 weeks at room temperature during the winter, with 10% salt added. The product is cut into strips and used as a condiment. Eaten as a meat substitute, it is rich in protein, nutritious, and healthy.

Fermented soy products include sufu, tempeh, meitauza, Hamanatto, shoyu, miso, and natto. Address: 1. PhD, Head, Microbiology Section, Tropical Products Inst., London, England; 2. Parke Davis Co.

287. *Los Angeles Times*. 1969. Mushroom salad for an appetizer: Culinary SOS. June 19. p. G14.

• **Summary:** Walter Lee shares a recipe for Asparagus and beef, which calls for “1 tbsp. [tablespoon] dow see (fermented black beans), 1 clove garlic,…” Then: “Soak

black beans in water a few minutes. Drain and mash beans with garlic.”

Note: This is the earliest document seen (Nov. 2011) in all major U.S. newspapers digitized by ProQuest that uses the term “dow see” to refer to salted and fermented black soybeans. The new term appears in 55 documents between 1969 and the present, including this one in 1969, 4 in the 1970s, 7 in the 1980s, etc.

288. Claiborne, Craig. 1969. You needn’t be a Charlie Chan to locate Chinese ingredients. *New York Times*. Aug. 28. p. 34.

• **Summary:** Of the world’s two great cuisines, Chinese dishes are quicker and easier to make than French. But Chinese ingredients are often hard to find. Proper pronunciation is part of the problem. One of the best sources of both ingredients and information about them is John Leong, owner of Yuet Hing Market (23 Pell St., Manhattan). “Black beans, he will inform you, are not only good for steamed sea bass and lobster Canton style, but for spareribs, crabs, clams and so on.”

A recipe for steamed sea bass calls for “1 teaspoon fermented black beans.”

289. Claiborne, Craig. 1969. Steamed fish—Chinese style—gains something in translation. *New York Times*. Oct. 23. p. 58.

• **Summary:** A recipe for “Spareribs with black beans” calls for “1 tablespoon fermented black beans (available in Chinese grocery stores),... 3 tablespoons soy sauce.” A photo shows teacher and author Florence Lin.

290. Hesseltine, C.W.; Wang, H.L. 1969. Fermented soybean foods. In: Proceedings of the Third International Conference on Global Impacts of Applied Microbiology. See p. 403-20. Held 7-14 Dec. 1969 at Bombay, India. [11 ref]

• **Summary:** Contents: Introduction: The three fundamental drives of man (food, shelter, reproduction), benefits of soybean fermentation. Sufu. Hamanatto. Natto. Tempeh. Magou (now made in South Africa on a modern industrial scale from fermented corn and soybeans). Address: Northern Utilization Research and Development Div., USDA, Peoria, Illinois.

291. Kon, Masayo. 1969. Hamanattô ni kansuru kenkyû. I. Biseibutsu teiryô-ho ni yoru hamanattô oyobi Daitokuji-nattô no yûri aminosan sosei [Study on hamanatto. I. The free amino acid composition of hamanatto and Daitokuji-natto determined by a quantitative microorganism assay]. *Shizuoka Joshi Daigaku Kenkyu Kiyo* No. 3. p. 185. [Jap]\*

292. Brissenden, Rosemary L. 1969. South East Asian food: Indonesia, Malaysia and Thailand. Baltimore, Maryland, USA, and Harmondsworth, Middlesex, England: Penguin

Books Ltd. 262 p. Index. 18 cm.

• **Summary:** Contents: Acknowledgements. A note on this American edition. Weights and measures. 1. Introduction to South East Asian Food. 2. Utensils, methods, ingredients, glossary. 3. Indonesia. 4. Malaysia and Singapore: Malay, Chinese, Indian, Miscellaneous Malaysian. 5. Thailand.

The glossary of ingredients contains descriptions of: Soya bean curd (fresh or dried), Soya sauce, and monosodium glutamate (also known as Ve-Tsin, Ajinomoto, Mei Ching, Taste Powder, Gourmet Powder, Accent, P'sst!, etc.). The 3 kinds of soya sauce used in this book are light soya sauce, dark soya sauce (which is thicker and heavier; these two kinds are available at Chinese grocers), and Javanese soya sauce, which is sweet and very thick. The latter is available in bottles named Ketjap Manis or Ketjap Benteng, under the Conimex label. To make your own Javanese soya sauce, combine 1 cup dark soya sauce, ½ cup molasses, and 3 tablespoons brown sugar in a small saucepan over medium heat. Stir until the sugar melts. Keep in a covered jar.

Note: This is earliest English-language document seen (Oct. 2010) that contains the term “Ketjap Manis” (regardless of capitalization) used to refer to sweet, thick Indonesian-style soy sauce.

This book has a disproportionate number of recipes based on meat, fish, and poultry. Soy-related recipes include the following. From Indonesia: Ikan semur Djawa (Fish in soya sauce, p. 69, Java). Ayam semur Djawa (Chicken in soya sauce, p. 76-77, Java). Semur daging (Beef in soya sauce, p. 94). Tahu goreng ketjap (Fried bean curd with soya sauce, p. 105). Tahu pong (Bean curd omelette, p. 111).

From Malaysia and Singapore: Fried fish with soya beans (p. 149-50). Stirred tomatoes or silver beet with black beans (with Chinese black beans [fermented black soybeans], p. 169). Baked bean curd (p. 181). Steamed, dressed bean curd (p. 181-82). Address: Melbourne, Australia.

293. Nishiyama, Buichi; Kumashiro, Yukio. trans. 1969. *Seimin yōjutsu*. 2nd ed. [Ch'i-min yao-shu (Qimin yaoshu)]. Tokyo: Asian Economic Press (Ajiya Keizai Press). [Jap]  
• **Summary:** Translation into Japanese with explanatory notes and extensive general discussion.

294. Centre de Documentation Internationale des Industries Utilisatrices de Produits Agricoles (CDIUPA). 1970---. IALINE (Industries Agro-Alimentaires en Ligne) base de données [IALINE (Food and Agricultural Industries On-Line) database]. 1, avenue des Olympiades-91300 Massy, France. [271542 ref. Fre]

• **Summary:** This is the world's best database for French-language publications related to food and nutrition. It first became available for use in Jan. 1970, and that is also the date of the earliest record in the database. It is produced by the Center for International Documentation on Industrial

Utilization of Agricultural Products (CDIUPA), founded in 1965 by the French Ministry of Agriculture. CDIUPA is administered by APRIA (*Association pour la Promotion Industrie Agricole*), which is a member of the International Commission of Agricultural and Food Industries.

The current contents of the database is published in a monthly journal titled “Industries Agro-Alimentaires: Bibliographie Internationale,” which began under that title in Jan. 1983. It was preceded by *Bibliographie Internationale des Industries Agro-Alimentaires. Bulletin Bibliographique* (published from Jan. 1967 to Dec. 1982). In the monthly journal, the citations are grouped under 6 broad headings: 1. General (with 8 subcategories). 2. Agro-food industries (industries agroalimentaires; with 17 subcategories; Many documents on soyfoods are cited in subcategory N titled “*Protéines d'origine animale, végétale, microbiologique, algues et levures aliments*”). 3. Fermentation industries (with 6 subcategories). 4. Food microbiology. 5. Food toxicology. 6. Utilization and adding value to agricultural and food-industry by-products. Biotechnology. The journal contains 3 indexes: Subject index. Index of sources (periodicals [with journal names written out in full], acts of congress, books, theses). Author index.

Information related to soyfoods is likely to be found under the following headings in the subject index: *Aspergillus oryzae*; Farine de soja (incl. soy flour, and roasted soy flour or kinako); Huile de soja (soy oil); Koji; Lait de soja (soymilk); Miso; Nato (incl. natto); Produit à base de soja (incl. dawa-dawa, kinema, soy cheese [western style], fermented black soybeans / Hamanatto, soynuts, soy ice cream, soy yogurt, thua-nao, yuba), Protéine de soja (soy protein products); Protéine de soja, Produit extrudé (extruded soy products); Protéines d'origine animale, végétale; Sauce de soja (soy sauce); Soja (incl. green vegetable soybeans); Soja, germe (soy sprouts); Sufu (fermented tofu); Tempeh; Tofu. Address: Massy, France. Phone: (1) 69.20.97.38.

295. Gray, William D. 1970. The use of fungi as food and in food processing. *CRC Critical Reviews in Food Technology* 1(2):225-329. May. (Chemical Rubber Co. Press, Cleveland, Ohio). [348\* ref]

• **Summary:** The section titled “Oriental fungus-processed foods (p. 263)” discusses: Broad differences between fermentation processes in the Occident and Orient, miso, shoyu, Hamanatto, tempeh, ang-khak, ontjom, sufu, meitauza, ketjap, katsuobushi, and other fungus-fermented foods: Chee-fan (a type of sufu), fermented minchin (wheat gluten), fermented soybean prepared from black soybeans in China (fermented black soybeans), tao-cho, tao-si, and taotjo (the last 3 foods made from soybeans). Address: Dep. of Botany, Southern Illinois Univ., Carbondale, Illinois.

296. Geffe, Philip R. 1970. A chef tells all the secrets of Chinese cooking. *Washington Post, Times Herald*. Sept. 6. p.

138.

• **Summary:** The term “black beans” does not refer to the small, lens-shaped black beans from Cuba, but rather to “preserved black soy beans. Records of soybean culture in China go back as far as 2207 B.C.” [sic, 11th century B.C.] and there are now more than 10,000 soybean varieties. “The Chinese use inscrutable techniques to process these into an astonishing variety of foods and flavors. The black soy beans (others are yellow or brown) are steamed, fermented and preserved in salt. The result is a condiment with a very strong, piquant flavor totally unlike any product of the West.”

At a Chinese grocery (near 7th and H N.W.) Mr. Geffe “bought eight ounces in a plastic bag labelled ‘Salted Black Bean,’ for 25 cents. ‘Yellow Bean Sauce,’ in cans, turned out to be a nearly identical substitute for the black beans.” He also bought, at reasonable prices, fresh gingerroot, light soy sauce, dark soy sauce, oyster sauce,... Hoisin sauce, five spices, and sesame oil. This last is a flavoring rather than a cooking oil.

Contains a recipe for “Spareribs with black bean sauce.” The ingredients include “1 Tb. [tablespoon] black beans.” Then: “While ribs are steaming, place beans in a small sieve and rinse in warm tap water. Transfer to a cup and mash thoroughly with a heavy spoon.”

Note: This is the earliest document seen (Sept. 2008) in all major U.S. newspapers digitized by ProQuest which explains that “black bean sauce” and “fermented black beans” or “salted black beans” (etc., under whatever name) are actually made from black soybeans. Address: Electrical engineer, freelance writer, and amateur chef.

297. Wang, H.L.; Hesseltine, C.W. 1970. Oriental fermented foods. Paper presented at Part I, Seminar on Protein Food Promotion. 5 p. Typed manuscript. Held Nov. 22 to Dec. 1, 1970 at Inst. of Food Research and Product Development, Kasetsart Univ., Bangkok, Thailand. [13 ref]

• **Summary:** Contents: Introduction. Miso. Hamanatto. Sufu. Natto. Tempeh. Nutritional value of fermented foods. Absence of aflatoxin in fermented food products.

A note on page 1 of this manuscript states: “To be published in Part I of Seminar on Protein Food Promotion, November 22-December 1, 1970, Institute of Food Research and Product Development, Bangkok, Thailand.” This was an invited paper. Address: NRRL, Peoria, Illinois.

298. 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 *ryō* each of laver and codium, 11 *kin* 4 *ryō* each of wakame and gelidium,... 6 *shō* of fermented soybeans,... 2 *shō* of fermented bean paste, 1 *to* 5 *shō* 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 *shō* of salt, 1 *shō* 5 *gō* each of pickles, bean paste [kuki, miso] and vinegar, 6 *to* of sake, 9 *shō* of glutinous rice, 3 *shō* each of soybeans, red beans [azuki], millet and sorghum, 6 *shō* each of wheat, sesame, and raw chestnuts...”

In Book Five, in the List of Pharmacopoeia required (p. 178+) is included “1 *gō* 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.

299. 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 pronunciation: 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 (Nov. 2008) that uses the word “dow fu” (or “dow-fu”) to refer to Chinese-style tofu.

Note 2. This is the earliest English-language document seen (Nov. 2008) that uses the term “bean curd sheets” 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.

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 3. 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” [soy 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 4. This is the earliest English-language document seen (Nov. 2008) that uses the term “hwang dow ya” or the term “hwang do ya” to refer to soybean sprouts. Address: USA.

300. **Product Name:** Hama-Natto Savory Miso Beans.

**Manufacturer’s Name:** Mitoku Co. Ltd. (Distributor). Made in Japan.

**Manufacturer’s Address:** C.P.O. Box 780, Tokyo 100-91, Japan. Phone: 33-201-6701.

**Date of Introduction:** 1970?

**Ingredients:** Naturally fermented soybeans, ginger, sea salt.

**Wt/Vol., Packaging, Price:** 5.3 oz (150 gm) plastic bag.

**How Stored:** Shelf stable.

**New Product–Documentation:** Product with Label purchased from Health Flavors (distributor), Brewster, New York. 2000. Nov. 10. The self-adhesive Mitoku label (orange, brown, and beige) is affixed over the printed label of the manufacturer: Marunishi, Hoi-gun, Aichi-ken, Japan. The label states: “An authentic taste of traditional Japan. Mitoku Savory Miso Beans are a traditional Japanese fermented soyfood. First prepared by Zen priests in the 15th century as part of their vegetarian cuisine, they are still handmade in the same, completely natural way, and are even now prized for their delicious gourmet flavor and rich, heavy aroma.

“Savory Miso Beans can be eaten as they are, as tasty hors d’oeuvre with tea, beer or natural saké. They are also used as a condiment, like Tekka, on brown rice, vegetables or noodles. Mixed with grated radish (daikon) and seasoned to taste with Sanbai-Su Three Taste Dressing, they make a traditional side-dish that’s both delicious and full of goodness.”

Talk with Jan Belleme, Mitoku’s representative in the USA. 2000. Nov. 21. This product has been available since about 1970.

301. Dwan, Lois. 1971. Roundabout. *Los Angeles Times*. May 9. p. Q50.

• **Summary:** In a review of The Golden Dragon, a Cantonese restaurant, the writer enjoyed “fresh clams steamed in black

bean sauce.” Chicken was “combined with pressed to fu [tofu] and tree fungus,”

The chef added “whole chestnuts, ginkgo nuts, bean-curd skin, and fun see (transparent noodles) to a meatless vegetable dish,…”

302. *Los Angeles Times*. 1971. Take a new route to the Orient with lobster Cantonese. Nov. 21. p. U38.

• **Summary:** In Lobster Cantonese, garlic, sherry, soy sauce and ginger are standard seasonings. “But identifying the other accents, black bean sauce, for example, is more difficult. This classic Chinese seasoning, also called fermented black beans, is used in tiny amounts for zestiness.” Sesame oil is used to add a nutty flavor.

A recipe for Lobster Cantonese calls for “1 tbsp. [tablespoon] black bean sauce,” a few drops of sesame oil, and 1 tablespoon soy sauce. Then: “Soak beans in water to cover a few minutes, drain and mash. Mix beans with…”

303. Hansen, Barbara. 1971. Mainland China foodstuffs trickle into southland markets: A scattering of soy sauce and canned goods. *Los Angeles Times*. Dec. 9. p. J1, J8.

• **Summary:** Many Americans hoped that the relaxing of trade restrictions with mainland China would lead to an immediate feast of foodstuffs long missing from our markets. Instead of a flood, there has been but a trickle—and you have to search to find it.

The writer has found some new brands of soy sauce from Kwangchow. But many products are not properly labeled. Other products are easier for non-Chinese to identify. “At least the labels are in English. Among the canned goods are fried dace (a type of fish) with salted black beans, whole mushrooms, braised bamboo shoots,…”

304. Hesseltine, C.W.; Wang, H.L. 1971. Fermented soybean foods. In: Y.M. Freitas and F. Fernandes, eds. 1971. *Global Impacts of Applied Microbiology, GIAM III*. India: Univ. of Bombay. See p. 403-20. Conference held in 1969 in Bombay, India. [11 ref]

• **Summary:** Contents: Introduction: Nine advantages of fermenting soybeans. Sufu. Hamanatto. Natto. Tempeh. Magou (from South Africa).

“In South Africa, an interesting fermented native food (*magou*) is now made on a modern industrial scale from fermented corn and soybeans. *Magou* is prepared by the fermentation of coarsely ground white corn meal (maize). Pure cultures of *Lactobacillus* used in this fermentation were isolated from native *magou*. The culture, which is not pure, is started in coarse whole wheat flour.” Then it is used to ferment corn meal for 22-24 hours. “The mash from the fermentation tanks is mixed with defatted soybean meal, sugar, whey, or buttermilk powder and yeast. The soybean meals used contain at least 52 per cent protein. After thorough mixing of all the ingredients, the mix is spray dried.

Currently this product sells for about 10 cents a pound in 50 pound bags... *Magou* is used principally for feeding miners and other workers employed in heavy industry. It is well adapted to being taken into the mines and reconstituted at the point of consumption.” Address: NRRL, Peoria, Illinois.

305. Liang Shih-chiu [Shiqiu]. ed. 1971. *Zui xin shi yong Han Yin ci dan* A new practical Chinese-English dictionary. The Far East Book Co. Ltd. 1355 p. See p. 1037-38. 22 cm. [Eng; Chi]

• **Summary:** Gives the Chinese characters and their pronunciation for the following soy-related terms: Soybean cake; bean curd; a semi-transparent film formed on the surface of soybean milk; a store where bean curd is made for sale; spiced and dried bean curd; soybean cheese; legume; (said of girls) in teens; the pods of beans or peas; soybean milk; fermented beans in paste form; residue of soybeans in making bean curd; fermented and seasoned soybeans; pisolite [bean + stone]; legumin; bean sprouts as a vegetable; soybean oil. Address: Editor in Chief.

306. 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 Naomi, 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 momen bean curd [grilled tofu], and black [soy] beans), and Hassun (with natto wrapped in sea bream filets, and miso-pickled chisha stems, p. 65-66, plate 25 & 31, at Spring). 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, shiratamako, 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 namafu, 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 sake 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 (*nama-fu*) 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. *Daitokuji-fu* 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.

307. Watanabe, Tokuji; Ebine, Hideo; Ohta, Teruo. eds. 1971. *Daizu shokuhin* [Soyfoods]. Tokyo: Korin Shoin. 271 p. Illust. Index. 22 cm. [134 ref. Jap; eng+]  
 • **Summary:** This is the best book published to date on soyfoods in Japan; however it is written in Japanese. Contents: 1. Classifications and varieties of soybeans (p. 1). 2. Physical characteristics of soybeans (p. 5). 3. Chemical characteristics of soybeans (p. 9). 4. Standards and methods of examining soybeans (p. 47). 5. Special characteristics and problems of using soybeans for food (p. 53).  
 6. Current status of the soybean industry in Japan (p. 63). 7. Soymilk and various types of tofu: Aburage (deep-fried tofu pouches), ganmodoki (deep-fried tofu burgers), kôri-dofu (dried frozen tofu), soymilk, and yuba (p. 75). 8. Fermented soyfoods: Natto (p. 123-40), shoyu (p. 141-67), miso (p. 168-95), fermented tofu (*rufu*) (p. 196-202). 9. Other soyfoods: Kinako (p. 203-04), soy sprouts or moyashi (p. 206-08), tempeh or tenpe (p. 209-17). 10. Quality and usage of defatted soybeans (*dasshi daizu*) (p. 219).

11. New food uses of soybeans and especially defatted soybeans (incl. 70% soy protein powder, soy protein curds, soy protein isolate, surimi gel, spun soy protein fibers) (p. 229). 12. Advice regarding supplying protein from organizations such as the United Nations and FAO (p. 257).

A 47-page translation of portions of this book (parts

of Chapter 6 and all of Chapter 7) by Akiko Aoyagi and Chapters 8.1 and 8.2 by Alfred Birnbaum are available at Soyfoods Center.

Tokuji Watanabe was born in 1917. Hideo Ebine was born in 1921. Teruo Ota was born in 1926. Address: National Food Research Inst., Tokyo.

308. Watanabe, Tokuji; Ebine, Hideo; Ohta, Teruo. eds. 1971. *Nattô* [Natto]. In: Tokuji Watanabe, H. Ebine and T. Ohta, eds. 1971. *Daizu Shokuhin* [Soyfoods]. Tokyo: Korin Shoin. 271 p. See p. 123-38. [5 ref. Jap; eng+]

• **Summary:** An excellent scholarly work. This chapter was translated by Alfred Birnbaum. Chapter 8, titled “Fermented soyfoods,” has four parts, beginning with “Natto.”

Introduction: There are two types of natto: regular natto (*itohiki natto*), produced by the action of natto bacteria on cooked soybeans, and salty natto (*shio-natto*), produced by letting a koji mold [*Aspergillus oryzae*] grow on the cooked beans [to make soybean koji], then adding salt water. Although both are traditional fermented soyfoods that have been passed down in Japan from ancient times, the fermenting agent, production method, and nature of each product are different. The main fermenting agent for regular natto is bacteria and, as no salt is added to the basic ingredients as with salty natto, the ripening time is shorter, although the finished product does not keep well. Also regular natto has the characteristic of forming large amounts of sticky filaments. We will discuss salty natto separately.

At present, the production of regular natto is by far the larger of the two, being carried out in all regions of Japan; this product is better known and is usually referred to as simply “natto.”

8.1.1 Regular natto (*itohiki nattô*): (a) The history of natto: The origins of natto are not certain, but tradition has it that it was discovered some 1,000 years ago in the Tôhoku [northeast] region of Japan and has been passed down to the present. At first it was made by wrapping cooked soybeans in rice straw, but since 1920, when Dr. Hanzawa of Hokkaido’s Agriculture Department first succeeded in producing pure-culture bacteria, industrialized production has been carried out as it is today using this pure culture. Whereas formerly, when natural fermentation dependent on the natto bacteria found in the rice straw meant instability of production levels and many questions of sanitation, this new method has become the basis for today’s comparatively safe industrialized natto production.

(b) Regionality of natto consumption: Before World War II, consumption of natto was confined almost exclusively to the Tôhoku region (northeast provinces) and further north, though recently it has spread throughout Japan. This tendency is most noted in the cities, which are now areas of large consumption. For example, looking at the cities listed by prefecture in the Tables of National Consumption, we find that in 1968 the average amount per capita spent that year on

natto was highest in Sendai at 967 yen, followed by others such as Sapporo 719 yen, Fukushima 915 yen, Mito 871 yen, Tokyo 489 yen, Nagoya 177 yen, Kyoto 183 yen, Osaka 98 yen, Hiroshima 139 yen, Matsue 144 yen, Matsuyama 78 yen, and Fukuoka [the furthest south, in northern Kyushu] 217 yen, the national average being 343 yen. While there exist many large differences between the various in money spent, we can see clearly that the consumption of natto has spread nationwide.

8.1.2 Natto bacteria and their characteristics: Although natto has a history of some 1,000 years, the history of bacteriological research on the bacteria that produce natto amounts to less than 100 years. The oldest bacteriological study on natto-producing bacteria in Japan is thought to be Yabe's report in the 15th issue of the *Journal of the Japanese Chemists' Society* (1895) that he had succeeded in isolating several strains of bacteria from natto.

From that time on, much research was carried out on natto bacteria, but it was not until 1906 that Sawamura successfully isolated from those natto bacteria a bacterium which, when recultured on cooked soybeans, would consistently produce the characteristic sticky filaments and flavor of natto. Upon researching the morphological and propagative characteristics as well as the physiological makeup of this bacterium, he found it to be very similar to *Bacillus mesentericus* and named the new strain *Bacillus natto* Sawamura. This research ascertained that natto is produced solely by the fermenting action of the natto bacteria. The bacteriological characteristics of this strain are shown in Table 8.1.

However in the 6th edition (1948) of *Bergey's Manual of Determinative Bacteriology* recognized the world over as the authoritative classification of bacteria, *B. natto* Sawamura is listed under *B. subtilis*, whereas the 7th edition fails to list it at all. In other words, as far as Bergey's classification is concerned a sub-strain of *B. subtilis* is responsible for natto fermentation. Be that as it may, culturing any of the bacteria which closely resemble *B. natto*, such as *B. subtilis*, *B. cereus*, *B. megaterium*, or *B. mycoides*, on cooked beans fails to produce a product of natto's sticky filaments and flavor.

The choice of strains to be actually used in producing natto is carried out by testing which successfully produce a natto with characteristic filaments and fragrance. Moreover, common to all natto bacteria chosen in this way are found to be certain marked differences from other *B. subtilis* strains. For example, while natto bacteria can neither germinate nor grow without biotin, other strains of *B. subtilis* can. Further, while a bacteriophage that dissolves natto bacteria has been discovered, this bacteriophage has no effect on other strains. Judging from evidence such as this even if natto bacteria were to be classified under *B. subtilis*, for all practical purposes they are clearly a bacterial group having special characteristics distinct from other *B. subtilis* strains.

8.1.3 Natto bacteria growth and soybean composition:

Natto bacteria grow well on cooked soybeans of course, but they also grow well on other beans, and other foodstuffs of plant origin such as grains. They can even grow on animal foodstuffs such as meat, fish, and dairy products. However, growth on plant protein is greater, as is the production of sticky filaments. As exhaustive research has been carried out on the composition of nutrients needed for the germination and growth of natto bacteria, and those nutritional requirements are now clear. The result was that natto bacteria use sugars, particularly dextrose, sucrose, glucose, etc. as sources of carbon, and that sucrose was necessary not only for bacterial growth, but also for the production of the sticky filaments. Soybeans are approximately 20% of carbohydrate in composition, some 30% of that being sucrose, enough for the growth of natto bacteria.

Protein, that is to say amino acids, are used as nitrogen sources. Of these amino acids, natto bacteria find glutamic acid, arginine, aspartic acid, proline, etc. easy to utilize whereas threonine, tryptophane, phenylalanine, methionine, etc. are comparatively difficult. However of the amino acids composing the soybean's protein, as a nitrogen source than on a culture medium of milk casein.

In regard to vitamins, natto bacteria require biotin, any culture media lacking in biotin being incapable of causing spore germination or growth of the nutrient cell (*eiyo saibo*). Though certain bacteria classified as belonging to the same genus, such as *B. subtilis*, *B. megaterium*, and *B. cereus*, do not require biotin, besides *B. natto* such other members of the *Bacillus* family such as *B. mycoides*, *B. pumilus*, and *B. coagulans* do not require biotin, while the absolute minimum density of biotin necessary for natto bacteria growth is 0.18%, complete growth requires at least 18%. Other vitamins particularly the B group, are useful in creating a suitable growing medium for natto bacteria, and as shown in Table 8.2, soybeans contain biotin sufficient not only for the germination of natto bacteria spores, but also for the propagation of the nutrient cell, thus eliminating any need for adding biotin in the production of natto.

8.1.4 Natto bacteria growth and environment: Beyond a doubt the single most important thing in the production of natto is to allow the natto bacteria to grow fully on the cooked soybeans, however in order to achieve this, it is also important to know what environmental conditions are most conducive to the germination and propagation of natto bacteria. In the production of natto, the natto bacteria used are in the forms of spores, either in a liquid cells (*eiyo saibo*) and finally proceed into cell division.

The optimum temperature for natto bacteria spore germination is approximately 40°C, most spores having germinated and begun propagation within 2 hours on a peptone-glucose culture medium, though at 50°C the germination is rather slow, and at 55°C and above no germination can be found within a 24 hour period.

Tables show: 8.1 Propagative and physiological



characteristics of *Bacillus natto* Sawamura. 8.2 Vitamins in soybeans (per 100 gm). Continued. Address: National Food Research Inst., Tokyo.

309. Watanabe, Tokuji; Ebine, Hideo; Ohta, Teruo. eds. 1971. Hamanattô [Hamanatto]. In: Tokuji Watanabe, H. Ebine and T. Ohta, eds. 1971. Daizu Shokuhin [Soyfoods]. Tokyo: Korin Shoin. 271 p. See p. 123, 139-40. [Jap; eng+] • **Summary:** An excellent scholarly work. This subchapter was translated by Alfred Birnbaum. Chapter 8, titled "Fermented soyfoods," has four parts, beginning with "Natto."

Introduction: There are two types of natto: regular natto (*itohiki natto*), produced by the action of natto bacteria on cooked soybeans, and salty natto (*shio-natto*), produced by letting a koji mold [*Aspergillus oryzae*] grow on the cooked beans [to make soybean koji], then adding salt water. Although both are traditional fermented soyfoods that have been passed down in Japan from ancient times, the fermenting agent, production method, and nature of each product are different. The main fermenting agent for regular natto is bacteria and, as no salt is added to the basic ingredients as with salty natto, the ripening time is shorter, although the finished product does not keep well. Also regular natto has the characteristic of forming large amounts of sticky filaments. By comparison, salty natto requires that the koji-molded soybeans ripen in saltwater, the main fermenting agents being the koji mold in the beginning, and yeasts and lactic acid bacteria towards the latter end of the process. As the amount of salt present is high, the ripening time required is comparatively long, taking ordinarily from several months to about a year. Salty natto is usually sold as a blackish, semi-dried product, with absolutely no formation of sticky filaments, but rather with a distinctive flavor derived from the addition of the salt and other seasonings. The large amount of salt used also makes it keep well.

At present, the production of regular natto is by far the larger of the two, being carried out in all regions of Japan; this product is better known and is usually referred to as simply "natto." On the other hand, salty natto is produced as the specialty product of such specific places as Kyoto (*Daitokuji nattô*), Nara (*Jofukuji-nattô*), and Hamamatsu (*Hama-natto*) (p. 123).

8.1.9 Hama-nattô: Hama-natto is a variety of salty natto made in and around Hamamatsu in Shizuoka prefecture. It is unrelated to regular (*itohiki*) natto except that both are fermented soy products. Rather, it is closer to miso. It is said that the first true production of Hama-natto dates from the time when Tokugawa Ieyasu became the lord of Hamamatsu Castle [1568] and wrote instructions to the monks of the nearby Daifukuji temple.

(a) Production method: The basic ingredients are 100 kg soybeans, 9.2 kg wheat or barley flour, 18 kg salt, 7.5 kg of ginger, and koji starter. Large-seeded soybeans, such as those

from the Orani region of Hokkaido or Tsuru-no-ko are used. The wheat or barley is roasted then ground to a no. 85 mesh or finer flour. The ginger is thoroughly washed, thinly sliced, and pickled in shoyu [Japanese soy sauce].

Fig. 8.4 is a flow chart of Hama-natto production. First inspect the large soybeans for any extraneous matter or imperfect beans, then wash them thoroughly to rid them of any sand or dirt. Soak in water at 20°C for 3-4 hours, then allow to drain for several hours. Steam for 5-6 hours at normal pressure, then leave overnight in the steaming vat. The next morning, spread out the beans and allow to cool to below 40°C. Then mix in koji starter (*tané-koji*). Sprinkle the roasted flour on top of this and mix the entire mass well.

Spread the mixture evenly in wooden koji trays and place in a koji incubation room at 30-33°C for approximately 50 hours to allow the growth of the koji mold. When the mold has grown sufficiently, remove the koji rays from the incubation room and allow to sun-dry outdoors until the moisture content of 30-35% at the time of removal from the room, falls to 20-25%, at which point place the mixture in wooden kegs or small vats. Add enough saltwater (or shoyu, which is occasionally used) to just cover the molded soybeans. Place a pressing lid and weight on top of the mixture, and allow to stand for 6-12 months as it ripens.

After the full fermentation is complete, spread the mixture out on a cloth to dry in the sun and mix in the pickled ginger, to make the final product.

Hama-natto is a simple food [or seasoning], dull blackish in color, but the flavor is deep and rich, and its nutritional value and storability are both excellent. Its percentage nutritional composition is shown in Table 8.10. Address: National Food Research Inst., Tokyo.

310. Sokolov, Raymond A. 1972. Lobster Cantonese? They may think you mean Americanese. *New York Times*. Feb. 3. p. 28.

• **Summary:** Robert Tsang, a leading Chinatown restaurateur and secretary of the Chinese Restaurant Association, has finally admitted what non-Chinese Americans have long suspected: most restaurants have one menu for Americans (with a limited number of dishes), a full menu for Chinese customers (written in Chinese), and another Chinese menu for only rice and noodle dishes.

So when Americans order lobster Cantonese, they will get an "American" version of the dish. In more detail, it works like this: "The Chinese-style lobster has very little sauce and several ingredients, notably salted black beans and spices, that do not appear in the Americanized recipe." The American version, by comparison, is soupy, "with three times as much cornstarch, no dark soy sauce, a smaller amount of sesame oil, no ginger, no black beans but double the garlic."

311. Huang, Su-Huei. ed. 1972. Chinese cuisine: Wei-Chuan

cooking book. Taipei, Taiwan: School of Home Economics, Wei-Chuan Foods Corp. 181 p. Illust. No index. 22 cm. [Eng]

• **Summary:** On each page is one recipe and a half-page color photo of the prepared dish. The title of the recipe is written in English in large bold letters and is also given in (to the right) in small Chinese characters, just above the number of servings. Most of the recipes call for ¼ to ½ teaspoon of MSG; many call for soy sauce.

On unnumbered pages at the front of the book are (1) A two-page color photo, on a light blue background, of 39 special ingredients, each numbered, with the numbers and names across the bottom of the pages. These include: “9. nori. 24. pickled plum (*umeboshi*). 25. bean curd noodle [pressed tofu noodles]. 30. bean curd wrapper (*pronounced ‘bai ye’*) [pressed tofu sheets]. 35. bean curd skin [yuba in large, semicircular thin sheets].

(2) Description of some other special ingredients: “Hot bean paste (*pronounced ‘la jiao jiang’*). This is made with red peppers [and soy beans] and has a very hot taste.” “Sweet bean paste (*‘t’ien mien jiang’*). This is made with steamed, fermented bread (black color).” Note 1. Why is this called “Sweet bean paste”? What kind of beans are used to make it?

“Soy bean paste (*‘do ban jiang’*). This is made with fermented soy beans (black color).” “Fermented black bean (*‘do shr’*). This is black [soy] beans which are steamed, then marinated in soy sauce or salt.” “Pickled bean curd [fermented tofu] (*‘do fu ru’* or *‘Chinese cheese’*). This is bean curd which is dried and then pickled; there are many different kinds with different seasonings.”

(3) Helpful hints: “In all recipes you may substitute Worcestershire sauce for dark vinegar.”

In Chapter 3, “Pork and beef,” soy related recipes are: Shredded pork with sweet soy bean paste (with 1.3 tablespoons “sweet soy bean paste,” p. 39). Note 2. This is the earliest document seen (Feb. 2009) that contains the term “sweet soy bean paste.” See also p. 104 below.

Pork ribs with dried black fermented beans (p. 41). Pork in preserved bean sauce (p. 42).

In Chapter 4, “Sea Food,” is a recipe for Steamed carp with fermented black beans (p. 64).

In Chapter 5, titled “Bean curd and eggs” (p. 102-15) are recipes for: Stewed bean curd (with “½ squares bean curd”), Assorted dish with hot sauce (with “½ tablespoon hot soy bean paste, 1½ tablespoons sweet soy bean paste,” p. 104), Bean curd stuffed with minced pork, Ma-Po’s fried bean curd with pork, Bean curd leaf rolls with minced pork (With “bean curd wrappers”), Beancurd noodles with celery salad (with “4 oz. {storebought} bean curd noodles”), Vegetarian chicken (with “16 bean curd sheets”).

Also: Green peppers stuffed with chopped meat (p. 122, with “1 tablespoon fermented black beans, crushed”). Bitter melon stuffed with fermented black beans (p. 126, with “2 oz. fermented black beans”). Eggplant with bean curd skin

(p. 133, with “1 sheet beancurd skin” and “1 sheet nori” [sea vegetable]). Bean curd in earthen pot (p. 142, with “3 squares bean curd”). Address: 19 West Nanking Road, Taipei, Taiwan.

312. Dosti, Rose. 1972. Chinese menus are a snap for Sylvia. *Los Angeles Times*. June 22. p. J3.

• **Summary:** Sylvia O’Gilvie snaps together a quick Chinese dinner for herself (or friends) after work. Her recipe for “Spareribs with black bean sauce” calls for “2 tsp. [teaspoons] fermented black beans,” 1 teaspoon soy sauce, and ½ teaspoon MSG. Then: “Crush beans to make a paste.”

313. An, Jin-huai; Wang, Yugang. 1972. Mixian Da-hu-ting Handai huaxiang shimu he bihua mu [The Han tomb No. 1 at Ma-wang-tui]. *Wen Wu (Cultural Relics, China)* No. 10. p. 49-62. [Chi]\*

• **Summary:** The Han tomb No. 1 at Ma-wang-tui (pronounced “ma-wang-DUI”) was discovered in 1972. Letter from Dr. H.T. Huang, expert on the history of Chinese food and agriculture. 1996. Sept. 29. This is the first official report on Han tomb No. 1. The article describes several of the murals, but not the one which has since been interpreted as a scene showing tofu being made; that mural was first described by Chen Wenhua in August 1990. Address: China.

314. *NSC Review (Taiwan; National Science Council—Guo jia ke xue wei yuan hui)*. 1972-1977. 123. Studies on “Inyu” (Black bean sauce). See p. 88. \*

• **Summary:** 123. Studies on “Inyu” (Black bean sauce) is in right column at #123.

315. Brissenden, Rosemary. 1972. South East Asian food: Indonesia, Malaysia and Thailand. Harmondsworth, Middlesex, England; Baltimore, Maryland: Penguin Books. 264 p. 18 cm. A Penguin handbook.

• **Summary:** After a three-month stay in Indonesia as a member of a student delegation from Melbourne University, Rosemary “realized that she could not live without Indonesian food. So she set about learning as much as she could from Asian students in Melbourne.” In 1964 she was invited to write a weekly column in the Australian on South East Asian food. She is married and has three children.

“A note on this American edition. This book has been especially adapted for the American audience. British weights and measures have been converted into their American equivalents. Sources for obtaining unusual products mentioned in the recipes are given for most large American cities.”

Note: This book is almost identical to the edition published in 1969 in the USA and England by Penguin Books. This American edition was published in 1972 by Penguin Books, Inc. Address: Australia.

316. 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 (Oct. 2008) that uses the term “fresh white bean curd” to refer to fresh tofu, or that uses the word “pads” to 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). 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).

317. Hesseltine, C.W.; Wang, H.L. 1972. Fermented soybean food products. In: A.K. Smith and S.J. Circle, eds. 1972. *Soybeans: Chemistry and Technology*. Westport, CT: AVI Publishing Co. xiii + 470 p. See p. 389-419. Chap. 11. [54 ref]

• **Summary:** Contents: Introduction. Koji. Miso: Preparation of koji, treatment of soybeans (mixing, fermentation). Shoyu: Incl. chemical shoyu. Natto. Hamanatto. Tempeh. Sufu [fermented tofu]. New soybean products made by fermentation: Cheese-type products, fermented soybean milk, an ontjom-type product. 10. Future of fermented soybean foods.

Tables: (1) Demand for whole soybeans in Japan (1964-1967) to make miso, shoyu, and natto. In 1967, only 4.5% of the soybeans used to make miso were used in the form of defatted soybeans, whereas the same year 91.1% of the soybeans used to make shoyu were defatted. The total demand in 1967 (in 1,000 metric tons) was miso 177, shoyu 169, and natto 47. (2) Chemical composition of soybean foods: Miso (salty light, salty light, soybean miso), natto, soybeans. (3) Annual production of miso (1956-1967). Production of 530,078 tons in 1956 decreased to a low of 453,956 tons in 1962, then rose to 520,510 tons in 1967. (4) Composition of miso in relation to time of fermentation and ratio of soybeans:rice:salt for three types of miso: White miso, light-yellow salty miso, and yellow-red salty miso. (5) Average composition of shoyu made from whole soybeans and defatted soybean meal.

Illustrations (flowsheets, without quantities of ingredients) show: (1) Process for making red miso. (2) Process for manufacture of shoyu. (3) Process for making hamanatto. (4) Tempeh fermentation on a laboratory scale. (5) Preparation of sufu. (6) Preparation of soybean cheese. Address: NRRL, Peoria, Illinois.

318. Nakano, Sasuke. 1972. *Ryôri no kigen* [The origin of foods]. Tokyo: Nihon Hoso Shuppan Kyokai. 225 p. [Jap] • **Summary:** The important chapter titled "The natto triangle and miso," by Sasuke Nakao (p. 118-27) discusses natto, its relatives and ancestors in East Asia, and the "natto triangle" theory (with a map). Nakao hypothesized that natto originated in the monsoon area of Southeast Asia, where there are East Asian evergreen forests. He considered Yunnan province in China to be the original center of natto. His theory is based on the observation that there are many varieties of non-salted fermented soyfoods and soy condiments inside the "natto triangle." Yunnan province in southwest China, Thailand, Myanmar (Burma), Bhutan, Nepal, Indonesia, and Japan all fall within this triangle.

Note: The term "natto triangle" can be misleading, especially for non-Japanese. Natto is the only non-salted fermented soyfood or soy condiment indigenous to Japan. Natto is made by fermenting whole, cooked soybeans with bacteria (*Bacillus natto*, or *Bacillus subtilis*) in a warm place (ideally 104°F or 40°C) for about 24 hours. According to various Japanese legends, natto originated almost 1,000 years ago in northeast Japan when cooked soybeans were placed in a rice-straw sack strapped over the back of a horse. The natto bacteria are found abundantly on rice straw, and the warmth of the horse's body aided the fermentation. Under these conditions, the fermentation would take place naturally, without intentional inoculation. The "natto triangle" refers to the geographical area within a large triangle in East-, South-, and Southeast Asia—the only place in the world where non-salted fermented soyfoods and soy condiments are indigenous. A number of these—such as tempeh in Indonesia and unsalted fermented black soybeans in China—are fermented primarily with molds (e.g., *Rhizopus*, *Aspergillus*) rather than bacteria. The triangle has its three corners in northeastern Japan (on the northeast, for natto), northeastern India and Nepal (on the west, for kinema and thua-nao), and Java (Indonesia, on the south, for tempeh).

319. Smith, A.K.; Circle, S.J. 1972. Historical background (on soybeans and soybean foods). In: A.K. Smith and S.J. Circle, eds. 1972. *Soybeans: Chemistry and Technology*. Westport, CT: AVI Publishing Co. xiii + 470 p. See p. 1-26. Chap. 1. [53 ref]

• **Summary:** Contents: 1. Introduction. 2. U.S. history: Introduction of soybeans, processing for oil, soybean oil. 3. Soybean meal and protein: Animal feed industry, poultry industry, industrial uses. 4. Soybean production. 5. Oriental history: Ancient history, Oriental fermented foods (shoyu, miso, tempeh, ontjom, natto, hamanatto, tao tjo [Indonesian-style miso], kochu chang, ketjap), Oriental nonfermented foods (soybean milk, tofu), wedge press. 6. Soybeans and world food problems: Green Revolution, protein supplements (high protein food formulations, AID funded), amino acids, CSM, cottage industries.

Concerning industrial uses (p. 8-9): Soybeans rose in popularity as an agricultural crop in the USA at a time when other crops such as corn, wheat, cotton, and tobacco were being produced in surplus quantities. Soybeans took over much of the acreage vacated by these crops. "At that early period it was the hope of many leaders of agriculture, government, and industry that much of the oil and protein of the soybean could be diverted from the food and feed industries into industrial products such as paints, varnishes, soap stock, plastics, adhesives, plywood glue, paper coating and lamination, paper sizing, textile fibers, and other uses... In 1936 the US organized the Regional Soybean Industrial Products Laboratory for this purpose. These new industrial uses were expected to help relieve the problem of farm surpluses... In 1935 the Glidden Company built the first plant for the isolation of industrial grade soybean protein (transferred to Central Soya in 1958). The largest use of industrial grade protein is in the paper-making industry, for coating and sizing of paper board.

"After World War I, soybean meal, because of its low cost, replaced casein as an adhesive for Douglas fir plywood glue, where it still retains a substantial part of the market for the interior grade product."

"While soybean proteins have several important industrial applications, especially in the paper industry for coating and sizing paper, which are expected to continue for years to come, the original dream of an ever-expanding industrial market [for soy proteins] has faded. In the polymer market it appears that for most applications the proteins cannot be made competitive with the increasing number of low cost, high quality synthetic resins... It is generally recognized that the increasing demand for proteins for feed and food will greatly surpass the anticipated industrial uses."

A graph (p. 1) shows: Soybean production in the United States for seed, 1940-1970. Address: 1. Oilseeds Protein Consultant, New Orleans, Louisiana; 2. Director, Protein Research, W.L. Clayton Research Center, Anderson Clayton Foods, Richardson, Texas.

320. Smith, Allan K.; Circle, Sidney J. eds. 1972. Soybeans: Chemistry and technology. Vol. 1. Proteins. Westport, Connecticut: AVI Publishing Co. xi + 470 p. Illust. Index. 24 cm. [500+ ref]

• **Summary:** One of the best and most comprehensive reviews on the subject, with extensive information on modern soy protein products. Each of the 12 chapters is written by an expert on the subject. Volume 2 was never published. Address: 1. PhD, Oilseeds protein consultant, New Orleans, Louisiana; 2. PhD, Director, Protein Research, W.L. Clayton Research Center, Anderson Clayton Foods, Richardson, Texas.

321. Tsuda, T.; Oshita, T.; Kobayashi, K.; Ito, S. 1972. Shōjin ryōri; Daitoku-ji ryōri, Tansen-ji ryōri, Eihei-ji ryōri,

Sōji-ji ryōri [Zen vegetarian cookery: From Daitokuji, Tansenji, Eihei-ji, and Sōjiji]. Tokyo: Fujokai Shuppansha. 242 p. Illust. 22 cm. [Jap; eng]

• **Summary:** Written by the head cooks at four of Japan's best known Buddhist monasteries. A second edition was published in 1976.



On pages 78-79 is a description of Daitokuji-natto, a unique type of fermented black soybeans. They have what has been called "the flavor of tea." They are a type of "miso natto" made from soybeans, barley (*omugi*) and salt. The method of production, originally transmitted from China, was inherited from the famous Zen master Ikkyu [Ikkyū Sōjun, lived 1394-1481], who became head priest of Daitokuji temple in Kyoto in 1474. Future generations of monks and craftspeople at his personal sub-temple, Ikkyu, inherited the method from him and have passed it down to the present as a secret transmission.

At first the flavor of these savory chunks seems quite salty and a little sharp, but as you enjoy the flavor a little longer, overtones of subtle sweetness, tartness and spiciness emerge, creating a mysterious harmony.

Daitokuji fermented black soybeans are served in Japan in any of four ways: (1) Since long ago, tea masters and epicures have prized them for use in place of tea cakes (*chauke*) with thin whisked green tea or bancha tea. (2) In

Ochazuke, they are sprinkled over hot rice in a small bowl, then doused with hot green tea. (3) Nowadays they are used as an hors d'oeuvre with sake or beer. (4) Occasionally they are pureed with dashi soup stock and used as an ingredient in refreshing summertime miso soups or simmered vegetable preparations (*nimono*).

The Ikkyu subtemple within Daitokuji is Japan's most traditional maker. The entire year's supply is made only during July and early August, in the heat of summer, when exposure to sunlight enables proper drying. After the earlier steps in the preparation, the beans are mashed, reshaped into small balls 3/4 inch in diameter, arranged in wooden trays each about 12 by 24 by 2 inches deep, and sun-dried. A photo shows the mashed, reshaped soybeans in wooden trays at Daitokuji, a major Rinzaï temple in Kyoto, Japan. Address: 1. Ikkyu, Daitokuji; 2. Head priest, Tanzenji, Kamakura (Rinzaï sect); 3. Eiheiji (Soto sect, Asst. head cook); 4. Sojiji (Asst. head cook).

322. Benton, Gene. 1973. Wine with food a matter of taste. *Los Angeles Times*. Feb. 22. p. J14.

• **Summary:** "Beer and ale show a marked affinity for soy [sauce], ginger, star anise, Szechuan pepper, hoisin sauce, fermented black beans, roasted sesame oil and the myriad pungent dried foods which supply the exotic Chinese flavors."

323. Zell, Fran. 1973. 'Fancy' foods come to city. *Chicago Tribune*. Aug. 16. p. D6.

• **Summary:** Little Mandarins Foods, Inc. of New York, has introduced a line of oriental specialty seasonings for the average cook who wants to prepare Chinese meals at home. Judged the best new product of last week's 19th annual National Fancy Food and Confection Show, it "includes Szechuan peppercorns, Chinese style mustard powder, fermented black beans, five spice powder, star anise,..." Each is in a 2½ oz. jar that sells for less than \$1.

324. Ilany (Feigenbaum), J. 1973. Soybean food for today and tomorrow. *Gordian (Hamburg)* 73(10):390-91. Oct.; 73(11):428-30. Nov.; 73(12):464-65. Dec. [21 ref. Eng; ger]

• **Summary:** "This is a short review of what is chiefly known at present of this wonderful bean, which only a few years ago, constituted a strange and exotic food." Contents: Introduction. Composition and nutritional value. Green soybeans. Sprouted soybeans. Soybean flours. Isolated proteins. Soy-food products of the Far East: Kinako, soymilk, yuba, "tofu or curd-soycheese," aburage, natto, Hamanatto, tempeh, miso, shoyu or soy sauce. Soybean oil. Lecithin.

Concerning tofu: Tofu made in the regular way "is called 'Fresh Tofu.' It does not keep long, even under refrigeration, unless it is further processed. For this purpose it may be canned, frozen, fried, smoked, or fermented."

Note: This is the earliest English-language document seen (Aug. 2011) that contains the term "soycheese"; it uses this term to refer to regular tofu.

325. Cowan, J.C. 1973. Processing and products [soybeans]. In: B.E. Caldwell, ed. 1973. *Soybeans: Improvement, Production, and Uses*. Madison, Wisconsin: American Society of Agronomy. xviii + 681 p. See p. 619-64. Chap. 20. [52 ref]

• **Summary:** Contents. 1. Introduction. 2. Processing for oil and meal: Preparation of flakes, solvents, extraction, desolventizer-toaster, degumming. 3. Conversion to edible oil products: Refining, bleaching, deodorization, hydrogenation. 4. Edible fat products: Salad and cooking oils, status of flavor stability, shortenings and margarine oils, lecithin. 5. Essential fatty acids and atherosclerosis. 6. Industrial uses of oil. 7. Meal for livestock and poultry: Nutritional aspects, factors affecting use of meals. 8. Edible protein products: Soy flour, concentrates and isolates, textured protein products (textured soy flour or textured soy protein fibers made into "meat analogues" resembling chicken, bacon, etc.). 9. Fermented and specialty foods: Tofu, soybean milk (an intermediate step in the manufacture of tofu), miso, shoyu (tamari, light-colored shoyu), sufu, tempeh, hamanatto, and natto.

Soybeans flow through a crushing plant as follows: First, they are cracked to release or loosen the hull and to break the cotyledon into about 4 parts. Shakers and aspirators separate the hull from the cracked cotyledons and rollers flake them. "Purified petroleum hydrocarbons known as hexane extract the oil from the flakes and the solvent is recovered. Moistened flakes are heated to inactivate the antinutritional factors and are converted to feeds for livestock and poultry. A small proportion of the flakes goes to a wide variety of soybean protein products including flour, isolates, and concentrates."

Tables show: (1) Utilization of soybean in U.S. in million pounds, every 5 years from Oct. 1933 to 1970 (Kromer 1970). (2) Use of soybean meal in the USA for feeding livestock and poultry (million tons). In 1969, the estimated amounts used were as follows: Cattle 3.43. Hogs 1.69. Other livestock 1.73. Total livestock: 6.85. Broilers 3.07. Hens and pullets 1.28. Other poultry 1.10. Total poultry 5.45. Total livestock + poultry 12.30. Note that cattle are the single biggest users. (3) Bleaching soybean oil (process, % clay and type, change in Lovibond color rating). (4) Effect of bleaching, citric acid, and light exposure on soybean salad oil. (5) Specifications for soybean oil. (6) Effect of linolenate content on flavor of soybean oil at elevated temperatures. (7) Composition of certain edible oil products from soybean oil and related products (salad oil, hydrogenated-winterized soybean salad oil, hydrogenated soybean oil liquid shortening, plastic shortening types I and II). (8) Changes in iron and copper content of soybean oil in

commercial refining. (9) Properties of all-purpose and high-stability shortenings from all-hydrogenated vegetable oils and blends of animal fat and/or vegetable oil (iodine value, melting point, % linoleic acid, solid fat index {% solid at temperatures indicated}). (10) Typical analyses for mellorine and cookie and confectioner's fat. (11) Analytical data for typical margarine oils low and high in polyunsaturates (iodine value, melting point, % linoleic acid, solid fat index {% solid at temperatures indicated}). (12) NSPA-tentative lecithin specifications (NSPA, 1969-1970). (13) Composition of soybean lecithins. (14). Approximate composition of soybeans and meal products (whole bean, cotyledon, hull, hypocotyl, meal {cake-extruded, flakes-solvent extracted, dehulled flakes-extracted, mill feed-separated hulls, mill run-separated hulls}). (15) Amino acid analysis of soybean meal (44% protein and 49% protein {dehulled}) and corn. (16) Amino acid analysis of blends of soy flour with cereals and milk (Inglett 1968; Corn soy milk {CSM}, Millet soy milk, Wheat soy milk, etc.). (17) Partial formulas for young swine and boiler rations in percent total rations. (18) Partial formulas for dairy feeds (14% protein). A supplement to forage or roughage. (19) Soybean grits and flour-screensize. (20) Composition of soy flour. (21) Composition of 4 types of soy protein concentrates. (22) Uses for high-protein soy products (protein 70 [concentrates] and protein 90 [isolates]). Note: This is the earliest English-language document seen (Dec. 2004) that uses the term "protein 90" to refer to a soy protein isolate. (23) Amino acid analysis of fractions derived from dehulled extracted flakes (Rackis et. 1961, 1970). (24) Effect of cooking in salt solutions on texture of structured granules. (25) Composition and use (1,000 metric tons in 1964 and 1967) of soybeans for traditional foods in Japan (Use of whole soybeans in 1967 in 1,000 metric tons: Miso 169. Shoyu 15. Natto 47. Tofu 329. Total 642. Use of defatted flakes or grits in 1967 in 1,000 metric tons: Miso 8. Shoyu 154. Natto 0. Tofu 77. Total 284).

Figures show: (1) Flowchart: Processing of soybeans to oil and meal using hexane extraction. (2) Illustration: A modern soybean processing facility (aerial view, Central Soya, Inc.). (3) Schematic diagram / flowchart: Manufacture of edible soybean oil products (salad oil, salad and cooking oil, shortenings, margarines, liquid shortening). (4) Illustration: A continuous deodorizer for soybean oil. (5) Graph: Effect of prolonged storage at 100°F on flavor score of hydrogenated-winterized soybean oil or soybean salad oil (nitrogen packed, air packed). (6) Illustration: Continuous chilling and working equipment for margarine production (Votator Div., Chemetron Corp.). (7) Flow diagram; Conversion of emulsions of margarine oils and ripened milk to conventional stick, whipped stick, and tub margarines (Votator Div.) (8) Chemical structure of prostaglandin-E<sub>2</sub>, a fatty acid with hormone activity. (9) Diagram: Vapor-desolventizer- deodorizer for soybean flakes (Blaw-Knox Co.). (10) Flowchart and diagram: Operations with extruder-

cooker. (11) Flow diagram: Manufacture of protein 70 [soy protein concentrate]. (12) Schematic diagram: Manufacture of soy protein isolate (Protein 90). (13) Photo: Chicken-simulated soy protein "meat" in three forms (Swift Edible Oil Co.). (14) Photo: Protein tow containing 16,000 monofilaments spread apart to show its fibrous nature; other tows in background (General Mills, Inc.). Address: NRRL, Peoria, Illinois.

326. David-Perez, Enriqueta. comp. and ed. 1973. Recipes of the Philippines. Philippines: Published by the author. Printed by Cacho Hermanos, Inc., Corner Pines, and Union Streets, Mandaluyong, Metro Manila, Philippines. xiv + 170 p. Plus 8 leaves of unnumbered plates. Undated. Illust. (some color). 22 cm.

• **Summary:** The title page of this book states that the 19th printing was 1973 (Copyright by the author), but no initial date of publication is given. The rear cover states: Reprinted and exclusively distributed by: National Bookstore Inc. Other editions include 1953 (at Library of Congress), 1954, 1960, 1965, and 1968.

Contents: Acknowledgement. Introduction. Reminder, Fiesta fare. Everyday dishes. Sweets and desserts. Breakfast and merienda. Pickles and relishes. Refreshments. Glossary. Contains 19 black-and-white photos.

Soy-related recipes include: Baguio onion with tokua [firm tofu] (p. 28). Bañus en tocho-1 (with tajure, p. 32). Bañus en tocho-2 (with tajure, tausi, and tokua). Bañus in soy sauce (with "2 tablespoons soy sauce," p. 33). Bawang guisado (with "3 pieces tokua, cubed and fried," p. 33). Beef steak (with "1 tablespoon soy sauce," p. 34). Misu-tomato sauce (with "3 tbsps. misu (soybean curd)" [sic, miso, not tofu], p. 74). Paksiw (Pork) (with "¼ cup soy sauce," p. 78). Paksiw na pata (with "Salt, toyo [soy sauce] and pepper to taste," p. 78). Pancit "luglug" (with "½ cup soy bean cake (Tokua) cut into small cubes," p. 80). Pork tapa (with "6 tbsps. toyo" [soy sauce], p. 88). Taguba (pork with "¼ cup soy sauce," p. 102).

The glossary defines the following soy-related terms: Misu-paste made of fermented rice and soy beans. Tajure-fermented soy beans, caked. Tausi-fermented soy beans. Tokua-soy bean curd. Toyo-soy sauce. Address: Philippines.

327. 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.

328. Hunter, Beatrice Trum. 1973. Fermented foods and beverages. New Canaan, Connecticut: Keats Publishing Co. 116 p. Index. 18 cm. [38 ref]

• **Summary:** In the chapter titled “Soybeans” (p. 31-49), the author discusses tofu (and how to make it at home with or without fermentation), meitauza (fermented okara), hakko tofu (a newly developed high protein food; fermented soybean curd), sufu (Vietnamese call it Chao), shoyu, miso, ketjap (thick Indonesian soy sauce [probably ketjap manis]), tempeh, Hamanatto, natto, Tao-cho from Malaysia, and Tao-si [fermented black soybeans] from the Philippines.

Note: The author has collected her information (both correct and incorrect) for a number of sources, which she does not cite directly, although she does have a bibliography.

329. 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 rear 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-siao-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.”

330. Pellettier, Mabel. 1974. Chinese: Longtime crisis cookers. *Washington Post*. Feb. 21. p. H2.

• **Summary:** A recipe for Steamed spareribs or pork chops calls for: “2 tablespoons fermented black beans, crushed very lightly in 1 tablespoon water, 1½ tablespoons dark soy sauce.”

A recipe for Shrimp and snow peas calls for “1 tablespoon light soy sauce.”

331. Huang, Su-Huei. ed. 1974. Chinese snacks: Wei-Chuan 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.

332. Dosti, Rose. 1974. Making nutrition culturally acceptable: Project for Chinese elderly. *Los Angeles Times*. March 28. p. H1.

• **Summary:** Every afternoon the banquet room at the Hong Kong restaurant is filled with elderly Chinese from the Los Angeles area. Dr. Genevieve Ho, a nutritionist at the University of California Agricultural Extension Service designs the menus and recipes, but also gives talks on nutrition in Chinese—while stressing the importance of



calcium, vitamin A, and protein in the diet.

Sardines (bones and all) over a bed of bean curd supply plenty of calcium. A recipe is given for Sardines with bean curd.

Ground seasoned fish, seasoned with green onion and ginger, “is formed into walnut size balls and sauteed in oil to serve with braised bean curd,” for a dish that is rich in both calcium and protein.

Dr. Ho also talks about avoiding salty foods such as bean paste, fermented black beans, pickles, and salt fish.

A photo shows a group of happy Chinese seniors seated at a round table. Dr. Ho (standing) also looks very happy.

333. Loring, Kay. 1974. Restaurants: Elegance prevails at new Dragon Inn North. *Chicago Tribune*. May 16. p. N1.

• **Summary:** This is a restaurant review. The Dragon Inn serves a hot and sour soup “filled with soybean curds and lean shredded pork.”

The dessert (which must be ordered in advance) “was a ‘jewel’ rice pudding... It’s beautiful to see, a molded sticky rice mound with black bean paste and fruits...”

334. *Los Angeles Times*. 1974. Unusual offering: Fresh ginger flavors Chinese steamed fish. June 6. p. OC\_C22.

• **Summary:** “If fresh ginger and fermented black beans are not available, they may be omitted.”

A recipe for Chinese steamed fish calls for: “2 tbsp. [tablespoons] soy sauce,... 2 slices fresh ginger, minced, 1 tbsp. fermented black beans, rinsed.”

Note: This recipe also appeared in the 26 Feb. 1976 issue (p. D17) of the *Washington Post*.

335. *Chicago Defender*. 1974. More TV tips from WLS-TV. Oct. 17. p. 36.

• **Summary:** A recipe for Steamed pike (courtesy of The Abacus, 2619 North Clark St., Chicago) calls for “4 oz. minced salted black beans,” plus shredded fresh ginger root, chopped garlic, soy sauce, sesame oil, etc.

336. Spira, Ruth Rodale. 1974. *Naturally Chinese*. Emmaus, Pennsylvania: Rodale Press, Inc. iii + 346 p. Illust. Index. 25 cm. [8 ref]

• **Summary:** Soy-related recipes include: Deep-fried bean curd with sesame sauce (p. 91, with “4 cakes bean curd,” each of which is cut into 9 pieces, dried on paper toweling, then deep fried at 375°F). Chicken and bean curd stick soup (p. 109, with “¼ pound bean curd stick” [dried yuba sticks]). Bean curd and greens soup (p. 115, with “1½ pieces fresh bean curd” [tofu]). Stir-fried eggs with soybean sprouts (p. 226). Stir-fried eggs with bean curd (p. 227, with “2 fresh bean curd cakes or 1/3 pound homemade bean curd”). Bean curd sautéed with eggs (p. 258, with “4 cakes fresh bean curd”). Stir-fried bean curd with black mushrooms (p. 259). Stir-fried bean curd with squash (p. 260). Homemade

bean curd with soybeans (p. 261-62, curded with vinegar or gypsum / calcium sulfate. The residue [okara], which is called “Soybean pulp, may be added to ground beef up to a 1 to 2 ratio.” Step 8. “Remove curd from bag and mix with salt” is a new invention in making tofu—which ends up with a texture like cottage cheese and seasoned with salt). Homemade bean curd with soybean powder (p. 262-63, curded with vinegar or gypsum). Celery cabbage creamed in soy milk (p. 269, with “4 heaping teaspoons soybean powder.” “2. Place soybean powder and water in a pint jar. Tighten lid and shake well. Add cornstarch and honey to soybean ‘milk’”). Soybean sprouts with celery (p. 273). Spinach in soy sauce (p. 276). Vegetarian dish of the Buddhists (p. 277-78, with “2 ounces dried bean curd” [probably dried yuba sticks] and “3 cakes fresh bean curd”).

“A guide to Chinese cooking ingredients” (p. 289-324) and “Glossary” (p. 325-26) describe: Bean curd (dow foo—tofu, incl. pressed curd {firmer}, canned bean curd {somewhat less creamy than the fresh}). Bean curd, dried (foo jook [dried yuba sticks]; tiem jook is sweeter than foo jook). Bean curd cheese (fooh yu [fermented tofu]). Bean paste, yellow (wong dow sa). Bean sauce, brown (min see jeung). Beans, black soy (kei tou). Beans, black fermented (dow see; these black soybeans are fermented, dried and salted). Hoisin sauce (hoy sin jeung. “A soybean-based sauce...”). Soybean sprouts (Da dow ngah).

Photos show: (1) Three squares (“pillows”) of pressed bean curd. (2) A box of “Dried bean curd” [foo jook] (p. 296). (3) Black soybeans (enlarged) (p. 299). (4) A bag full of “Salted black bean (spiced)” (fermented black beans). Made by Koon Chun Sauce Factory, Hong Kong. (p. 300). Note: As of Nov. 2011 the company (in the New Territories, Hong Kong, with a website) is named “Koon Chun Hing Kee Soy & Sauce Factory Ltd.”

337. Dosti, Rose. 1974. Gustatory treats to tempt a Santa. *Los Angeles Times*. Dec. 19. p. K14.

• **Summary:** In the section on “Fancy fruits and vegetables” is a subsection titled “Philippines,” which states that the Philippine Commercial Center (1144 W. Temple St., Los Angeles) “has some food to go, plus tropical fruit preserves, salted black beans, duck’s eggs and chorizos made daily.”

338. Fu, P’ei-mei. 1974-1976. *Peimei shi pu* [Pei Mei’s Chinese cook book. 2 vols.]. Taipei, Taiwan. Illust. (color). No index. 22 cm. [Chi; Eng]\*

• **Summary:** Volume 1 published April 1976, copyright 1969; vol. 2 published July 1974, copyright 1974. Chinese title also written *P’ei-mei shih p’u*. Address: Cooking teacher, Taipei, Taiwan.

339. **Product Name:** Amoy Salted Black Bean, Salted Yellow Bean, Yellow Bean Sauce, Crushed Yellow Bean Sauce.

**Manufacturer's Name:** Amoy Canning Corp. (Hong Kong) Ltd.

**Manufacturer's Address:** Hong Kong.

**Date of Introduction:** 1974.

**Wt/Vol., Packaging, Price:** Can.

**New Product–Documentation:** Listing in *The Vegetarian Health Food Handbook* (UK). 1974. p. 173.

340. Credit Department. Farmers Bank of China, Taiwan. 1974. Report of the investigation of soy sauce manufacture in Taiwan. Taiwan. \*

• **Summary:** 25 million U.S. dollars worth of fermented soy sauce is consumed in Taiwan; 70% of this is regular fermented soy sauce and 30% is inyu. Address: Taiwan.

341. Kon, Masayo; Itô, Hiroshi. 1974. Hamanattô ni kansuru kenkyû. II. Seihin-chû no biseibutsu [Study on Hamanatto. II. The microorganisms in the product]. *Kaseigaku Zasshi (J. of Home Economics of Japan)* 25(1):21-26. [Jap]\*

342. Harris, Lloyd J. 1974. *The book of garlic*. San Francisco, California: Panjandrum Press. xxiv + 247 p. See p. 225. Illust. Map. 22 cm. [105\* ref]

• **Summary:** “Eggplant Chiu-Hwa. This is a delicious Chinese dish known as Eggplant Pekinese. The ingredients include Chinese salted black beans which you can get in most markets or specialty shops.” The ingredients include “1 tbl. [tablespoon] Chinese black beans.” Continue adding pieces of eggplant “as you mix with a paste made of crushed garlic and black beans...” (p. 225-26). Address: Berkeley, California.

343. Lo, Kenneth H.C. 1974. *Chinese vegetable and vegetarian cooking*. London: Faber & Faber, Ltd. 172 p. Index. 21 cm.

• **Summary:** This original edition, published in London, is smaller in height, has no illustrations, and 13 fewer pages than the American edition published the same year. The recipes are the same, but on slightly different pages; For details, see the American edition (1974).

344. Lo, Kenneth H.C. 1974. *Chinese vegetarian cooking*. New York, NY: Pantheon Books (Div. of Random House). 185 p. Illust. by Tom Funk. Index. 22 cm.

• **Summary:** Originally published in 1974 in London, England, as “Chinese Vegetable and Vegetarian Cooking” by Faber & Faber, Ltd. However that book is smaller in height, has no illustrations, and 13 fewer pages than this American edition. The entire text has been lightly edited and re-set for American cooks and readers. The recipes are basically the same, but on slightly different pages, and with some titles slightly changed (e.g., from “sesame jam” to “sesame paste,” p. 133).

In the Introduction, under “Flavoring,” the following

soybean products are listed: Soy sauce, black beans (salted), soybean paste (yellow and black), bean-curd cheese (red and yellow). Soy-related recipes include: Steamed bean curd with peanut butter sauce (p. 50). Hot-marinated bean-curd sticks [dried twisted yuba] with quick-fried [mung] bean sprouts (with “yellow bean-curd cheese” [fermented tofu], p. 60-61). The Lo Han dish of the monks’ mixed vegetables (with tofu, and “red bean-curd cheese” [fermented tofu], p. 72-73). Hot assembly of shredded bamboo shoots and bean curd... (with tofu and “bean-curd cheese [fermented tofu], p. 74). Hot assembly of chestnuts, sliced lotus root, ginkgo nuts, peanuts, Chinese mushrooms, and bean curd (with tofu and “white bean-curd cheese” [fermented tofu], p. 75). Hot black bean and tomato sauce (Ratatouille Chinoise; with salted black beans and soybean paste, p. 82-83). Basic bean-curd soup (p. 105). Enriched bean-curd soup (p. 105). Soy eggs (with soy sauce, p. 125).

Note 1. This is the earliest English-language document seen (Oct. 2011) that uses the terms “yellow bean-curd cheese” or “red bean-curd cheese” or “white bean-curd cheese” to refer to fermented tofu.

There is an entire chapter titled “Bean Curd” (p. 135-48), with an introduction and the following recipes: Cold bean curd (with soy sauce and peanut oil). Cold bean curd with sesame paste or peanut butter (“Use 1½ tablespoons sesame paste,” p. 136). Hot-and-savory bean-curd pudding (with salted black beans). Hot-and-pungent bean-curd pudding. Red-cooked bean curd with bean-curd sticks [yuba] (with soybean paste and soy sauce; the sticks are about 20 inches long). Stir-fried bean curds. Bean curd stir fried with [mung] bean sprouts or spinach. Bean curd stir fried with green beans. Deep-fried bean curd stir fried with duck eggs and cucumber skins. Deep-fried bean curd stir fried with eggs, mushrooms, and wood ears. Stir-fried shredded bean curd with dried bamboo shoots, dried mushrooms, lily-bud stems, and seaweed. Clear-simmered bean curds. Clear-simmered bean curd with lettuce and cellophane noodles. Clear-simmered bean curd with [mung] bean sprouts, water chestnuts, and sliced cucumbers.

Note 2. This is the earliest English-language document seen (June 2003) that uses the term “sesame paste.”

345. Shinoda, Osamu. 1974. *Chûgoku shokumotsu-shi* [History of foods and diet in China]. Tokyo: Shibata Shoten. 389 p. Illust. Index. 21 cm. [Jap]

346. Rice, William; Burros, Marian. 1975. *Of Chinese hares and celebrations*. *Washington Post*. Feb. 13. p. G1.

• **Summary:** We have just entered the Year of the Hare (or rabbit, according to some translations). A recipe for Shrimp in spicy lobster sauce calls for: “3 cloves garlic, peeled, 1 tablespoon fermented black beans,... 4 teaspoons light soy sauce.” Then: “Crush beans and garlic with side of knife or cleaver, then chop finely.”

A recipe for Anise beef calls for “3 tablespoons dark soy sauce.”

A recipe for Chinese-style beef with string beans calls for “1 tablespoon hoisin sauce.”

347. Kon, Masayo; Ito, Hiroshi. 1975. Hamanatto ni kansuru kenkyu. II. Seihin-chu no biseibutsu [Studies on “Hama-natto.” II. Microflora in products of “Hama-natto”]. *Shokuhin Sogo Kenkyujo Kenkyu Hokoku (Report of the National Food Research Institute)* No. 30. p. 232-37. March. [8 ref. Jap; eng]

• **Summary:** Hamanatto, a salty fermented soybean product, is made only in the district around Lake Hamana in Shizuoka prefecture. There are two methods of making Hamanatto: (1) Using artificial inoculation with molds belonging to the genus *Aspergillus*, the method used at Yamaya and at Horinji. (2) Using natural inoculation and fermentation by organisms living in the koji room (*muro*), the method used at Daifukuji. Note: This is the earliest document seen (Nov. 2011) stating that Hamanatto [fermented black soybeans] were made at Horinji temple in Hamamatsu.

The main microorganisms that are considered to play an important part in making Hamanatto belong to the *A. oryzae* molds and to the *Streptococcus* and *Pediococcus* bacteria. The *A. oryzae* strain is dark olive-green and produces strong proteolytic, but not amylolytic, enzymes. Reprinted from *Kaseigaku Zasshi (J. of Home Economics of Japan)* 25(1):21-26 (1974). Address: National Food Research Inst., MAFF, Tokyo, Japan.

348. *Sunset (Menlo Park, California)*. 1975. Add a touch of fermented beans. 154:172. April.

• **Summary:** Recipes are given for Potato salad with black beans (submitted by G.K. of Los Angeles), and Braised pork with black bean sauce. “Some classic Chinese dishes get their characteristic flavor from a seasoning of fermented black beans. These small, soft beans can also add distinction to Western dishes... Also called salted or preserved black beans (*dow see*), they have a strongly pungent aroma and flavor; it’s best to use them in small amounts. You can buy the beans at Oriental markets in small plastic bags. Store them, tightly covered, at room temperature or in the refrigerator; they keep almost indefinitely.”

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “preserved black beans” to refer to fermented black soybeans.

349. Shurtleff, William; Aoyagi, Akiko. 1975. The book of tofu: Food for mankind. Hayama-shi, Kanagawa-ken, Japan: Autumn Press. 336 p. Illust. by Akiko Aoyagi. Index. Dec. 28 cm. Rev. ed. 1977 Autumn Press, Brookline, MA. [53 ref]

• **Summary:** This pioneering work started the “tofu revolution” in America. Contents: Preface. Acknowledgements. Part I. Tofu: Food for mankind. 1.

Protein East and West. 2. Tofu as a food: Introduction, rich in high quality protein (NPU, biological value, protein score, amino acid content), high protein complementarity (tofu contains an abundance of lysine, an essential amino acid that is deficient in many cereal grains; increase usable protein by combining tofu with wheat, rice, corn, etc.), easy to digest, an ideal diet food, low in saturated fats and free of cholesterol, rich in vitamins and minerals, a health-giving natural food, backbone of the meatless / vegetarian diet, free of chemical toxins, low in cost, easily made at home, quick & easy to use, versatile.

3. Getting started: Introduction, buying and storing tofu, basic ingredients (whole-wheat flour, miso {rice-, barley, and soybean miso, special Japanese miso, Chinese chiang}, oil, brown rice, salt, shoyu {natural shoyu, shoyu, Chinese soy sauce, synthetic or chemical soy sauce}, sugar, vinegar, monosodium glutamate {MSG}), Japanese kitchen tools (each illustrated), preparatory techniques (salt rubbing, rinsing and pressing leeks and onions, soaking burdock root, reconstituting dried sea vegetables {dried hijiki, wakame, agar}, wheat gluten and kampyo [kanpyo], parboiling, cutting tofu and vegetables, using sesame seeds, toasting nori, preparing a steamer), basic recipes (soup stocks and broths {dashi}, basic shoyu dipping sauces {*tsuke-jiru*}, miso toppings {sweet simmered miso / *nerimiso*, miso sauté / *abura miso*, special miso toppings and dipping sauces, finger lickin’ miso, and regular miso}, miso salad dressings, nut and seed butter toppings, spreads and dressings, basic sauces, rice, noodles and other basic preparations).

Our favorite tofu recipes (lists about 80 recipe names for each of the different types of tofu, plus soymilk, yuba, whole soybeans, gô, okara, and curds; very favorites that are also quick and easy to prepare are preceded by an asterisk).

Part II. Cooking with tofu: Recipes from East and West (500 recipes). 4. Soybeans: History of soybeans and “soybean foods,” cooking with whole dry soybeans, roasted soybeans (*iri-mame*), fresh green soybeans (*edamame*, incl. a recipe for “Sweet emerald bean paste {*Jinda*}),” kinako (roasted full-fat soy flour, incl. Japanese health food treats such as *kinako amé*, *gokabo*, *kokusen*, *kankanbo*, and *abekawa mochi*), soybean sprouts (*daizu no moyashi*), natto (“sticky fermented whole soybeans,” with “gossamer threads”), tempeh (fermented soybean cakes), Hamanatto and Daitokuji natto (raisin-like natto), modern western soybean foods (natural soy flour [full-fat], soy granules, defatted soy flour and grits, soy protein concentrates, soy protein isolates, spun protein fibers, textured vegetable protein {TVP}, soy oil products). 5. Gô (a thick white puree of well-soaked uncooked soybeans). 6. Okara or Unohana. 7. Curds and whey. 8. Tofu (includes history, and preparatory techniques: Parboiling, draining, pressing {towel and fridge method, slanting press method, sliced tofu method}, squeezing, scrambling, reshaping, crumbling, grinding, homemade tofu, tofu quick and easy {incl. Chilled tofu–

Hiya-yakko}, tofu dressings, spreads, dips and hors d'oeuvre {incl. Tofu mayonnaise dressing, Tofu tartare sauce, Tofu cream cheese, Tofu sour cream, Tofu cottage cheese, Tofu guacamole}, tofu in salads {Western style and Japanese style salads incl. Shira-ae}, tofu with sandwiches and toast, tofu in soups {Western style and Japanese style soups, incl. miso soup}, tofu in sauces, tofu in breakfast egg dishes, tofu baked, tofu sautéed, stir-fried or topped with sauces {incl. Mabo-dofu [Ma Po doufu]}, deep-fried tofu, tofu with grains, tofu broiled {incl. Tofu dengaku}, tofu simmered in one-pot cookery and seasoned broths, tofu steamed, tofu desserts).

9. Deep-fried tofu: Thick agé or nama agé or atsu agé, ganmo or ganmodoki (incl. *hiryozu / hirosu*), agé or aburagé (incl. “Smoked tofu,” p. 197). 10. Soymilk. 11. Kinugoshi (“*Kinu* means ‘silk’; *kosu* means ‘to strain’; well named, kinugoshi tofu has a texture so smooth that it seems to have been strained through silk.” It is made from concentrated soymilk). 12. Grilled tofu (incl. *sukiyaki*). 13. Frozen and dried-frozen tofu. 14. Yuba (incl. many meat alternatives such as Yuba mock broiled eels, Buddha’s chicken, Buddha’s ham, sausage). 15. Tofu and yuba in China, Taiwan, and Korea (incl. Savory tofu {*wu-hsiang kan*}; see p. 258 for illustrations of many meat alternatives, incl. Buddha’s fish, chicken, drumsticks, and duck, plus vegetarian liver and tripe, molded pig’s head, and molded ham). One type of Korean soybean miso is called *kotsu jang* [sic, *kochu jang*]. When tofu is served with miso [Korean-style, *Tenjang*] as the dominant seasoning, and with rice, “it becomes the popular *Tenjang Chige Pekkem*” (p. 262). 16. Special tofu.

Note: This is the earliest (and only) English-language document seen (March 2009) that uses the word “*Tenjang*” to refer to Korean-style soybean *jang* (miso).

Part III—Japanese farmhouse tofu: Making tofu for more and more people. 17. The quest. 18. Making community tofu. 19. The traditional craftsman. 20. Making tofu in the traditional way.

Appendices: A. Tofu restaurants in Japan; many are vegetarian: In Tokyo: Sasa-no-yuki / Sasanoyuki, Goemon, Hisago, Sanko-in, Shinoda-zushi, Dengaku (south of Tokyo in Kamakura). In Kyoto: Nakamura-ro, Okutan, Takocho, Izusen, Junsei, Nishiki, Hakuun-an, Rengetsu, Sagano, Sorin-an. Tea ceremony cuisine (*Kaiseki ryori*), Zen temple cookery or Buddhist vegetarian cookery (*Shojin ryori*), Tea ceremony cookery from China (*Fucha ryori*), Wild gathered cookery (*Sansai ryori*). A directory of these and others, with addresses and phone numbers, is given (p. 312).

B. Tofu shops in the West (Directory of 43 shops in the USA, 3 in Europe, and 3-7 in Latin America {Mexico City, Rio de Janeiro and Sao Paulo, Brazil}). C. People and institutions connected with tofu. D. Table of equivalents. Bibliography. Glossary. Index. About the authors (autobiographical sketches; a photo shows Shurtleff and Aoyagi, and gives their address as New-Age Foods Study

Center, 278-28 Higashi Oizumi, Nerima-ku, Tokyo, Japan 177). Sending tofu in the four directions.

pudding recipes include: Rice pudding with gô and apple (p. 76, incl. 2 cups soymilk). Tofu chawan-mushi (p. 147; Steamed egg-vegetable custard with tofu). Tofu fruit whips (p. 148). Tofu rice pudding (p. 150, incl. 1 cup soymilk). Tofu custard pudding (p. 152). Soymilk custard pudding (p. 208). Brown rice pudding (p. 208, with 2 cups soymilk). Soymilk chawan-mushi (p. 209). Chawan-mushi with yuba (p. 249).

Dessert recipes include: Tofu whipped cream or yogurt (p. 148; resembles a pudding or parfait). Tofu ice cream (p. 149, with chilled tofu, honey, vanilla extract and salt). Banana-tofu milkshake (p. 149). Tofu cream cheese dessert balls (p. 149). Tofu icing (for cake, p. 149). Tofu cheesecake (p. 150). Tofu-pineapple sherbet (p. 151). Also: Soymilk yogurt (cultured, p. 205). Healthy banana milkshake (p. 206). On p. 160 is a recipe for “Mock tuna salad with deep fried tofu.”

Note 1. This is the earliest English-language document seen (March 2007) that uses the term “Tofu ice cream” to refer to soy ice cream or that contains a recipe for “Tofu ice cream.”

Note 2. This is the earliest English-language document seen (March 2000) that uses the term “Tofu Cheesecake” and the first to give a recipe for a tofu cheesecake.

Note 3. This is the earliest English-language document seen (May 2000) that uses the term “Tofu Sour Cream” (p. 109) or that contains a recipe for “Tofu Sour Cream.”

Note 4. This is the earliest English-language document seen (Dec. 2003) that uses the term “tofu milkshake” or that gives a recipe for a shake made with tofu.

Note 5. This is the earliest English-language document seen (Feb. 2004) that uses the word “stringy” to refer to natto.

Note 6. This is the 2nd earliest English-language document seen (Nov. 2011) that uses the term “dried-frozen tofu.”

Note 7. This is the earliest English-language document seen (March 2004) that describes preparatory techniques for tofu (p. 96-98).

Note 8. This is also the earliest English-language document seen (March 2004) that contains the term “smoked tofu.”

Note 9. This is also the earliest English-language document seen (March 2004) that uses the term “kinugoshi tofu” to refer to silken tofu.

Note 10. As of March 2007, the various English-language editions of this book have sold more than 616,000 copies.

Note 11. This is the earliest English-language document seen (June 2011) that uses the term “tofu lees” to refer to okara (see p. 22, 77).

Note 12. This is the earliest English-language document

seen (Aug. 2011) that contains the term “Modern Western soybean foods” (see p. 69), a term that Shurtleff would soon (by 1983) replace by the more accurate “Modern soy protein products.” Address: c/o Aoyagi, 278-28 Higashi Oizumi, Nerima-ku, Tokyo 177, Japan. Phone: (03) 925-4974.

350. Shurtleff, William; Aoyagi, Akiko. 1975. Hamanatto and Daitokujinatto [Daitokuji-natto] (Raisin-like natto) (Document part). In: W. Shurtleff and A. Aoyagi. 1975. *The Book of Tofu*. Hayama-shi, Kanagawa-ken, Japan: Autumn Press. 336 p. See p. 69.

• **Summary:** “Hamanatto is a unique variety of natto soybeans which looks like raisins except that its surface has a grayish black tinge and is smooth and soft. Hamanatto beans have a pleasant, somewhat salty flavor resembling that of mellow Hatcho miso. Sprinkled over rice or rice gruel, served as an hors d’oeuvre with green tea, or cooked with vegetables as a seasoning, they add zest to bland dishes. A similar type of natto, called *Daitokujinatto*, is prepared in Daitokuji temple in Kyoto. Hamanatto are also widely enjoyed in China where they are known as *toushih*” [douchi, doushi, dow see].

Note: This is the earliest English-language document seen (Nov. 2011) that uses the word “*toushih*” to refer to fermented black soybeans. Address: Lafayette, California.

351. Shurtleff, William; Aoyagi, Akiko. 1975. *The book of tofu: Food for mankind* (Illustrations—line drawings). Hayama-shi, Kanagawa-ken, Japan: Autumn Press. 336 p. Illust. by Akiko Aoyagi. Index. Dec. 28 cm. Rev. ed. 1977 Autumn Press, Brookline, MA. [53 ref]

• **Summary:** Continued: Illustrations (line drawings, both numbered and unnumbered) show: A hearth in a traditional Japanese farmhouse with tofu dengaku roasting around a bed of coals in a sunken open-hearth fireplace. An old Japanese plum tree blossoming in winter. Three pieces of skewered tofu dengaku with a sansho leaf atop each in a special serving box. A sprig of sansho with berries. Stylized top of a soybean plant in a circle. Fig. (4) Tofu products available in the West (tofu, dofu, kinugoshi, thick agé triangles, cubes, and cake, agé and age puffs, hollow agé cubes, soymilk, tofu pudding, doufu-ru {white and red}, ganmo {patties, small balls, and treasure balls}, grilled tofu, dried-frozen tofu, instant powdered tofu, okara, dried yuba, soymilk curds, pressed tofu, savory tofu). A wooden cutting board and Japanese broad-bladed vegetable knife (nagiri-bôcho) with vegetables and tofu on a woven bamboo tray. (8) A wooden keg of red miso and a plastic bag of barley miso. (9) Shoyu in a metal can, wooden keg, glass bottle, and table-top dispenser. Traditional Japanese kitchen tools: *Miso-koshi* (woven bamboo strainer used in making miso soup). cutting board, Japanese vegetable knife, wooden spatula, bamboo rice paddle (*shamoji*) and spoon, woven bamboo colander or tray (*zaru*), suribachi, Japanese grater (*oroshi-gané*), sudaré

(bamboo mat), pressing sack for tofu or soymilk, serrated tofu-slicing knife, tawashi scrub-brush (made of natural palm fiber), wok with draining rack and wooden lid, stir-frying ladle and spatula, long cooking-chopsticks, mesh skimmer, deep-frying thermometer, Chinese bamboo steamer (*seiro*), charcoal brazier (*konro, shichirin*), broiling screen. Covered pot steamer. Small lidded pottery pot. More kitchen tools (p. 50-51). (10) A soybean measuring box (*isshô-bako*). (11) The soybean plant. Two views of a soybean seed with seed coat, hilum, and hypocotyl labeled. A bag full of soybean. Roasted soybeans in a woven bamboo tray (*zaru*). Edamamé in the pods. Three shapes of kinako treats. Soybean sprouts. Natto on a bamboo mat (*sudare*). Natto wrapped in rice straw as it ferments. A hand holding chopsticks that lift natto up from a bowl of natto—connected by gossamer threads. Tempeh (round and square pieces). Wrapping a small packet of inoculated soybeans to make tempeh. (15) Two Japanese women in traditional clothing using hand-turned grinding stones (quern) to grind soaked soybeans when making tofu. (16) Push-pull grinding stones. (17) Motor-driven grinding stones. (18) Water-powered millstones. (19) Wind-powered millstones. (20) Unohana. (21) A tofu maker sitting on a traditional lever press that presses soymilk from the okara in a pressing sack on a rack. A heavy iron skillet. (22) Folding okara omelet pouches. Okara doughnuts. (23) A bamboo colander. (24) A tofu maker weighting a colander with a brick so that whey will collect in it. (25) Ladling whey from curds; it foams! (27) A horse drinking whey from a wooden vat. Soymilk curds in a bamboo mat. (28) Ladling curds for Awayuki. (29) Fresh tofu in a plastic tub. (30) A tofu maker placing a weight on pressing lids as tofu is pressed in settling boxes (forming boxes). Transferring tofu-filled settling box to sing. Cutting a block of tofu into cakes under water. Eggplant halves in a yin-yang dance. Preparatory techniques used with tofu (slanting press, sliced tofu, squeezing, scrambling, reshaping, crumbling). (32) Utensils for making tofu at home. (33) Three designs for a homemade settling container. (34) Preparing homemade tofu (a-1). (35) Removing tofu from a farmhouse-style settling container (forming box). (36) Chilled tofu. Iceberg chilled tofu. A hot, moist, white towelette (*o-shibori*) is used to wipe the face and hands before (or occasionally after) a meal. Tofu salads in three Japanese pottery dishes. Japanese soups in three types of containers. (37) Chrysanthemum tofu. (38) Tofu poached egg. Tofu-stuffed green peppers. A wok. (39) Filling a wok with oil. (40) testing oil temperature in a wok. (41) Deep-frying tofu tempura—and (42) Serving it in a shallow bamboo basket. (43) Making *Kaki-agé*. (44) Dengaku Hoshi (from *Tofu Hyaku Chin*). (45) Skewered Tofu dengaku. Preparing Tofu dengaku in old Japan (from Hokusai’s sketchbooks). (46) A variety of skewers. (47) Chinese firepots. (48) A Simmering Tofu wooden serving container heated by coals from within. (49) Miso oden. (50) Tofu wrapped in rice straw. (51) Nanzenji wrapped tofu. (52)

Gisei-dofu. (53) Serving freshly deep-fried agé. (54) The deep-frying area of a traditional tofu shop. (55) Deep-frying tools. (56) Wooden bamboo tray with raised sides. Chinese cleaver. (57) Nori-wrapped sushi with agé (making and serving; six drawings). Eating noodles from old Japan (from Hokusai's sketchbook). (58) Preparing homemade noodles. (59) The Oden man on a winter's eve. A potter bowl of Oden. Kombu rolls. (60) Making konnyaku twists. (61) Nishime in a multi-layered lacquerware box. (61) Pressing tofu for thick agé in a tofu shop. (62) Deep-frying tofu for thick agé. (63) A tofu maker with deep-fried thick agé triangles on screen trays. (64) Stuffing thick agé. (65) Thick agé stuffed with onions. (66) Pressing tofu for ganmo. (67) Adding seeds and vegetables. (68) Deep-frying ganmo. (69) A farmhouse open-hearth fireplace with nabe kettle. (70) Preparing homemade ganmo. Ganmo balls in a draining tray. Ganmo cheeseburger. (71) Cutting tofu to make agé slices (*kiji*). (72) Deep frying agé. (73) Opening agé into pouches. Agé treasure pouches. (74) Agé pouches sealed with foodpicks. Inari shrine with Shinto torii. (75) Kampyo-tied pouches [kanpyo]. (76) Making rolled agé hors d'oeuvre. (77) Tofu maker ladling gô (fresh soy puree) into a cauldron. (78) Stirring down the gô. Pressing soymilk from okara with a hand-turned screw press. (79) Serving fresh soymilk in a tofu shop. Six Japanese commercial soymilk products. Little girl at The Farm (Summertown, Tennessee) seated on a small chair drinking a cup of soymilk. Chinese breakfast soymilk soup with deep-fried crullers (*Siento-chiang with yu-chiao tso pi*). (80) Takigawa-dofu. (81) Tofu maker pouring the soymilk for kinugoshi tofu. (82) Adding solidifier. (83) Trimming kinugoshi from sides of box. (84) Modern lactone kinugoshi (with GDL). (85) Modern kinugoshi factory. (86) Sasa-no-Yuki's Gisei-dofu container. (87) Kinugoshi with ankake sauce. The entrance way to a traditional Japanese restaurant featuring tofu. Traditional metal skewer for making grilled tofu. (88) Traditional tofu maker grilling tofu over a charcoal brazier (*hibachi*). Grilling tofu in a traditional open hearth. (89) An early method of elaborate grilling. Pieces of tofu on different types of skewers. Farmhouse sukiyaki with grilled tofu. (90) Tying frozen tofu with rice straw. (91) Drying farmhouse frozen tofu. (92) Pressing frozen tofu at home. (93) Deep-fried frozen tofu with cheese. (94) Making deep-fried frozen tofu sandwiches (*Hakata-agé*). (95) Frozen tofu wrapped in kombu. (96) Steaming table in a yuba shop. Ten different types / shapes of yuba. (97) Lifting yuba away from soymilk. (98) Yuba sashimi. (99) Yuba envelopes. (100) Deep-fried yuba dengaku. (101) Folding yuba into bundles. Trimming half-dried yuba from a skewer. (102-113) Tofu and yuba in Taiwan, China, and Korea (see separate record). Sesame tofu in pottery bowl. (114) Traditional farmhouse tofu, tied into a package with rice straw rope. (115) Shirakawa-go farmhouses with water-powered rise-husker in foreground. (116) Making seawater tofu at Suwanose. Mortar and pestle for pounding mochi. Making community tofu:

Western metal hand mill, hand-turned stone mill apparatus, faces of upper and lower stones, colander and cloth, two shapes of cooking pots, Japanese farmhouse earthen cooking stove, cooking pot set on cut-off oil drum, ladle, two wooden paddles, pressing rack, pressing okara, lever press, pressing sack, wooden settling [forming] container with cloths. (117) Making nigari with salt in bamboo colander, a traditional "salt boat" for refining salt of nigari. (119) Country farmhouse tofu (5 illust.). (121) Morning shopping at a tofu shop. (122) Diagram of a tofu-shop floor plan. (123) Modern pressure with hydraulic press. (124) Modern centrifuge with 3 soymilk barrels. Thirty-one unnumbered illustrations showing every step in making and selling tofu in a traditional Japanese shop (p. 299-306). (125) Cutting tofu for Dengaku (from *Tofu Hyaku Chin*). (126) Ladies busy making dengaku (from *Tofu Hyaku Chin*). (127) Hearth at Nakamura-ro. (128) The garden at Okutan. Six types of Japanese sea vegetables: Hijiki, aonori, wakame, agar, nori, kombu. (129) Japanese vegetables (27 illustrations). Address: c/o Aoyagi, 278-28 Higashi Oizumi, Nerima-ku, Tokyo 177, Japan. Phone: (03) 925-4974.

352. Shurtleff, William; Aoyagi, Akiko. 1975. The book of tofu: Food for mankind (Recipes and food types with Japanese names). Hayama-shi, Kanagawa-ken, Japan: Autumn Press. 336 p. Illust. by Akiko Aoyagi. Index. Dec. 28 cm. Rev. ed. 1977 Autumn Press, Brookline, MA. [53 ref] • **Summary:** Teriyaki sauce (p. 48). Ankake sauce (p. 49). Sushi rice (Rice in vinegar dressing, p. 51). Gomashio (Sesame salt). Gari (Sweet vinegared gingerroot, p. 51). Budomame (Sweet soybeans, p. 62). Kombu mame, kuro mame, gomoku mame (p. 62). Iri-mame (Roasted soybeans, p. 63). Edamame (Fresh green soybeans, p. 63). Jinda (Sweet emerald bean paste [made with edamame], p. 64). Kinako (Roasted full-fat soy flour, p. 64). Abekawa mochi (with kinako, p. 65). Kinako amé or genkotsu amé (Kinako candy, p. 66). Daizu no moyashi (Soybean sprouts, p. 67). Natto (Sticky fermented whole soybeans, p. 67). Hamanatto and Daitokujinatto (also spelled Daitokuji-natto) (Raisin-like natto, p. 69). Gô (Fresh soy purée, p. 70+). Gôjiru (Thick miso soup with gô, p. 74). Bakudan agé (Deep-fried gô patties, p. 76). Okara or unohana (p. 77+).

Unohana-jiru (Chilled okara soup, p. 79). Unohana no iri-ni (Okara & vegetable sauté, p. 81). Unohana-iri (Unsweetened fried okara, p. 82). Unohana dango (fried okara patties, p. 82). Sushi okara chakin (Okara omelet pouches, p. 84). Oboro (curds, p. 87). Oboro-dofu (Warm soymilk curds, p. 90). Awayuki (homemade curd dumplings, p. 90). Karashi-dofu (Curd dumplings with mustard, p. 90). Gomoku-dofu (Five-color tofu, p. 105). Hiya-yakko (Chilled tofu, p. 105). Menoha-dofu, nameko-dofu (p. 106). Ryanbandoufu (Chinese-style chilled tofu, p. 107). Imokake-dofu (Chilled tofu with glutinous yam and egg, p. 107). Tofu no misozuke (Tofu pickled in miso, p. 110). Kanten-dofu

(Jelled tofu, p. 114). Aemono and Shira-ae (“White salad,” p. 114+, 160). Arare no aemono (Hailstones salad, p. 115). Suimono (Clear soup, p. 119). Kikka-dofu (Clear soup with chrysanthemum tofu, p. 120). Kenchin-jiru (p. 120). Tamago-toji (Japanese-style tofu, eggs & onions). Nanjen-dofu or Iritsuke-dofu (Chinese-style egg tofu, p. 123). Kenchin-yaki (p. 126). Iridofu [Iri-dofu] (Crumbly scrambled tofu, p. 128). Mabo-dofu [Ma po doufu] (Chinese-style tofu with red pepper sauce, p. 128). Hao-yu doufu (Chinese style oyster sauce & tofu, p. 129). Fanchie-dofu (Chinese-style tofu & tomatoes, p. 129). Tofu no kara-agé (Crisp agé slices, p. 131). Unagi-dofu (Tofu mock eels, p. 132). Kaminari agé (Thunderbolt tofu, p. 132). Agédashi-dofu [Agedashi-dofu] (Deep-fried tofu in dipping sauce, p. 133). Tendon (Deep-fried tofu with rice and broth, p. 133). Tofu furai (Breaded tofu cutlets, p. 134). Tempura (and batter and dipping sauce, p. 134). Zosui or Ojiya (Rice gruel, p. 138). Tofu dengaku (p. 139). Tofu teriyaki (p. 141). Yudofu or Tofu no mizutaki (Simmering tofu, p. 142). Nabeyaki-udon, Nabeyaki-soba, Udon-tsuki (p. 144). Yosenaabe (p. 144). Miso oden (p. 145). Yukinabe (The snow pot, p. 148). Niyakko (p. 145). Tsuto-dofu or Komo-dofu (Simmered tofu wrapped in rice straw, p. 146). Tofu chawan-mushi (Steamed egg-vegetable custard, p. 147). Nanzen-ji no Tsusmi-dofu (Nanzen-ji wrapped tofu, p. 147). Yuzu-gama (Yuzu treasure pot, p. 147). Naruto-dofu (Tofu spiral in butterbur leaves, p. 147). Gisei-dofu (Tofu cheesecake-like dessert, p. 152). Datémake [Datemaki] (Tofu-egg roll, p. 153). Noppei-jiru (Noppei soup, 163). Kinpira (Agé with carrots and burdock root, p. 167). Yaki-soba (Fried buckwheat noodles with deep-fried tofu, p. 168). Chahan or yaki-meshi (sizzling rice with deep-fried tofu, p. 168). Soboro (p. 169). Norimaki-zushi (Nori-wrapped sushi with agé, p. 170). Kitsune domburi (Fox domburi, p. 172). Kitsune soba or udon (Fox noodles, p. 172). Yamakake soba (Buckwheat noodles with grated glutinous yam and agé, p. 172). Hiyashi-soba (Noodles & deep-fried tofu in chilled broth, p. 172). Nikomi udon (Ganmo simmered with homemade noodles and miso, p. 173). Kabayaki or Yaki-Shinoda (Agé mock broiled eels, p. 174). Oden (p. 175-78). Nishime (p. 178-79). Horoku-yaki (Thick agé stuffed with onions, p. 183). Hiryo-ozu (Ganmo treasure balls, p. 188). Inari-zushi (Vinegared sushi rice in sweetened agé pouches, p. 194). Fuku-bukuro (Agé treasure pouches with crunchy vegetables, p. 195). Takara-zutsumi (Sacks of gold, p. 195). Shinoda-maki (Matchstick vegetables wrapped in age pouches, p. 195). Kinchaku and takara-bukuro (Drawstring purses and treasure bags, p. 196). Hasami-age (Mashed potatoes deep-fried in agé pouches, p. 196). Shinoda-maki (Agé cabbage rolls, p. 197). Shinoda mushi (Steamed agé with tofu and vegetables). Soymilk chawan-mushi (p. 209). Yose-dofu (Jelled and molded soymilk dishes, p. 209). Takigawa-dofu (Swirling jelled soymilk, p. 210). Shikishi-dofu (Kinugoshi custard, p. 216). Kinugoshi dishes from Sasa-no-yuki (p. 217-19): Hiya-yakko, yuzumiso-dofu,

gisei-dofu, ankake-dofu, kijoyu, chiri-meshi, kuya-dofu or kuya-mushi, iridofu. Yaki-dofu (p. 220). Sukiyaki (p. 224-25). Koya-dofu or kori-dofu (Dried-frozen tofu, p. 226+). Tamago-toji (Frozen tofu with eggs and onions, p. 231). Gyoza [Chinese jiaozi] (p. 232). Oranda-ni (Deep-fried frozen tofu in lemon sauce, p. 234). Soboro (Grated frozen tofu rice topping, p. 234). Hakata-agé (Deep-fried frozen tofu sandwich, p. 235). Koya-dofu no kombu maki (Frozen tofu wrapped in kombu, p. 236). Sanshoku gohan (Three-color brown rice, p. 236). Fukuyose-ni (Frozen tofu simmered in sweetened broth, p. 236). Abekawa-dofu (Frozen tofu rolled in sweetened kinako, p. 237). Yuba (p. 238-42). Nama-yuba (Fresh yuba). Nama-gawaki or han-gawaki yuba (Half-dried yuba). Kanso- or hoshi-yuba (Dried yuba). Hira- or taira-yuba (Flat yuba sheets). Maki-yuba (Fresh yuba rolls). Komaki (Long yuba rolls). Kiri-komaki (Small yuba rolls). Musubi-yuba (Tied yuba). Omaki-, futomaki- or Uzumaki-yuba (Large yuba spirals). Oharagi yuba (Slightly flattened yuba roll tied with a thin piece of kombu). Amayuba (Sweet yuba). Kirehashi (Fresh yuba trimmings). Kuzu-yuba or mimi (Yuba flakes). Toyuba (Trough-shaped yuba, p. 242). Kaori yuba (Sweet miso deep-fried in fresh yuba, p. 244). Yawata-maki (Yuba-burdock root roll, p. 245). Toji yuba (deep-fried yuba with ginkgo nuts and lily bulbs, p. 245). Yuba no kabayaki (Yuba mock broiled eels, p. 245). Maze-gohan or Gomoku-zushi (Five-color sushi rice with agé, p. 169). Suhuo-t’ui (Homemade Buddha’s ham). Tamago-toji yuba (Raw eggs cooked over hot yuba, p. 247). Tamago yuba (Deep-fried yuba in ankake sauce, p. 248). Kenchin-maki (Large yuba rolls with tofu and vegetables). Yuba shinjo (Yuba steamed with eggs, p. 249). Address: c/o Aoyagi, 278-28 Higashi Oizumi, Nerima-ku, Tokyo 177, Japan. Phone: (03) 925-4974.

353. Circle, S.J.; Smith, A.K. 1975. Soybeans: processing and products. In: N.W. Pirie, ed. 1975. Food Protein Sources. Cambridge, London, New York, Melbourne: Cambridge University Press. xx + 260 p. See p. 47-64. [88 ref]

• **Summary:** Contents: Introduction. Agronomy: Varieties, cultivation, yields. Soybean composition. Protein nutritional value. Traditional processing into nonfermented foods: Soybeans as a table vegetable (green soybeans), soy milk, tofu (soybean curd), yuba, kinako, salted soybeans, soybean sprouts. Traditional processing into fermented foods: Miso and shoyu, tempeh. Others include: natto, hamanatto, sufu (soy cheese), tao-tjo, kochu chang, ketjap, ontjom, and yogurt-like products.

Contemporary processing without defatting: ‘Debittering’ by aqueous treatment, whole bean processing, full-fat flour, soy milk and curd. Contemporary defatting processes: Defatting by aqueous processing, defatting with organic solvents, composite flour, soy flours, protein concentrates, protein isolates and textured soy products (recipes for using soy protein products in foods are available

from several publications). Address: Anderson Clayton Foods, W.L. Clayton Research Center, 3333 Central Expressway, Richardson, Texas 75080.

354. Gin, Margaret; Castle, Alfred E. 1975. Regional cooking of China. San Francisco, California: 101 Productions. 192 p. Illust. Index. 21 x 21 cm.

• **Summary:** This book is filled with lovely woodcuts from the Horace Carpentier Collection, East Asiatic Library, University of California, Berkeley. Only 11% of China's land area is arable compared to 80% in the USA, yet today its population, mostly squeezed into the eastern third of the country, is four times that of the United States. The best soy sauce in China comes from Fukien [Fujian] and Amoy. The Classic of Mandarin cuisine reached its zenith around 1800, when Yuan Mei wrote volumes about food; these are still considered to be definitive studies of Chinese gourmet cooking in the Mandarin style. There is one entire chapter titled "Bean curd" (p. 57-63).

The book also contains recipes for: Fuzzy melon soup with bean curd (p. 37). Seaweed soup with bean curd (p. 41). Bean curd soup (p. 42). Ma Po bean curd (Szechwan, p. 59). Stir-fried vegetables with black bean sauce (with "2 tablespoons fermented black beans, rinsed and mashed, 1 slice ginger root, minced, 1 garlic clove, minced,..." p. 90). Stir-fried vegetables with fermented bean cake (fermented tofu, p. 91). Braised soybean sprouts (Shanghai, p. 96). Clams with black bean sauce (with fermented black beans, rinsed and mashed, and slices of ginger root, minced, p. 109). Braised fish with fried bean curd (p. 115).

The glossary (p. 178-84) defines: Bean cake, fermented, and fresh (2-inch squares, 1 inch thick). Bean curd cheese, red (nam goeey). Bean-curd cake, deep fried. Bean-curd sheets or sticks, dried [yuba] ("Creamy beige-colored thin sheets. Used for vegetarian (Buddhist) dishes congee or as substitute for egg roll skins. Stick form is used mainly for soup... Always soak in warm water to make pliable before proceeding with recipe"). Bean curd, sweet ("Comes in dried, flat sheets, about 6 inches by 1½ inches. Mocha in color; no sweet taste"). Bean paste, hot. Black beans, fermented (= Fermented black beans. "Small black beans preserved in salt. Very pungent and moist. Almost always used with garlic and ginger in sauces. Rinse with warm water and mash before using. Purchased in plastic bags by weight in Oriental markets"). Brown bean sauce ("Also known as yellow bean sauce and ground bean sauce"). Fish soy. Hoisin sauce ("Thick, smooth, dark reddish brown sauce made from soybeans, spices, sugar, chili and garlic. Mildly sweet in flavor"). Soy sauce (light vs. dark with caramel added). Address: San Francisco, California.

355. Ohta, Teruo. 1975. Nattô kenkô-hô [The natto way to good health]. Tokyo: Futaba Books. 242 p. Illust. No index. 18 cm. [28 ref. Jap]

• **Summary:** This interesting, comprehensive book, by a scientist and expert on the subject, discusses all aspects of natto. Contents: Preface (p. 3). 1. History of natto and its mystery (p. 15). When did natto bacteria appear on earth? The mystery of ancient natto. The first meeting of ancient humans and sticky beans (*neba mame*). Natto is preserving food which was nurtured by the climate where people opposed the government. Why was the Japanese palate better? The amazing wisdom of the Japanese race—"Ancient fermented foods." *Tôshikyô* was a salty natto (*kata natto*) of 2,200 years ago. Natto originated during the Heian period [A.D. 794-1185]. Medicinal natto which Japanese monks kept secretly in olden times. The god of childbirth and princess natto (*hime natto*). Reasoning the "Natto Road." Village natto (*mura natto*) of Tanba, Yamaguni. Shoyu-flavored natto started during the Muromachi period [1336-1573]. War provisions in field campaigns and natto. The military commanders of the Sengoku period also used Jinchô natto. Vendors calling out "Natto! Natto!" started during the Edo period (1600-1868). People who challenged the secrets of natto. The dark period of natto making. The mystery of the straw wrapper (*wara zuto*) and the Japanese people. The power of natto, which was studied by even the German army. The Japanese Army and navy studied the power of natto thoroughly. Strong alley natto in the time of food shortage. The elite of the foods of the future. Mysterious medicinal effects of natto found in folklore.

2. The homeland of natto (p. 71). From *Hime natto* to *Daraku nabe*—Fukushima prefecture. *Teramichi natto* of Yonezawa and Goto natto—Yamagata prefecture. The early, noncommercialized form of Yukiwari-natto was Goto natto, made with natto, koji, and salt, fermented together for 1 month. Since the middle of the Edo period (about 1735) it has been made in Yamagata prefecture, mostly in farmhouses. It is widely served over rice, mixed with a popular type of diced miso pickle. One commercial manufacturer is Maruyome Shokuhin in Yonezawa city, Yamagata prefecture. Yukiwari-natto looks like Finger Lickin' Miso. The legend of *kuromame* [black soybeans] of Kiyomasa-kô—Kumamoto prefecture. Pounded natto (*tataki natto*), "Ito" and "Oito"—Kyoto. *Tôzô* and *ôzutsu natto*—Chiba prefecture. Mito natto which was sold in train stations along the Jôbansen line—Ibaraki prefecture. Straw-wrapped natto (*warazuto natto*) and natto mochi of Omi—Shiga prefecture. Iwadeyama natto which was eaten by Hachiman Taro Yoshiie—Miyagi prefecture. Is hikiwari natto ancient natto?—Aomori prefecture. Fluffy natto (*fukkura natto*) in large cooked rice containers (*hettsui*)—Saitama prefecture. Stood still at Kawanakajima saying "Nantoshô" ("What to do?")—Nagano prefecture. Naisho mame in the pitch dark—Gunma prefecture. The origin of natto culture—Yokote's hikiwari natto—Akita prefecture.

3. The secret of eating natto (p. 95). What are fermented foods. Super abilities of wonderful microorganisms.



Comrades of microorganisms. Why cooked soybeans become natto. The natto bacterium is a magician. The useful component of amazing natto. Natto is the last natural food. Stamina food gives endurance to modern people. Natto protein is of high quality. Natto is an excellent maker of amino acids. Natto vitamins which are used by famous people to increase their stamina. The stickiness of natto is a bunch of active strong enzymes. The wondrous abilities of enzymes. Natto has a strong power to prevent sickness. If you take acidic food continuously, the body's resistance will decrease. Natto is a wonderful alkaline food. There are many unsolved mysteries related to natto. To research the secret of very strong multiplication. The Japanese are an advanced country in terms of soybean utilization. It is important that a true health food should have good balance.

4. Medicinal effects of natto (p. 141). Common colds run away when they see natto. Dysentery and typhoid run away too. Skin disease such as favus and scabies—and natto. When the blood pressure rises, eat natto first. A feeling of faintness when you try to stand up is a sure sign of anemia. If you eat natto—no constipation problems. If you get fat during middle age, start a natto diet. The ideal food to prevent heart disease. Arteriosclerosis and natto. Natto strengthens the liver. The big news—natto bacteria control cancer. Natto keeps you from getting very drunk. Eating natto makes beautiful white skin. White rice and natto are ideal a mealtime. Natto—a strong ally of the stomach. Natto bacteria condition the intestines. Natto has the power to remove radioactivity. Challenge the eternal youth and longevity with natto. Natto and mustard have a pack a double whammy.

5. How to make natto at home (p. 171). How to grow natto bacteria well. Steps in making natto. Various methods of incubation. The method of making natto at home. This is how natto was made in the old days. How to select good natto. How to measure the freshness of natto. The secret of small-bean natto. The difference between domestically grown and imported soybeans.

6. How to eat natto well (p. 199—with many natto recipes). Unique ways of eating natto over rice. Various natto soups. Deep fried natto dishes. Fun one-pot cookery. Snacks. Natto miso and dried natto. Famous preserved natto foods in the various provinces. Other uses and hints.

7. Chronology of natto from 10,000 B.C. to the present (p. 217-39). Key early dates include the following: Heian period: 1051—The legend of Minamoto (Hachimantaro) Yoshiie and natto began (Note: Minamoto Yoshiie was a famous Japanese warrior who lived 1039-1106). The Oshû Kaido [Oshu] became known as the natto road. 1062—Abe Sônin (or Abe Sadamune) started to make “Tôhoku Natto” (a type of sticky natto) in the Hida or Higo region of Kyushu, and was respected by the local people there. 1068—The word “natto” (*usu-shiokara natto*; lightly salted natto) first appeared in the *Shinsaru Gakushû* by Fujiwara no Akihira.

Kamakura period: Fermented black soybeans became

very popular among the samurai and monks. 1129—Zen master Dogen of the Soto sect returned from Sung-dynasty China and introduced Buddhist Vegetarian Cookery (*shojin ryôri*) to Japan. 1211—Samurai (*bushi*) during the Kamakura period eat brown rice and fermented black soybeans (*shiokara natto*) for stamina. 1332—Soybeans were cultivated on a fairly large scale on land near Kamakura by the Tokugawa shogunate (*bakufu*). From these were made fermented black soybeans and other soyfoods which were quite widely used. 1334—During the Nanbokuchô period Kôgen Hôô appeared. In the Jôshôkôji in Tanba Yamaguni made Warazuto Natto and taught the process to the villagers. It was also called Yamaguni Natto, and remains there to this day.

Muromachi Period: The popularization of regular natto started as itohiki natto became “O-ito.” The *Teikun ôrai* contained recipes using fermented black soybeans (*shiokara nattô*). Fermented black soybeans were eaten by people as *tenshin* or *ochauke* with tea. Natto and tofu were wide served with Buddhist Vegetarian Cookery (*shojin ryôri*). Natto soup (*nattô-jiru*) originated. 1450—In the *Shôjin gyorui monogatari* [A comic tale of the great war between vegetarian foods and animal foods], natto appears as a person named Nattô Tarô Itogasane. 1532—The *Daiso ryôri-sho* (The Daiso cookbook) contains a detailed recipe for how to make natto soup (*nattô-jiru*).

Note: This is the earliest document seen (Dec. 2011) that mentions Yukiwari-natto (with or without a hyphen). Address: National Food Research Inst., Tokyo, Japan.

356. Rombauer, Irma S.; Becker, Marion Rombauer. 1975. Joy of cooking. Indianapolis/New York: Bobbs-Merrill Co. 915 p. Illust. by Ginnie Hofmann and Ikki Matsumoto. Index. 25 cm.

• **Summary:** One of the great American cookbooks. A classic and an all-purpose cookbook, this is the last edition revised by Marion Rombauer Becker. Soy-related recipes and descriptions include: Soy or lima bean casserole (p. 255-56). Soy cakes (“patties” of mashed cooked soybeans, rice, vegetables and eggs, rolled in sesame seeds and sauteed, p. 256). About fresh beans—edible soy beans (p. 284-85, with illustration {line drawing}). Green soybeans (cooked, p. 286; “Use the edible vegetable type, not field varieties of beans”). Low-fat tofu dressing (p. 369). About vegetable and nut milks: These are all nutritionally inferior to animal milks, “as their protein is of lower biologic value and their vitamin content is different.” Almond and walnut milks have long been known in Europe. Native Americans used hickory and pecan milk. These milks, and coconut milk, with their delicate, fragile flavors “are a great delicacy in sauces and puddings.” Gives recipes for almond milk, soybean milk (p. 534-35). Soybean curd or tofu (homemade, p. 535; “For other suggestions, see *The Book of Tofu*, by William Shurtleff and Akiko Aoyagi). Soybean paste or extender (cooked

soybeans pressed through a colander, p. 535). Alternate or engineered foods (p. 535-36; textured vegetable proteins, "TVPs," CSM, WSB). Soy flour (p. 549). Soy meal (p. 549-50; coarser than flour). About seeds, grains, beans and peas—Roasted soybeans (p. 564). About commercial sauces—Soy sauce and shoyu (p. 574). Soy whole wheat bread (with soy flour, p. 608).

In the long, excellent section titled "Know your ingredients" (p. 519+), under "The capers and caperlike buds and seeds" (p. 580) we read: "Similar in Use are Chinese fermented black beans, or *toushi*, which are available in cans;..."

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term "Chinese fermented black beans" or the word "toushi" to refer to fermented black soybeans.

As of April 1996 the book has not been revised since 1975. It is now a Scribner book published by Simon & Schuster. Hardcover price: \$24.00. Address: Jennifer Becker, 38537 S.E. Hudson Rd., Sandy, Oregon 97055.

357. Wood, B.J.B.; Yong, Fook Min. 1975. Oriental food fermentations. In: J.E. Smith and D.R. Berry, eds. 1975. *The Filamentous Fungi*. Vol. 1. Industrial Mycology. New York: Wiley & Sons. xi + 336 p. See p. 265-80. [29 ref]

• **Summary:** Contents: Introduction. Koji. Soya sauce. Soy milk, tofu and sufu (Chinese cheese). Miso. Other Oriental food fermentations (tempeh, ontjom, Hamanatto, Ang-kak and Lao-chao). Conclusions.

Most people in the West are now familiar with soya sauce. For most Westerners, the growth of mould on a food is generally associated with the deterioration of that food—with only a few exceptions, such as England's Blue Stilton cheese, or Roquefort, Brie, or Camembert cheeses from France.

Note: "Molds of the genus *Penicillium* play a large part in the ripening of the Camembert-Brie, and the Roquefort-Gorgonzola-Stilton series of cheeses."

"Koji is the central feature in most fungal food preparations." Traditionally, koji was made in baskets made of woven bamboo, which provided very good aeration. How non-toxic molds came to be used for koji in humid sub-tropical or tropical regions remains a mystery. In Japan, the seed-koji (*tané koji*) is "made by growing *Aspergillus soyae* or *A. oryzae* on steamed polished rice, which in China, a mixture of wheat bran and soyabean flour is the preferred substrate."

To make Hamanatto, soybeans are initially fermented with *Aspergillus oryzae*. "A Malayan dish called Tao-Cho and one from the Philippines called Tao-Si seem to be somewhat similar..." Address: Univ. of Strathclyde, Glasgow, Scotland.

358. Balsley, Betsy. 1976. Some very straight talk about the asparagus stalk: Tips on using and choosing. *Los Angeles*

*Times*. March 11. p. G1.

• **Summary:** A recipe for Asparagus and beef calls for: "1 tablespoon dow see (fermented black beans), 1 clove garlic." Then: "Soak black beans in water a few minutes. Drain and mash beans with garlic."

359. Kozaki, Michio. 1976. Fermented foods and related microorganisms in Southeast Asia. *Proceedings of the Japanese Association of Mycotoxicology* No. 2. p. 1-9. March 20. [16 ref]

• **Summary:** Table 1, "Main fermented foods using molds, yeasts or bacteria in Southeast Asia," contains four columns: Name of fermented food, raw materials, main related microorganisms, and remarks (incl. names in other countries). Fermented foods listed include amazake (tapé / tapeh in Indonesia, with *Rhizopus* instead of *Aspergillus oryzae*), tempeh, sufu, ontjom, natto (soy bean fermented with *Bacillus subtilis* var. *natto*; Teranatto [fermented black soybeans] is same as original miso, Taosi in Philippines).

Table 2, "Main fermented foods using molds plus bacteria, molds plus yeasts, yeasts plus bacteria and molds, or yeasts plus bacteria in Southeast Asia," contains the same four columns. Fermented foods listed include soy sauce (*Aspergillus oryzae*, *Saccharomyces rouxii*, *Pediococcus halophilus*; called Jan [kanjang] in Korea and Thua nao [sic] in Thailand), Miso (same 3 microorganisms as in soy sauce). Address: Tokyo Univ. of Agriculture, Dep. of Agricultural Chemistry, 1-1, Suragaoka, Setagaya-ku, Tokyo.

360. Bortz, Brenda. 1976. The joys of soy. II. Tofu and tempeh. *Organic Gardening and Farming* 23(3):128-31. March. See also Part I: 23:28-30, 32, 34, 36, 38. Feb.

• **Summary:** "Two Far Eastern soybean favorites—tofu and tempeh—turn up exciting new menu and nutrition ideas in the OGF Research and Development Group's latest tests..."

"At this time, Dr. Schwartz is inviting a limited number of adventurous OGF readers to help him evaluate the ease and dependability of his method and tempeh's potential as a new food for Americans. Readers who would like to join R & D's modest 'Soybean Task Force' should write to Nancy Bailey, R & D Readers' Service, Rodale Press Inc., Emmaus, Pennsylvania, 18049. Those selected will receive soybeans, culture, and complete instructions for making the simple incubator and tempeh itself."

Contains a recipe for Tofu Loaf with Onion and Cheese from *The Book of Tofu* by Shurtleff and Aoyagi.

Note: This is the earliest document seen (March 2003) that mentions tempeh, published by or in connection with Rodale Press.

361. Ito, Hiroshi. 1976. Hamanattō [Hamanatto]. *Nippon Jozo Kyokai Zasshi (J. of the Society of Brewing, Japan)* 71(3):173-76. March. [Jap; eng+]

• **Summary:** Contents: Introduction. A brief history

of Hamanatto. Methods of production: Yamaya and Horinji methods, Daifukuji method. The microbiology and chemistry of Hamanatto fermentation. Hamanatto's special characteristics. Serving Hamanatto. Conclusion. Acknowledgments.

Two flowcharts show Hamanatto production methods at Horinji and Daifukuji. Tables: 1. Distribution of various microorganisms in Hamanatto (cells per gram) at Yamaya, Horinji, Daifukuji. 2. Nutritional composition of Hamanatto (from Yamaya, Horinji, and Hamana), Daitokuji natto, and regular sticky natto. 3. Composition of free amino acids (mg per 100 gm defatted, and gm per 10 gm protein) in Yamaya Hamanatto, Daitokuji natto, Yamaya Hamanatto, soybean miso (temperature controlled- and natural fermentations), and Hatcho miso. 4. Composition of Hamanatto fats. 5. Volatile acids in Hamanatto. 6. Aromatic compounds in Hamanatto.

In Japan, there are basically two types of natto: Regular natto (*itohiki-natto*) and salty natto (*shiokara-natto*). Generally the word 'natto' refers to the former but in Shizuoka prefecture in and around Hamamatsu city a type of salty natto called *hamanatto* is famous. Totally unrelated to regular natto except in name and the fact that both are fermented soyfoods, it is actually a close relative of soybean miso in terms of its flavor and the way it is produced. However unlike miso, the soybeans retain their original form, uncrushed, and the product has its own unique flavor and aroma. Another type of salty natto is Kyoto's Daitokuji-natto.

A brief history of hamanatto: Hamanatto originated in ancient China and is one of the progenitors of today's miso and shoyu. Many old documents show that its relatives *kokusho* ('grain chiang') and *teranatto* ('temple natto') were brought to Japan from ancient China. A type of fermented, salt-preserved cooked soybeans called *tou-ch'ih kyo* was excavated together with articles buried with one *Mao-tai*, a ruler of the early Han dynasty who lived about 2200 years ago. This was the earliest form of hamanatto. According to the first scholars and envoys from Japan to T'ang dynasty China, *chiang* and *kuki*, both progenitors of miso and shoyu, were introduced to Japan from China. Records show that the great T'ang dynasty Buddhist master Ganjin, who came to Japan by boat in 753, brought with him 1428 gallons of 'sweet kuki,' an early type of salty natto. The first mention of salty natto in Japan appears in Fujiwara Akihara's *Shinsaru Gakki / Shin Sarugakuki*, written in 1286 [Note: Others give the date as 1068]. The first character of the word 'natto' means 'to pay, supply, or dedicate;' the second means 'bean or soybean.' According to the *Honcho Shokkan*, written in 1697, the first character was derived from the fact that natto were first prepared in Japanese temple kitchens which are known as *na-ssho*, the place which supplied the monk's food. Since the propagation of salty natto throughout Japan was done primarily by temples, they also came to be known

as 'temple natto' (*tera-natto*). They served as an important source of protein and savory seasoning in the Buddhist vegetarian diet. Kyoto's Daitokuji-natto, Ichimei Ikkyuji-natto, and Tenryuji-natto, each made in temples, and the Hamanatto made at Daifukuji and Horinji temples in and around Hamamatsu city are popular to this day. Hamanatto first became known when the monks of Daifukuji temple presented some to the seventh Ashikaga shogun, Ashikaga Yoshikatsuko, during the 1400s. during the Warring States Period (1467 to 1568) they also presented Hamanatto to lords of the families of Imagawa Toyotomi, and Tokugawa.

Note: This is the earliest document seen (Nov. 2011) that mentions "Ikkyuji" or "Ichimei Ikkyuji" in conjunction with Daitokuji natto.

Because of its unique flavor and aroma and good keeping qualities, hamanatto became known throughout Japan. In some cases the skin of sansho seeds (Japanese pepper; *Zanthoxylum piperitum*) were mixed in and the product called *kara-natto* ('spicy natto'). When Toyotomi Hideyoshi undertook his Korean campaigns, he took lots of hamanatto with him. When he arrived in the ancient province of Hizen in northwest Kyushu, just before his soldiers embarked in boats to Korea, he gave this food the same name, *kara-natto*, but written with characters which mean 'beans for subjugating T'ang dynasty Korea.' This name, he hoped, would bring him luck in his campaign. After returning to the Hamamatsu area in central Japan, he donated land to makers of hamanatto to encourage their craft.

Later, when Tokugawa Ieyasu took over Hamamatsu castle, he used hamanatto as soldiers' provisions. Each year the local monks gave hamanatto as a gift to the shogun, who in turn used it as a New Year's offering. Still later, produced by temple cooks and craftsmen, it was given as a New Year's gift to parishioners; it also had a symbolic meaning since the word for soybeans (*mamé*) has also come to mean healthy and robust. In 1968 Yamaya, a producer of tamari shoyu (soy sauce) under the direction of Suzuki Yasuke, attempted to make an improved version of the product previously prepared at Daifukuji temple and first affixed the name 'hamanatto.' Thus the name of the product developed in the following order: *shiokara-natto* ('salty natto), *kara-natto* (T'ang dynasty natto), *hamana-natto*, and *hama-natto*. To this day, Daifukuji has maintained its own special method of production, but this too has been commercialized.

Methods of production: Today hamanatto is prepared by two methods: the traditional method handed down from generation to generation since ancient times, and the modern industrialized method which made improvements on the traditional method without harming the special flavor and aroma. Yamaya company and Horinji temple use closely related methods; the former is industrialized while the latter is a handmade process using koji starter. Daifukuji uses a different traditional process without koji starter since the ancient incubation room, wooden trays, and rice-straw

covering mats are each permeated with starter mold spores. The soybean koji (molded soybeans) is combined with brine and put into vats for the second fermentation in September. Since the room temperature during the koji making (first fermentation) is 20° to 25°C (68-77°F) no special incubation heat source is needed. Yet since the molds propagate naturally, without special inoculation, the koji making takes a long time, up to ten days.

There are numerous points of difference from regular miso production; when making salty natto [fermented black soybeans] the soybeans are not crushed; the koji is incubated with brine in a keg or vat with a heavy pressing lid; and the final product is sun-dried. At the factory, the soybeans are only partially reconstituted [by soaking in water] until they reach 1.5 to 1.6 times their dry weight; this takes 2 hours in winter and 1½ hours in summer. They are then drained and allowed to stand for 4-5 hours so the absorbed penetrates deeper. If they are drained for too long, the beans become hard. They are then steamed for 4-5 hours [at atmospheric pressure] and allowed to stand overnight in the steamer. At Daifukuji, the unsoaked beans are dropped into boiling water, parboiled for 7-8 minutes, steamed for 7-8 hours in a 2 meter deep steamer, then allowed to stand in the steamer until the next morning. Care is taken that the beans are not crushed or dehulled. Nowadays, since it is known that the process of leaving the beans overnight in the steamer lowers their net protein utilization and makes them more difficult for the enzymes to digest, this step is generally omitted. Traditionally it was always used to darken the beans; there were apparently no problems with bacterial contamination, perhaps because the reaction of sugars and amino acids under heat produces substances which reduce the proliferation of bacteria and yeasts. In fact, the overnight period in the steamer may have been done expressly to encourage this effect. Continued.

362. Ito, Hiroshi. 1976. Hamanattô [Hamanatto (Continued—Document Part II)]. *Nippon Jozo Kyokai Zasshi (J. of the Society of Brewing, Japan)* 71(3):173-76. March. [Jap; eng+] • **Summary:** Continued. The steamed beans are then spread on a thick rice straw mat (*mushiro*), drained well, sun dried, sprinkled with roasted barley flour, and mixed until each bean is well coated. The straw mat helps to absorb excess water. In factories, the roasted flour is premixed with koji starter (*Aspergillus oryzae* mold spores), they dried the straw mat and used it year after year. Molds such as *A. oryzae*, *A. soyae*, and *Rhizopus* species inoculated the beans during mixing with the flour. The mixture is covered for one night with rice straw mats, then the next day transferred to wooden koji trays, which are arranged in the koji incubation room to make koji. Care must be taken that excess heat does not develop during fermentation, lest alien bacteria proliferate and the product's flavor and aroma decline. To prevent this, the koji mycelium is broken up three times by hand in the

trays during the incubation.

At factories, the finished koji is sun-dried for 4 to 5 hours in winter (Hamamatsu is famous for its dry fall winds) or for 2 hours in summer so that the moisture content is reduced to below 30 to 35 percent. IF this drying is insufficient, after the beans have been put into the vats they easily get crushed. The vat used is a 19-gallon wooden vat or a small wooden tub. The koji is divided among several vats, brine made by combining salt with boiled water is added, a pressing lid equal to twice the weight of the vat contents is set in place, and the mixture is allowed to ferment for 80 to 90 days in summer or 150 days in winter. (In some places (Daifukuji), unpasteurized shoyu is used in place of brine).

The use of a heavy pressing lid is preferable since it causes the fermentation to proceed slowly; a light one helps it to go faster, but the soybeans more easily lose their form. At temples they sliver the middle skin of sansho seeds and place these at the bottom of the vat, then add the finished koji and finally the brine. In factories they add a more concentrated brine and ferment the mixture for at least 2 months. The fermentation room (*kura*) should have good air circulation and ventilation, otherwise the product may develop and unpleasant moldy or musty odor.

After draining off the brine scooping the beans out of the vats, they are spread on rice straw mats (traditionally *mushiro* from the Ryukyu islands; today *tatami* matting), sun-dried, and sifted to remove small pieces, which are discarded. In a separate process, gingerroot is cut thinly, soaked in boiling water, sun dried, and soaked in moromi (shoyu mash) for about 10 days to make pickled gingerroot. Sansho seeds are also added to some types.

The microbiology and chemistry of Hamanatto fermentation: The molds found in fresh hamanatto koji and commercial hamanatto, in addition to *Aspergillus oryzae*, include *Rhizopus* species and *A. niger*. Hamanatto such as that made at Daifukuji using a low incubation temperature (20-25°C) and a long time contains a large proportion of *Rhizopus* on the surface of the soybeans. Moreover the amylase and protease enzymes in these molds are weaker and less active than those from the koji used for commercial shoyu or miso. For this reason the soybeans are not broken down, but rather remain in their whole form. If the koji is made mechanically, the enzyme strength and quality increases. The incubation proceeds more quickly in summer since the temperature is higher; the koji is ready in 3 days.

In general during the koji production, amylase, protease, and pepsidase activity reach a maximum at 50 hours, but in order to dry it, it must be left longer which causes the activity to decrease. In addition to molds, lactic acid bacteria and film yeasts, which are related to *Pediococcus*, are found in all hamanatto; they are mixed in during contact with the straw mats. If air circulation during koji production is poor, lactic acid bacteria proliferate more than usual. Unlike most lactic acid bacteria, they ferment soybean sugars creating

undesirable effects, but do not ferment lactose. After the koji-brine mixture is in the fats, film yeasts proliferate among the various flavors; at 45 days they are most abundant, then later decrease. Especially on the surface of vats with poor air circulation, they are found as a white mold. These yeasts produce hamanatto's unique aroma.

Hamanatto's special characteristics: Because the fermentation time is long, the color turns a dark brown. The form of the beans is well preserved. The composition of nutrients is shown in figure 2. Compared with regular natto, hamanatto has less moisture and more salt. Free amino acids are shown in figure 3. Those abundant are glutamic acid, leucine, and proline, while cystine, tryptophan and methionine are the most scarce. Compared with soybean miso, arginine, cystine, and histidine are also relatively scarce. Since soybean miso undergoes an even longer fermentation than hamanatto the difference is the amino acids freed from the soybeans, which is particularly enhanced by protease enzymes from the koji molds. Hamanatto flavor is rich and full-bodied, somewhat like that of soybean miso, but with a special aroma, more tartness, and a unique flavor component that Japanese call *egumi*. The latter, related to oil rancidification, imparts what some describe as a subtle harsh or unpleasant stimulation to the tongue or throat. Kiuchi et al, in 1976, in an analysis of hamanatto lipids, found that this *egumi* originates from linoleic acid. Hamanatto fats, unlike those of regular natto, are more than 70 percent of free fatty acids. The majority of fats in both natto and soybeans are triglycerides, with other fat components being relatively low. The lipase in hamanatto koji breaks down a large percentage of the fats but the composition of the resulting fatty acids is not different from those found in soybeans; in both cases, linoleic acid comprises more than 50 percent of the total.

Hamanatto's volatile acids and aromatic compounds are shown in figures 5 and 6. The aroma of Yamaya's hamanatto was superior to that of Daifukuji or Hamana. This aroma was very poor just after the koji was made but during the ripening of various flavors, isobutyl aldehyde, isobutyl alcohol, and various amines decrease together with a decrease in the poor aroma. However if the air circulation is bad while making koji or during the vat fermentation, alien microorganisms proliferate, leaving an undesirable aroma.

363. Ito, Hiroshi. 1976. Hamanattô [Hamanatto (Continued—Document Part III. Continued)]. *Nippon Jozo Kyokai Zasshi (J. of the Society of Brewing, Japan)* 71(3):173-76. March. [Jap; eng+]

• **Summary:** Continued. Serving Hamanatto: Hamanatto is used both as a seasoning and as a protein source. Like Daitokuji-natto it is sprinkled as a seasoning over hot rice in a small bowl, then doused with hot green tea to make the popular Ochazuke. It may also be served as an hors d'oeuvre with sake, used in place of tea cakes with whisked green tea

as Chauke, or served as a rice seasoning in box lunches like shoyu-simmered kombu. Since ancient times it has been used in Zen Temple Cookery as a source of subtle flavor, diced and mixed with grated daikon, sprinkled with vinegar, or used in the Chinese tofu dish Mabo-dofu. Its abundance of glutamic acid and nucleic acids enrich the flavor of any food with which it is served.

Conclusion: Hamanatto, a progenitor of today's miso and shoyu, has been made by traditional methods since ancient times. Long lasting, it embodies the fermentation and nutritional wisdom of our forebears. Thus its scientific study reveals new and valuable information. In its a traditional processing there are points that should be improved, yet today it is a long lasting food with its own distinctive characteristics.

Acknowledgements: I would like to thank the Yamaya and Hamana companies for supplying documents and samples, and allowing me to quote selected portions; Professor Kayo Kon of Shizuoka Women's University; and my colleagues at the National Food Research Institute, Kan Kikuchi, Teruo Ota, and Shinkuni Sasachi.

Figures show: (1) Hamanatto production methods: Flow charts of the Yamaya-Horinji method (Horinji is in parentheses), and of the Daifukuji method.

Tables show: (1) Distribution of microorganisms in Hamanatto made by Yamaya, Horinji, and Daifukuji. For each maker, there is one column for surface and another for interior. The types of microorganisms are: General bacteria, micrococcus, streptococcus, pediococcus, halophilic lactic acid bacteria, firm-forming yeasts, and molds (Mostly *Aspergillus oryzae* and *Rhizopus* species).

(2) Nutritional composition of three varieties of Hamanatto (Yamaya, Horinji, Hamana), Daitokuji natto, and regular "stringy" (*itohiki*) natto.

(3) Composition of free amino acids in various fermented foods: (A) Yamaya Hamanatto, Daitokuji Natto (both in mg per 100 gm defatted); (B) Yamaya Hamanatto, Daitokuji Natto, Soybean miso (made at controlled temperature), Soybean miso fermented at natural ambient temperature (all four in gm per 100 gm of protein); (C) Hacho miso (in mg per gm). In the far left column 18 amino acids are listed.

(4) Composition of Hamanatto lipids. The four vertical columns are: TG = Triglycerides. DG = Diglycerides. ST = Cholesterol. FFA = Free fatty acids, MG = Monoglycerides. The four horizontal rows are: Soybeans, dry. Soybeans, steamed. Natto. Hamanatto.

(5) Hamanatto volatile acids. (6) Hamanatto aromatic compounds.

364. Norinsho. 1976. *Nihon shokuhin hyôjun seibunhyô* [Food composition tables for Japan. 2nd ed]. Tokyo: Ishiyaku Shuppan K.K. 180 p. March 25. Index. 15 x 21 cm. [Jap]

• **Summary:** The first edition of this book was published

on 15 Jan. 1964. The first revised edition (130th printing) was published on 25 Jan. 1969. This is the second revised edition (265th printing), published on 25 March 1976. Also published by Joshi Eiyo Daigaku Shuppan-bu.

For soybeans and soyfoods, see pages 33-35, 69, and 74 (basic nutritional composition), and 111-12 (amino acid composition).

Page 88, No. 812: Amazake. Per 100 gm. Calories 101, moisture 74.0 gm, protein 2.4 gm, fat 0.1 gm, carbohydrates (sugars 22.7 gm, fiber 0.6 gm), ash 0.2 gm, calcium 74 mg, phosphorus 25 mg, iron 0.4 mg, vitamin A 0 mg, vitamin B-1 0.08 mg, vitamin B-2 0.06 mg, nicotinic acid 0.06 mg, vitamin C 0 mg.

A later edition (after 1976), containing at least 298 pages, gives details on the following soy-related foods (p. 76-80): Japanese-grown whole soybeans (dry, or boiled). Whole dry USA-grown soybeans. Whole dry Chinese-grown soybeans. Green immature soybeans (edamame; raw, or boiled). Soybean sprouts (raw, or boiled). Defatted soybeans (whole, or dehulled). Kinako (soybeans roasted and ground). Budô-mame (soybeans boiled with shoyu). Momen tofu (regular). Kinugoshi tofu (silken). Soft tofu. Packed tofu. Okinawa tofu. Yaki-tofu (grilled). Nama-age. Abura-age. Ganmodoki. Kôri-dofu. Tofu-chikuwa (steamed type, or roasted type). Natto (fermented soybeans): Itohiki-natto, Goto natto, or tera-natto.

Miso: Rice-koji miso (sweet type, light yellow type, dark yellow type). Barley-koji miso. Soybean-koji miso. Dried miso. Kinzanji miso. Hishio-miso.

Other: Okara. Soymilk (regular, reconstituted, or soft drinks). Yuba (wet, or dried).

Page 254 gives the amino acid composition of soybeans and various soyfoods. Page 298 gives the protein scores, amino acid values, and chemical scores of selected foods. Page 8 gives the energy conversion factor for tofu, age, and yuba.

365. Earl, Johnrae. 1976. Writ of approval: Dining out. *Chicago Tribune*. April 18. p. E8.

• **Summary:** This includes a review of the Chinese restaurant The Abacus, 2619 N. Clark St., Chicago, Illinois. They serve a vegetarian tofu soup with chopped spinach. "The monk's delight consists of fried tofu (bean cake), bamboo shoots, straw mushrooms, quail eggs, and Chinese greens." Another dish, named Eight treasures, also contains tofu. Also served: "Steamed whole fish with black bean sauce." Address: Restaurant critic.

366. Colchie, Elizabeth. 1976. The sensual soybean: Eating well at bargain-basement prices. *House and Garden* 148:133, 144, 146. April. [1 ref]

• **Summary:** A brief introduction to soy flour, sprouts, whole dry soybeans, roasted soybeans, bean curd cakes [tofu], fermented curd, bean curd skin [yuba], dried bean

curd sticks, bean paste, miso, black beans [fermented black soybeans]. With illustrations from *The Book of Tofu* by Shurtleff & Aoyagi.

367. Kiuchi, Kan; Ohta, T.; Itoh, H.; Takabayashi, T.; Ebine, H. 1976. Studies on lipids of natto. *J. of Agricultural and Food Chemistry* 24(2):404-07. March/April. [16 ref. Eng]

• **Summary:** The lipid contents and compositions of three products were measured: Itohiki natto (2.8% lipids), Yukiwari natto (10.9%), and Hama-natto (6.4%). Yukiwari natto is made by mixing Itohiki natto with rice koji and salt, then aging the mixture at 25-30°C for 15 days.

The gas chromatographic pattern of fatty acid composition of Hama-natto is similar to that of soybeans, however 78% of the total lipids in hamanatto is free fatty acids.

Note: This is the earliest English-language document seen (Dec. 2011) that mentions "Yukiwari natto." Address: Div. of Applied Microbiology, National Food Research Inst., Tokyo.

368. Huang, Su-hei (Miss). ed. 1976. Chinese cuisine: Wei-Chuan cooking book. Taipei, Taiwan: Wei-Chuan Publishing Co. 221 p. May. Illust. Index (at front). 27 cm. [Chi; Eng]

• **Summary:** This attractive book of Chinese cooking from the Wei-Chuan Cooking School is a bilingual Chinese / English edition. On each page is one recipe and a 1/3-page color photo of the prepared dish. The title of the recipe is written in Chinese in large bold characters and is also given (to the right) in smaller bold letters in English. Above the number of servings is the province or region of China from which the recipe comes (e.g., Szechuan, Cantonese, Peking, Hunan, etc.) Most of the recipes call for ¼ to ½ teaspoon of MSG; many call for soy sauce.

The introduction (p. 2-17) contains: (1) Seasonings for Chinese cooking, incl. soy sauce. (2) Instruments [utensils] for Chinese cooking. (3) Culinary idioms (basic techniques, such as cleaning, cutting, heating the pan, stir frying, etc.). (4) Arrangement of seating order at feast. (5) Arrangement of the dinner sets at a feast. (6) Arrangement of food and menu. (7) Basic principles of arranging the menu. (8) Sample menus for banquets or ordinary meals. (9) Commonly used vegetables (2-page color photo, incl. "9. yellow soybean sprouts").

(10) Commonly used dry materials and canned foods (2-page color photo, incl. "6. fried gluten balls {'mien jin pau'}." 13. pickled plums ('umeboshi'). 18. agar-agar. 33. nori (purple laver sheet). 35. bean curd skin [yuba, doufu p'i]. 36. bean curd roll. 37. Pressed bean curd cake [doufugan]. 39. kau fu. 40. bean curd wrapper (bai yeh; pressed tofu sheets). 41. vegetarian gluten roll (mien jin). 42. dried bean curd noodles [kan-ssu]. 43. Fermented black beans [fermented black soybeans]. 44. bean curd stick [dried yuba] ('fu dzu'). 47. Soy sauce. These two pages also show

Wei-Chuan Foods Corp. is a manufacturer of many Chinese-style foods.

(11) Description of some other special ingredients. “1. Hot bean paste (pronounced ‘*la jiao jiang*’). A thick spicy paste made from ground hot red peppers and soy beans.” “2. Sweet bean paste (‘*tien mien jiang*’). Made ‘from ground, fermented steamed bread and spices’” [soy is not mentioned]. “3. Soy bean paste (‘*do ban jiang*’). A thick black paste similar in taste to sweet bean paste, but made from fermented soybeans.” “8. Fermented black beans: Small black [soy] beans which have been marinated in soy sauce and salt and are used to flavor steamed fish and meat or in stir-fried dishes.” “10. Pickled bean curd or Chinese cheese [fermented tofu] (‘*do fu ru*’). Bean curd cubes which are first dried and then mixed with wine, spices and salt and allowed to ferment. It is used to season braised pork and duckling.” “21. You tiau. A deep-fried crispy Chinese cruller...” \* “Kau fu: A spongy type of vegetarian ingredient made from wheat gluten” (see p. 151). “Fried gluten ball (‘*mien jin pau*’): A type of light, round, deep-fried ball made from wheat gluten and water.” “Su tsang: A type of long thin roll made of wheat gluten and water.”

Interesting soy related recipes: Bean curd noodle and celery salad (with “4 oz. bean curd noodles,” Szechuan, p. 23). Steamed spareribs with fermented black beans (with “3 T. [tablespoons] fermented black beans,” garlic, ginger root, rice wine, and soy sauce, Cantonese, p. 60). Steamed pork in preserved bean sauce (with “2 squares fermented bean curd” (‘*do fu ru*’), Cantonese, p. 74). Steamed carp with fermented black beans, Hunan, p. 88. Braised carp with hot bean paste (with “1½ T. [tablespoons] hot bean paste” (‘*la do ban jiang*’), Szechuan, p. 100). Stir-fried oysters with fermented black beans (Taiwanese, p. 132).

One section of the book titled “Bean curd & eggs” (p. 140-49) contains various tofu and yuba recipes, including: Ma-Po’s bean curd (Szechuan, p. 140). Vegetarian chicken loaves (with “16 sheets bean curd skin” [yuba], Shanghai, p. 147). Eggplant rolls with chopped pork (with “1 sheet bean curd skin, Taiwanese, p. 148). Stuffed bean curd rolls (with “8 bean curd sheets (*bai ye*), Shanghai, p. 149). Bean curd is counted in squares. Address: Taiwan.

369. Knoblauch, Mary; Leroux, Charles. 1976. Eats—Mandarin restaurants: Rating the Far East feasts in Chicago and suburbs. *Chicago Tribune*. June 4. p. B1.

• **Summary:** An excellent restaurant review with a summary of the history of Chinese restaurants in Chicago and the different Chinese regional cuisines. In 1965, there was only in Mandarin restaurant in the Chicago area—the Dragon Inn in Glenwood, about 20 miles south of Chicago; today there are about 40. For decades, Cantonese restaurants were synonymous with Chinese restaurants. Fukien, on the coast of China between Canton and Shanghai is famed for its soy sauces.

While it takes a chef only a few minutes to cook a Chinese dish, someone has usually spent hours beforehand chopping and shredding the ingredients.

The Northern China (5001 N. Clark St.) offers “whole braised fish with garlic, onion, and black bean sauce...”

The Cathay Mandarin Restaurant (3014 N. Lincoln Ave., Skokie) offers a delicious hot and sour soup laced with “generous shreds of chicken, pork, bean curd [tofu], green onion, and dried mushrooms.” “Its Ma poo shrimp are redolent with hot bean sauce, fermented black beans, and garlic.”

The Mandarin serves a “fried bean curd and pork in chili sauce.”

370. Claiborne, Craig. 1976. A skilled cook who left her skills hidden for years. *New York Times*. July 14. p. 61.

• **Summary:** Mary Wong Trent, born in Hong Kong, the daughter of a doctor, defiantly spent most of her youth in the family kitchen. She married a Westerner, who had no idea that she could even make tea, much less cook with real skill. Now she cooks Chinese meals for guests. She gives her recipe for “Crockpot Chinese spareribs with a black bean sauce,” which calls for “½ cup coarsely chopped fermented black beans, available in Chinese markets.”

371. *Chicago Tribune*. 1976. Stocking your Mandarin pantry: A grocery list for Mandarin cooks. Sept. 16. p. D1.

• **Summary:** There are four basic categories of supplies: Dried, canned, condiments, and produce. Under “Dried” we find: “Fermented black beans—Also called salted black beans. Sold in plastic bags, slightly moist; store in covered container in refrigerator.”

Under “Canned” are Hoisin sauce, and Hot bean paste. The latter is “Essential to Szechwan dishes... (Don’t buy sweet bean paste, yellow bean paste, or soy bean paste by mistake).

Under “Condiments”—“Light soy sauce—The kind you are used to. Buy the ubiquitous brand all Chinese stores and restaurants use, Kikkoman; buy at least a pint.” “Dark or black soy sauce—Used as flavoring. Thicker than regular soy, it has a molasses-like quality and is a necessity in many dishes. Measure carefully, though, because it can be overpowering.” Also rice vinegar, and sesame oil made in Taiwan or Hong Kong, rather than Japan.

Produce: “Fresh bean curd [tofu]—Sold as produce in plastic containers in a chunk covered with water. Keeps a week in the refrigerator with two or three water changes. (Don’t buy dried bean curd, unless your recipe specifies it).”

A photo shows a man walking down South Wentworth Avenue with many Chinese signs and shops in the background.

372. Knoblauch, Mary. 1976. Shopper in a strange land. *Chicago Tribune*. Sept. 16. p. D1.

• **Summary:** The biggest culinary rage in Chicago, next to eating Mandarin food out, is cooking it in. To start, you need a good cookbook, such as *The Chinese Cookbook*, by Craig Claiborne and Virginia Lee (1975, Lippincott). “You choose a recipe (or several) and make a shopping list—fresh ginger root, hot bean paste,... Szechwan pepper, fresh bean curd [tofu], fermented black beans, scallions...”

A large photo shows the inside of a Chinese grocery store and its grocer, Man Sun Wing Co., 2229 S. Wentworth Ave., Chicago.

373. Shurtleff, William; Aoyagi, Akiko. 1976. Appendix B: Varieties of Chinese chiang, Korean Jang, and Indonesian Tao-tjo [Taucu] (Document part). In: William Shurtleff and Akiko Aoyagi. 1976. *The Book of Miso*. Hayama-shi, Kanagawa-ken, Japan, Soquel, California, and Brookline, Massachusetts: Autumn Press. 256 p. See p. 277-331. Sept. Illust. by Akiko Aoyagi. Revised ed. 1981. New York, NY: Ballantine Books, 620 p.

• **Summary:** Contents: Introduction. Note: Of the romanized Chinese names given in curly brackets below, the first is in the Wade-Giles transliteration; the second is in the more modern pinyin transliteration.

Chinese chiang: Introduction, Red or regular chiang (chunky chiang, hot chunky chiang, Szechwan red-pepper chiang, Hamanatto chiang, Cantonese red chiang, great chiang, yellow-red chiang), black chiang (sweet wheat-flour chiang, black chiang), assorted chiangs (introduction, red-pepper chiang, Canton sweet simmered chiang, dried chiang, other varieties (none of which contain soybeans or grain koji; sesame chiang, peanut chiang, umeboshi chiang, shrimp chiang, corbicula chiang, tangy chiang, semi-fermented chiang)), chiang sauces (bean sauce, hoisin sauce [*hai-hsien chiang*, *haixiang jiang*], oyster sauce, barbecue sauce, other chiang sauces, none of which contain soybeans or grain koji; shrimp sauce, Chinese Worcestershire sauce, Chinese ketchup). Note 1. The Chinese (Wade-Giles) names and characters for each of these sauces are given on page 230.

Korean jang: Introduction, Korean soybean jang (*doen jang*), Korean red-pepper jang (*kochu jang*), Mild red-pepper jang (*mat jang*), Chinese sweet black jang (*cha jang* or *chungkuk jang*), Japanese red jang (*wei jang* or *ilbon jang*).

Note 2. This is the earliest English-language document seen (March 2009) that uses the word “kochu jang” (or “kochu-jang”) to refer to Korean-style red pepper and soybean paste (miso).

Indonesian tao-tjo: Summary.

Note 3. This is the earliest English-language document seen (Oct. 2010) that uses the term “chungkuk jang” to refer to a fermented Korean soyfood or seasoning. Actually, the term refers to Korean style natto, and therefore does not belong in a book about miso. Address: 790 Los Palos Dr., Lafayette, California 94549.

374. Brentano’s. 1976. Brentano’s pre-Christmas book sale:... All paperbacks 20% off, limited time only (Ad). *Los Angeles Times*. Oct. 7. p. G16.

• **Summary:** The first of 29 books listed is: “1. Secrets of Oriental cooking: The Wok Cookbook, by Barbara Farr with Irena Kirshman. Chinese wok wokery is the art of blending and enhancing flavors with the aid of exotic ingredients such as bok choy and dow see [fermented black soybeans], hoi sin [hoisin] sauce and sauce and five-spice powder.”

375. McCormick, Sally. 1976. Kowloon Restaurant: Fine Cantonese food in an Oriental setting, 2223 S. Wentworth Avenue, Chicago (Ad). *Chicago Tribune*. Nov. 6. p. S15.

• **Summary:** This apparent restaurant review is actually an advertisement—or what would later be called an advertorial. This restaurant serves many authentic Cantonese dishes including “Fresh shrimp in garlic sauce with black beans,” a wide choice of chop suey and chow mein, “Seaweed soup for two,... Dow Foo (Beancake) Soup and many more.” Four photos show different views of the restaurant. Note: The black beans are probably black soy beans, and most likely fermented black soybeans.

376. Hillman, Howard. 1976. 10 of the world’s great cuisines—A cook’s tour. *New York Times*. Nov. 7. p. XX1, 26, 28, 30.

• **Summary:** China, like France and Italy, is a country of regional cuisines. Canton: “Over 95 percent of Chinese-American restaurants serve Cantonese-style food because most Chinese immigrants to the United States have come from Canton [Guangzhou] and its surrounding Kwantung [Guangdong] Province.” Most Americanized Cantonese cooking deserves its mediocre reputation, but true Cantonese cuisine is considered China’s finest. So be sure to ask your waiter for authentic Cantonese dishes that have not been adapted to American tastes. Cantonese chefs make every effort to bring out the natural flavor of ingredients rather than masking them with heavy seasonings or sauces. “Flavoring agents much employed in Cantonese cooking include oyster sauce, salted fermented black beans [fermented black soybeans], light soy sauce, rice wine, ginger and chicken stock.” “Famous Cantonese dishes include Steamed Fish with Black Bean Sauce,... the vegetarian Buddha’s Delight,...”

Next in popularity in America, after Cantonese cooking, is Northern and “Mandarin” cuisine, which comes from the northern provinces of Hopei (which includes Peking), Shantung, and Honan. “Mandarin Cuisine,” an Occidental term, correctly refers to the elaborate and delicate dishes prepared for the elite members of the now-defunct Imperial Court. Famous recipes include Peking Duck, Bird’s Nest Soup, Shark’s Fin Soup, etc. So we must distinguish this from the unique man-on-the-street Northern cuisine. Among its characteristic “flavoring agents are fermented soy bean



paste, dark soy sauce, rice wine and members of the onion family [genus *Allium*], especially garlic, leeks, scallions and chives.”

Next in stateside popularity are the cuisines of Szechuan and Hunan, both known for their use of hot chilis and oil. Finally we have Shanghai, the Central Coast, and Fukien.

377. Matsuda, Yutaka. 1976. The etymology of soy. *Kwansei [Kansai] Gakuin University Annual Studies* 25:3-4. Dec. Nishinomiya, Japan. [3 ref. Eng]

• **Summary:** “British and American dictionaries including OED (*Oxford English Dictionary*) consider the Japanese word *shōyu* to be derived from Chinese. Is this theory reliable? No!

“OED states that the word is derived from Chinese *shiyu*, *shi-yau* (*shi* salted beans, *yu* oil), and *Universal English Dictionary* (1932), *American College Dictionary* (1960), *Random House Dictionary* (1966), *Oxford Dictionary of English Etymology* (1966), *Chambers Twentieth Century Dictionary* (1972) have followed suit. This Chinese pronunciation *shi* appears to represent a character meaning fermented soybeans with salt [fermented black soybeans]. On the other hand, the character meaning fermented soybeans and wheat with salt is transcribed *chiang* in present-day standard Chinese [according to the *pinyin* system established in China in 1957]. *Webster’s Third New International Dictionary* (1961) [Web. III] picks out *chiang-yu* as the origin of the Japanese term, and *Klein’s Comprehensive Etymological Dictionary* (1967), *American Heritage Dictionary* (1969) [AHD], *Webster’s New World Dictionary, College Edition* (1970) also adopted the *chiang* theory.

“In Japan *shi* had been eaten before the Taiho Rei Statute (701), but *shō* rather than *shi* was to the Japanese taste, and *shōyu* squeezed from *chiang* was used instead of *shi-you* squeezed from *shi*. It follows that the OED theory—the *shi* theory cannot be supported.

“The Web. III theory—the *chiang* theory is also doubtful. Web. III and AHD note that the Japanese term *shōyu* is derived from Pekinese, but it is hardly plausible that the compound should come from Modern Standard Chinese, because *shiyau-yu* appeared already in the latter half of the 15th century and the very word itself was entered in the Japanese dictionary published in 1597. Indeed the Chinese characters *chiang* and *you* were introduced from Ancient China but the compound word *chiang-you* [pronounced *shoyu* in Japanese] was coined in Japan, as today’s Japanese dictionaries such as *Shin Jigen* (1968) and *Shin Kanwa Jiten* (1973) label the term as Japanese-made. As a matter of fact, several other compounds coined in Japan have been reexported to China: *tetsuzuki* (procedure) and *torishimari* (control), which seem to have been exported from Japan in the earlier periods of the 20th century, are now used in China, too, pronounced *shōuoxū* and *qūdi*, respectively

[as written in pinyin]. The characters pronounced *haken* in Japanese and *bàqáan* in Chinese, meaning hegemony, which is so crucial a compound related to the Shino-Japanese [sic, Sino-Japanese] peace treaty under negotiation that the treaty conclusion depends on whether or not the compound will be included in it, also was coined in Japan. Along with these, the compound word *shoyu/chiang-you* has been imported from Japan and is pronounced in the Chinese way.

“Perhaps noticing a marked difference between *chiang-yu* and *shōyu*, *Webster’s New Collegiate Dictionary* (1973) has given up the *chiang* theory and has put forward a new one [Jap. *shōyu*, fr. Chinese (Cantonese) *shi-yaū*, lit. soybean oil]. *Shi-yaū* might be Cantonese *chi you*. Anyway the new theory is nothing but a variant of the OED theory.

“In conclusion, we may duly state that *sōyu* or *soyu* which was the dialectical form of *shōyu* in the latter half of the 17th century was borrowed through Nagasaki into Dutch as *soya* and *soja*, and then from Dutch into English as *soya* and *soy*. The theory that Japanese *soi* was directly adopted into English as *soy* is unsupportable because there was no opportunity at all of direct contact between Japanese and English in those days, though there is a possibility that dialect form *sōi* or *soi* might have existed in Nagasaki at that time.” Address: Nishinomiya, Japan.

378. **Product Name:** [Fermented Soybeans].

**Manufacturer’s Name:** Wan Jia-Shiang Brewery Co. Ltd.

**Manufacturer’s Address:** 80-1, Hope St., Sanchung, Taipei 241, Taiwan.

**Date of Introduction:** 1976.

**New Product–Documentation:** *Soybean Digest Blue Book*. 1976. p. 38.

379. 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.

"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).

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: 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.'"

380. Iwadare, Shoji. 1976. Miso, nattô, tôfu kenkô-hô [Miso, natto, tofu: The way to health. Shiokara natto, kara natto, and tera natto] (Document part). Tokyo: Yomiuri Shinbun-sha. 238 p. Illust. 18 cm. [Jap]

• **Summary:** Page 141: The word "natto" first appeared in 1286 in the *Shinsaru Gakki*, by Fujiwara Myoe, whose epicurean sister was said to love *shiokara natto* or salty natto [fermented black soybeans]. The ingredients used to make this salty product are 100 kg soybeans, 100 kg barley flour, and 30 kg salt. It is also called T'ang natto (*kara-natto*) and was used as an hors d'oeuvre with saké or in place of tea cakes (*chauke*) with tea.

Tera-natto used as gifts at O-bon and New Years: At Nara's temples Kofukuji and Todaiji, the monks made salty natto and gave them to the parishioners at O-bon and New Years. Later the tradition was transmitted to Kyoto and

became the now famous Daitokuji natto and Tenryuji Natto (?), each varieties of “T’ang natto” (*kara-natto*) or “shiokara-natto.”

Note: This is the earliest (and only) document seen (Nov. 2011) which states that salty natto [fermented black soybeans] were made at Kofukuji temple in Nara.

All these types contain salt, are inoculated with a mold, have a dark color (and no strings), and have a long shelf life. Today at Daitokuji one can still see the splendid *Nassho* (offering place or natto place) which, according to the book *Honcho Shokkan*, was given this name since that was where natto were (originally?) made [and used as an offering]. Natto were an important protein source for the vegetarian monks.

Differences between *tera-natto* [salty natto] and *itohiki-natto* [stringy, unsalted natto]: *Tera-natto* first came to be made by monks in temples. These savory fermented black soybeans and chunks were close relatives of miso and shoyu. Japanese Buddhist monks who went to China to practice during the T’ang dynasty (618-906) learned how to make these condiments and brought the knowledge back to Japan, where they made them in temples. They are made with molds (mainly *Aspergillus oryzae*) rather than bacteria (which are used to make *itohiki natto*). Cooked soybeans are dusted with roasted wheat or barley flour which is mixed with mold spores, incubated until a mycelium forms, sun-dried, pickled in brine with seasonings, then sun-dried again. *Daitokuji natto* is crushed then reshaped into lumps, while *Hamanatto*, made at *Daifukuji* is sold as is. When Tokugawa Ieyasu (military ruler / shogun of Japan, 1600-1603) conducted his military campaign in Korea [1592] he had large quantities of *Hamanatto* produced as food for his soldiers; later it became a commercial product, today’s *Hamanatto*. The “natto” that appear in ancient documents are mostly these fermented black soybeans [salty, fermented soybeans]. Address: Tokyo, Japan. President of Manyu Eiyo KK. Teaching at Nihon Daigaku Daigaku-in and Meiji Daigaku Nôgaku-bu. Prof. at Shobirin Joshi Tanki Daigaku.

381. Lee, Calvin B.T.; Lee, Audrey Evans. 1976. The gourmet Chinese regional cookbook. New York, NY: Putnam. 322 p. \*

• **Summary:** The index includes: Bean curd (*dow foo*): Dried (*tiem jook* [sweet dried yuba sticks]), pressed (*dow foo gon* [*doufu-gan*]), red (*nom yu* [fermented tofu], sheets, dried).

Black beans (*dow see*). Black beans fermented.

382. Leung, Mai. 1976. The classic Chinese cook book. New York, NY: Harper’s Magazine Press. xv + 363 p. Illust. (by Claude Martinot). \*

383. Lin, Florence. 1976. Florence Lin’s Chinese vegetarian cookbook. New York, NY: Hawthorn Books. xix + 236 p. Illust. by Nai Gi. 24 cm.

• **Summary:** Contains a great deal of information on and recipes using soyfoods. Chinese food expert Barbara Tropp says this book has the best glossary available, and has very creative and interesting but drab recipes.

Hoisin sauce is a ground bean sauce to which sugar, garlic, and other flavorings have been added. It is the most popular commercially prepared flavored bean sauce.

Civilized Chinese patterns of eating were established by Confucius. The second great influence was Taoism, which advocated a simple diet, natural foods, and the basic belief that proper eating leads to good health. The third great influence was Buddhism, which was opposed to killing, so advocated a vegetarian diet. The art of vegetarian cookery was initially developed mainly in Buddhist monasteries; later it spread to private homes and restaurants.

To make good meatless broths use soybeans, soy sprouts, tough or wilted vegetables, mushrooms, and / or bamboo shoots. To make soy sprouts, it is best to use new-crop soybeans, which have the highest germination rate. This book contains many recipes that call for sea vegetables. Soy sauce is widely used in Chinese vegetarian recipes.

Chapter 3, titled “Soybeans, soybean products, and other legumes” contains much useful information and recipes. A diagram titled “Chart of soybean products” (p. 53) shows the complex relationships, includes Chinese characters for each product, and shows a few soy products that are not in the Glossary: Fermented soybean curd (*Fu ju*), comes in white (*pai*), red (*hung*) and spiced (*la*). The many interesting recipes, each with a Chinese name (with Chinese characters) and an English name include: *Su huo t’ui* and *su chi* (Mock ham), *Su ya* (mock pressed duck), and *Wu hsiang tou fu kan* (Seasoned pressed bean curd).

Glossary (soybeans, soybean products, and legumes, p. 208-13; Chinese characters are given): “Fresh young soybeans—*Mao tou*.” Delicious. They are in season in the early fall. “They come in dark fuzzy pods and are sold by weight. Young soybeans are like corn and should be eaten as soon as they are picked from the plant. They may be cooked with or without the pods.”

“Dried soybeans—*Huang tou*.” Yellow soybeans.

“Soybean sprouts—*Huang tou ya*.” Sold by weight. Best when made in cooler weather. “When bought fresh, they will keep in the refrigerator for 2-3 days, or longer if kept in a brown paper bag inside a plastic bag.”

“Soybean milk—*Tou chiang*:... usually served hot as a beverage with breakfast.”

“Soybean milk skin—Called by many names [*Fu yi*, *fu p’i*; see p. 53]. Each region has a different name for it, as does each food processor, and the thickness shape and wrapping may be different.” Four kinds are readily available in Chinese food stores” (1) *Erh chu* is “cut into rectangles 1½ x 4 inches and 1/8 inch thick. The pieces some stacked and wrapped in paper, in half- or one-pound packages.” (2) *Yüan chu* comes in sticks [dried yuba sticks]. When

reconstituted, its thickness is about the same as *erh chu*. (3) *San pien fu chu* is half-moon shaped. When still soft, it is folded into 6 x 10-inch rectangles then dried. It is thinner than *erh chu*. (4) *Fu yi* “is the thinnest of the bean milk skins. It is paper thin and almost transparent. When dried it is very brittle, and must be handled very gently. It is used mainly to wrap fillings. It comes in stacks of 8-10 sheets...”

“Soybean milk residue—*Tou fu cha*,” [okara]. Can be a delicious ingredient in cooking. “What is not used for food is made into a feed for animals or put into the ground as fertilizer.”

“Curdled soybean milk—*Tou fu hua*.” *Hua* means “flowers.” These very tender curds are “eaten hot with soy sauce or cold with syrup as a snack.” It is “sold only in bean curd factories by the pint.”

“Bean curd coagulant—*Shou shih kao*” [calcium sulfate]: A “white substance which comes in powdered form. It is used to coagulate soybean milk to make *tou fu* (bean curd).”

“Tender soybean curd—*Nen tou fu*: When some water is removed from the curdled bean milk, it is known as fresh tender bean curd. It is cut into squares 4 x 4 by 1½ inches.

“Firm soybean curd—*Lao tou fu*: When a coagulant is added to the boiled bean milk of a different concentration and some of the water is removed, the milk becomes firm bean curd. It is firmer than the tender bean curd and is cut into 3 x 3 x ¾-inch squares.

“Pressed bean curd sheet—*Pai yeh*: Fresh bean curd sheet looks almost like a sheet of unbleached muslin. When it is frozen, the color turns darker, to a light brown. It is made into square sheets of various sizes. It is used to wrap fillings and it is also sometimes cut into short strips and cooked in dishes along with seasoning vegetables. Pressed bean curd sheet is best eaten fresh...”

“Pressed soybean curd—*Tou fu kan*—plain: When even more water is pressed out of firm bean curd, it becomes pressed bean curd... it is almost like a firm cheese.” It may be bought either plain (*Pai tou fu kan*) or seasoned (*Wu hsiang tou fu kan*). “The seasoned curd is cooked in soy sauce and star anise [*pa chiao*], giving it a brown color.” “The white pressed bean curd should be soaked in salt water (made of 1 tablespoon salt to 4 cups water) in a covered container. The seasoned pressed bean curd should be soaked in salt water and soy sauce. If stored in the coldest part of the refrigerator, they will keep for several weeks.”

“Fried soybean curd—*Yu tou fu*:... The bean curd is cut into 1½ inch cubes and deep fried in oil until a golden crust forms outside, which the inside... remains soft.” It “is sold by weight, usually in half- or one-pound bags.”

“Wheat gluten—*Mien ching*.” (p. 217). “Deep-fried gluten—*Yu mien ching*.” “Fresh or dried wheat gluten—*K’ao fu*.”

Glossary (condiments and seasonings, p. 219-23): “Soy sauce—*Chiang yu*.” The “most important seasoning liquid in Chinese cooking. Comes in light or dark, thick or thin. Dark

or thick is *Lao ch’ou*. Light or thin is *Sheng ch’ou*. Soy sauce also comes in different “flavors, such as mushroom soy sauce and, for nonvegetarians, shrimp roe soy sauce. Flavored soy sauces are used mainly for dips and for special flavors in salads, noodles, and as a final touch to a dish.”

Note 2: This is the earliest document seen (June 2011) that uses the term “mushroom soy sauce” to refer to a type of dark soy sauce flavored with mushrooms.

“Salted black beans—*Tou shih*.” These beans [fermented black soybeans] are “used to flavor bland foods, such as eggplant or bean curd.” They are never eaten alone.

“Brown bean sauce—*Yüan shai shih*.” Made from “fermented soybeans and wheat flour mixed with salt and water. The beans in the sauce may be either ground (to make ground brown bean sauce—*Mo yüen shih*), or left whole. To this basic beans sauce, spice and other seasonings are added [in different proportions], creating many varieties” in “different regions of China. In Szechuan, large amounts of hot peppers and crush Szechuan peppercorns are added; in the northern provinces, garlic and scallions are used;...”

“Hoisin sauce—*Hai hsien chiang*.” A “ground bean sauce to which sugar, garlic, and other flavorings have been added. It is the most popular commercially prepared flavored bean sauce. It is used for cooking, or very often as a dip for deep-fried batter-dipped vegetables.”

“Sesame paste—*Chih ma chiang*.” “Sesame oil—*Ma yu*.”

384. Nix, Janeth Johnson. 1976. *Adventures in oriental cooking*. San Francisco, California: Ortho Book Division, Chevron Chemical Company. 96 p. Illust. (color). 28 cm. Ortho book series.

• **Summary:** By “Oriental” this book means mostly China and Japan. Soy related: Crisp chicken teriyaki (with soy sauce made into teriyaki sauce, p. 14). Tofu salad (with 1 pound soybean cake, p. 15). Fu yu spareribs (with ¼ cup *fu yu*, fermented bean cake, p. 19).

The section on “Ingredients and equipment” (p. 22-31) begins with a full-page color photo in which we can clearly see: Azumaya tofu in a white plastic film-sealed tub, a plastic bag of “salted black bean” [fermented black soybeans] (ingredients: Black beans, ginger and salt), small pieces of deep-fried tofu, miso in plastic tubs, Kikkoman soy sauce in a large rectangular can, Aji-no-Moto in a red can, etc. The text discusses: Soy sauce (“The one essential ingredient in Chinese and Japanese cooking”). Japanese sauces, seasonings, and pickles (“For example, besides soy sauce, you can find low-sodium soy sauce {for specialized diets}, sukiyaki sauce, teriyaki sauce, and soup base for noodles,” p. 24).

Note: This is the earliest English language document seen (May 2011) that mentions “low-sodium soy sauce.”

Chinese sauces, seasonings, and pickles, incl. the following which contain soy sauce: oyster sauce, brown bean sauce, Szechwan bean sauce, sweet bean sauce, hot bean

sauce. Fermented black beans.

Bean cake—fresh and fried (“Soybean cake is almost as much a staple in Oriental cooking as rice.” The regular type is called tofu in Japan and dow-foo in Chinese. But there are other varieties: softer, firmer, dried, fried {comes in cubes, squares, and oblongs...} Fermented bean cake, also called red bean curd, white bean curd, or *fu yu*,” is often sold in jars. Miso, used mainly in Japanese cooking, comes in many colors).

Bean sprouts mean mung bean sprouts. Foods from the sea include Japanese kombu and nori.

In this same section is a sub-section (p. 30-31) titled “The language of Oriental cooking,” a glossary that includes: Aburage. Age-zushi. Aka-miso. Buta-dofu (“Pork with soybean cake”). Dow foo pok (“Fried soybean cake”). Fu yu (“Fermented soybean cake, used as a seasoning”). Hoisin (“Thick, slightly sweet Chinese sauce made from a soybean base”). Kitsune-zushi: See Age-zushi. Miso (“Red or white soybean paste”). Miso shiru (Japanese miso soup). Miso-yaki (Broiled food that has been marinated in miso). Monosodium glutamate (A white, crystalline flavor-enhancing agent). Nori. Norimaki. Shiro miso (“White soybean paste”). Shoyu (“Japanese soy sauce”). Sukiyaki. Sumiso. Suribachi. Surikogi. Tempura. Teriyaki. Tofu. Umeboshi. Wakame. Wok. Yin and Yang.

Soy related: Miso soup recipes (3, p. 34). Age-zushi (p. 52). Melting spareribs with black bean sauce (with 2 tablespoons fermented black beans, p. 63). Pork roast with miso (p. 64). Stuffed bean cake (with fried bean cake, p. 64). Sukiyaki (with 1 pound square tofu {soybean cake} cut into 1-inch squares, p. 66-67).

In the section on Oriental vegetables is a long sub-section titled “Soybeans” (with a color photo of green soybeans growing on a plant, p. 94-95) which includes how to grow them in a home garden. The soybean plant has its own time clock, which gets its signal for flowering from the sky. “Short nights (long days) delay flowering; long nights (short days) speed up flowering.” Soybeans need a special inoculant of nitrogen-fixing bacteria. Describes how to cook and shell the beans in the pods, and to serve them cool, while still in the pod, as is commonly done in Japan.

385. Quebral, Florendo C.; Cagampang, I.C.; Herrera, W.A.T.; Mendoza, E.R.; Mondragon, R.L.; Payumo, E.M.; Ragus, L.N. 1976. The Philippines recommends for soybean 1976. Los Banos, Laguna, Philippines: PCARR. vi + 68 p. Illust. 24 cm. Reissued in 1978. [50 ref]

• **Summary:** Contents. Foreword. Acknowledgment. Introduction. 1. Nutritive value. 2. Utilization. 3. Cost and return analysis of soybean production. 4. Marketing. 5. Cultural management: Selection of varieties, adaptation (soil and climate requirements), land preparation, inoculation, planting, water management, fertilization, crop protection. 6. Post-harvest handling: Threshing, drying, storage. 7.

Soybeans in multiple cropping. 8. Seed production. 9. References. Appendices: A. Standardization of soybean. B. Multifarious uses and preparation of soybean and by-products. C. Climate in the Philippines. D. Available inoculants and their distributors. E. Symptoms and first aids for pesticide poisoning. F. Addresses of manufacturers and distributors of pesticides. G. Glossary. Appendix tables. Tables. Figures.

A summary of soybean area, production, and yield in the Philippines, 1959-1975 follows: The number of hectares used for planting soybeans went from 1,690 ha. in 1959 up to 2,200 ha. in 1962, and then decreased annually until it was only 1,240 ha. in 1973. However, a record high of 2,780 ha. was reached in 1974, followed by 2,018 ha. in 1975. Production of soybeans was low in 1959-60, only 571.8 and 981.3 tons, respectively. By 1962, however, production had increased to 2,066.9 tons, but decreased steadily over the years until 1974. In 1974, a maximum of 2,214.0 tons was produced. The corresponding annual yields (tons/ha.) reflect the sharp rise of soybean production in 1961-62 and the ensuing decline of the industry throughout the rest of the 1960s and early 1970s, until 1974, when production soared to new heights. Address: PCARR (Philippine Council for Agriculture and Resources Research), Los Baños, Laguna, Philippines.

386. Smartt, J. 1976. Tropical pulses. London: Longman. 348 p. Index. [275\* ref]

• **Summary:** In the chapter on “Pulses in human nutrition,” soya beans are mentioned (p. 92-95) under: Germinated seed. Fermented products: Soy sauce, soya bean paste, tempé, natto and Hamanatto. Extracted pulse proteins: Soya bean curd (‘tofu’), soya bean ‘milk.’ Address: PhD, Senior lecturer in Biology, Univ. of Southampton.

387. Solomon, Charmaine. 1976. The complete Asian cookbook. New York, NY: Summit Books. 511 p. Illust. Color plates. Index. 29 cm.

• **Summary:** This artistic cookbook is loaded with full-page color plates plus a good glossary. Soy-related recipes include: Bean curd omelettes (Tahu telur, from Indonesia, p. 188). Fried bean curd with peanuts (Tahu goreng kacang, from Indonesia, p. 204). Fried bean curd with soy sauce (Tahu goreng kecap, from Indonesia, p. 204). Fried fish with salted soya beans [miso] (Ikan goreng tauceo, from Malaysia, p. 224). Bean curd in salted soya bean paste [tofu in miso] (Taukwa tauceo, from Malaysia, p. 233). Bean curd and bean sprouts [probably mung bean sprouts] (Taukwa dan taugeh, from Malaysia, p. 233). Stuffed soy bean cake [with fried tofu] (Tauhu sod sai, from Thailand, p. 316). Glutinous rice and soybean sauce (Nuoc leo, from Vietnam, p. 341). Soup with bean curd (Canh dau hu, from Vietnam, p. 342). Miso tomato sauce (with red misu = red miso, from the Philippines, p. 351). Bean curd in barbecue sauce (Chu

hau jeung mun dau fu, from China, p. 414). Bean curd with crab sauce (Hai yook par dau fu, from China, p. 414). Ginger soy sauce (See yau ghung jeung), Chilli soy sauce (See yau laht jiu jeung), Black bean sherry sauce (Dau see sheung jing jeung, with canned salted black beans = fermented black soybeans), Black bean garlic sauce (Suen tau dau see, with fermented black soybeans) (from China, p. 431). Sesame seed sauce (Cho kanjang, from Korea, p. 451, with “4 tablespoons light soy sauce”). Dumpling soup (Mandoo, from Korea, p. 453, with “1 square fresh bean curd” and “2 tablespoons light soy sauce”). Soup of soybean sprouts (Kong namul kuk, from Korea, p. 453, with 500 gm soy bean sprouts and 1 tablespoon soy sauce). Rice with fried bean curd (Kitsune domburi, from Japan, p. 460). Steamed egg custard with tofu (Kuya mushi, from Japan, p. 471). Bean paste soup (Miso shiru, from Japan, p. 477). Sushi in fried bean curd (Inari-Zushi, from Japan, p. 480).

Soy-related glossary entries (p. 485-502) include:

Aburage. Akamiso. Black beans, salted (Chinese: dow see = salted black beans). Bean curd (Chinese: dow foo; incl. yellow bean curd, dried bean curd, red bean curd). Chinese bean sauce (ground = *mor sze jeung* or chunky = *min sze jeung* similar to Malaysian *taucheo* or *tauceo*). Dow foo pok (Chinese-style fried bean curd). Miso. Mushroom soy (Soy sauce flavored with mushrooms during the last stage of processing). Soy sauce (light or dark, shoyu, kecap manis). Yellow beans, salted (=salted yellow beans). Yellow bean paste.

Note 2. It is also the earliest document seen (Oct. 2010) that uses the term *kecap manis* to refer to sweet Indonesian soy sauce.

Interesting glossary entries (p. 485-502): Aburage, bean curd (fresh, yellow, dried, red), black beans, salted (Chinese: *dow see*; made from soy beans, heavily salted and sold in cans and jars), Chinese bean sauce (ground or chunky, like Malaysian *taucheo* or *tauceo*), fish sauce (Vietnamese: *nuoc mam*. Burmese: *ngan-pya-ye*. Thai: *nam pla*. Tagalog: *patis*). Miso. Mushroom soy (Soy sauce flavored with mushrooms during the last stage of processing). Red misu (See miso). sesame seed (Hindi: *till*. Sinhalese: *thala*. Malay: *bijan*. Chinese: *chih mah*. Japanese: *goma*. Indonesian: *wijen*). Sesame oil (“The sesame oil used in Chinese cooking is extracted from toasted sesame seeds...”). Sesame paste (“Sesame seeds, when ground, yield a thick paste similar to peanut butter. Stores specialising in Middle Eastern foods sell a sesame paste known as *tahini*, but this is made from raw sesame seeds, is white and slightly bitter, and cannot be substituted for the Chinese version—which is made from toasted sesame seeds, and is brown and nutty”). Wakame. Wasabi or wasabe. Yellow beans, salted (Very similar to canned salted black beans, but lighter in color). Yellow bean paste (It is not really yellow, but brown. Sold in cans).

Note 1. This is the earliest English-language document seen (Feb. 2004) that uses the word “dau fu” (or “dau-fu”) to

refer to Chinese-style tofu.

Note 2. This is the earliest English-language document seen (March 2009) that uses the word “tauceo” to refer to Indonesian-style miso.

388. Wang, H.L.; Mustakas, G.C.; Wolf, W.J.; Wang, L.C.; Hesselstine, C.W.; Bagley, E.B. 1976. An inventory of information on the utilization of unprocessed and simply processed soybeans as human food. Peoria, Illinois: USDA Northern Regional Research Center, Interdepartmental Report. AID AG/TAB-225-12-76. 197 p. AID contract report. Undated. No index. 27 cm. Spiral bound. [65 ref]

• **Summary:** Contents: Introduction. Home and village traditional soybean foods by country. 1. Soybean food uses and production in Asia. Soaking dry soybeans. In China: Tou chiang (soybean milk; preparation, ways of serving), tou fu (soybean curd; yen-lu is the Chinese name for nigari), tou fu nao (soft curd), tou fu kan (dry / firm bean curd), chien chang (pressed tofu sheets), yu tou fu (fried tou fu), tung tou fu (frozen tou fu), tou fu pi (protein-lipid film; yuba), huang tou ya (yellow bean sprout or soybean sprout), mao tou (hairy bean, green soybean, or immature soybean), dry soybeans (roasting and frying, stewing and boiling), roasted soybean flour. Fermented soybean foods. Production and consumption of soybeans (China and Taiwan).

Japan: Tofu (soybean curd), kinugoshi tofu, processed tofu products (aburage or age, nama-age and ganmo), kori tofu (dried-frozen tofu), yaki tofu (grill tofu), yuba (protein-lipid film), soybean milk, gô (ground soybean mash), daizu no moyashi (soybean sprouts), edamame (green vegetable soybeans), whole soybeans, kinako. Fermented soybean foods: Production and consumption.

Korea: Tubu (soybean curd), soybean sprouts, whole soybeans (green soybeans, parched or roasted soybeans, boiled soybeans), soybean flour, soysauce, bean paste [Korean soybean miso], natto (no Korean name is given), production and consumption of soybeans.

Indonesia: Tahu or tahoo (soybean curd), bubuk kedele (soybean powder), 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 or soysauce, tauco or bean paste [miso]), food mixtures (Saridele, Tempe-fish-rice or TFR, Soy-rice baby food, soybean residue [okara]-fish-rice), production and consumption of soybeans.

Thailand. Philippines: Soybean sprouts, soybean coffee, soybean cake (made from equal amounts of soybean flour and wheat flour), soybean milk, tou fu and processed tou fu products, production and consumption. Burma. India. Malaysia. Nepal. Singapore. Sri Lanka (Ceylon). Vietnam. West Asia [Middle East; Iran and Turkey]. References—Soybean food uses in Asia.

2. Soybean food uses and production 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 and production in Europe [both Eastern and Western]. 4. Soybean food uses and production in Latin America. Argentina. Bolivia. Brazil. Chile. Colombia. Ecuador. Guyana. Paraguay. Peru. Uruguay. Venezuela (fried arepas with textured soy). Mexico: New village process, commercial developments of soy-based food products, Gilford Harrison, Ruth Orellana, Seguras Social. Honduras. Costa Rica. Panama. Dominican Republic. Jamaica. Haiti. Trinidad. References—Soybean food uses in Latin America.

5. Soybean food uses and production in North America. United States: Oriental populations, vegetarian communes, The Farm in Tennessee. Canada. References—Soybean food uses in North America. 6. Soybean food uses in Oceania. Australia. New Zealand. 7. Summary of soybean food uses. Traditional soybean foods: Soybean milk, soybean curd and processed soybean curd products, protein-lipid film, soybean sprout, tempe (tempeh), green soybeans, boiled soybeans, roasted soybeans, soybean flour, soysauce, fermented soybean paste, fermented whole soybeans [Toushih, hamanatto], natto, fermented soybean curd. Experimental soybean foods: Whole soybean foods, soybean paste, soy flour, soy beverage. Production and consumption.

8. Recent simple soybean processes, other than traditional. 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. Foods from whole soybeans developed at the University of Illinois (drum dried flakes, canned and homecooked soybeans, soy beverages and beverage products, spreads, snacks).

Ways of cooking and serving soybeans in the American diet. 9. Industrial processes. Industrial production and selling prices of edible soybean protein products. 10. Barriers to acceptability and utilization of soybeans in food and research recommendations: Availability. Cultural and social factors. Texture. Flavor. Nutrition and food safety. Technology development. Technology transfer. Research recommendations [concerning each of the above barriers].

Concerning Morocco: Cereal-soy blends have been used extensively in Morocco; in fiscal year 1974 some 14.7 million lb were shipped to Morocco. Mmbaga (1975) reported that soy flour is being used in making porridge, with 1 part soy flour to 3 parts maize / corn flour.

Tables show: (1) Soybean production and imports in Taiwan, 1962-1975 (tonnes = metric tons, p. 33). Production rose from a 53,000 tonnes in 1962 to a peak of 75,200 tonnes in 1967, then fell to 61,900 tonnes in 1975. Imports skyrocketed from 62,400 tonnes in 1962 to a record 827,300

tonnes in 1975. (2) Consumption of soybean foods in Taiwan, 1964-1974 (kg/capita/year, p. 34). Total soybean foods not including tofu rose from 1.08 kg in 1964 to a peak of 2.61 kg in 1972 then fell to 1.99 kg in 1974. Consumption of tofu (80% water) rose from 18.75 kg in 1964 to a peak of 33.89 kg in 1972, then fell to 32.04 kg in 1974. (3) Supply and disposition of soybeans in Japan, 1971-1974 (p. 49). Total supply is beginning stocks, plus domestic production, and imports. Total disposition is crushing, plus traditional foods and feed. In 1974 imports accounted for 87.5% of the supply, and crushing accounted for 71.0% of the disposition. (4) Whole soybeans used in the production of traditional foods in Japan, 1970-74 (tonnes / metric tons, p. 50). Tofu and others rose from 508,000 in 1970 to 539,000 in 1974. Miso rose from 177,000 in 1970 to 192,000 in 1974. Shoyu rose from 13,000 in 1970 to 14,000 in 1974. (5) Defatted soybean meal used in the production of traditional foods in Japan, 1970-74 (tonnes / metric tons, p. 51). Shoyu rose from 163,000 in 1970 to 176,000 in 1974. Tofu and others was constant at 130,000 from 1971 to 1973. Miso decreased from 4,000 in 1970 to 2,000 in 1974. (6) Production of traditional soybean foods in Japan, 1970-74 (tonnes / metric tons, p. 52). Tofu and others rose from 1,867,800 in 1970 to 2,264,900 in 1973. Shoyu rose from 1,334,1000 in 1970 to 1,455,800 in 1974. Miso rose from 552,200 in 1970 to 587,200 in 1974. (7) Production and food use of beans [various types] and consumption of some soybean products in Korea, 1964-1967 (p. 56-57). In 1967 consumption (in tonnes / metric tons) was: Bean curd 290,000. Bean sprouts 270,000. Bean sauce 69,700. Bean paste 27,700. Total: 11.6 kg per capita per year. (8) Soybean production in Indonesia, 1960-1974 (p. 65). It rose from 442,862 tons in 1960 to 550,000 tons in 1974. (9) Consumption of soybeans in various parts of Indonesia in 1970 (p. 66). (10) Production of soybean foods in the province of Central Java, 1968-1972 (tons, p. 67). Kecap rose from 914,695 in 1968 to 1,524,000 in 1972. Tahu decreased from 18,570 in 1978 to 17,000 in 1972. Tempe rose from 506 in 1968 to 39,000 in 1972. (11) Area planted to soybeans and total soybean production in Thailand, 1964-1974 (p. 70). Area rose from 213,000 rais (6.25 rais = 1 ha) in 1964 to 1,016,000 rais in 1974. Production (in metric tons) rose from 31,300 in 1964 to 252,400 in 1974. (12) Utilization of soybeans by soybean-consuming countries, 1964-66 (based on FAO 1971 Food Balance Sheets, 1964-66 average, p. 150). The countries leading in per capita consumption (kg/person/year) are: China (PRC) 6.7. Japan 5.1. Korea(s) 5.0. Singapore 4.3. Indonesia 2.8. Malaysia 2.6. Taiwan (ROC) 1.1. (13) Amounts of cereal-soy blends distributed under Title II, Public Law 480 in fiscal year 1974 (p. 152-155). (14) U.S. exports of full-fat soy flour, 1974-75 (p. 156).

Note: This is the earliest English-language document seen (Feb. 2004) that uses the word “tubu” to refer to Korean-style tofu. Address: Northern Regional Research

Center, Agricultural Research Service, Department of Agriculture, Peoria, Illinois 61604.

389. Kagawa, Ryo. 1977. Shokuhin seibunhyô [Food composition tables for Japan]. Tokyo: Joshi Eiyo Daigaku Shuppan-bu. 145 p. Jan. 15 x 22 cm. [Jap]

• **Summary:** For tables of information on soybeans and soyfoods, see p. 21-22. Includes Kinako, soymilk, regular tofu, kinugoshi tofu, fukuro-iri tofu, yaki-dofu, abura-age, namaage, ganmodoki, kori-dofu, yuba, okara, natto, hamanatto, miso, red miso, light yellow salty miso, red salty miso, soybean miso, powdered miso. Address: Japan.

390. Zell, Fran. 1977. Wok cooking: Teacher sizzles up aromatic dinners. *Chicago Tribune*. April 21. p. W\_A23.

• **Summary:** Joan Kanellopoulos, of German descent, whose husband is Greek, gives her favorite recipe for Shrimp with lobster sauce, which calls for “2 tablespoons fermented black beans, rinsed, chopped, 2 large cloves garlic, finely chopped, 2 teaspoons finely chopped fresh ginger root.”

391. Kolb, H. 1977. Herkoemmliche Verfahren zur Nutzung von Soja im asiatischen Raum [Traditional processes for using soya in Asia]. *Alimenta* 17(2):41-45. March/April. [35 ref. Ger]

• **Summary:** Discusses each of the following foods briefly and gives sources of further information: Kinako (roasted soy flour), soymilk, yuba, tofu, kori tofu (dried-frozen tofu), aburaage, namaage, kinugoshi tofu, sufu, soy cheese (Western style), soy yogurt, ganmodoki, natto, Hamanatto, koji, tempeh, miso, tao-tjo [Indonesian-style miso], kochujang, shoyu, and ketjap.

Note: This is the earliest German-language document seen (Oct. 2011) that uses the word “sufu” to refer to fermented tofu. Address: Institut fuer Lebensmitteltechnologie, Frucht- und Gemuesetechnologie, Technische Universitaet Berlin, Koenigin-Luise-Strasse 27, D-1000 Berlin 33, West Germany.

392. Sheraton, Mimi. 1977. Restaurants: Cantonese cuisine you can count on. *New York Times*. July 22. p. 70.

• **Summary:** This is a review of the Cantonese Chinese restaurant Yun Luck Rice Shoppe (17 Doyers St.). Recommended dishes include: “Clams or spareribs in black bean sauce; Crab or lobster Cantonese with black beans” [probably fermented black soybeans].

“With so much attention being paid nowadays to the Mandarin, Shanghai, Szechwan, and Hunan kitchens of northern China, the food of the southern province of Canton is all too often accorded short shrift.” Yet it is one of China’s most popular cuisines, even among Chinese themselves—praised for its wide variety of ingredients and dishes, subtle flavors, and textural counterpoints.

“Steamed littleneck clams, tiny ‘snails’ that are really

periwinkles, or chunks of lean spareribs may be had, each dish served in a sauce of smoky, salty and winy fermented black beans [fermented black soybeans]. The beans are also combined with egg, garlic, and crumbings of pork to make the sauce on the fragrant and succulent cut-up fresh crabs or lobsters, Cantonese style.”

393. Kiuchi, Kan; Ohta, T.; Itoh, H.; Takabayashi, T.; Ebine, H. 1977. Studies on lipids of natto. *Natto Kagaku Kenkyu Kaishi (J. of the Natto Research Society)* 1(1):71-80. Aug. [16 ref. Eng]

• **Summary:** “The lipid contents and compositions of three kinds of natto, Itohiki-, Yukiwari-, and Hama-natto, were investigated. The lipid contents of the finished products of Itohiki-, Yukiwari-, and Hama-natto were 5.0, 6.4, and 17.3% respectively. The lipid composition was determined by high-speed liquid chromatographic analysis.”

“When fermented by *Bacillus natto*, the surface of the soybean is covered with characteristic viscous substances consisting of a polymer of glutamic acids. Yukiwari-natto is made by mixing Itohiki-natto with rice koji and salt, aged at 25-30°C for 15 days. Hama-natto is made by using soybean koji.”

Reprinted from *Journal of Agricultural and Food Chemistry* (April 1976, p. 404-07). This paper is part IV of the series “Studies on Lipids in Soybean Foods.”

Note 1. This is the earliest English-language document seen (Nov. 2011) that uses the word *Hama-natto* (hyphenated) to refer to fermented black soybeans.

Note 2. This is the earliest English-language document seen (Feb. 2004) that uses the word *Itohiki* (“stringy”) or *Itohiki-natto* to refer to natto. Address: Div. of Applied Microbiology, National Food Research Inst., Ministry of Agriculture and Forestry, Koto-ku, Tokyo, Japan.

394. Fabricant, Florence. 1977. Dining out: On the spice trail. *New York Times*. Oct. 30. p. 375.

• **Summary:** This is a review of the mostly Cantonese Chinese restaurant China on the Bay (118 Maple Ave., Bay Shore). “The pork dish, with cabbage, sliced pork, sliced bean curd [tofu], red peppers, bamboo shoots, and some black beans in a potent, oily sauce, was truly inspired.”

The excellent fong fong lobster was well garnished, and “sauced with richly flavored black beans” [fermented black soybeans].

395. Brooks, Charles D. 1977. Tips for stocking a Chinese kitchen. *Christian Science Monitor*. Nov. 23. p. 32.

• **Summary:** This is a list of important ingredients with a description of each and recommendations: Soy sauce: Chinese soy works best for Chinese cooking. Avoid most brands made in the USA and Hong Kong. “Some of the best soy I’ve ever tasted comes from mainland China.” He especially favors a brand that is flavored with either shrimp



or mushroom essence.”

**Sesame oil:** This nutty-tasting oriental oil, pressed from toasted sesame seeds, is used sparingly as a condiment. Do not confuse it with the relatively light-colored oil [pressed from untoasted sesame seeds] sold mainly in health food stores. Beware that Japanese sesame oil is often flavored with red pepper. Keep all sesame oil refrigerated.

**Ginger:** Always use fresh ginger root, never the dry powder. Keep uncovered in a cool place. Freeze surplus ginger.

“**Hoisin sauce:** This sweet and pungent sauce gives Chinese roast pork its color and flavor.” Chee hou and chap kam are simply hoisin sauce with slight variations.

“**Oyster sauce:** is the Cantonese. It is made by cooking down oysters in soy sauce. Common tofu is made noble when accompanied by this savory sauce.”

“**Salted and fermented black beans:** These zesty little beans are called dow see by the Cantonese who invented them.” Black beans used sparingly with steamed fish make an excellent dish. Keep refrigerated in a covered jar.

**Note:** This is the earliest English-language document seen (Nov. 2011) that uses the term “Salted and fermented black beans” to refer to fermented black soybeans.

A recipe for “Fragrant soy sauce chicken” has ingredients that include: “1/3 cup soy sauce.”

**Note:** This is the earliest English-language document seen (Oct. 2010) that contains the term “fragrant soy sauce.” It appears to be a kitchen preparation rather than a commercial product. Address: San Francisco.

396. Jan, C.C.; Lin, K.C.; Hsu, W.H. 1977. Taiwanese inyu (black bean) sauce. Paper presented at Symposium on Indigenous Fermented Foods, Bangkok, Thailand. Summarized in K.H. Steinkraus, ed. 1983. *Handbook of Indigenous Fermented Foods*. New York: Marcel Dekker, Inc. ix + 671 p. See p. 466-67.

• **Summary:** “Description: Taiwanese black bean sauce (*inyu*) is a saline, meat-flavored sauce made by fermentation of black beans (*Glycine soja* Sieb and Zucc.)” **Note:** This is the wild annual soybean, which has very tiny, black seeds. Theodore Hymowitz, professor emeritus of plant breeding at the University of Illinois, Urbana-Champaign, and one of the world’s leading authorities on wild soybeans and soybean relatives, doubts that soy sauce could be made from the wild soybean. He states (e-mail of 27 Oct. 2008): “Wild annual soybeans are not cultivated. Besides harvesting such beans would be almost impossible as they shatter terribly upon maturity. Nor do the beans mature uniformly. I think the authors are confusing smallish black soybeans with *Glycine soja*. Secondly, the production numbers preclude the growing of *Glycine soja*. In Taiwan the plant is only found in the wild.”

Unlike most traditional soy sauce [which includes cereal grains, especially wheat, in the koji], the flavor of inyu is

more stable and becomes more intense following heating or cooking, an advantage in the preparation of Chinese foods. Thus, it is used in place of traditional soy sauce to color and flavor cooked foods, especially fish, poultry, meat, and vegetables.

Inyu is made in Taiwan, China, Hong Kong, and other nations where there are people of Chinese culture. Production in Taiwan alone is estimated at 36,000 metric tons per year, or 1.62 liters of inyu per person in Taiwan each year.

**Therapeutic uses:** Some Chinese believe that inyu can relieve the pain of burns, heal damaged tissue (after burns), prevent hangover after excess alcohol consumption, “and even to help retain and accentuate the shine of black hair and eyes.”

**Method of preparation:** Wash black soybeans, then soak, drain, steam, and cool them. Inoculate the cooked beans with *Aspergillus oryzae* [the koji mold] or *A. soyae*, then incubate aerobically to produce a koji in which the beans are completely overgrown by the mold mycelium. In contrast to the traditional soy sauce process, in which the koji is next covered with brine, the black bean koji is first washed, preincubated at 40-50°C for 4 hours, covered with 18% brine (weight/volume), and fermented for 40-50 days. During this time “the mash undergoes both a lactic acid and a yeast fermentation. Finally the mash is filtered, pasteurized, and bottled.”

Inyu production takes only about 1.5 months versus 5-6 months for traditional Chinese soy sauce—which makes it more economical.

**Note:** This is the earliest English-language document seen (Oct. 2008) that mentions *inyu*, or with the word “inyu” in the title. Address: President Enterprise Corp., 2-20 Yan Harg, Yeong Kang Shiang, Tainan Hsien, Taiwan.

397. Steinkraus, K.H. 1977. Philippine taosi. Paper presented at Symposium on Indigenous Fermented Foods, Bangkok, Thailand. Summarized in K.H. Steinkraus, ed. 1983. *Handbook of Indigenous Fermented Foods*. New York: Marcel Dekker, Inc. ix + 671 p. See p. 467.

• **Summary:** Clean soybeans. Soak overnight, preferably in running water to prevent acidification. Drain, then boil in excess water for 1 hour, drain and cool. Coat with either raw or roasted wheat flour. Inoculate with *Aspergillus oryzae* mold (the soy sauce mold). Spread inoculated soybeans on woven bamboo trays [especially and repeatedly used for this fermentation]; cover with banana leaves. Incubate in a warm place for 2-3 days, or until the soybeans are overgrown with a white mycelium. Place soybeans in a salt brine (18 gm salt dissolved in 100 ml water), bring to a boil, remove from heat and drain. The taosi is now ready to eat.

**Note** that there is no brine fermentation as the last step, as with most fermented black soybeans. Address: New York State Agric. Exp. Station, Geneva, NY 14456.

398. Birnbaum, Alfred. 1977. Re: Report on trip to Moriguchi Kakko Shokuhin, maker of Daitokuji natto [Daitokuji fermented black soybeans], with color slides. Letter to William Shurtleff at New-Age Foods Study Center, Dec. 24. 1 p. Handwritten and signed.

• **Summary:** The name, address, and phone number of the company's two locations are written in Japanese characters (Jc); see below. The company was founded 98 years ago [i.e. in about 1879]. At the first location in Kyoto, the company makes regular [sticky] large- and small-bean natto. At the second location, the company makes Daitokuji natto. Mr. Nakano (full name written in Jc) has 40 years experience making various types of natto [and fermented black soybeans].

A brochure states that Daitokuji natto was brought from Tang (?) China by monks to Murasaki-no (Jc) where it has been passed down for 650 years. The main ingredients are soybeans, barley, and salt which undergo a healthful, natural process for approximately 3 months, and because of the process later will not spoil. Daitokuji natto is said to have a subtle flavor (Jc, i.e. a flavor such that one cannot say exactly from where it comes)... a flavor reminiscent of Zen. Good with tea, extra special in *o-chazuke*.

Daitokuji natto is a salt-natto rather than a sticky (*nebari*) natto. It keeps for 1½ years. Largely made as a tourist product.

The plant in Shiga prefecture makes approximately 1,200 kg/year of Daitokuji natto. The plant was moved to Shiga 5 years ago to provide the space needed for sun-drying the product on a large scale. A single vat holds approximately 25 kg.

Ingredients: Soybeans 15 kg (large beans are preferred because the ratio of contained seed to skin is larger and the beans are sweeter). Barley flour 10-15 kg. Rice koji 3-5 gm (1 handful). Salt 1½ kg.

Procedure: 1. Steam beans as for regular natto until completely soft. 2. Roast barley flour, add together with koji and mix thoroughly. 3. Ferment at approximately 33°C (30-35°C) for about 2 days in incubation room as for koji. Note: Higher temperatures used for sticky natto would turn the beans black. 4. Add 18% salt solution—1½ kg salt dissolved in 20 liters water; mix and let stand for about 3 days. 5. Move the vats outdoors to sun-dry (35-40°C) for approximately 3 months; cover the vats at night or during bad weather.

Summer months are preferred for making Daitokuji natto because of the need for sun-drying—usually started in mid-July to August.

Daitokuji natto is also made in traditional wooden vats on a semi-small scale at Ikkyuji temple south of Kyoto (address in Jc and phone number given) as a product for tourists.

The following slides / photos in a numbered set, taken

by Alfred (see next 3 pages), show how Daitokuji natto [Daitokuji fermented black soybeans] are presently made at Ikkyuji: (1) Five-foot diameter wooden vats in which Daitokuji natto are fermenting, outdoors. The wooden lids are not weighted. (2) The process is very similar to that for Hamanatto fermented black soybeans, except that unroasted barley flour is used, the brine fermentation lasts only 3 days, no gingerroot or sansho seeds are added, and the soybean koji is mashed than reshaped into soybean-sized balls. (3) At Ikkyuji all fermentation takes place outdoors in a lovely courtyard, surrounded by tile-roofed buildings. (4). Two men standing by the two wooden vats, which may be left uncovered. (5) A view looking down into a vat of Daitokuji natto, from which the brine has been removed. We like both Hamanatto fermented black soybeans and Daitokuji fermented black soybeans, but we prefer the former, since the latter have a sharper, slightly saltier flavor. (6) The Chinese ancestor of both these products is called *douchi*, which we see here next to the bag in which it is sold. Address: Tama-sô No. 1, Inokashira 1-28-30, Mitaka-shi, Tokyo 181, Japan. Phone: 0422-47-7130.

399. Birnbaum, Alfred. 1977. Report on visits to Yamaya, Daifukuji, and Hôrinji—makers of Hamanatto (fermented black soybeans). Japan. 3 p. Unpublished manuscript. Undated.

• **Summary:** Yamaya: Process Alfred observed in the plant: Wash soybeans in a trough, soak them in a big wooden vat, pull plug at bottom of vat and drain fast so that beans on bottom are not soaked longer than those on top. Put soybeans in a 6-foot-deep steamer without pressure and blow in steam through many small holes in bottom. After steaming, leave overnight in steamer with lid on. Empty into pushcarts from lower door in steamer. Dump beans into mats (*mushiro*) that have been spread on floor indoors, break up any clumps of beans by hand (to aid koji growth), but do not crush individual beans. Fan bean with an electric fan to cool and dry.

Put roasted wheat flour (*kosen*) in bags. Mix roasted wheat flour and koji starter in winnowing basket (*mi*), then scatter mixture by hand over beans on straw mats. With two men holding opposite ends of straw mat, toss beans on mat to mix beans with flour and starter. Transfer mixture onto a conveyor belt which runs it into a modern koji incubation room (*muro*) where it is spread in a later 6 to 7 inches thick. After incubation for 20-25 days (temperature any stirring schedule are unknown), pipe the koji out onto a south-facing metal roof (at an angle of 15-20° to the horizontal) onto a piece of 3 by 6 foot polyethylene sheeting (which is sanitary, gives long use, and is inexpensive). After drying, drop the soybeans down a hole in front of a fan that blows away spores from the surface of the beans; if these are left on, the beans get bitter (*nigai*) during the second fermentation. Catch beans in small wooden kegs and transfer them to







wooden kegs that hold 4.76 gallons (*4-to daru*). Pack soybeans in firmly in each keg without crushing with a wooden implement.

Put pressing lids atop beans on bottom row of vats, then top with heavy pressing weights or a second row of vats and weights. The heavier the weights, the firmer the beans remain and the less likely to mash. Yamaya's yearly production is about 50 metric tons (tonnes).

**Gingerroot:** Cut into pieces 3/4 inch square by 1/16 inch thick. Put in a separate keg, just cover with soy sauce (*shoyu*). Pickle for 6 months to 2 years to get pickled gingerroot

**The vibrator:** put soybeans into hopper atop vibrator. One man breaks up any clumps of beans by hand, then drops them onto a vibrating screen (1/8 inch mesh); the man at the bottom adds pickled ginger by hand. Alfred is not sure where this step goes in the process.

Mr. Suzuki, the manager, says that, in Japan, only 1 person in 100 likes hamanatto.

Hamana has stopped making hamanatto; Yamaya is now their supplier.

Mr. Suzuki estimates that Horinji makes 3 tonnes a year and that Daifuku makes 2 tonnes a year. Alfred got the facts later.

**Daifukuji:** A pretty Shingon sect (Buddhist) mountain temple at the end of a long lane of cedars, 1 hour drive northwest of Hamamatsu. After Japan's war with Korea, Toyotomi Hideyoshi (lived 1537-1598; a daimyo warrior and Japan's 2nd great unifier) gave lands to Daifukuji. They say they were the first place to make hamanatto. Today Daifukuji is very small and primitive; they were sold out of their hamanatto product when Alfred arrived. The head says it does not keep well in warm weather; mold grows on the soybeans. In the fall they make Hamanatto at most 4-5 times a week, and are finished in April or May.

Each time Daifukuji makes 1 (*koku*) or 750 kg of hamanatto, and they do this 5 times a year, from July to September; 150 to 200 kg dry soybeans makes 750 kg hamanatto. They do not use koji starter (*tane koji*) since the spores exist naturally in the koji trays and in the incubation room. They steam the soybeans in a wooden steamer that is placed over a caldron in which water is boiling; the steamer has 4 layers and each is square. They let the soy beans steam in the steamer overnight. A key ingredient is the middle hull of *sansho* pepper (*Zanthoxylum piperitum*; *sanshō no ki no chūkawa*) which is pickled in soy sauce (*shoyu*). This hull is removed, sun-dried, then pickled in 2 vats, 1 *koku* capacity each, with a pressing lid on each. After pickling, they are sun-dried for one day. Alfred did not learn anything about the composition of the brining liquor or how long it takes. 50% is consumed locally (in the area of Hamamatsu) and the remaining 50% is consumed elsewhere—sold mostly in Tokyo department stores. It is sold out by the end of March. It is eaten as a side dish with rice, mixed with grated daikon

and topped with shoyu. Also eaten atop hot rice, with green tea poured over the top (*ochazuke*). Sugar-coated hamanatto sold is a confection in Kyoto. Hōrinji [Horinji] is a Rinzai Buddhist temple. They make hamanatto in the spring and fall when they are not busy. They sell them at the front gate of the head temple (*honzan*), which is Hokoji in Okuyama, and at Seibu department stores. They are seasoned with gingerroot and sansho seeds (*sansho no mi*). The soaked soybeans are steamed in an open-top cooker at 0.1 to 0.2 kg per square centimeter pressure from 8:00 in the morning to 3:30 in the afternoon—about 7-8 hours. Then the steam is stopped and the beans are allowed to stand in the steamer overnight so that they darken—from yellow to brown. Then, in the morning, the beans are put into wooden koji trays which are stagger-stacked and incubated in the koji incubation room (*muro*) at 27-28°C. with the occasional use of a small kerosene heater, (maximum temperature 35°C) for 3 days to make soybean koji. On the second day, the beans in each tray are stirred by hand. When done, the soybean koji is sun-dried for 1 day on straw mats. Then they are pickled, under a pressing lid and weight, in 2/3 parts new salt water and 1/3 part old tamari soy sauce. Each wooden tub (*taru*) holds 45 kg for finished product. When finished, after about 6 months of pickling, the plug at the base of each wooden tub is pulled and the contents allowed to drain. The tamari that drains off is saved for use with a subsequent batch.

The gingerroot is processed separately. It is sliced into thin rounds, pickled in salt water and tamari, under a pressing lid and weight of about 20 kg, for 1-12 months—typically about 1 month. The sansho is also pickled separately, like the gingerroot, for 1-12 months. Only the finished gingerroot is mixed with the final product; the sansho is sold separately with the product in a bag. This year Horinji made 3 tons of hamanatto. The owner guesses that Yamaya made about 50 tons and Daifukuji about 5 tons.

Two small undated leaflets (in Japanese), one titled "Horinji Hamanatto," the other "Daifukuji Natto" each tells about the product and its history. They were given to Alfred during his visit to each place. Address: Tama-sō No. 1, Inokashira 1-28-30, Mitaka-shi, Tokyo 181, Japan. Phone: 0422-47-7130.

400. Kon, Masayo; Yamada, Yûzô; Ueyanagi, Fumiko. 1977. Hamanattô ni kansuru kenkyû. III. Hamanattô yori bunri sareta kôbo no seijô [Research on fermented black soybeans (Hamanatto). III. General properties of yeasts isolated from hamanatto]. *Kaseigaku Zasshi (J. of Home Economics of Japan)* 28(3):202-05. [15 ref. Jap]

• **Summary:** "Twenty-six strains of yeast were obtained from 'Hama-Natto,' a salty fermented food produced from soy bean near the Lake Hamana, Shizuoka prefecture. All the strains had a salt-tolerant activity and grew in a medium containing 20% sodium chloride, and 14 of these strains had a capacity of being grown even in a 26%-NaCl medium.

濱松名産  
法林寺濱納豆の研水

製造元  
濱松市富塚町一七六番地  
法林寺濱納豆本舗

電話 〇八三三八番  
振替 濱納豆 四〇九一番

◎ 栄養 及 成分

(栄養) 水 分六一、八一 蛋白質一九、二六 脂肪 八、一七  
炭水化合物 六、〇九 繊維 二、二〇 灰 分 一、八六 その他  
蛋白質と脂肪に富むが、単に蛋白質を多く含むばかりでなく、原料の大豆では、不  
溶性性だった蛋白質が、納豆になると可溶性に変わって、更に消化器に直接吸収さ  
れ得るアミノ酸を生ずる。従って消化液を必要としない最も望ましい栄養食品  
といえる。その上、十二種の酵素が納豆菌から分泌されるので、消化器中の他の  
食物の消化をも助ける。

◎ 御 注 意

製品が乾き過ぎますと一見カビの様に(特に生葉に多く)塩を噴きますが酒を  
霧吹きして頂けばシットリと一層風味を引立てます。猶梅雨時等で湿り過ぎまし  
たら天日に乾して頂けば味はすっかり回復します。

若し製品等に関しお気付きの点は当工場へ直接御申越し御鞭撻願えれば誠に幸  
いに存じます。又万一変質等の折は御返送下されば直ちにおとりかえ、又は御返  
金申します。

法林寺浜納豆由来

上古大陸から渡来した塩辛納豆が、私どもの祖先の嗜好にかなない、高貴の膳に、  
榊家の納所に、又武人の口糧に愛用せられた事は、幾多の文献によって明かであ  
ります。

元龜元年浜松城主となられた家康公は殊の外に之を好まれ、「滋養があつて貯  
蔵もきき、携帯に便にその上風味がよい、これは造り貯えて非常に備えよ」と勸  
められた。そこで一般に造りだし浜納豆と呼んで当浜松地方の特産になったので  
あります。

宝暦の頃、白隠和尚が当山に逗留されました。当時の住職興道禪師はその直法  
子であります。和尚は禪師にむかつて、「納豆は榊家のものゆえ調味のよろし  
きを得て永く榊家に頌つがよい」と勧められたのでした。禪師は之を心に定め、  
殊に調味法につき心を潜めましたが、一夜東照公に侍して江州多賀の深山に登り  
山椒を探ると夢みまして豁然秘法を得得し、独特な風味をもつ法林寺納豆を調製  
したのであります。家康公が好まれた遠州生葉と椒房の故事も床しい山椒を配す  
る所にこの法林寺納豆が特長付けられるのであります。爾来二百余才、秘法は  
正しく後嗣に伝えられ、毎才謹製して檀徒にお頒ちしてまいりました。

しかるに終戦後未曾有の食料難に直面した当時、私はこの栄養度の高い食品を  
一般に提供したい、檀家という狭い範囲に局限すべきでない、広く頒つてこそ白  
隠、興道両祖師の志にもそうものだと決心しまして、幾多の困難とたたかい、乏  
しい物資の中に自ら製造して弘くお頒ちしたのであります。ところが大方から多  
大の感謝の御言葉を戴き、最近では風味絶品のとの御好評まで蒙りまして、私の喜び  
は申すまでもなく、当山中興道禪師の志も滋に始めて達せられたものと存じ感  
源にむせぶ次第であります。

古きを捨てて新しきを追う今の世にも、なおこの淡淡清雅な伝統の風味は、必  
ずや大方の御嗜好に合うものと信じます。

◎ お 召 上 り 方

- 一、お茶受にはこのま、お摘み下さい。お酒やビールのおつまみにも好適です。
- 一、お茶漬には、数粒を御飯にふりかけ、熱いお煎茶をかけて召上つて下さい。
- 一、納豆茶漬は精進の玉座と申されます。
- 一、大根おろしに少量の砂糖と酢を加え、之を納豆にかけますと、雅味豊かに滋  
養も増してまいります。
- 一、お砂糖を少しきかせて、数粒ずつ天麩羅にあげますと、山椒と生葉の風味が  
渾然してまいります。
- 一、新鮮なお野菜と共に納豆を挟んだサンドウィッチはビックニックに喜ばれます。
- 一、お砂糖を十分にきかせた黄粉をつくつて、これを納豆にまぶしつけ、お皿に  
盛り妻楊子を副えますと、お茶受が一段と映えてまいります。
- 一、昔はお粥に納豆をのせていた、きました。病人にも食欲を与えるからであり  
ます。
- 一、焼餅に醬油のかわりに使用して賞美される方もあります。
- 一、摺鉢で摺りながら水とききして、炊きますと、納豆汁になります。風流な方々  
が好まれます。
- 一、乾いた納豆をホウロクで煎り、之に熱湯を注ぎ乾海苔を落してお吸物にも出  
来ます。

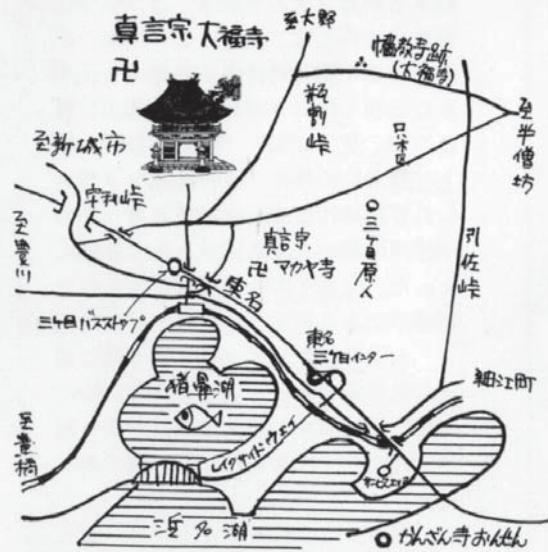
法林寺 浜納豆姉妹品 味噌漬 幸 の 里

大根、茄子、胡瓜は勿論牛蒡、人参、菊芋、準人瓜、柴蘇の美、なた豆、生葉、  
茗荷、メロン、トマト、西瓜、東瓜等あらゆる里の産物を純田舎式糍みそに漬け  
込んだ粋な漬物も御風味下さい。

# 大福寺納豆



## ■ 大福寺附近名勝略図 ■



- 大福寺まで
- 三ヶ日駅より3キロ
  - 東名三ヶ日バスストップより1キロ
  - マカヤ寺より1.5キロ

浜松、豊橋、新城方面へは鉄道、バスの便あり。

◎ 浜名納豆 (大福寺納豆) は大福寺伝製で日本の元祖である。この特製の納豆は現在中国 (明時代) の僧から伝来され足利七代將軍義勝、今川義元、豊臣秀吉、徳川家康以下歴代の將軍へ献上し御朱印の外に納豆料除地を下附せられ豊臣時代までは唐納豆と言ったのが徳川中期から浜名納豆と称する様になった。文録年中征韓事変定まるの日鎧櫃中にある唐納豆を祝盃の下物に充て、からをおさめてまめと云う語に通ずる故吉兆であると賞せられた。特に正月には將軍家へ諸大名参賀の折り祝酒にはなくてはならぬもの、様であった。

尚、葉味には山椒の中皮カラカワが入れてあり他のマネの出来ない珍味である。茶に酒に飯に添えて妙味、栄養豊富にして瓶、壺等の容器に入れ密閉保存すれば数ヶ月は変味なし。

- ※ からかわの猫にあらねば三味線の糸をも引かぬ浜名納豆 (太田蜀山人)
- ※ もののふの唐をおさめて豆とゆう浜名納の名こそ高けれ (藤野静輝)





“These strains have been classified in the genera *Saccharomyces*, *Debaryomyces* and *Torulopsis*. *Saccharomyces rouxii* was the most abundant and found in the products of Yamaya, Horinji and Hamana. *Debaryomyces* strains were only obtained from a product of Daifukuji, whereas several ones of *Torulopsis* were found from all products.” Address: 1&3. Shizuoka Joshi Daigaku (Women’s Univ.); 2. Shizuoka Daigaku.

401. Kon, Masayo; Yamada, Yûzô; Ueyanagi, Fumiko. 1977. Hamanattô ni kansuru kenkyû. III. Hamanattô yori bunri sareta taïen-sei kôbo no dôtei [Research on fermented black soybeans (Hamanatto)]. IV. Identification of salt-tolerant yeasts isolated from hamanatto]. *Kaseigaku Zasshi (J. of Home Economics of Japan)* 28(3):206-10. [4 ref. Jap]  
 • **Summary:** “Of the salt-tolerant yeasts isolated from ‘Hama-Natto’, the following 26 strains were identified: *Saccharomyces rouxii* Boutroux (6 strains), *Debaryomyces formicalius* Golubev et Bab’eva (4 strains), *Deb. cantarellii* Capriotti (1 strain), *Torulopsis etchellsii* Lodder et Kreger-van Rij (2 strains), *T. mannitofaciens* Onishi et Suzuki (1 strain), *T. apicola* Hajsig (1 strain), *T. domercquii* van der Walt et van Kerken (5 strains), *T. magnoliae* Lodder et Kreger-van Rij (3 strains), *T. candida* (Saito) Lodder (1 strain) and unidentified species of *Torulopsis* (2 strains).” Address: 1&3. Shizuoka Joshi Daigaku (Women’s Univ.); 2. Shizuoka Daigaku.

402. Anderson, Eugene N., Jr.; Anderson, Marja L. 1977. [Food in] Modern China: South. In: K.C. Chang, ed. 1977. Food in Chinese Culture. New Haven, CT, and London: Yale Univ. Press. 429 p. See p. 317-382.  
 • **Summary:** Page 326 states: Soybeans—the fifth of the classic Five Staples (or Five Grains)—are usually the most important, although other legumes make a surprisingly good showing in south China, no doubt because soybeans grow better in the north. The soybean “produces more protein per acre and per pound than any other common humanly edible crop, plant, or animal. This has caused them to become more important than any animal food as a protein provider in China. The Chinese have long recognized their similarity to animal products and, indeed, have built up a huge cluster of imitation-meat foods (probably developed originally by, and certainly now associated with, vegetarian Buddhists). The Chinese lack of interest in dairy products is almost certainly, in part, a result of the fact that the soybean provides the same sorts of nutrition more economically—though a desire to differentiate themselves from the border nomads and to be independent of them in food economy must also be taken seriously as an explanation. (It is the classic Chinese explanation of the phenomenon but has been dismissed by those moderns who believe that all traditional explanations must necessarily be wrong.)

“Further discourse on the soybean belongs properly in

the following section on food processing, for the soybean is used neither in its raw state nor, usually, in a simple boiled or roasted form. There are good reasons for this. The soybean, being so nutritious and succulent, has been faced with intense natural selection pressure by seed-eating insects and other animals; surviving soybean strains contain whole galleries of poisons and other unfortunate chemicals, which protect the seeds against destruction but make them dangerous food in the uncooked and unprotected state (Committee on Food Protection 1973). Simply prepared soybeans are not very digestible, since heat bonds some of the nutrients into hard-to-digest form in the intact bean. Thus almost all soybeans consumed in China are fermented, ground into flour, and then processed, sprouted, or otherwise milled.”

“The soybean is so famous that one is surprised to discover from Buck that the broad bean outranks it in some parts of south China.” However in genetically susceptible individuals, *Vicia faba* produces favism, a condition characterized by acute anemia and other unpleasant symptoms. Other important sources of protein are black soybeans (a variety of soybean mentioned by Buck) and sprouts from mung beans and soybeans (*tou ya*). Bean sprouts bridge the gap between grains and vegetables (*ts’ ai*) (p. 326-27).

“A huge bowl of rice, a good mass of bean curd, and a dish of cabbages—fresh in season, otherwise pickled—is the classic fare of the everyday south Chinese world.”

“The New World vegetables stand out as a special class because of their common and recent origin in China and their extreme importance. The white and sweet potatoes have become staples, as has corn. In addition to these, the peanut (*Arachis hypogaea*) has become the most important oilseed through much of south China, as well as a much used food” (p. 328). The peanut came from South America. Today, peanuts have become more important in areas where they are grown than rapeseed. Peanut and rapeseed oils are polyunsaturated and contain plenty of linoleic acid, a dietary requirement (p. 333, 343, 348). Mushrooms and their relatives are widely used in vegetarian dishes (p. 332).

The section on food processing (p. 337-41) notes that tragic practice of polishing rice, which removes most of the nutrients including fiber. There are many questions about the origins of pasta. Egg noodles probably originated in China. Italian spaghetti is similar to Chinese *mien* and ravioli to *chiao-tzu*, but they may have existed elsewhere before Marco Polo brought them to Italy from China. The technology of soybean process is too complex to discuss except briefly in this chapter. Most important is the production of bean curd or *tou-fu* (Cantonese *tau-fu*, Hokkien *tau-hu*). Hokkien cooks prefer a drier, firmer bean curd. Bean curd is often sold fried. The skin resulting from boiling soymilk [yuba] is skimmed off, dried, and widely used. “Other closely related processes produce the range of imitation meats developed

by vegetarians, specifically Mahayana Buddhists. Credible imitations... are made for chicken, abalone, and other white meats, and even beef and pork. The West has picked up the idea and developed it much further, climaxing in the production of textured vegetable protein (TVP), but has—characteristically!—ignored the problem of making the result taste good. The ideal in the West seems to be to make it tasteless” (p. 339).

Concerning fish farming (p. 334-35): “Some fish, however, a pond-reared. Those that have been effectively domesticated are carps. These have several advantages: they produce vast amounts of protein per acre; they do not have to be specially fed since they eat algae and weedy grass and small animals of the ponds and pond fringes; they can live in foul water, and thus in stagnant ponds and market fish barrels; they are efficient converters, putting a large percentage of their feed into growth; and relative to other fish, they are easy to breed in captivity. The first fish farmed in the world were probably the Chinese carps.” However, no mention is made of soybeans being fed to the fish. Address: 1. Assoc. Prof. of Anthropology, Univ. of California at Riverside; 2. Riverside, California.

403. 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.

404. Johns, Yohanni. 1977. *Dishes from Indonesia*. New metricated edition. Melbourne, Australia: Thomas Nelson (Australia) Ltd. xiv + 151 p. Illust. Index. 26 cm. 1st ed. 1971.

• **Summary:** The author comes from a town in Indonesia named Padang Pajang, located in the mountains of West Sumatra in an area known as Minangkabau. The society is matrilineal, so ancestral property is passed down the female line and a new husband comes to live in his wife's family's home. She married an Englishman in about 1955 and they lived in Jogjakarta (in Central Java) from 1956-1958, then in Australia since 1958.

This handsome book, packed with color photos, gives a good introduction to Indonesian cookery—though it

contains a disproportionate number of recipes using meat. The excellent glossary of ingredients (p. 10-16) includes: Bean curd (incl. fried bean curd), black bean sauce or salted black beans (*tauco*, sic. Note: *tauco* is Indonesian-style miso, whereas *taosi* is salted black beans; which does she mean?), and soya sauce. Note that tempeh is not mentioned. Soy-related recipes include: Eggs in soya sauce (p. 53-54). Fried fish in black bean sauce (Taucu ikan, p. 60). Stir-fried prawns with long beans and black bean sauce (p. 71). Bean curd balls with prawns (p. 72). Braised liver in soya sauce (p. 86). Braised ox tongue in soya sauce (p. 87). Braised chicken in soya sauce (p. 90). Sambal of brown bean sauce (p. 101). Soya sauce sambal (Sambal kecap, p. 102). Fried soya bean curd with sauce (p. 125). Address: Australia.

405. Men, D. 1977. [Toushih in the Ch'i-min yao-shu]. *Acta Microbiologica Sinica* 17(1):5-10. [9 ref. Chi]

• **Summary:** “Toushih” are salted black soybeans, which are eaten with rice gruel. They are discussed in the *Ch'i-min yao-shu*, where four methods of preparation are described. These have some similarities with making soy sauce. These methods are compared with those presently used in various parts of China, including Chiang-hsi and Hunan. Address: Research Inst. of Microbiology, Acad. Sci. Sin., Peking, China.

406. Nagayama, Hisao. 1977. *Nattô no shinpi* [The mystery of natto]. Tokyo: Arrow Shuppansha. 220 p. Illust. 19 cm. [14 ref. Jap]

• **Summary:** Contents: 1. The mystery of ancient natto (p. 11). The super power of natto bacteria. The mystery of fermentation and *saru zake*. Anthropoids and natto bacteria. The ancestors of Japanese are elephant hunters. People in the Jomon period were extremely omnivorous. Curiosity and *doki natto* (natto in earthenware containers). Natto that is 2100 years old was excavated. Mysterious Queen Himiko's beauty diet. Ancient natto as medicine.

2. Natto as a secret weapon in military provisions (p. 36). Natto's super power. The mystery of the Natto Road. Legend of the ancient path of Oshu. Oshu natto that went to Kyushu. Kato Kiyomasa's black soybeans (*kuromame*). Natto as a energy source for military commanders in the Sengoku period. The role of soybeans in the Russo-Japanese War. Natto on battleships of Japan's Pacific Ocean fleet in World War II. The German army paid attention to the power of natto.

3. A humorous history of natto (p. 57). Humorous *Hime Natto*. The mystery of *wara tsuto* (natto in a straw package) and *shimenawa* (a sacred Shinto straw rope and festoon). A petticoat government and *tataki natto* (pounded natto). The popularity of Edo sickness and *natto-jiru* (natto soup). The appearance of *natto-jiru* in classical documents. Natto protein saved the people who survived the great 1923 earthquake in Tokyo. The romance of *Yamataikoku* and

longevity foods.

4. The topography of natto (p. 76). Stylized, illustrated map of natto in Japan. College natto in Sapporo. Vegetable natto. Hikiwaru natto in Tsugaru. Kônô natto. Bridegroom and bride natto. Natto musume (natto daughter). Rare taste food of natto “tozo.” Hiyama natto in Akita Ondo (a famous folk dance song). *Masamune no Hôryô Natto*. *Deba natto*. *Ichiya natto no kuumondine*. *Goto natto*. *Teramichi natto*. *Hamanatto*. *Hatsu muko to natto wa nibange*. *Aizu no tsurushi natto*. *Sakata no O-shôgatsu sama*. *Yukiguni no daraku-jiru*. *Natto hachi*. *Romantic na hime natto*. *Momen natto*. *Yoi natto, yoi o-shôgatsu*. *Masakado no hoshinatto*. *Nakôdo natto*. *Mito natto*. *Yamaoku no natto-zato*. *Naisho mame*. *Shinobi no natto oke*. *Hettsui natto no ôzuto*. *Isshô natto*. *Natto chinmi no tôzô*. *Arakawa no momen natto*. *Edo no zaru natto*. *Okukido no Heike natto*. *Hate, hate nantoshô*. Ancient natto. *Hamanatto*. *Natto chanoko*. *Shotoku Taishi no warazutsu natto*. *Ogi natto*. *Tanba no Yamaguni natto*. *Gosho no hôsei natto*. *Kaori no daizu*. *Take no kawa natto*. *Fuyugomori natto*. *Kaga no natto-jiru*. *Kôbashii korumame*. *Munetada natto*.

5. The wonders and medicinal effects of natto (p. 119).

6. Delicious ways of eating and cooking natto (p. 170—with many recipes). 7. An easy method for making natto (p. 202).

A photo on the rear cover shows Mr. Nagayama.

Address: Shoku Bunka Kenkyusho, Toyotama-kita 4-31, Nerima-ku, Tokyo, Japan.

407. Schafer, Edward H. 1977. T'ang. In: K.C. Chang, ed. 1977. *Food in Chinese Culture*. New Haven, CT, and London: Yale Univ. Press. 429 p. See p. 85-140. [34 endnotes]

• **Summary:** The T'ang dynasty lasted from +618 to 907. Contents: Introduction. Foodstuffs. Sweeteners. Condiments and spices (incl. salt). Pickles and preservatives. Cooking. Beverages. Utensils. Visual aspects. Geographical differences. Taboos and prejudices. Food in ceremonies and special occasions (incl. feasts and festivals). Inns and taverns. Footnotes (34).

Legumes (*tou*) were an important part of the Chinese diet in T'ang times. Soybeans (*ta tou* = large beans) had a variety of uses and received considerable attention from the T'ang pharmacologists, who claimed to have discovered that the beans had different effects on the body depending on the way they were prepared. For example, when stir-roasted they were excessively heating, boiled they were too chilling [cooling], made into a relish (*shih* = fermented black soybeans) they were very cool, but pickled to make *chiang* (Chinese-style miso) they were balanced. However when stir-roasted and taken in wine, they were said to be curative of certain kinds of paralysis. The young shoots of a variety of soybean called “white legume” (*po tou*) were much admired for their flavor, either cooked or raw, and were said to be good for the kidneys (p. 90).

Also important in the diet were “true” millet (*chi*; *Panicum miliaceum*), foxtail millet—also called spiked or Italian millet (*su*; *Setaria italica*), *shu* was the common word for glutinous millet and *no* was that for glutinous rice, various sea vegetables such as purple-leaved laver, green laver or “sea lettuce,” and the sugary sweet tangle (p. 91), Far Eastern eggplant or brinjal (p. 93), and the jujube—which resembled the Western date (p. 95). Sesame seeds were chiefly of interest as a source of oil, but they were also fried and eaten (p. 98).

Concerning animal milk, there is the widespread idea that a line divides East Asia into two cultural groups: One depends on milk products (Indians, Tibetans, and many Central Asian nomads), and the other (which includes the Chinese) rejects them with loathing. “Indeed some evidence for this classification can be found at every period of Chinese history, even though warm milk was regarded as a highly nutritious food from very ancient times (Cooper and Sivin 1973, p. 227). It seems, however, that after Han times, when the intermingling of Chinese and Altaic customs became pronounced to a new degree, the barrier of prejudice broke down, and by T'ang times milk products formed a significant part of the diet of the upper classes.” Probable reasons for this change are given. “Milk was modified in many ways. It was curdled to make, for instance, (*ju fu*), analogous to bean curd [tofu]. Indeed, much more popular than unaltered milk were a number of fermented or soured derivatives.” Three of these, which formed a hierarchy, were given special attention and spiritual significance corresponding to the development of the Buddha spirit: kumiss (*lo*, the lowest), kaymak or Devonshire cream (*su*), and clarified butter (*t'i-hu*, the highest) (p. 105-06).

Fresh ginger had a cooling property if used with the skin intact, but was warming if the root was peeled (p. 111).

The section titled “Pickles and preservatives” notes that the most characteristic and traditional Chinese methods of preserving involved fermentation processes which reduced “proteins into their component amino acids and amides by the action of enzymes, ferments, and molds. A very special species of pickle was called *chiang*, which has been aptly translated ‘bean-pickle.’ The word *chiang* appears in altered form as the first syllable of the Americanized Japanese expression for shoyu—soya. However in pre-modern times, *chiang* was not necessarily a soybean product. Indeed the word was sometimes applied to pickles based on meats and seafoods (Shih 1959, p. 84-85; *Fan Sheng-chih Shu*)... I shall use the term *bean-relish* to represent the Chinese word *shih*, the name of a popular relish of decomposed soybeans that assumes a dark color by interruption of the hydrolytic process or by drying at a high temperature (Shih 1959, p. 87). The name was given to a number of similar concoctions, some prepared with wine, some with vinegar, some with brine, and so on. The differences were frequently local. One authority mentions a variety peculiar to a region in Honan

that was made from steamed soybeans, with salt and fagara added. It matured in two or three days of warm weather. It was said that this salty pickle could be kept for ten years without spoiling.”

“The milky bean curd—also known to Westerners by its Japanese name, tofu (Chinese *tou-fu*)—was a ferment made from many kinds of beans and peas. It was an ancient and familiar product (S.C. Li 1965 ed. of *Pen-ts'ao kang-mu*, 25:5).” Note: The author must be referring to fermented tofu, which was usually made from soybeans.

In the discussion of fish farming (p. 102) no mention is made of soybeans being fed to the fish. Address: Prof. of Oriental Languages, Univ. of California at Berkeley.

408. 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 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.

409. Yokotsuka, T. 1977. Shokuhin Kagaku Daijiten: Shôyu [McGraw-Hill encyclopedia of food, agriculture & nutrition: Soy sauce]. Tokyo: McGraw-Hill Kodansha. See p. 309-310. [Jap]

• **Summary:** History: Hishio and Kuki production techniques came to Japan from China and Korea. According to the Taiho Ritsuryo (702 A.D.), various types of Hishio and Kuki and Miso (this is the Misho character—NOT the present Miso one) were made from soybeans in the Hishio Tsukasa of the Kunaisho. It is in later times that they started to use the liquid which was separated from the above three as seasonings. In the Kamakura (1185-1333 A.D.) period in the Wakayama prefecture they collected the liquid accumulated in the bottom of Miso Oke. In the Muromachi period (1338-1573 A.D.) they added water to miso and squeezed it to extract the liquid (called Usudare or Taremiso). Shoyu (which is different from miso) was first mentioned in Ekirinbon Setsuyoshu (1597 A.D.). Address: Kikkoman Corporation, Noda, Japan.

410. 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 preparations [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.

411. Photographs of brine-fermented tofu (*tahuri*) and fermented black soybeans (*tao-si*) in the Philippines. 1978. Manila, Philippines.



• **Summary:** These color photographs (each 3½ by 5 inches) were taken on 9 Jan. 1978 by William Shurtleff during a research trip (Jan. 6-15) to The Philippines. They show: (1) A container with squares of brine-fermented tofu on a table. In the glass jar are black fermented black soybeans (*tao-si*). (2) A single cube of fermented tofu on a spoon held over a sheet of paper. In the small cup are fermented black soybeans. (3) *Tao-si* being ladled out of glass jar in a Philippine market.



Note: Tahuri (the word is Talog) is made with *Aspergillus elegans* mold and a little soy sauce in the brining liquor.

412. Sheraton, Mimi. 1978. Restaurants: Up from Chinatown and hard by Regine's. *New York Times*. Jan. 13. p. C12.

• **Summary:** This includes a review of the Chinese restaurant Hee Seung Fung (H.S.F.) at 578 Second Ave. (between 31st and 32nd streets in New York's Chinatown). One of the recommended dishes is Clams or crabs with black bean sauce. The "braised bean curd in a dark sweet and pungent sauce was decent although its coating toughened in the braising."

413. Yu, Swee Yean; Ch'ng, Guan Choo. 1978. Soy bean foods in Malaysia. In: American Soybean Assoc., ed. 1978. International Soya Protein Food Conference, Proceedings. Hudson, Iowa: ASA. 136 p. See p. 48-52. [16 ref]

• **Summary:** Contents: Introduction. Fermented soya bean products: Soya sauce (manufacture of 'thin' (dilute) soya sauce, manufacture of 'thick' (viscous) soya sauce, microbiology of Malaysian soya sauce, stability of the product), tempeh, tau cheo (thick paste-like sauce), tao si (fermented black soybeans). Non-fermented soya bean products: Soya bean sprouts, tofu (semi-firm curd), tofu fah (soft curd), tow kwa (firm curd), tin chok (dried, flat sheets [yuba]), fu chok (dried, rope-like [dried yuba sticks]), tofu pok (deep-fried curd [tofu cubes]), chak tie (vegetarian [yuba] sausage), soya bean milk (tau cheong), meat analogues (soya flour is shaped into desired forms by hand). Nutritional data. Conclusion. Address: Universiti Pertanian Malaysia, Serdang.

414. Hansen, Barbara. 1978. A Chinese New Year menu for the Year of the Horse. *Los Angeles Times*. Feb. 2. p. 11.

• **Summary:** "Most of the dishes are symbolic, signifying prosperity, health, good business and smooth sailing, all worthy goals for the year 4676" [so the Chinese calendar apparently started in 2698 BCE].

"Eight Treasures Vegetables," seems to guarantee both wealth and health. The "treasures" include bean sprouts and "shredded pressed bean curd cake" [shredded pressed tofu]. "Soybean sprouts are used rather than the usual mung bean sprouts, as the Chinese consider them to be especially rich in vitamins."

Hunan-style steamed fish was seasoned with "fermented black beans, chopped chile, ginger, and garlic..."

415. Hansen, Barbara. 1978. The lure of fish undiminished despite the cost: Higher prices for high protein. *Los Angeles Times*. Feb. 23. p. G1.

• **Summary:** "In China, the cheeks of the fish are considered a delicacy. And a fish head is the main ingredient in dishes such as steamed fish head with salted black beans and a fish and bean curd [tofu] casserole."

416. Claiborne, Craig. 1978. The mushroom comes of age.

*New York Times*. March 1. p. C1, C6.

• **Summary:** On page C6 are various mushroom recipes including "Virginia Lee's black bean and ginger sauce." The ingredients include "2 tablespoons fermented salted black beans (available in Chinese markets)... 1 tablespoon light soy sauce, 3 tablespoons oyster sauce (available in Chinese markets)."

Place the beans and sherry (or water) in a small bowl. "Mash the beans lightly," then saute in a wok or skillet with the remaining ingredients.

Note: This is the earliest document seen (Nov. 2011) that uses the term "black bean and ginger sauce" to refer to a sauce made from fermented black soybeans and ginger. This new term appears six times between 1978 and 2003.

This is also the earliest document seen (Oct. 2008) in all major U.S. newspapers digitized by ProQuest that uses the term "fermented salted black beans" to refer to salted fermented soybeans (fermented black soybeans). This new term appears four times between 1978 and 1986.

417. Rice, William. 1978. The wok and I: Florence Lin stir-fries Chinese cuisine to suit American stomachs and mealtime habits. *Washington Post*. March 30. p. E1, E8, E14.

• **Summary:** Florence Lin's books and cooking classes has made her one of the 3-4 leading interpreters of Chinese cooking in the USA. "There's no need to prepare a banquet every time you make Chinese food," she said recently. She believes that soy sauce is the only essential ingredient for Chinese cooking—enabling many American cooks to heave a sigh of relief. Rice is the most important part of every meal. To "red-cook" a dish is to braise it in soy sauce. In China, "the meat is intended to supplement the vegetables," just the opposite of the Western practice.

The recipe for steamed fish notes at the end: "You may add 2 teaspoons coarsely chopped fermented salted black beans to the fish in addition to the basic ingredients. Add about ¼ teaspoon ground red pepper with the black beans to give a spicy flavor."

Two photos show Florence Lin, a friendly woman of human and good will.

418. *Hartford Courant (Connecticut)*. 1978. Feminine topics, by Jacqueline (Ad). May 7. p. 12E.

• **Summary:** "Oriental cooking is easy, fun healthy—and delicious! The Epicure Grocery in the heart of Farmington is always expanding their selection of ingredients! On hand—chili paste with garlic, yellow bean paste, fermented black beans, tree eggs, 5-spice powder, Szechuan peppercorns, oyster sauce, sesame oil, star anise, etc. etc."

419. Richman, Phyllis. 1978. Richman on restaurants: Siam Inn. *Washington Post*. May 14. p. SM38.

• **Summary:** This is a review of Siam Inn, a Thai restaurant at 11407 Amherst Ave., Wheaton, Maryland (just north of

Washington, DC). “Fish at the Siam Inn comes deep-fried or sautéed, a delicious choice being a whole fish buried under ginger, black beans, and a julienne of pork and vegetables in a thin brown gravy.”

420. Shurtleff, William. 1978. Report with color slides on trip to Suzuki Jozo, Daifuku-ji, and Yamaya in central Japan to study method for making savory soy nuggets (*Hamanatto*). Nerima-ku, Tokyo, Japan: New-Age Foods Study Center. 1 p. Unpublished manuscript. June 8.

• **Summary:** We have coined the term “soy nuggets” to refer to a family of traditional fermented soyfoods that are known throughout East Asia. In China they are called shih, chi, touch’ih, or douchi. The two most popular varieties in Japan are Hamanatto (savory soy nuggets) and Daitokuji natto (Daitokuji soy nuggets). The Philippines and Malaysia have tausi or tao-si (soy nuggets).

Note: On 21 Nov. 2011 we decided, after 30 years of questioning, to change our name for this category of soyfoods to “fermented black soybeans” instead of “soy nuggets.” We did this largely to conform more closely to current usage in English, where they are generally called “fermented black beans.”

Soy nuggets are unrelated to regular sticky natto except both are fermented whole soybeans; soy nuggets are inoculated with a mold (*Aspergillus oryzae*) rather than a bacterium, are not sticky, are salted, and originated in China (rather than Japan) more than 2,200 years ago. Here we see savory soy nuggets (see next pages) and Daitokuji soy nuggets. Both look something like dark-brown to grayish raisins and have a savory, slightly salty flavor resembling that of mellow Hatcho miso.

Shurtleff took many color slides of the Hamanatto process on this one-day train trip to Yamaya. The slides / photos are now in a numbered set as follows: 10. Close-up of Hamanatto (savory soy nuggets) and Daitokuji natto on white plates. Sprinkled over rice or rice porridge, served as an hors d’oeuvre with green tea or sake, or used as an ingredient in miso soups or cooked vegetables, they add zest to otherwise bland dishes. Some Westerners sprinkle them over curry or spaghetti sauces, or fried eggs. 11. Six different Hamanatto packages from Japan. 12. A closer view of the six packages. 13. Four more packages of traditional Hamanatto products. 14. One large maker of Hamanatto is Suzuki Jozo. Located near Hamamatsu in Central Japan, they also make shoyu. Their process for Hamanatto goes as follows: Soak soybeans for two hours, steam cook, then leave in the cooker overnight.

15. The next morning remove beans from cooker, crumble to break up any lumps, spread on rice-straw mats, then inoculate by sprinkling on the starter, *Aspergillus oryzae* mold spores. 16. Transfer inoculated beans by conveyor into the koji incubation room. 17. The room is a large shallow stainless steel box perforated with many holes to allow for

air circulation. Here the beans are left to ferment at 35°C (95°F) for 4 days. 18. On the fourth day, dry the soybean koji in the sun on mats on the rooftops for 5 hours. 19. Put the koji in 70-liter (18.5 gallon) wooden vats, put on a heavily weighted pressing lid, pour in a 10% salt solution to cover the koji, and allow to ferment at the ambient temperature for 2 to 4 months. 20. After fermentation is complete, drain off the liquid tamari, spread the soy nuggets on mats on the rooftop, and sun-dry for 5 hours to make the finished product.

21. Savory soy nuggets (Hamanatto) are said to have originated in Hamamatsu at this temple, Daifukuji, about 350 years ago, and they are still produced there today. The photo shows the front gate to the temple. 22. Here we see the incubation trays, fermentation vats, and pressing weights that are used. 23. Here is the steamer in which the soaked soybeans are steamed. 23A. After being mixed with one-tenth their weight of roasted wheat or barley flour plus a little koji starter, they are placed in shallow wooden trays and incubated at 35°C for 4 days to make a unique type of soybean koji. 23B. After the 2-4 month salt fermentation, the product in a small wooden vat looks like this. 23C. The liquid tamari is drained off and the product is briefly sun-dried. 24. Then it is mixed with a small amount of slivered gingerroot pickled in moromi (shoyu mash) and salt-pickled sansho seeds (shown here) to make the finished product.

Note 1. This is the earliest English-language document seen (Nov. 2011) that uses the term “savory soy nuggets” to refer to Hamanatto. By 1987 Shurtleff preferred to call these “Hamanatto soy nuggets.”

Note 2. This is the earliest English-language document seen (Nov. 2011) that contains the term “Daitokuji soy nuggets.”

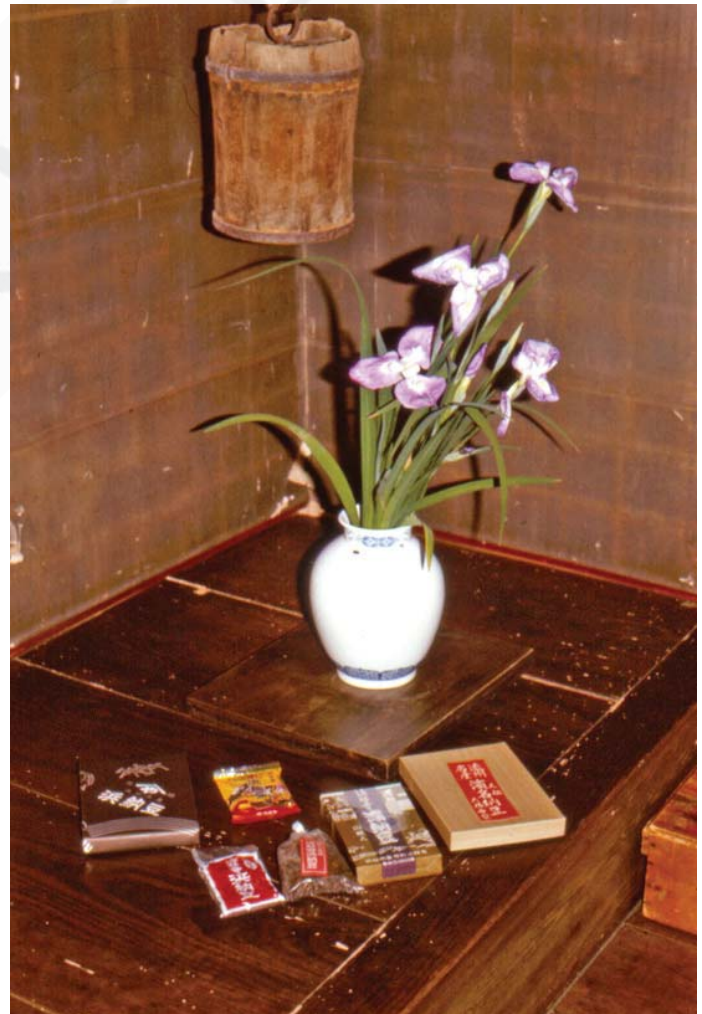
Note 3. This is the earliest English-language document seen (Nov. 2011) that uses the word “douchi” to refer to fermented black soybeans, or the word “Daifukuji” (a temple name) in connection with fermented black soybeans. Address: c/o Aoyagi, 278-28 Higashi Oizumi, Nerima-ku, Tokyo 177, Japan. Phone: (03) 925-4974.

421. Brooks, Charles D. 1978. Cooking with steam the Chinese way: Use wok for delicate flavor, ease of preparation, savings on fuel for cookery. *Christian Science Monitor*. June 29. p. 14.

• **Summary:** Contains a recipe for “Chinese steamed fish with black bean sauce,” that calls for “1 tablespoon salted black beans,... 1 tablespoon soy sauce, 1 teaspoon ginger root, minced,... Dash of sesame oil.

“The black beans are called dow see and can be found in an oriental grocery store.” Address: San Francisco.

422. Birnbaum, Alfred. 1978. Re: Natto, the word *kara* and the history of early Japanese-Korean relations, and sea vegetables. Letter to William Shurtleff at New-Age





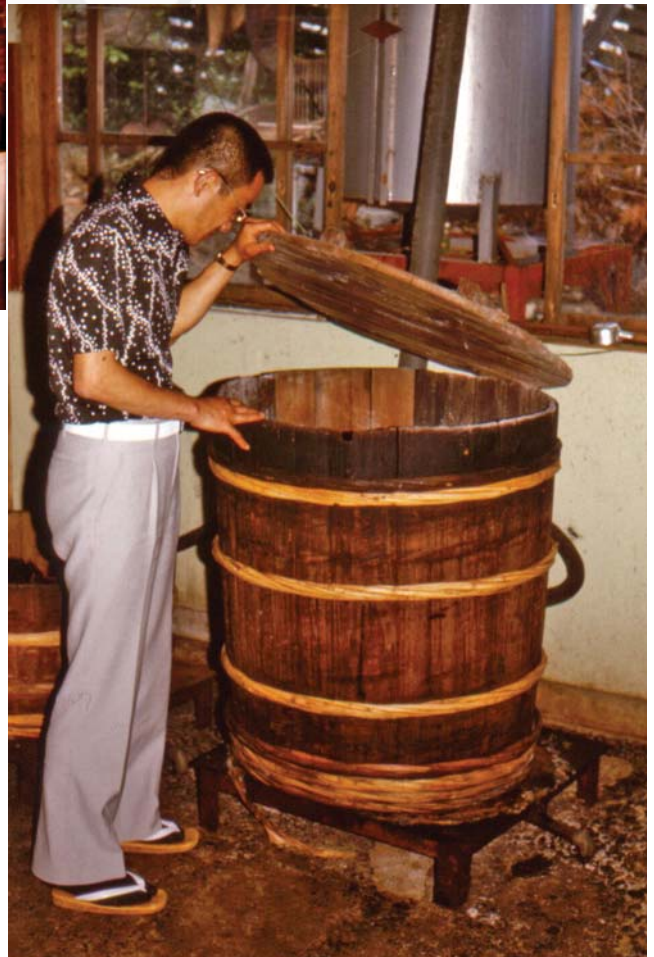


















Foods Study Center, Lafayette, California, July 12. 1 p. Handwritten (in pencil) and signed.

• **Summary:** Alfred will try to finish translating the chapter on Nattô from *Daizu Shokuhin* before he leaves Japan for southern California on about Aug. 10; he has found certain scientific terms hard to translate.

He has been reading a somewhat controversial Japanese-language publication titled *Nihon no naka no Kankoku bunka* (*Korean culture inside Japan*). It states that the Japanese word *kara* (as in *kara-natto*), meaning simply “from the continent” was first applied to Korea, from Korea’s Sam-Han & Three Kingdoms periods and Japan’s Kofun (A.D. 250-552), Asuka (552-645), and Nara (646-794) periods—before Japan had any relations with China. The first usage was the Chinese character (1 Cc = 1 Chinese character given) which, although it appears to refer to Han dynasty China, was adapted by the early Korean Japanese “Kara” clan (which Alfred believes later became the *Higashi-no-Aya* clan). The next usage was (1 Cc, pronounced “kara”), as in Sam-Nan clans of Korea and the *Karakuni Jinja* (4 Cc) in Nara (still extant). Then the character changed to (1 Cc), still meaning “Korea” (not salty), and finally (1 Cc)—all pronounced *kara*.

Note: This is the earliest English-language document seen (Nov. 2011) that contains the term “kara-natto.”

Alfred was introduced to these studies in early Japanese-Korean relations and the falsifications in the *Kojiki* etc. by a Korean linguist in Los Angeles. It became obvious how twisted the stories on the Japanese side became and how anxious the ancient ruling class Japanese (who were largely Korean) was to prove it was separate and unrelated to Korea.

Concerning Hama-natto [from Yamaya]: It is a special product of Hamamatsu, used as an accompaniment to rice, tea, or fried egg yolks. Two sources give two processes.

He still hopes to find time for a trip to Kyoto, and he is still interested in working together on a book about sea vegetables. During Aug. he will stay with his parents in Rancho Palos Verdes, California. From Sept. he will be visiting a friend in Columbia, Maryland. Address: Tama-sô No. 1, Inokashira 1-28-30, Mitaka-shi, Tokyo 181, Japan. Phone: 0422-47-7130.

423. Birnbaum, Alfred. 1978. Re: Hama-natto [or Hamanatto]. Letter to William Shurtleff at New-Age Foods Study Center, Lafayette, California, July 12. 1 p. Handwritten and signed.

• **Summary:** Concerning Hama-natto [from Yamaya / Yama-ya]: It is a special product of Hamamatsu, used as an accompaniment to rice, tea, or fried egg yolks. Two sources give two processes.

Process No. 1: Mix 2 liters of large steamed soybeans with 1 liter of roasted barley- or wheat flour. Add koji and incubate in a koji incubation room (30-35°C) for 3-4 days. Then dry the product in the sun until its moisture content has dropped to 20-25%. Prepare a salt solution by mixing

0.5 liters salt with 2 liters water. Mix this salt solution with the dried molded soybeans in a vat, and place a pressing lid on top, weighted with a stone. Allow to ferment for several months. Remove and sun-dry, or add shoyu and sliced ginger. Note: The source of these instructions is given in Japanese: *Daizu-Sono tokuksei to tabekata* [Soybean: Their special features and ways of using them as food], by Masaaki. Kobayashi

Process No. 2: This is less precise. Cook large soybeans in salty *tsuyu*, composed largely of water seasoned with shoyu. Add koji and roasted barley- or wheat flour. Ferment for several months. Then add [finely slivered or diced] gingerroot (Ryûzô Nakano).

The package: Yamaya-ya Hamanatto, Main office: Shizuoka prefecture, Hamamatsu city, Naruko-machi, 8 banchi. Factory: Shizuoka prefecture, Hamakita city, Komatsu, 4880 banchi.

The nutritional composition of the Yamaya product is given: Protein 25.41%. Fat 10.44%. Non-nitrogenous substances [carbohydrates; *muchitsu-butsu*] 12.62%. Fiber 2.95%. Ash 14.51%. Moisture 34.07%. Per 100 gm: Vitamin B-1 0.21 mg. Vitamin B-2 0.53 mg. Calories 246. Address: Tama-sô No. 1, Inokashira 1-28-30, Mitaka-shi, Tokyo 181, Japan. Phone: 0422-47-7130.

424. Magida, Phylis. 1978. Bringing out the gourmet within. *Chicago Tribune*. July 17. p. A1.

• **Summary:** A recipe (from both Chinese and French cuisines) for “Phil Shen’s snails with black bean sauce” calls for “1 tablespoon fermented black beans, 1 clove garlic.” Then: “Rinse beans in water; mince beans with garlic.”

A remarkable illustration shows the portrait of a gentleman made from various foods, including grains of wheat, asparagus tips, noodles, cabbage, and two fish heads for the handkerchief in his coat pocket.

425. Mutual Trading Co., Inc. 1978. Price book: Miyako brand. Fancy Oriental Japanese foods—Importer & Distributor. Los Angeles, California. 60 p. Sept. Index. 22 cm. [Eng]

• **Summary:** Includes: Miso (p. 3-4). Soy sauce and other sauces (p. 4-5). Dried seaweed (p. 32-33). Vegetable (edamame, natto {Miyako brand}, inari age, konbu natto, p. 37). Salted black bean (Chinese, p. 60). Address: 431 Crocker St., Los Angeles, California 90013. Phone: 213-626-9458.

426. Kan, Lilah. 1978. Introducing Chinese casserole cookery. New York, NY: Workman Publishing. 288 p. Index. 24 cm. Edited by Helen Witty.

• **Summary:** An engaging writer with outstanding descriptions of ingredients. The section titled “Ingredients” (p. 41-61) includes: Bean curd (“this means fresh bean curd (or bean cake),... Chinese call it *do fu*; Japanese say *tofu*.”

Bean curd cheese, red [red fermented tofu] (“In Cantonese it is called *nom yee*”). Bean curd cheese, white [fermented tofu] (“In Cantonese it is called *foo yee*”). Bean curd, fried (“Called *doe gawk* in Cantonese,” it is made of fresh bean curd that has been cubed and deep fried. It “resembles tiny brown wrinkled pillows that seem almost hollow”).

Bean curd skin, dried [yuba] (This is made by heating soybean milk and “is usually sold in ½-pound packages. The skins measure about 1½ by 4 inches and are less than 1/8 inch thick.” “They look like thin pieces of light beige lacquered wood” and should be soaked in warm water until pliable (about ½ hour). Called *teem jok* in Cantonese).

Bean curd sticks [dried yuba sticks]. (“These sticks are made from soybean milk film that has been dried, rolled to ½-inch thickness, and bent into long pieces with a hairpin turn.” Called *foo jook* in Cantonese. They “are light beige in color and have a wrinkled, lacquered look. They come in ½-pound and 1-pound packages”).

“Black beans, salted or fermented [fermented black soybeans]: These beans serve as a condiment. They have a very pungent odor that could scare away the timid, but do not be timid. They are almost always used in combination with garlic—a marriage made in heaven—and are delicious. The beans are interchangeably called ‘fermented black beans’ and ‘salted black beans’”).

Brown bean sauce, ground (*meen see*).

Vegetarian steak (usually made from soybeans or gluten. It is sold in cans. She likes to use this meat substitute with other ingredients in Buddha’s Delight Vegetarian Casserole, a dish often served on Chinese New Year’s Eve. “I use the kind that is labeled *Chai Pow Yu* which translates as ‘mock abalone’ or ‘vegetarian abalone’”).

Soy related recipes include: Beef chunks in black bean, garlic, and egg sauce (with “3 tablespoons salted black beans, rinsed in water, drained, and mashed,” p. 68-69).

Chicken and peppers with black bean, garlic, and egg sauce (with “2 tablespoons salted black beans, rinsed in water, drained, and mashed,” p. 118-19).

Minced pork and vegetables with black bean and garlic sauce (with “4 teaspoons salted black beans, rinsed in water, drained, and mashed,” p. 146-47).

Spare ribs in black bean, garlic, and egg sauce (with “3 tablespoons salted black beans, rinsed in water, drained, and mashed,” p. 158-59).

Spare ribs in red bean curd cheese (with “½ square (about 2 tablespoons) red bean curd cheese,” p. 162-63).

Lamb and bean curd sticks with black bean and garlic sauce (with “4 bean curd sticks (8 lengths), drained” and “3 tablespoons salted black beans, rinsed in water, drained, and mashed,” p. 182-83).

Clams with black bean and garlic sauce (with “1½ tablespoons salted black beans, rinsed in water, drained, and mashed,” p. 192-93).

427. Hsu, W.H.; Lin, K.C.; Wang, I.H. 1978. Survey of inyu production in Taiwan. *Food Industry Research and Development Institute (Taiwan), Research Bulletin* \*

• **Summary:** The production of inyu (fermented soy sauce made from black soybeans), which still relies on traditional methods, has a low efficiency and no adequate control of microorganisms. Only 55% of the protein in the soybeans ends up in the finished inyu. Address: FIRDI, Hsinchu, Taiwan.

428. Beuchat, Larry R. 1978. Traditional fermented food products. In: L.R. Beuchat, ed. 1978. *Food and Beverage Mycology*. Westport, Connecticut. AVI Publishing Co. xi + 527 p. See p. 224-53. Chap. 9. [69\* ref]

• **Summary:** Contents: Introduction, Koji. Soybeans: Shoyu, miso, natto (incl. itohiki-natto, yukiwari-natto, and hamanatto / hamanatto), sufu, meitauza, témpé. Peanuts: Oncom. Rice: Lao-chao, ang-kak, idli. Maize: Ogi, kaanga-kopuwai, injera. Cassava: Tapé, gari. Taro (*Colocasia esculenta*): Poi. Cacao beans: Cocoa, chocolate, and chocolate liquor are products derived from cacao fruits (*Theobroma cacao*).

Tables show: (1) Some fermented foods of fungal origin. For each food is given: Product name, geography, substrate, microorganisms, nature of product, and product use. Soy-related products include: Chee fan, Chinese yeast, Hamanatto, ketjap, meitauza, meju, miso, shoyu, sufu, tao-si, taotjo, and témpé.

“Yukiwari-natto is made by mixing itohiki natto with rice koji and salt, and aging at 25 to 30°C for about two weeks.” Note 1. Yukiwari natto is natto resembling miso, featuring the stickiness (*nebari*) of natto and the sweetness of koji. It is made by a two-step fermentation. Another process: (1) Make the natto and the koji, separately. (2) Mince natto finely and mix it with koji, shoyu, and dashi made from kombu. Ferment at 30-33°C for 30-40 days.

Note 2. This is the earliest English-language document seen (Aug. 2006) that mentions the term yukiwari-natto (or yuki-wari natto). Address: Dep. of Food Science, Agric. Exp. Station, Univ. of Georgia, Experiment, GA.

429. Farwagi, Peta Lyn. 1978. Full of beans. New York, NY: Harper & Row. London: Pierrot Publishing Ltd. 158 p. Illust. Index. 19 x 19 cm.

• **Summary:** The author, while British Vogue’s travel editor, collected more than 150 bean recipes from around the world—from family fare to feasts. Soya beans are called “The most nutritious of all beans. Weight for weight with steak, soya beans have more proteins. Also discusses and defines: “Bean curd: “Fresh, custard-like cakes of pressed, pureed soya beans. Sold by the cake which is usually ½ inch thick and 3 inches square, in Oriental provision stores.” Fermented black beans (black soya [fermented black soybeans]). Soya bean sprouts. Soya oil.

Contains recipes for: Duck and soya beans (China, p.

68). Soya beans & potato salad (p. 146).

430. Kasahara, Kayoko. 1978. Daitokuji-nattô kôki seibun [Volatile flavor components of Daitokuji-natto [salted fermented soybeans or fermented black soybeans]]. *Eiyo to Shokuryo (J. of Japanese Society of Food and Nutrition)* 31(2):171-75. (Chem. Abst. 89:195686w). [4 ref. Jap; eng] • **Summary:** “Volatile flavor components of Daitokuji Natto were studied by GC-MS [gas chromatography-mass spectrometry], IR, and GLC [gas liquid chromatography] analyses.

“Seven carbonyls (acetaldehyde,...), an alcohol (furfuryl alcohol), and eight acids (acetic, propionic, isobutyric, *n*-butyric, isovaleric, isocaproic, *n*-caproic and phenylacetic acid) were identified, and a carbonyl and four bases were tentatively identified.” Address: Dep. of Biochemistry, Okayama Univ. Medical School, Okayama, Japan.

431. Passmore, Jacki. 1978. All Asian cookbook: Japan, China, Korea, India, Malaysia, Singapore, Indonesia, Laos, Thailand, Burma, Cambodia, Vietnam, Philippines, Sri Lanka. Secaucus, New Jersey: Chartwell Books. 224 p. Illust. (color photos). Index. 29 cm.

• **Summary:** Soy-related recipes: Vietnam: Soya sauce pork (Thit bho to, p. 71, with light soya sauce). Malaysia and Singapore: Mixed vegetables with salted black beans [fermented black soybeans] (the black beans are crushed, p. 103). Stuffed beancurd, peppers and black mushrooms (with 6 pieces hard beancurd, each 5 cm {2 inches} square, p. 103). Fried beancurd squares (Taukwa goreng, with 6 squares hard beancurd and dark soya sauce, p. 103). Chinese soup with pickled vegetables, beancurd and mixed meat (with 2 squares soft beancurd, p. 106).

Indonesia: Sweet pork (Babi kecap, with sweet soya sauce {kecap manis}, p. 118). Soya sauce sambal (with dark soya sauce, p. 124). Mixed vegetable soup (Sayur campur, with 2 cakes soft beancurd, p. 126).

Philippines: Lumpia (with dark soy sauce in the sauce, p. 136).

China: Fish with hot bean sauce (with hot bean paste or hoisin sauce, p. 146). Lobster with salted black beans and chili (p. 11). Stewed spare ribs with salted black beans (p. 159). Mixed green vegetables with salted black beans (p. 163). Hotpot of vegetables and beancurd (with 8 squares soft beancurd, p. 164). Ma po beancurd (with 6 squares soft beancurd, p. 166). Cold beancurd salad (with 6 squares soft beancurd, p. 166). Fried beancurd (with 8 squares soft beancurd, p. 166). Sharks fin soup (with dark soya sauce, p. 167). Wonton soup (with light soya sauce, p. 168).

Japan: Soya bean paste (miso, homemade from canned chick peas + soya sauce!, p. 178). Tuna glazed with miso (Gyoden, with dark miso paste, p. 180). Sukiyaki (with 3 squares soft bean curd, p. 187). Braised pork and leek rolls (Teriyaki, with light soya sauce, p. 188). Fried eggplant in

miso sauce (with white miso paste, 194). Miso soup (miso shiru, with diced bean curd and white miso paste, p. 195).

The Glossary includes: Bean paste, hot (made from chilies and soya beans, La do ban jiang, Chinese). Bean paste, salted (also known as yellow bean paste, made from soya beans, Taucheo, Chinese). Bean paste, sweet (either tien mien jiang or do ban jiang, made from soya beans, Chinese. See also hoisin sauce). Beancurd. Beancurd ‘cheese,’ fermented (in brine with chilies, wine, and spices, Dofu ru, Chinese). Beancurd skin [yuba] (yellowish, almost transparent sheets). Beans, salted, black: See Salted black beans. Kecap manis (Sweet, slightly thick soya sauce, Indonesian, Malaysian). Miso (Japanese). Soya sauce (light, dark, and sweet). Tahu (Malaysian): See beancurd. Taucheo (Chinese): See Bean Paste, salted. Taukwa (Chinese, hard beancurd). Tien mien jiang (Chinese): See Bean paste, sweet. Tofu (Japanese): See beancurd. Vinegar and soya sauce dip: “A sharp-flavoured Korean accompaniment made by blending 3/4 cup light soya sauce, 3 tablespoons white wine vinegar, 3 tablespoons ground sesame seeds and 2 teaspoons finely chopped spring onions. Serve in individual sauce bowls.” Yellow bean paste: See Bean paste, salted.

Note: This is the earliest document seen (Feb. 2011) that contains Vietnamese recipes that use soy as an ingredient. Address: Australian-born food writer.

432. 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 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).

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: 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. “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: 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 (*hau 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 ad 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.

433. Smith, Allan K.; Circle, S.J. eds. 1978. *Soybeans: Chemistry and technology*. Vol. 1. Proteins. Revised. Westport, Connecticut: AVI Publishing Co. xiii + 470 p. Illust. Index. 24 cm. [500+ ref]

• **Summary:** This revised edition contains relatively few, unimportant changes from the original, classic 1972 edition. The following changes have been made: Addition of a 7-line preface to the “revised second printing” dated 4 Oct. 1977, updating of a graph of U.S. soybean production (p. 1). Updating (to 1976) of a table on U.S. and world production of important oilseeds (soybeans, cottonseeds, peanuts, sunflower, rape, sesame) (p. 2). Minor textual changes on pages 18-19. Addition of a table showing distribution of the 3 leading soybean varieties in 14 major states and the percentage of acreage harvested for each variety in 1976 (e.g., in Illinois, Williams accounted for 25.1% of harvested acreage, Amsoy 17.3%, and Wayne 12.8%). And updating of a table on U.S. soybean production by state showing acreage harvested, yield per acre, and production for 1974, 1975, and 1976 (p. 32).

The foreword, chapter titles, and index have not been changed at all. Note: Vol. 2 was never published. Address: 1. Oilseeds protein consultant, Hot Springs, Arkansas; 2. Oilseed protein consultant, Protein Technology, Richardson, Texas.

434. Wu, Jingrong. 1978. *A Chinese-English dictionary*. Beijing, China: Shang wu yin shu guan. 976 p. 27 cm. [Eng; Chi]

• **Summary:** This comprehensive dictionary uses pinyin romanization / transliteration, with accents; Chinese characters are given and definitions are in English. It contains over 6,000 single-character entries, including characters with variant tones. There are over 50,000 compound-character entries and over 70,000 compound words, set phrases and examples. The Chinese title is *Han Ying ci dan*. Soy-related terms include:

Page 92: chi, douchi; see Douchi below.

Page 125: Dadou (soybean, soya bean).

Page 164: Doubanjiang (thick broad-bean sauce).

Doubling (defatted soya bean cake; bean cake). Douchi (fermented soya beans, salted or otherwise [fermented black soybeans]). Doufu (bean curd [tofu]). Doufufang (bean-curd plant [tofu shop]). Doufugan (dried bean curd [pressed tofu]). Doufunaor (jellied bean curd). Doufuru (fermented bean curd). Doufupi (skin of soya bean milk [yuba]; thin sheets of bean curd). Doujiang (soya-bean milk). Douqi (bean stalk). Dousha (sweetened bean paste). Douyou (soya-bean oil). Douzha (residue from beans after making soya-bean milk; bean dregs [okara]). Douzhipin (bean products [soyfoods]).

Pages 210-11: Fu (rotten, putrid). Furu (fermented bean curd). Fuzhu (dried bean milk cream in tight rolls [dried yuba sticks]).

Page 294: Huangdou (soya bean, soybean [yellow soybean]).

Page 324: Jia (pod). Jiaguo (pod, legume).

Pages 336-37: Jiang (1. A thick sauce made from soya beans, flour, etc. 2. Cooked or pickled in soy sauce, such as pork or braised pork; tomato sauce, ketchup). Jiangcai (vegetables pickled in soy sauce, pickles). Jiangyou (soy sauce, soy). Jiangyuan (a shop making and selling sauce, pickles; sauce and pickle shop).

Page 459: Maodou (young soya bean [edamame, green vegetable soybean]).

Pages 470-71: Mianjin (gluten [wheat gluten]). Miao (young plant, seedling).

Page 487: Nai (breasts, milk, suckle, breast-feed [dounai = soymilk]).

Page 553: Qi (beanstalk). Page 561: Qu (leaven, yeast, *Aspergillus* [koji]).

Page 661: Taijiquan (a kind of traditional Chinese shadow boxing [taichi]).

Page 957-59. Pinyin–Wade-Giles conversion tables.

Page 972: A brief Chinese chronology [of dynasties].

Note 1. This is the earliest English-language document seen (Feb. 2004) that uses the word “doufugan” to refer to Chinese-style tofu.

Note 2. This is the earliest English-language document seen (Oct. 2008) that uses the term “doufupi” (regardless of hyphenation or spacing) to refer to yuba. Address: Peking, China.

435. Yamaya K.K. 1978? *Meibutsu–Yamaya hamanatto yuraiiki (fu meshiagari-kata)*. Famous products–Yamaya hamanatto: Origin and how to eat it (fermented black soybeans) (Brochure). Japan. 6 panels. Undated. 13 by 9 cm each. Front and back. [Jap]

• **Summary:** The cover of this small brochure is printed with reddish-brown ink on green, and the title in a vertical rectangle with black and red characters on white. The background of the cover panel shows an illustration of Hamamatsu from Hiroshige’s “Fifty-three stages of the Tôkaido.”

## 法納豆由来記

此の法納豆の由来は今を去る事およそ六百年の昔遠州三ヶ日町大福寺の僧がこれを製し独自の風味と保存の効く所よりあまねく全国に知れわたり山椒の皮のからきを混ざる所からこれをつから納豆と称した。その昔征韓の役起るや秀吉公肥前の那古耶に御出陣の際この唐納豆を下物に充てられ、唐納豆の字はからをおさめてまめといふ語に通ずる所より吉兆であると賞せられそれより七十石の御朱印の他に納豆料除地を賜り爾後徳川氏法納豆在城の日より元旦を吉例とし毎年之を進献し来り代々將軍家も賀上の例台には必ず是を添えられたとの事です。この唐納豆は法名の御より出づるをもつて一名法名納豆とも呼ばれた

からかわの

猫にあくねはさみせん

いとをも ひかぬ法名納豆

蜀山人

安政年間弊社の前身ヤマヤ溜屋商店主人鈴木持助翁は特にその秘法を伝授され其の後研究に研究を重ね折から東海道線開通を機に旅行く人々に停車場売りとして産声を上げ爾来々々その売行を示し戦後は九州北海道は勿論遠く故郷を思ふハワイの邦人達の間にも喜ばれる様になりました

Of the 3 inside panels, the first two give the company history. The previous company, started in the Ansei period (1854-1860) was named Yamaya Tamari-ya. The company founder was Yosuke (or Yasuke) Suzuki.

One back panel begins: Natural foods (*Shizen shokuhin*): Suggestions for use—with tea, sake, or beer, as is, or in a mixture with grated daikon and vinegar. Or put on ochazuke (a mixture of rice and tea). On the bottom half of that panel is a map showing how to get to the company.

On the middle back panel is a cartoon illustration showing two Japanese men seated under a pine tree enjoying a meal. Along the bottom is the company name, address, and phone number. Address: K.K. Yamaya factory, Shizuoka prefecture, Hamamatsu city, Naruko-machi 8 banchi. Phone: Hamamatsu (0534) 52-2181 (main).

436. Birnbaum, Alfred. 1979. Re: Comments on new condensed edition of *The Book of Tofu*. Letter to William Shurtleff at New-Age Foods Study Center, Jan. 26. 1 p. Handwritten (in pencil) and signed.

• **Summary:** He received the condensed version from Shurtleff and Aoyagi. “I think that the compact format should reach a large readership. Excellent work!”

“I particularly liked your having created a separate section on ‘Fermented Tofu,’ and of course, I noticed your updating the sections on nattô, Daitokuji nattô & hamanattô. No doubt you did considerable revision.

“On rereading some parts of the original edition for comparison I did have some questions (I am not sure if I had brought them up with you or not):

“P. 312, unabridged. 4 Chinese characters (Cc). You have read as ‘Nishiyama Sodo,’ though when I went there I was told it was called ‘Saizan Sodo.’ (Incidentally it was

there that I had what I consider probably the finest tofu dinner I can remember).

pp. 309, 312, unabridged; p. 385 revised = 4 Cc. I have always heard this read as ‘Fusa Ryôri,’ not ‘Fucha,’ though perhaps the case is the same as with 2 Cc, which can alternatively be read ‘sado’ or ‘chado’ [the way of tea]. Note: Major Japanese dictionaries and glossaries all say *fucha ryôri*.

“Incidentally, have you seen the new Shufu-no-tomo English translation out on *Shojin Cooking* (\$7.95)?”

437. Sakaguchi, Kinichiro. 1979. *Shôyu no ruutsu o saguru* [Searching for the roots of shoyu]. *Sekai (The World)* No. 398. p. 252-66. Jan. [Jap; eng+]

• **Summary:** A fascinating enquiry into the early history of fermented soyfoods by one of Japan’s most eminent microbiology professors. For details, see *The Book of Miso*, and *History of Soybeans and Soyfoods*, both by Shurtleff and Aoyagi.

Yokotsuka (1986, p. 325) cites this as Sakaguchi. 1981. “Searching for the route of shoyu.” *SEKAI* 398:252-266. This magazine is published by Iwanami Shoten in Tokyo.

“The *Chou-li* states that this jiang was made by mixing the meat of animals, birds, and fish with millet koji and salt, then pickling it in wine in a crock for a hundred days. It is quite remarkable that even at this early date the Chinese were consciously using the enzymes produced by the koji molds (whose airborne spores fell on the substrate naturally, rather than by deliberate inoculation), to make fermented foods such as jiang and fermented grain-based alcoholic beverages. It is also clear from the context that jiang was regarded as a highly prestigious food and a delicacy.”

“Today’s shoyu traces its ancestry back through early

shoyu, then through the four fermented soyfoods tamari-shoyu, tamari miso, Hatcho miso, and savory fermented black soybeans (*Hamanatto*), and ultimately back to Chinese fermented black soybeans (*chi*). Miso, he asserts, traces its ancestry back through early Japanese misos and hishio to jiang. In the shoyu lineage, the koji is always made with either soybeans alone or a mixture of soybeans and cracked or ground wheat, whereas in the miso lineage the koji is usually (except for soybean misos) made from grain. Sakaguchi believes that the fundamental biochemical consequences of this difference in koji substrates are of much greater importance than the more superficial differences of consistency or form that have led researchers up until now to group solid or semisolid fermented soyfoods in the miso lineage and liquid products in the shoyu lineage. Thus it is not obvious that liquid shoyu stems from mushy jiang. In shoyu, the *Aspergillus oryzae* molds grow directly on the soybeans (and wheat) during the koji fermentation and their enzymes begin to digest the koji substrates, then continue to digest the soybeans (and wheat) during the subsequent brine fermentation. This *in vivo* and *in vitro* extended hydrolysis leads to the formation of complex metabolic compounds, a higher degree of protein hydrolysis and liquefaction, and the production of a richer and stronger flavor in shoyu than in miso. Sakaguchi argues that miso has a 3,000 year history dating from the development of jiang during the Chou dynasty in China, whereas shoyu has a 2,000-year history dating from the development of fermented black soybeans (*shih*) during the Han dynasty.

“It is important to note here that the ancient Chinese language seems to indicate that soy sauce derives from jiang and not from *shih*, as evidenced by the Chinese word for soy sauce, *jiangyou*, meaning ‘the liquid extracted from jiang.’ Moreover, most Chinese jiang and fermented black soybeans have both always been made with a soy-based koji. Sakaguchi’s analysis is helpful, but lacking on a few points. The jiang has not, as Sakaguchi argues, been made with a grain-based koji. Even in the earliest description of Chinese soybean jiang in the *Ch’i-min yao-shu* (described in detail in the Miso chapter) the koji is made primarily from soybeans. Thus while retaining the essence of Sakaguchi’s argument, we would suggest that it be modified slightly to say that *both* shoyu and miso trace their ancestry back to *both* fermented black soybeans (*shih*, which existed prior to 206 BC) and to soybean jiang (which existed prior to AD 500).

“Dr. Sakaguchi considers there to be three main reasons that shoyu and miso were not developed in the West: (1) very few Westerners ever learned how to make koji using molds; (2) they had virtually no soybeans until the 20th century; and (3) the basic flavoring components of shoyu and miso, especially natural L-glutamic acid and inosinic acid, were traditionally unknown in the West.”

“In 1944 Kinichiro Sakaguchi and Koichi Yamada discovered a new species of *Aspergillus* mold, which

appeared widely in shoyu koji; they named it *Aspergillus sojae*.”

Photos show: (1) Three ancient earthenware jars, from about the 1770s (Thunberg’s time), in which shoyu was pasteurized and shipped to Europe. Address: Professor of fermentation science, Tokyo Univ.

438. Shurtleff, William; Aoyagi, Akiko. 1979. The book of tofu: Food for mankind. Condensed and revised. New York, NY: Ballantine Books. xii + 433 p. Jan. Illust. by Akiko Aoyagi Shurtleff. Index. 18 cm. [60 ref]

• **Summary:** This book has been extensively revised and updated. Many names of Japanese tofu have been Americanized. Contents: Preface. Acknowledgements. 1. Protein East and West. 2. Tofu as a food. 3. Getting started: Favorite tofu recipes. 4. Soybeans. 5. Fresh soy puree. 6. Okara (Soy pulp). 7. Curds and whey. 8. Tofu & firm tofu. 9. Deep-fried tofu: Tofu cutlets, burgers, treasure balls, and pouches. 10. Soymilk. 11. Silken tofu. 12. Grilled tofu. 13. Frozen & dried-frozen tofu. 14. Fermented tofu. 15. Yuba. Appendices: A. Tofu restaurants in Japan. B. Tofu shops and soy dairies in the West. C. Varieties of tofu in East Asia. D. Table of equivalents. Bibliography. Glossary. Contains 250 recipes and 100 illustrations. Price: \$2.95.

This new edition features: (1) New recipes: Over fifty new American-style tofu recipes including Creamy Tofu Dressings, Tofu Teriyaki, Tofu Burgers, Tofu Eggless Egg Salad, and the like. The key to the book is an updated list of favorite tofu recipes plus suggestions for incorporating them into a weekly menu (p. 56). (2) New sections: An extensive new introduction to Soy Protein Foods (p. 66), dairylike products made from tofu (p. 150), dairylike products made from soymilk (p. 302) including soymilk yogurt (fermented), ice cream, kefir, mayonnaise, whipped cream, popsicles, buttermilk, and soy shakes. (3) New chapters: Fermented Tofu and Varieties of Tofu in East Asia. (4) New basic methodologies: The key recipes for homemade tofu and homemade soymilk have been simplified and improved. (5) Updates: A complete listing of the 120 tofu shops and soy dairies now operating in the West; over 60 Caucasian-run shops have opened in the past two years. (6) New Americanized tofu names: Including tofu burgers, tofu cutlets, silken tofu, wine fermented tofu, and fresh soy puree. (7) No sugar.

Page 110: “In Japan, tofu is also called *momen-goshi* (‘cotton-filtered’) to distinguish it from its popular counterpart *kinu-goshi* (‘silken tofu’).” Note 1. This is the earliest English-language document seen (March 2004) that uses the term “silken tofu.”

Note 2. This is the 2nd earliest English-language document seen (Oct. 2011) that contains the term “Wine-fermented tofu” (p. 361).

In Jan. 1988 a new printing (but not a new edition) of this book (the 13th), slightly revised, appeared. It had a new

cover and many new small illustrations. The subtitle was “Protein Source of the Future—Now!” The heading: “The World’s Bestselling Book on Tofu.” Address: New-Age Foods Study Center, P.O. Box 234, Lafayette, California 94549.

439. Fukushima, D. 1979. Fermented vegetable (soybean) protein and related foods of Japan and China. *J. of the American Oil Chemists’ Society* 56(3):357-62. March. [10 ref]

• **Summary:** Contents: Abstract. Introduction. Soy Sauce: Fermented soy sauce: Japanese and Chinese styles of soy sauce and their characteristics. Manufacturing process. Comparison of fermented soy sauce with chemical soy sauce. Fermented soy paste. Chinese soybean cheese (sufu). Fermented whole soybean (natto). New fermented soybean products. A photo shows Fukushima. Fig. 3 shows two chromatograms comparing the organic acids of fermented and chemical (HVP) soy sauce. Fermented soy sauce has an abundance of lactic acid, whereas HVP soy sauce has an abundance of formic acid. Address: Kikkoman Foods, Inc., P.O. Box 69, Walworth, Wisconsin.

440. Shurtleff, William; Birnbaum, Alfred; Aoyagi, Akiko. 1979. Agreement to write a book on Daitokuji natto and hamanatto [fermented black soybeans]. Lafayette, California. 2 p. June 2. Unpublished manuscript.

• **Summary:** This is the basic outline for a book contract, signed when Alfred visited Bill and Akiko in Lafayette, California. Authorship: William Shurtleff & Akiko Aoyagi, with Alfred Birnbaum.

Note: This book was never completed since Alfred’s interests changed. Address: 1&3. New-Age Foods Study Center, Lafayette, California; 2. California and Japan.

441. Hesseltine, Clifford W.; Wang, Hwa L. 1979. Fermented foods. *Chemistry and Industry (London)* No. 12. p. 393-99. June 16. [4 ref]

• **Summary:** Contents: Fermentation: Advantages of fermented foods. Need for more research. Need for a worldwide fermented foods catalogue. Investigating the process. Characteristics and microorganisms. Fermentation: 12 aspects that merit attention. Improvement: Example of tempeh spores and plastic bags. New foods (such as wheat and cereal tempehs). Future of traditional fermented foods (it looks bright). Mahewu. Kaffir / Bantu beer.

“Finally we would like to suggest several fermented foods that might be possible candidates for future development outside the Orient. These are miso, natto, hamanatto, and sufu.” Address: NRRC, Peoria, Illinois.

442. Claiborne, Craig. 1979. A Chinese cook’s success in the far west. *New York Times*. Nov. 2. p. 51.

• **Summary:** Jeri (Kui Yun) Sipe, born in Taiwan, was

given to foster parents when only 40 days old because of her natural family’s poverty. From age 9, she was forced to cook for these parents (with regular whipping) until she was farmed out at age 12 to aunts who paid her natural parents \$2 a day for her services. At age 19 she ran away and hid in her sister’s house, until her sister found her work with a master who had two wives and a family of 13 in Hillsboro, Oregon.

Neither wife was happy with her cooking. In the years that followed she learned to cook many kinds of cuisine for her master. “The great turning point in her life came in 1964 when she met her husband, James Sipe, of Bellingham, Washington.” She was a waitress in an officers club and he was an electrical engineer. In a story not unlike Pygmalion, he taught her to read, write, and speak good English. They lived in Seattle, Washington, had three children, and entertained regularly on a large scale. She never lost her enthusiasm for cooking.

A recipe for Sesame chicken wing appetizers calls for: “1 tablespoon salted black beans... 2 cloves garlic, crushed. 2 slices fresh gingerroot cut into very fine shreds. 3 tablespoons dark soy sauce... ½ teaspoon monosodium glutamate, optional.” Then: Crush the beans, add 1 tablespoon of water and let stand.

443. Reed, M.H. 1979. Dining out: 100 Hunan tastes and parking, too. *New York Times*. Nov. 25. p. WC19.

• **Summary:** This is a review of the Chinese restaurant Hunan Manor (149 South Central Ave., Hartsdale—a hamlet and a census-designated place (CDP) located in the town of Greenburgh, Westchester County, New York). The “Beancurd Sichuan style” was recommended. “Of the regular offerings, fresh prawns with black bean sauce appeared flawed only by the intensely salty black beans that should have been sliced fine or mashed.”

444. Ko, Tokubo. 1979. Kankoku no hakkô shokuhin [Korean fermented foods]. *Hakko to Kogyo (Fermentation and Industry)* 37(3):202-11. [75\* ref. Jap]

• **Summary:** Shoyu and varieties of miso: 1. Historical background: The major foods used in Korea that contain soy are soy sauce (kan jang), soybean miso (doen jang), and red-pepper miso (kochu jang). Also there are jonkutsu jang, tamusu jang (makujang) and jupu jang. The suffix jang is the same as the Chinese chiang and the Japanese hishio, meaning mash. The origins of the varieties of shoyu and miso are not clear. But there was a character, tojang, in “Ronko” which was written by Oju? of the Gokan period. Also, there are some references to jang in the Analects of Confucius (Lun yu; Jap. Rongo). They indicate that jang existed years before Christ. In the “Kaitoyakushi?” there is a quotation from “Shintosho?” (618-907) that “shi” (fermented black soybeans or misodama) was a well known product of Bokkai (north of the Yellow Sea) in those days (Sakueki). It is thought that jang first appeared in Manchuria (Manshu was called Kokuri



in those days) where soybeans were originally grown. Soybeans later spread to China and Japan.

In Korea the oldest record of any variety of jang was found in *Sangokushiki* (683) as “shôshi?”. This indicates that people were already making shoyu and miso quite early on. In the *Ch'i-min yao-shu* (AD 530-550) a method of shi (or kaki) making was recorded. We guess that shi was the predecessor to today's meju (= misodama). The classic book *Kyukosetsuyo?* that was compiled in 1554 (Richo? period–Meisoo 9) is the oldest book that contains the techniques for making the Korean varieties of jang. About 8 different methods of production were recorded, amongst them the sink gan (chinjangho) and zojangho methods. In those days, meju (= misodama) was called misho. It is written that they steamed the soybeans, roasted and ground the wheat, then mixed the soy and the wheat in a 2:1 ratio. From this they made koji and dried it in the sun. That method was very similar to the koji-making method used in Japan. In Japan it was called kokori, hishio, or misho. Later, shoyu became known as jang? Miso became massho? and then returned to being called misho. Address: Presently: Tokyo Daigaku Biseibutsu Kenkyusho #3 Kenkyubu. Formerly: Seoul, South Korea. Tokoku Daigaku Shokuhin Kogakubu.

445. Shurtleff, William. 1979. Names and addresses of makers of soy nuggets [fermented black soybeans] in Japan. Tokyo, Japan. 1 p. Unpublished manuscript. Handwritten, pencil.

• **Summary:** Note: Daitokuji natto and Hamanatto are both traditional Japanese types of fermented black soybeans.

At Daitokuji they may start in mid-July or August. Daitokuji natto we call “Savory soy chunks.” (1) Moriguchi Kakko Shokuhin. Phone: 076-491-3568 or 492-0682. Mr. Nakano Takazo. Ushiwaka-cho 22, Murasaki-taki, Kita-ku, Kyoto 603. They also make large and small bean natto in Kyoto.

(2) Moriguchi factory in Shiga prefecture. Phone: 07495-2-1165. Nagahama Kojo, Kao-do, Umi-cho, Sakatagun, Shiga-ken 526. Attention: Mr. Nakano Takazo. They have 40 years experience. Make 1,200 kg/year.

(3) Ikkyu, Daitokuji-nai [inside Daitokuji], Kita-ku, Kyoto. They make traditional Daitokuji natto but may be secret.

(4) Ikkyu-ji. Phone: 07746-2-0193. Aza-maki, Tanabe-cho, Kyoto-fu, 610-03. A second maker of Daitokuji natto. They seem to have taken the Ikkyu-ji name and started to compete with the original maker at Daitoku-ji. They make only 6 kegs a year, each keg holding 25 kg. 150 cm diameter and 75 cm deep. For temple and tourists. Only use the traditional process. Small scale. Makes ichi-mei Ikkyu-ji natto.

(5) Jofukuji natto. Are they in Nara?

(6) Tenryuji natto: Make at Tenryu-ji, Ukyo-ku, Kyoto—in Kyoto's Arashiyama district. Founded in 1339, it is the

head temple of the Tenryu branch of Rinzaï Zen Buddhism.

Hama-natto—which we call “Savory soy bits.” (1) The top scholar is Hiroshi Ito at the National Food Research Institute. Phone: 645-9911.

(2) Factory: K.K. Yamaya shoyu. Phone: 053-587-0621. Komatsu 4880. Hamakita-shi, Shizuoka-ken 434. Attn: Mr. Suzuki Tsumotsu. Mechanized koji. Old vats. Makes miso and shoyu too. 30 minutes from Hamamatsu by Enshu railroad. Office in Hamamatsu city, Naruko-cho 8.

(3) K.K. Hamana. Phone: 053-433-6211. Joko-cho 1356. Hamamatsu-shi 431-32. Attn: Saito Shigeo. Eigo no Okiai. Mr. Suzuki.

(4) Daifuku-ji. Phone: 05352-5-0278. Related to Tokugawa Ieyasu. Mikkabi-cho, Fukunaga, Inasa-gun, Shizuoka-ken 431-14.

(5) Horinji. Phone: 0534-71-0838. Mr. Matsuyama Gizen (very nice). Tomitsuka-cho 1976, Hamamatsu-shi 432.

(6) Yamaya (new, from July 1976). Mr. Suzuki. Zaimoku-cho 30, Hamamatsu-shi 430. Address: c/o Aoyagi, 278-28 Higashi Oizumi, Nerima-ku, Tokyo 177, Japan. Phone: (03) 925-4974.

446. So, Enshi. 1979. Taiwan no hakkô shokuhin [Fermented foods of Taiwan]. *Hakko to Kogyo (Fermentation and Industry)* 37(2):102-12. [Jap; eng+]

• **Summary:** Includes a good map of Taiwan and its prefectures. In 1976 there were 433 soy sauce manufacturers in Taiwan. Taiwanese divisions of grading soy sauce plants numbered as follows: A (Ko) class, 39; B (Otsu) class, 12; C (Hei) class, 223; others 159. They produced the equivalent of 1,681,870 dozen bottles/month. Each bottle contains 540 ml of soy sauce, so 12 bottles contain 6,480 ml or 6.48 liters or 1.712 gallons. Thus Taiwan produces 10.89 million liters a month or 130.71 million liters/year of soy sauce. This is equivalent to 2.878 million gallons a month or 34.53 million gallons a year. Taipei prefecture produced 46.8% of this total, followed by Changhwa prefecture with 10.7%.

Soy sauce was initially made by monks. Because they didn't eat meat, it gave them important protein and fat. Gradually, it became more popular and spread to all parts of China. Monks also transmitted the method of soy sauce production to Japan and all over East Asia. It is said that around 1230 A.D., the Zen monk, Kakushin of Kofukuji, Kishu Yura, went abroad to southern Sung in China and brought back to Japan fermentation methods of Miso and Kinzanji Miso.

There are 3 types of soy sauce produced and sold in Taiwan today: (1) Tou-yu, soy sauce (*daizu shoyu*) which originated in China, (2) Inyu, black bean sauce which is the traditional Taiwanese soy sauce, and (3) Chemically prepared soy sauce (*kagaku shoyu*) which was invented in Japan. Processing techniques for making Koji and pressure-straining methods have made great progress in recent years. Address: Kokuritsu Taiwan Daigaku Kyoju, Ken Nogyo

Kagaku Kenkyu-jo sho-cho, Nôgaku Hakase.

447. Barer-Stein, Thelma. 1979. You eat what you are: A study of ethnic food traditions. Canada: McClelland & Stewart, Ltd. xii + 13-624 p. Index. 23 cm. [550+\* ref]  
 • **Summary:** This is largely a compilation of information from many other books and articles. On the cover is a color painting of The Gardener (or Vertumnus), from his series, The Four Seasons, c. 1590, by Giuseppe Arcimboldo (or Arcimboldi) of Milano.

In Chapter 12, on China, the section titled “Meats and alternates” (p. 110-13) notes that the soybean is called the “Chinese Cow” [sic, “Cow of China”] because of its versatility. Soybeans are used as whole dry beans and as sprouts, or they can be made into a firm white curd called “Chinese cheese” [sic], which can be used in many different ways. Soybean milk may be used in much the same way that westerners use cow’s milk. They are fermented to make the favourite condiment, soy sauce. “Bean curd sauce is fermented bean curd that is packed in jars and sold as red bean curd sauce or white bean curd sauce,...” Cantonese names for soy products are (p. 111-12): Mien chiang: A syrup-like sweet bean paste. Dow-foo (tofu). Foo yu (fermented tofu). Tiem jook (dried yuba, broken into pieces [sweet dried yuba sticks]). Wow doo [Wu dou]. Black soybeans. Dow see [doushi, fermented black soybeans]: Salted, fermented black bean paste [sic, fermented black soybeans] often garlic flavoured and used in small amounts as a condiment or seasoning.

In Chapter 30, on Japan, the section titled “Meats and alternates” (p. 336-37) notes that products made from soybeans include: (1) “Shoyu, a sweetish soy sauce made from wheat and barley [sic], soybeans, salt, and water.” (2) Miso, or “fermented soybean paste,” used mostly for flavouring soups [miso soup]. (3) Tofu, or soybean curd, is a staple in Japanese cookery. “Its smooth, custard-like texture and bland flavour make it an ideal ingredient. It is extremely versatile and readily absorbs other flavours. Many “restaurants in Japan take great pride in their tofu dishes.”

In Chapter 31, on Korea, the section titled “Fruits and vegetables” (p. 350-51) discusses soybeans and their products at length. Soy sauce is used to season *kim* (nori) and other edible seaweeds. Soy sauce is an ingredient in “hot pepper mash” [*kochu jang*]. Soybeans are used to make “soybean mash” [*doen jang*]. Dry soybeans are roasted in an iron pot, then ground, and the roasted soy flour is used as a garnish over rice cakes [mochi] or plain cooked rice; children enjoy eating the coarser roasted bits that are sifted out of roasted flour or meal. Soybeans sprouts are eaten lightly cooked as a vegetable. Soybeans are also made into tofu (*tu bu*); a brief description of the process is given, in which the drained curds are left in their hemp bag to form a firm cake, which may be cut, dipped into soy sauce, or fried in sesame oil. “Oil can also be made from the soybeans, but

it is not commonly used or prepared.”

Although commercial soy sauce, made in factories, is now widely available, many Korean households still prepare their own soy sauce each fall. Boiled soybeans are pounded, molded into a cone shape, and set to dry until hard. They are then wrapped with rice straw, hung from eaves, rafters or ceilings, and allowed to ferment for several weeks [until they become *meju*]. During the winter, these fermented cones may be stored in huge rice-straw bags kept in a cool place.

In the spring, break the cone into small pieces and place in a large earthenware jar, nearly filled with water. Add salt, spices, red peppers, and a few charcoal lumps. Leave this in the sun for a few days [sic, 30-60 days] until the molded soybean chunks float to the top and the resulting liquid turns black. Ladle out and filter the black liquid, then boil it to make soy sauce. The solids remaining in the jar are used as soybean mash [after the charcoal is removed].

A portrait photo of the author, with a brief biography, appear on the rear cover and in the Introduction. Address: Ph.D. student, Ontario Inst. for Studies in Education, Toronto, Ontario, Canada.

448. Hsiung, Deh-Ta. 1979. Chinese regional cooking. New York, NY: Mayflower Books; London: Macdonald. 224 p. Illust. (chiefly color). Maps. 28 cm. 1st American ed.

• **Summary:** A superb and beautiful book, loaded with beautiful color photos printed on glossy paper. It identifies four regional schools: Peking (Northern school). Shanghai (Eastern School). Sichuan (Western school). Canton (Southern school). The Pearl River delta, with Canton as the capital of Guangdong (W.-G. Kwangtung) province, “is undoubtedly the home of the most famous of all Chinese cooking styles... Because Canton was the first Chinese port opened for trade, foreign influences are particularly strong in its cooking.” Note: Likewise, what most Westerners have traditionally thought of a “Chinese cooking” comes from Canton.

Archaeological evidence shows that by 5000 B.C. the people of north China had begun to settle down, to farm, and to make painted pottery and cooking utensils. Written records first appeared in about 3500 B.C. “Later, during the Chou dynasty (11th century to 221 B.C.) soy beans were added to the Chinese diet” (p. 32.).

Northern soy-related recipes: Fried bean-curd [tofu] (with 2-3 cakes of bean curd) and a color photo of “A bean-curd factory run by a unit of the People’s Liberation Army on the outskirts of Peking” (p. 53). Rinsed lamb in fire-pot (with 2 cakes of bean curd, fresh or frozen, p. 68-71). The Yangtse [Yangtze], China’s longest river, is a natural divide between north and south in China. Those in the north eat more wheat and soybeans (p. 94).

Shanghai / eastern soy related recipes: The Yangtse River has already traveled 3,000 miles before it reaches its Lower Plain where many crops, including soy beans are

grown (p. 98). A page titled “Buddhist and Taoist dishes,” notes that they are vegetarian (actually vegan), since “Chinese vegetarians are not allowed anything remotely connected with animals, including eggs or milk. They get their protein mainly from the soy bean and its by-products, such as bean-curd and imitation meat. Curiously these imitation meats (known as vegetarian meat, chicken, fish, and so on) bear an amazing resemblance to their fleshy counterparts in form, texture and flavor.

“For some unknown reason, the best vegetarian restaurants [in China] are to be found in Shanghai—a thriving commercial center and seaport...” (p. 119). Buddha’s fry (with 1 oz. dried bean-curd skin [yuba], p. 120-21). A small color photo shows sheets of dry yuba. Eight treasure bean curd (p. 132). “This recipe used to be called ‘Prince’s Bean-Curd’ and originally appeared in *Sui-yuan Shihtan* (Recipes of Sui-yuan), by the 18th century man of letters and gourmet, Yuan Mei.” A small color photo shows fresh bean-curd on a wooden table in a Chinese market stall. Bean curd a la maison (p. 144).

Sichuan / western soy related recipes: Bean curd fish in chili sauce (p. 164). Steamed beef with ground rice (with 1 tablespoon { 15 ml} salted black beans, crushed). ‘Pock marked woman’ bean curd (Mabo doufu, with salted black beans, p. 173). This is another nationally popular dish that originated in Sichuan. The woman was the wife of a well-known chef who worked in Chengdu about 100 years ago; she created the dish. Hot and sour soup (with 1 cake bean curd, p. 174). Fish soup (with bean curd, p. 181). Soy braised duck (with Hoi Sin sauce and soy sauce, p. 182).

Cantonese / southern soy related recipes: Fish and bean-curd casserole (p. 194-95). Eight treasure stuffed bean-curd (a well known Hakka dish, p. 198). Squid and peppers with shrimp (prawn) balls (with 1 tablespoon crushed black bean sauce, p. 202-03). Fish head casserole (with 2 cakes bean-curd, p. 203). Steamed bass in salted black beans (p. 209).

Glossary of main ingredients (p. 219-21) has entries for: Bean-curd (toufu, incl. dried bean-curd skin). “Bean sauce: Sometimes called ‘Crushed bean sauce,’ this thick sauce is made from black or yellow [soy] beans, flour and salt. It is sold in tins... (N.B. Black bean sauce is very salty, while yellow bean sauce is sweeter with sugar added).” Bean sprouts: Of the two kinds, yellow soy bean sprouts are sold only in Chinese provision stores.

A large excellent photo (p. 219) shows: 1. Hoi Sin [hoishin] sauce in white bowl. 2. Salted black beans in can. 3. Light soy sauce in bottle. 4. Dark soy sauce in bottle. 5. Red bean-curd sauce in small brown crock. 6. Crushed yellow bean sauce in bowl. 7. Yellow bean sauce in white bowl.

“Chili paste: Also called ‘Chili purée,’ is made of chili, soy bean, salt, sugar and flour. Sold in jars; will keep almost indefinitely.” “Hoi Sin sauce: Also known as barbecue sauce. Made from soy beans, sugar, flour, vinegar, salt, garlic, chili,

and sesame.” “Red bean curd sauce: A thick sauce made from fermented bean curd and salt. Sold in cans or jars, will keep indefinitely.” “Salted black beans: Whole bean sauce, very salty.” Sesame seed oil: Chinese typically use vegetable oils; soy bean oil is very widely used. Soy sauce: “The darker colored sauces are strongest and more often used in cooking, whereas the lighter are used at the table.”

449. Lo, Kenneth H.C. 1979. *The encyclopedia of Chinese cooking*. New York, NY: A & W Publishers, Inc. viii + 369 p. Plus 10 unnumbered pages of color plates. Illust. Index. 26 cm.

• **Summary:** The Introduction notes: “Everybody who has lived through the last couple of decades in the West has noted the tremendous expansion in the desire for increased sensuality; for the freer and fuller use of our senses of sound, sight, taste, and touch” (p. 1).

“Chinese meals are communal meals.” Chinese food and cooking “are undoubtedly one of China’s unique contributions to the sum total of the world’s civilization” (p. 3).

Note: This book calls for the use of monosodium glutamate in many recipes.

Soy related recipes: Peking soy-meat sauce for noodles (with soy sauce, brown bean paste, and hoisin sauce, p. 39). Soy-celery sauce for deep-fried chicken (with soy sauce, p. 42). Soy-stock sauce for deep-fried chicken (with soy sauce, p. 42). Soy-vinegar sauce for deep-fried chicken (with soy sauce, p. 42). Soy and mixed vegetable sauce for deep-fried chicken (with soy sauce, p. 43). Soy-stock sauce for boiled, white-cut, or sliced chicken (with soy sauce, p. 43). Soy-red bean cheese marinade for pork or spare ribs (with “1 tablespoon red bean cheese,” p. 48). Basic soy-vinegar dressing (with soy sauce, p. 49). Strengthened soy-vinegar dressing (with soy sauce, p. 49). Hot soy dressing (with soy sauce, p. 50). Soy-sesame dressing (with soy sauce, p. 50). Soy-onion dressing (with soy sauce, p. 50).

Basic condiments: Soy sauce (p. 52). Hoisin sauce (p. 53). Soy sauce comes in three grades: light, dark, and heavy. The heavy type can be used as a tasty dip. “Good quality heavy soy-sauce has a flavor of its own...”

Various dips for chicken (all with soy sauce): Soy-oil dip for chicken (p. 55). Soy-oil-garlic dip (p. 55). Soy-oil-ginger dip (p. 55). Soy-ginger-garlic dip (p. 55). Soy-oil-scallion dip (p. 56). Soy-mustard dip (p. 56). Hot soy-oil dip (p. 56). Soy-sherry dip (p. 56). Hoisin or plum sauce for pork (p. 56). Soy-sesame dip for pork (p. 57). Dip for deep-fried bean curd (with soy sauce, peanut butter, sesame oil, etc., p. 58). Sliced pork and bean curd soup (with “2-3 cakes bean curd,” p. 67).

Hot noodles with soy jam and fresh vegetables (with “6¼ tablespoons soy jam or paste,” p. 102).

The chapter titled “Vegetable and vegetarian dishes” (p. 106-21) begins: “There are three background factors in

Chinese vegetable and vegetarian cooking which give them strength, tradition, and variety.

“The first of these is the widespread use of soy beans and their by-products [soyfoods] which, as we have already seen, add a great deal of flavoring power to Chinese meat cooking, as well as the cooking of other foods. One must also recognize that the use of bean curds is of great importance—for sheer versatility—for sheer versatility they have few equals in the whole realm of food materials.” This type of cooking is derived “principally from Buddhist monastery and temple cooking. “Soy beans and their by-products (soy sauce, soy paste [jiang], soy cheese [fermented tofu], soy bean curd, and fermented salted black beans) [fermented black soybeans] act as a common denominator between meat and vegetable dishes.” The “Basic vegetarian stock” has three main ingredients: fresh and dried mushrooms and mushroom stalks, 1½ lb yellow [soy] beans, and ¼ teaspoon MSG. The technique of “Splash frying” is used in the recipe for “Splash-fried bean sprouts” (p. 112). Soy related: Vegetarian toasted ‘shrimp’ (with 2 cakes bean curd and 1 teaspoon bean curd cheese, p. 119). Vegetarian spring rolls (with 2 cakes bean curd 1 teaspoon bean curd cheese, p. 119).

Spare ribs with black beans (Chinese style) (with “2 tablespoons fermented black beans,” p. 142).

Spare ribs with black beans (overseas Chinese style) (with “2 tablespoons fermented black beans,” p. 142). Spare ribs with red bean curd cheese (p. 143-44). Sliced roast pork stir-fried with bean curd (p. 150). Diced chicken in soy jam (with “2 tablespoons soy jam or paste,” p. 212-13). Soy eggs (made by simmering hard-boiled eggs in soy sauce).

The Glossary (p. 343-46) includes entries for: Bean curd. Bean curd cheese (“It is used extensively for flavoring, and is often eaten in small quantities with congee {plain, boiled rice porridge} for breakfast in China”). Bean sprouts (“Young sprouts of the mung bean”). Black beans (Fermented) (“Small, black, salted soy beans”). Hoisin sauce (“Literally translated it means ‘Sea-Fresh Sauce.’ The ingredients are soy sauce, soy paste, ground yellow beans, garlic, sugar and vinegar). Light soy sauce. Monosodium glutamate (“It can be eliminated from the recipes if desired”). Red bean curd cheese [a type of fermented tofu]. Soy jam (soy bean paste) (This is almost a solid version of soy sauce; it is somewhat less salty but often tastier than soy sauce).

Note: This book was first published in 1974 by William Collins Sons & Co. in London.

450. Ng Sock Nye. 1979. Soya bean—Nutritious food for the people. Malaysia: Institut Masyarakat Berhad, 9 Lorong Kucing, Pulau Tikus, Penang. 19 p. Illust. 21 cm. [3 ref]

• **Summary:** A very original and informative booklet, containing a photo or illustration (line drawing) of most of the soyfood products discussed.

Contents: Nutritional value of soya bean, soya bean milk (tau chui [soymilk]), soya bean curd (tau fu fah [soymilk curds]), soya bean jelly (tau fu [tofu]), fried bean cake cubes (tau fu pok [deep-fried tofu cubes]), bean cakes (tau kuah [pressed tofu]), dried soya strands (tau ki / fu chok [dried yuba sticks]), soya skin sheets (tau pui; dried yuba), sweet bamboo (t’im chok [sweet dried] yuba), vegetarian duck (chai ak [Buddha’s duck made from seasoned and steamed yuba]), vegetarian salted fish (chai kiam hu [Buddha’s fish made from tofu spread on yuba]), vegetarian meat (chai tu kar [Buddha’s ham made from seasoned yuba; may be steamed]), soya bean sprouts (tau geh [soy sprouts]), soya sauce (tau eu [soy sauce]), salted soya beans (tau chio [Malaysian fermented black soybeans]). Bibliography.

On page 18 is a photo of all the soyfood products discussed on one table, each neatly labeled with its Malaysian name.

451. Peppler, Henry J.; Perlman, D. eds. 1979. Microbial technology. 2nd ed. Vol. 1. Microbial processes. Vol. 2. Fermentation technology. New York, NY: Academic Press. Vol. 1, 544 p. Vol. 2, 536 p. Subject index.

• **Summary:** Contents of Vol. 1: 1. Beer brewing. 2. Cheese. 3. Distilled beverages. 4. Mold modified foods, by Hwa L. Wang and C.W. Hesseltine (p. 95-129, cited separately; incl. soy sauce, miso, hamanatto, sufu, tempeh). 5. Wine. 6. Vinegar. 7. Ketogenic fermentation processes. 8. Mushroom fermentation. 9. Inocula for blue-veined cheese and blue cheese flavor. 10. Microorganisms for waste treatment. 11. Elementary principles of microbial reaction engineering. 12. Microbial culture selection. 13. Methods for laboratory fermentations. 14. Instrumentation of fermentation systems. 15. Computer applications in fermentation technology. 16. General procedures for isolation of fermentation products. 17. Use of immobilized cell systems to prepare fine chemicals. 18. Economics of fermentation processes. 19. Fermentation processes and products: Problems in patenting.

Page 111: “Sufu, a traditional Chinese food, is a soft cream cheese-type product made from cubes of soybean curd (tofu) by the action of a mold. In the Western world, sufu has been referred to either as Chinese cheese or as bean cake. Because of the numerous dialects used in China, the product is also known as fu-ju, tou-fu-ju, and others (Wang and Hesseltine, 1970a).” Address: 1. Universal Foods Corp., Milwaukee, Wisconsin; 2. School of Pharmacy, Univ. of Wisconsin, Madison.

452. Voldeng, Harvey D. 1979. Soybeans in Canada—Past, present and future. Based on an article [sic, manuscript] by Dr. H. Voldeng. In: 1979. Fats and Oils in Canada: Annual Review. Ottawa, Ontario, Canada: Grain Marketing Office, Dept. of Industry, Trade and Commerce, Agriculture Canada. [vi] + 95 p. See p. 1-10. Chap. 1. [7 ref]

• **Summary:** Contents: Introduction. Introduction of

soybeans to Canada. Importance of the soybean [worldwide]. Utilization. Food uses of soybeans: Oriental foods—Soy milk, tofu, sufu, miso, soy sauce, tempeh, Hamanatto, natto. Western ingredients—Full fat flour, defatted flour, soy protein concentrates (70% protein), soy protein isolate (more than 90% protein), textured soybean protein. Soybeans in Ontario. Development of short season varieties. Soybeans in Quebec and the Maritimes. Soybeans in the Prairies (southern Manitoba and Alberta).

A table shows soybean acreage in Ontario's leading counties in 1978. Kent 205,000. Essex 192,000. Lambton 170,000. Elgin 63,000. Middlesex 40,000. Other 7,000. Total (Ontario) 705,000 acres.

Soybeans grown in Ontario can be crushed at three plants: (1) Victory Soya Mills (owned by Procter and Gamble) in Toronto. (2) Canadian Vegetable Oil Processing Limited (owned by Canada Packers) in Hamilton. (3) The recently completed Maple Leaf Monarch plant (affiliated with Unilever Corporation) in Windsor. Total crushing capacity in Ontario is about 35 million bushels per year.

The CSP Foods Plant in Altona, Manitoba, has in some years crushed limited amounts of soybeans imported from the U.S.

“Development of short season varieties: The justification for the effort to develop a large acreage outside of southwestern Ontario as been the magnitude of imports of soybeans, meal and oil. This has been and continues to be sizeable. The situation (in metric tons = tonnes) is outlined below for the 1977/78 crop year: (1) Whole soybeans: Production 527,361. Imports 262,835. exports 64,173. Domestic crushing 728,400.

(2) Soybean oil: Imports 28,100. Exports 1,400. Domestic production 125,600.

(3) Soybean meal: Imports 376,300. Exports 45,600. Domestic production 575,400. Source: *Fats and Oils in Canada, Annual Review*, 1978.

Letter (e-mail) from Dr. H. Voldeng of Agriculture and Agri-Foods Canada. 2010. Feb. 16. The original “article” was not an article but a manuscript that was sent to the publishers of this volume; they reduced the length slightly. It was never published separately, no longer exists, and cannot be cited separately. Address: Agriculture Canada, Ottawa, Ontario.

453. Wang, Hwa L.; Hesseltine, C.W. 1979. Mold-modified foods. In: H.J. Pepler and D. Perlman, eds. 1979. *Microbial Technology*. 2nd ed. Vol. 2. Fermentation Technology. New York: Academic Press. 544 p. See Vol. 1, p. 95-129. [90 ref]  
 • **Summary:** Volume 1. Microbial processes. Volume 2. Fermentation technology. Contents: 1. Introduction. 2. Soy sauce. 3. Miso. 4. Hamanatto. 5. Sufu [fermented tofu]. 6. Tempeh. 7. Ang-kak (red rice, used as a color agent). 8. Absence of mycotoxins in fermented foods. 9. Conclusions.

For each food is given: General description, method of

preparation, composition [chemical / nutritional]. In addition for tempeh is given: Tempeh-like products, biochemistry and physiology of *Rhizopus oligosporus*, changes occurring during fermentation, nutritional value.

“Soy sauce “is known as chiang-yu on China, shoyu in Japan, kecap in Indonesia, kanjang in Korea, toyo in the Philippines, and see-iew in Thailand. In the Western World the product is often referred to as soy sauce.” Japan is the leader worldwide in sauce production; it has the largest fermentation plant and uses the most advanced technology.

Hamanatto: Products similar to Japan's hamanatto are known as tou-shih in China, tao-si in the Philippines, and tao-tjo [sic] in the East Indies [Indonesia]. A typical process for making hamanatto in Japan, based on information supplied by Dr. T. Kaneko of Nagoya Univ., Japan, is as follows: Wash soybeans, then soak, steam until soft, drain, and cool. Mix with parched wheat flour in the ratio of 2 parts soybeans to 1 part flour. Inoculate the soybeans with a short- or medium-stalked strain of *Aspergillus oryzae*. Incubate for 1-2 days until the beans are covered with a fragrant mycelium and have become soybean koji. Pack the soybeans in a container [wooden keg] with (for example) 2.5 kg soybean koji, 650 gm salt, 3.6 liters water and some freshly sliced gingerroot. Cover the container tightly and age under pressure for 6-12 months. Remove beans from liquid and dry them in the sun to give hamanatto. The composition of the brine may differ among manufacturers.; thus the finished hamanatto differs somewhat in taste and appearance. “Japanese hamanatto is rather soft, having a high moisture content. Chinese tou-shih has a much lower moisture content... and therefore is not so soft. Tao-tjo tends to have a sweet taste because sugar is often added to the brine.”

Shoyu in Japan: Although there are more than 4,000 shoyu makers in Japan, the largest 4-5 companies produce about 50% of the total.

Note: A wide variety of dairy cheeses, especially of French origin, are made with surface mold growth. Typical varieties are Camembert, Coulommiers, and Brie. Address: NRRC, Peoria, Illinois.

454. Yueh, Jean. 1979. *The great tastes of Chinese cooking: contemporary methods and menus*. New York, NY: Times Books. A Division of Quadrangle / The New York Times Book Co., Inc. xiv + 302 p. Illust. (line drawings and photos). Index. 24 cm.

• **Summary:** “Western food technology is applied to classical Chinese recipes, allowing for the use of the food processor, blender and microwave oven in preparing a variety of Chinese dishes” (from the publisher). The romanization / transliteration is in Pinyin (which means “transcription”). The index contains 8 recipe entries for black beans, salted, 6 for brown bean sauce, 4 each for black bean sauce and for hoisin sauce, 3 each for bean curd and for soy sauce, and 1 for fermented bean curd.

The section titled “Chinese ingredients” (p. 267-80) includes: Bean curd, fresh (2 Cc = 2 Chinese characters are given): Dou-fu. “This ivory-colored, smooth and custard-like product is made from soybean milk...”

“Black beans, salted (2 Cc): Dou-chi—One of the most interesting seasonings, they are salty with a distinct flavor. The beans are available in cans or plastic bags. To store: Will keep indefinitely in a covered jar at room temperature. Tiny white salt crystals may appear after a long period...”

Brown bean sauce (3 Cc): Yuan shai-chi. “Made from fermented soybeans, salt, flour, and water, it is a salty, thick, brownish sauce. When the beans in the sauce are ground up, it is called *ground* brown bean sauce.”

Fermented bean curd (red or white) (4 Cc): Fu-ru (Hong, Bai): “Both are pungent and salty in taste, and are used mostly for seasoning or as condiments for Chinese breakfast with rice congee.”

Hoisin sauce (3 Cc): Hai-xian-jiang. “Thick, reddish brown sauce made from sugar, vinegar, soybean, salt, flour, fermented rice, chili, and spices.”

Soy sauce (2 Cc): Jiang-you. “This is the most important and distinctive seasoning in Chinese cooking.” Light soy sauce (or thin soy) (2 Cc): Sheng-chou. Use when you wish to retain the natural color of the food. Dark soy sauce (thick or black soy) (2 Cc): Lao-chou. It has a slightly sweet taste from the caramel that is added for coloring. Use when a dark, rich color is desired.

About the author: “Jean Yueh, Chinese cooking authority, native of Shanghai and protégé of noted Hong Kong chefs, runs the Jean Yueh cooking school in Berkeley Heights, New Jersey.” A portrait photo shows Jean Yueh (inside rear dust jacket). Address: Berkeley Heights, New Jersey.

455. Liu, T.Y.; Chen, H.J. 1980. Antioxidant from fermented black soybean (Abstract). *J. of the American Oil Chemists' Society* 57(2):182A. Feb. (ISF/AOCS World Congress—Abstracts of Papers).

• **Summary:** Toshi, a product of black soybeans fermented by *Aspergillus oryzae*, is widely used as a seasoning in Chinese cuisine, as with steamed fish and spareribs. Address: Food Industry Research & Development Inst., P.O. Box 246, Hsinchu, Taiwan.

456. **Product Name:** Chinese soy sauce and Wing Nien Soy Sauce Mfg. Co. (Interview).

**Date of Introduction:** 1980. April.

**New Product—Documentation:** Shurtleff visited David at the Wing Nien plant. David’s light soy sauce is fermented at room temperature for an average of 9 months (range 6-12 months); at this time the color is pale amber. Why is it not the same color as tamari? David says that to Chinese thick and dark soy sauce connotes low quality since makers add brine to the residue remaining after the first drawing off of

light soy sauce, and referment once or twice more for 6-9 months each time. The soy sauce gets darker each time. To get dark soy, David just adds molasses to light soy. He sells it for less than light soy sauce even though it costs him more to make.

“Hoisin” is pronounced like it is written. The characters are sea + a kind of fish + jiang. It is sometimes made from the residue remaining after the first drawing off of light soy sauce. This residue is lightly pressed, ground to a smooth paste, then mixed (at Wing Nien) with the following in order of predominance: soybeans, sugar, water, salt, flour, wine vinegar, garlic, chili, spices, artificial color, and 0.1% sodium benzoate. It is jet black, creamy smooth, and very sweet. Sold in a 14-ounce bottle. Hoisin sauce is typically used with Peking Duck, Mu Shu Pork (served in pancakes), Chinese-style spareribs, or barbecued pork. Brush it on the meat while cooking or mix with ½ part soy sauce.

Notes to accompany flow chart of Wing Nien Soy Sauce: The koji is made with 100 lb of whole dry soybeans and 5 lb wheat flour. It is inoculated by mixing a Japanese koji starter (olive green) with the wheat flour and dusting it over the soybeans. Incubate in wooden trays 1½ by 3 feet, each with a copper screen on the bottom—first in one room at 90°F, then in an adjoining room at a lower temperature for 2-3 days. Pre-mix the koji in a small fiberglass tank with brine, then put it into 7,000 gallon fiberglass tanks. Agitate it with air from below for 15 minutes a day. After 9 months of fermentation, run into flour sacks placed in 3½-foot diameter pressing tanks (each perforated inside with ½-inch diameter holes), and press overnight with 300-400 lb of stones atop each. David also mixes chemical [HVP] soy sauce; 70% of his business is fermented and 30% is chemical / HVP.

HVP is a brown liquid, fairly dark in color, sold as a liquid concentrate. It has a pretty good flavor but Akiko got a splitting headache after sipping it. It contains a high percentage of protein. Chemical soy sauce with good flavor is that with a large amount of HVP concentrate. To distinguish HVP soy sauce from fermented, just read the label. Chemical soy sauce will read HVP, caramel, corn syrup, etc. Check at local Monty grocery store; transcribe a La Choy label.

David sells most of his chemical soy sauce cheaply to the institutional market.

Chinese warming their soy sauce in the sun is their equivalent of Japanese pasteurization in terms of aroma and color. In China, light soy sauce is good quality; dark is second rate.

Chinese fermented soy sauce makers in the USA also exist in New York and Palo Alto; Wei Chuan will soon start in Los Angeles.

Light Chinese soy sauce is amber, not brown. The ingredients in Wing Nien’s light Chinese soy sauce are water, soybeans, salt, wheat and less than 1/10 of 1% sodium benzoate.

In Chinese soy sauce, wheat is used only as a starter for the fermentation—about 5% of the weight of dry soybeans. After the first soy sauce (light) is drawn off, add brine, referment, and re-draw. Do this up to three times total. The Chinese re-use the residue (lees). An estimated of this residue is used to make the condiment / paste Min See Jiang [Mian Shi Jiang], a bean paste which is served on steamed fish with gingerroot and onion. After the third drawing off of the soy sauce, press the lees / residue with a heavy rock.

Question: How exactly is Chinese soy sauce drawn off? See a description by A.K. Smith in the late 1940s. David is not sure. A woven bamboo basket is pressed into the jiang in an earthenware crock. The liquid soy sauce collects in the basket, then it is siphoned off.

Sona in Los Angeles makes only chemical soy sauce, as does the Chinese company in Seattle [Washington].

David's output of fermented soy sauce is 20% light and 80% dark. In China, the total output of soy sauce is about 70% light and 30% dark.

David thinks the best imported soy sauce is Tung Chung from Hong Kong. The "4 in 1 Co. makes fermented and HVP soy sauce. Chemical / HVP soy sauce usually contains more protein than fermented soy sauce; the specifications dictate that. The GSA (General Services Administration, which takes government bids) now has specifications for both fermented and non-fermented soy sauce.

In the USA, retail sales of soy sauce imported from countries of Chinese heritage [Hong Kong, PRC / China, Taiwan, Singapore] are about even for light and dark. However foodservice institutions buy about three times as much light as dark. They use poor quality meat and add good seasoning.

Of the soy sauce made in China / PRC, about twice as much light is sold compared to dark. Most imported dark soy sauce does not contain caramel.

To cook with salted black beans (*dow-si*), grind them in a container with water and soy sauce, then add to a wok and use for stir frying.

457. *SoyaScan Notes*. 1980. Chinese soy products purchased in San Francisco Chinatown (Overview). April 17. Compiled by William Shurtleff of Soyinfo Center.

• **Summary:** Commercial products purchased in San Francisco Chinatown. Shurtleff and Aoyagi purchased these before visiting David Hall, owner of Wing Nien Soy Sauce Mfg. Co., in San Francisco, and discussed some of them with him.

Soybean condiment: It is brown and moderately salty; it has a little texture. Contains soybean, wheat, salt, water, molasses, caramel coloring, MSG, garlic powder, sesame seed, sodium benzoate.

Koon Chun Thin soy sauce contains water, soybeans, salt, flour. No preservative. Made in Hong Kong.

Pearl River Bridge Soy Superior sauce. Made in

mainland China (PRC). 21 fl. oz. Ingredients: Extract of soybeans, wheat flour, salt, sugar. Very dark. Use for dipping, not for cooking.

Pearl River Bridge Superior Soy: 22 fl. oz. Ingredients: Extract of soya beans, wheat flour, salt, water. No sugar, no preservative. Made in China (PRC). Not as dark as "Soy Superior." Use for dipping.

Yuet Heung Yuen—Dark soy. Ingredients: soybeans, flour, salt, water. No preservative. 11 fl. oz. Address: 171-175 Main St., Aplichau, Hong Kong.

"Salted black beans." They look like hamamoto, sold 8 oz. (by weight) in a plastic bag. Flecks of salt can be seen on the surface of each bean. Ingredients: Black beans [soybeans] and salt. Made in Hong Kong. Also called "sa dow-si" = salted black beans.

458. Hesseltine, C.W.; Wang, H.L. 1980. The importance of traditional fermented foods. *BioScience* 30(6):402-04. June. [12 ref]

• **Summary:** Table 1 gives, for each food, the name, area or country, microorganism used, substrate, nature and uses. The following soy-related foods are included: Soy sauce (chiang-yu, shoyu, toyo, kanjang, kecap, see-ieu), miso (chiang, doenjang, soybean paste, tauco), Hamamoto (toushih, tao-si, tao-tjo [sic, tao-tjo = tauco is Indonesian-style miso]), sufu (fu-ru, fu-ju, tou-fu-ju, bean cake, Chinese cheese), tempeh, bongkrek, ontjom (oncom), natto. Address: NRRC, Peoria, Illinois.

459. Fabricant, Florence. 1980. Dining out: East meets West at a seafood house. *New York Times*. Aug. 3. p. LI13.

• **Summary:** This is a restaurant review of Hisae at Old Gil Clark's (124 Maple Ave., Bay Shore). "Fish, seafood, poultry and fresh vegetables are given an Oriental cast with the use of soy sauce, ginger, black beans and garlic as seasonings." "Another Hisae favorite is sea bass with black beans and ginger."

460. Fabricant, Florence. 1980. Dining out: Cantonese with surprises. *New York Times*. Aug. 24. p. LI17.

• **Summary:** This is a review of the Cantonese Chinese restaurant Diamond's (40-20 Nesconset Highway {Route 347}, East Setauket—a census-designated place (CDP) in Suffolk County, New York on the North Shore of Long Island).

Recommended dishes include: "Clams with black bean sauce." "King crab dow see." "Black bean chicken." The menu includes a number of dim-sum style appetizers, chicken or seafood bathed in black beans and ginger or richly seasoned with dark hoisin sauce." A "hot and sour soup, thick with squares of bean curd [tofu],..." "Seamed littleneck clams in a dark sauce spiked with salty black beans [fermented black soybeans] made another rewarding appetizer..."

Note 1. This is the earliest document seen (Nov. 2011) in all major U.S. newspapers digitized by ProQuest that uses the term “salty black beans” to refer to fermented black soybeans. The new term appears in about 18 documents between 1980 and 2003.

Note 2. “Dow see” is the Cantonese term for fermented black soybeans.

461. Somporn, Wannee. 1980. Review of solid substrate fermented products in Thailand. In: ASEAN Sub-Committee on Protein, ed. 1980. Report on the Second ASEAN Workshop on Solid Substrate Fermentation. Kuala Lumpur, Malaysia. 415 p. See p. 235-49. [3 ref]

• **Summary:** Table 3 shows fermented foods prepared in Thailand from legumes and cereals. Fermented foods having soybeans are the main substrate are: See iew (a condiment, made in central and south Thailand using bacteria, molds, and yeasts). Thua nao (main dish, made in north Thailand using bacteria). Tao hoo (tofu, main dish, made in central and south Thailand using bacteria, molds, and yeasts). Tao jiao (flavoring, made in central and south Thailand using bacteria, molds, and yeasts). Tao si ([fermented black soybeans], flavoring agent, made in south Thailand, using molds).

A survey of all soy sauce factories in Thailand was conducted in 1975. Representative samples were analyzed for both pathogenic organisms and aflatoxin, but neither was found (Biological Science Division, 1975-1976).

Note.: This is the earliest English-language document seen (Feb. 2004) that uses the word “Tao hoo” (or “Tao-hoo”) to refer to tofu. Address: Biological Science Div., Dep. of Science Service, Ministry of Science, Technology and Energy, Thailand.

462. Soriano, M.R.; Navarro, N.S.; Parel, S.O. 1980. Solid substrate food fermentation technology in the Philippines. In: ASEAN Sub-Committee on Protein, ed. 1980. Report on the Second ASEAN Workshop on Solid Substrate Fermentation. Kuala Lumpur, Malaysia. 415 p. See p. 198-223. 29 cm. [45 ref]

• **Summary:** This paper gives a brief history of the development of food fermentation technology in the Philippines, including fermented soy products such as toyo (soy sauce), tausi (or tao-si [fermented black soybeans], called “taousih” by the Chinese and “tao tjo” [sic] by the East Indians), tahuri (fermented tofu, sufu, or Chinese cheese. Cubes of tofu are inoculated with an *Actinomucor* mold; angkak is often used to impart a red color), and miso (called Chiang in China). A related product is angkak, or “red rice,” made by fermenting rice with the red mold *Monascus purpureus* Went for coloring and flavoring. The science of fermentation can be said to have dawned in the mid-1800s when Louis Pasteur discovered that every fermentation process was associated with a corresponding organism. Before World War II the use of microorganisms for the

processing of foods was an unexplained field of study in the Philippines. The four pioneering studies from 1934 to 1937 included one by Yenke and Baens in 1940 the use of rice as a source of carbohydrate in the production of soy sauce. The first scientific investigation (1934, with nata) was done in the University of the Philippines, College of Agriculture in Los Baños, Laguna, and the last three studies were pursued in the former Bureau of Science, now the National Institute of Science & Technology (NIST).

There are no local written reports or scientific investigations of tausi, tahuri, or miso. Their manufacture is dominated by Chinese in the Philippines. Much attention, however, has been given to the production of soy sauce (toyo). Reviews of studies conducted in the Philippines have been given by Soriano (1975) and Soriano and Pardo (1977). Work is presently being done at NIST on the replacement of soy beans with local beans, and wheat with rice, cassava or banana flour in the production of soy sauce. Address: National Inst. of Science and Nutrition, Manila.

463. Tang, Charles Chang Chiu. 1980. Studies of solid substrate fermentation in Singapore. In: ASEAN Sub-Committee on Protein, ed. 1980. Report on the Second ASEAN Workshop on Solid Substrate Fermentation. Kuala Lumpur, Malaysia. 415 p. See p. 225-233. [5 ref]

• **Summary:** Many of Singapore’s fermented foods are traditional indigenous foods. These include: (1) Fermented soya beans used in the koji to make soya sauce. (2) Fermented whole soya beans, which are preserved in brine (fermented black soybeans) or made into a paste (like Chinese soybean jiang). (3) Fermented cubes of tofu.

Of these fermented food products, only the fermentation process for making soya sauce has been studied at length by the National University of Singapore and the Singapore Institute of Standards and Industrial Research. Their findings of improved *Aspergillus* mutants for the production of better quality soya sauce have been reported at a previous ASEAN Workshop on Soya Sauce Manufacturing technique (1978 Singapore). “The Department of Scientific Services has analysed samples of fermented ‘Tofu,’ soya beans, soya sauce and shrimp paste and found that aflatoxins were absent in these fermented products.” Address: PhD, Dep. of Scientific, Outram Road, Singapore 0316.

464. Anderson, Eugene N. 1980. Re: Soybeans, tofu, and tempeh. Letter to William Shurtleff at Soyfoods Center, Dec. 12—in reply to inquiry. 2 p. Typed, with signature on letterhead. [4 ref]

• **Summary:** A sinophile, he is collaborating with Dr. Paul Buell (an historian at Western Washington University, Bellingham, WA) on various books on Chinese agriculture, including an economic botany. “We are currently working on the soybean article for this and drawing heavily on your books. He is an inveterate tofu maker who lives by your



books.”

The spices in real curry are fascinating and much different from those in the “nauseating and disgusting ‘curry powder’ of commerce.”

He is aware of some spectacularly fine Chinese books on vegetarian soyfoods cookery, written by Buddhist religious groups. “Most of the Chinese cookbooks in English are obscene and should be banned as pornography.”

It is now known that the old Shen Nung Herbal is from ca. 100 A.D.

“Tempe I assume to be an application to soybeans of earlier technology used on coconut. Incidentally the soybean was introduced to the Malay world by people from the Fujian-Guangdong border between Xinmen (Amoy) and Swatow (Shandou), as shown by the distinctive dialect words borrowed into Malay (*bahasa Indonesia, bahasa Malaysia*)—*taohu, taugé, taucho, tausi*, etc. These are also in Indonesian and Filipino—though *tausi* could be from Cantonese. These are direct borrowings of precisely the dialect forms of the border area, the southern dialects of the Southern Min or Hokkien language. *Tauhu*, for instance, is their pronunciation of *tofu* (*doufu* in standard Chinese). One word I can’t explain is *kecap* (formerly spelled *ketjap* and so pronounced), the Malay word for soy sauce. It seems to have referred earlier to quite a different, local brew. It has nothing whatever to do with ketchup.

“The latest soy news is yet another proof that peasant techniques have their reasons. It now appears that soybeans have a huge amount of phytate, amounting to up to several percent of the bean. Phytate (the distinctive ion of phytic acid) takes up calcium, zinc magnesium, niacin and other chemically active items in food and makes chemical compounds that humans can’t digest effectively. Thus the calcium, niacin, etc., of food is lost. This leads to calcium deficiency, zinc deficiency (as with whole-grain wheat bread eaters in the Near East), or worst of all, pellagra (corn is classically associated with pellagra because it’s high in phytate and low in niacin). But of course if you add calcium or magnesium or the like to your food, it takes up the phytate and you’re OK. Heat also destroys some of it. Micro-organisms such as yeasts and *Aspergillus* can also destroy it, having appropriate enzymes. Thus processing soybeans with gypsum, *nigari* or fungal fermentation wipes out this danger.” Address: Dep. of Anthropology, Univ. of California, Riverside, CA 92521.

465. Wang, I.H.; Chen, S.K.; Hsu, W.H. 1980. Studies on inyu (black soybean sauce) fermentation. I. Microbial and biochemical changes during fermentation and processing. *Food Industry Research and Development Institute (Taiwan), Research Report No. 2.* 14 p. [9 ref. Eng]\*  
Address: FIRDI, Hsinchu, 300 Taiwan.

466. Fessler, Stella Lau. 1980. Chinese meatless cooking.

New York, NY and Scarborough, Ontario, Canada: New American Library. 298 p. Illust. by Janet Nelson. Index. 20 cm.

• **Summary:** This vegetarian cookbook, which contains more than 180 recipes, demonstrates vividly how much Chinese vegetarian cookery depends on soyfoods—especially *tofu* (bean curd). The glossary includes excellent descriptions of bean curd—fermented red (*nan-ru*), bean curd—fermented white (*tofu-ru*), bean curd—pressed threads or noodles, bean curd sheets (*tofu-pi [yuba]*), bean curd sheets (*er-ju*), bean curd sheets—pressed or hundred-leaf (*bai-yeh*), bean curd sticks (folded bean curd sheets), brown bean paste or brown bean sauce, bean paste—Szechuan hot bean or spicy soy, bean sprouts—soy or yellow, fermented or salted black beans, Hoisin sauce, Oyster sauce (with soy), soy sauce, soy sauce—light or thin.

The chapter on soups stocks notes that soybeans or soybean sprouts have a delicate flavor and are most suitable for making stock. Soy sprouts, which are much larger than mung bean sprouts, have a more chewy texture and a very sweet, delicate taste; they are often used to strengthen the flavor of a dish (see recipe p. 90).

Soy-related recipes (each with the name written in Chinese characters) include: Mixed pressed bean curd threads (p. 68). Spinach and deep-fried bean curd puff salad (p. 70). Soybean sprout salad (p. 73). Pressed bean curd salad (p. 76). Monks in a storm of wind and snow (Asparagus and bean curd salad, p. 82). Soybean sprout stock (p. 90). Deep-fried bean curd and mung bean noodle soup (p. 93). Spinach and bean curd soup (p. 98). Seaweed and bean curd soup (p. 99). Soybean soup (p. 100). Soybean with fried gluten soup (p. 101). Asparagus and bean curd soup (p. 106). Goddess of Mercy (Kuan-yin) soup (With bean curd and tiger lily bulbs, p. 112-13).

One long chapter (p. 118-160) is titled “Bean curd dishes, mock meat dishes, and mock fish dishes.” It gives good definitions of and home-scale recipes for: Bean curd. Deep-fried bean curd puffs. Plain pressed bean curd cakes. Five-spice pressed bean curd cakes. Braised deep-fried bean curd puffs. Bean curd with oyster sauce (not vegetarian). Braised bean curd. Spicy bean curd. Steamed bean curd with spicy bean paste sauce. Bean curd with tomatoes. Bean curd with fresh mushrooms. Cold bean curd. Stubborn stones’ obeisance (Fried bean curd with vegetables). Braised frozen bean curd with chives. Braised Fukien [Fujian] bean curd. Stir-fried Chinese chives with pressed bean curd. Stir-fried pressed bean curd with carrots and bamboo shoots. Mock lion’s head (with five-spice pressed bean curd). Stir-fried green peppers with mock meat (pressed bean curd). Mock moo goo gai pan (Stir-fried pressed bean curd with vegetables). Mock roast duck (with dried bean curd sheets and soy sauce). Mock soy sauce chicken (with fresh or frozen hundred-leaf bean curd sheets). Mock velvet chicken (fried bean curd with egg whites). Spicy mock chicken (with

mock soy sauce chicken). Mock ham (with dried bean curd sheets). Bock abalone (braised gluten balls). Mock mu-shu pork (with five-spice pressed bean curd, shredded). Fried mock squab (with chopped pressed bean curd). Mock twice-cooked pork (with five spice pressed bean curd). Bean curd with thousand-year eggs.

Other interesting recipes include: Wheat gluten (homemade mein jin or vegetable steak, p. 165-66; At Chinese grocery stores, wheat gluten is sold in various forms—fried, dried, steamed, boiled, canned, and frozen). Fried gluten balls. Boiled gluten. Lo Han vegetable dish (with fried wheat gluten balls, p. 169-70). Chinese mustard greens in black bean sauce (p. 173-74). Stir-fried leeks with bean curd (p. 186). Fresh soybeans stir-fried with fresh mushrooms (p. 187). Boiled fresh soybeans in their pods (p. 188). Bean sprouts stir fried with wheat gluten (p. 190). Stir-fried soybean sprouts with bean curd puffs (p. 191). Cauliflower and bean curd sticks (p. 192). Winter melon with red fermented bean curd sauce (p. 195). Stir-fried asparagus with fermented bean curd (p. 197). Stir-fried lettuce with white fermented bean curd sauce (p. 198). Sweet and sour fried gluten and cabbage (p. 208). Two immortals in the apricot garden (fried gluten with vegetables and almonds, p. 209). Braised eggs with bean curd sticks (p. 213-14). Scrambled eggs with fermented bean curd (p. 214). Bean curd with salted eggs (p. 216-17). Wonton soup (with fresh bean curd, p. 233-34). Fried wontons (filled with five-spice pressed bean curd, coarsely chopped). Soybean milk, sweet soybean milk, and salty soybean milk (p. 247-48). Deep-fried crullers (*yu chiao*; sometimes served in hot soymilk, p. 249-50). Noodles with spicy bean paste sauce (and five-spice pressed bean curd, p. 258-59).

Note 1. This is the earliest English-language document seen (Oct. 2011) that uses the term “red fermented bean curd” to refer to red fermented tofu.

Note 2. This is the earliest English-language document seen (Oct. 2011) that uses the term “white fermented bean curd” to refer to regular white fermented tofu. Address: Cornell Univ., Ithaca, New York.

467. Fukushima, Danji; Hashimoto, Hikotaka. 1980. Oriental soybean foods. In: F.T. Corbin, ed. 1980. World Soybean Research Conference II: Proceedings. Boulder, Colorado: Westview Press. xv + 897 p. See p. 729-743. [7 ref]

• **Summary:** Contents: Fermented soybean foods. Non-fermented soybean food. Conclusion. References.

The following statistics show the amount (tons) of whole soybeans/ defatted soybean grits/ total of whole and grits consumed for various soybean foods and feeds in Japan in 1976.

Fermented soyfoods: Shoyu (soy sauce) 10,000/ 165,000/ 175,000, miso 190,500/ 5,000/ 195,500. Natto 69,000/ 0/ 69,000.

Non-fermented soyfoods: tofu and aburage (fried tofu

pouches) 411,500, 55,000/ 466,500. Kori-tofu (dried-frozen tofu) 29,000/ 0/ 29,000. Others 16,000/ 75,000/ 91,000.

Animal feeds: 30,000/ 1,950,000/ 1,980,000. Thus total use for foods and feeds is whole soybeans 756,000. Defatted soybean grits 2,250,000, total of both 3,006,000. By type of use, animal feeds account for 65.9% of total Japanese usage of whole soybeans and defatted grits, non-fermented soyfoods account for 19.5%, and fermented soyfoods account for 14.6%. The top three food users are tofu (466,500 tons, 45.5% of all food uses), miso (195,500), and shoyu (175,000). There are 35,000 tofu plants in Japan.

Fermented soybean foods described are shoyu (soy sauce; 5 types), miso (3 basic types, 6 varieties), sufu (Chinese soybean cheese), tempeh (fermented soybean cake), natto (fermented whole soybeans; itohiki-natto and hama-natto), and fermented soymilk (recently a new fermented soybean product appeared on the market in Japan. It is a soy milk drink fermented by lactic acid bacteria).

Non-fermented soybean foods described are tofu (soy milk curd), aburage (fried tofu pouches), kori-tofu (dried-frozen tofu), yuba (coagulant film of soy milk), kinako (roasted soybean powder), moyashi (soybean sprouts), and soybeans. Production, chemical composition, and use of each of these foods is discussed. Address: Kikkoman Foods Inc., P.O. Box 69, Walworth, Wisconsin 53184.

468. Hu, Shiu-ying; Kong, Y.C.; But, Paul P.H. comp. 1980. An enumeration of Chinese materia medica. Hong Kong: The Chinese University Press. xxiv + 287 p. Illust. Index. 17 x 24 cm. [40+ ref. Eng; chi]

• **Summary:** A dictionary, arranged alphabetically. Part of the growing interest in ethnopharmacology. Dr. Hu is a woman. Contents: Dedication. Foreword, by Richard Evans Schultes (Director, Botanical Museum, Harvard Univ.). Preface by E. John Staba (College of Pharmacy, Univ. of Minnesota). Acknowledgments. Introduction: Selection, structure, appendices, literature cited. Part I: An alphabetical list (numbered) of Chinese medicines, with their Chinese names (transliteration and characters), botanical names, and their equivalents in English and pharmaceutical usage (p. 1-188). Part II: A systematic arrangement: Plants, animals, minerals, and miscellaneous preparations (p. 191-229). Appendices: I-A. A guide to the Wade system of romanization. I-B. A table for the conversion of Pinyin to the Wade system. II. Alphabetic lists of families and general of plants. III. The conversion of simplified Chinese characters into classical form. IV. An index of Chinese names.

Soy-related items in Part I. #800, p. 65: “Lu-tou-p’i (Tou-i). Soybean husk. Testa Glycines.

“#1425, p. 115: Ta-tou huang-chuan. Young [yellow] soybean sprouts. Plantula Glycines.

“#1477, p. 119: Tan-tou shih [shih as in fermented black soybeans]. Glycine soja [wild soybean], *Morus alba* [white mulberry], plus *Artemisia apiacea* [member of the daisy

family, Asteraceae]. English: Tantoushih. Pharmaceutical: Mistura Glycines, Mori, et Artemisiae Fermentata.

“#1651, p. 134: Tou-fu (Tou-chiang, Tou-fu cha [= dregs], Tou-yu). Tofu (Soybean jiang, okara, soy oil). Soybean products. Effectus Glycines.

“#1653, p. 134: Tou-huang. Bean + yellow. Glycine soja. Black soybean (cooked and mold yellow). Touhuang.

“#1661, p. 135: Tou-shih (Hêh-tou shih). Black + bean + fermented soybeans. Glycine soja. Black soybean (medicated). Semen Sojae Praeparatus.

“#2105, p. 172: Yeh liao tou. Glycine soja. Wild soybean. Semen Glycines Soja.

“#2129, p. 175: Yeh ta-tou t'êng. Glycine soja. Wild soybean. Herba et Radix Glycines Soja.” Address: PhD, Botanist.

469. Hua, J.J.; Wang, I.H.; Chen, S.K.; Hsu, W.H. 1980. Studies on inyu (black bean sauce) fermentation. In: Proceedings of the Oriental Fermented Foods. Food Industry Research and Development Institute, P.O. Box 246, Hsinchu, (300) Taiwan. iv + 229 p. See p. 102-11. Held 10-14 Dec. 1979 in Taipei, Taiwan. 8 tables. 3 figs. [12 ref]

• **Summary:** Inyu is a fermented soy sauce made with black soy beans (*Glycine soja* Sieb. and Zucc). The annual consumption of regular fermented soy sauce and of inyu in Taiwan was worth over 25 million U.S. dollars in 1974; inyu accounted for 30% of this. Unlike soy sauce, the flavor of inyu is intensified after cooking. This is one of its major characteristics and makes it better than soy sauce for use in cooking. Fig. 1 shows the traditional inyu fermentation process.

“The chemical composition, enzyme activities, and microbial population in the process for Inyu fermentation from black bean were investigated. The results indicate that the major microorganism responsible for the aging of Inyu is the halophilic lactobacilli, while yeast has only a minor role in Inyu fermentation. When the washed-koji was preincubated at 40-45°C for 4 hours, the aging period could be reduced from 90 to 40 days. The conversion of total nitrogen from Inyu-mash to Inyu increased from 60% to 66%.

“To further improve the productivity of Inyu fermentation, the defatted black bean flakes and crushed black bean flakes were used to replace the whole black bean as raw material. The nitrogen utilization of Inyu-mash also increased from 60% to more than 72% after 56 days at 30°C. However, the flavor and aroma of Inyu made from defatted black bean flakes need to be further improved.” Address: Food Industry Research and Development Inst., Hsinchu 300, Taiwan.

470. Iwamoto, H. 1980. General aspects of Japanese fermented foods. In: Proceedings of the Oriental Fermented Foods. Food Industry Research and Development Institute,

P.O. Box 246, Hsinchu, (300) Taiwan. iv + 229 p. See p. 31-45. Held 10-14 Dec. 1979 in Taipei, Taiwan. 15 tables. 2 figs.

• **Summary:** The fermented foods indigenous to Japan which are made from protein-rich materials can be grouped into two types: the soybean group and the fish group. The former, which includes miso, shoyu, and natto, is the more popular and production is very large. The author presents an early history and genealogy of miso, shoyu, and natto based on the Japanese-language writings of Prof. K. Sakaguchi and Prof. M. Nakano. Shi [fermented black soybeans] were recently found in an ancient Chinese tomb of the 2nd century B.C. “The word *shoyu* or *chiang-yu* never appeared in any old Chinese manuscripts. Nevertheless I wonder if the origin of Japanese shoyu might be the Chinese *chiang* in the Ming dynasty or an earlier period. Anyhow, the question is still: When did the Chinese start making koji from a mixture of soybean and wheat? And when and where was filtration of soybean *chiang* successfully commenced. As for the later, it is quite possible that the filtration was started in Japan.”

In 1977 the following amounts of fermented soyfoods were produced in Japan: miso 620,902 tonnes (using 190,000 tonnes of whole soybeans and 1,579 tonnes of defatted soybean meal), shoyu 1,228,244 tonnes (using 11,788 tonnes of whole soybeans and 180,000 tonnes of defatted soybean meal), and natto 120,000 (using 71,000 tonnes of whole soybeans).

Table 2 shows soybean production in Japan and the USA every 5 years from 1930 to 1978. Production in Japan was 388,600 tonnes in 1930, reaching a peak of 507,100 in 1955, falling to a low of 109,500 in 1976, then rising slightly to 187,900 in 1978. The first year for which imports are shown is 1970, when 3,243,790 tonnes were imported, 91% of which from the USA. In 1978 4,260,041 tonnes were imported, 97% from the USA.

Table 6 shows miso production in Japan from 1967 to 1976. Factory production grew from 535,000 tonnes in 1967 to a peak of 650,000 tonnes in 1973, down slightly to 630,000 tonnes in 1976. Farmer (household) production decreased steadily from 207,000 tonnes in 1967 (39% of factory production and 26% of total production) to 67,000 tonnes in 1976 (11% of factory production and 10% of total production). Total production and annual per capita consumption decreased from a peak of 789,000 tonnes in 1967 (7.8 kg/capita) to a low of 697,000 tonnes in 1976 (6.5 kg/capita).

Table 7 shows the number and capacity of miso factories in Japan and their production in 1959, 1968, and 1977. The number of factories decreased dramatically during this 18-year period (to from 2,987 to 1,996), but the total amount of miso produced increased 503,000 tonnes to 621,000 tonnes, and the percentage of all miso made by large factories (those making 3,751 tonnes/year or more) rose from 15% to 52%, while the percentage of all miso made by small factories (those making 1-375 tonnes/year) decreased from 29% to

14%.

Table 8 shows the materials used in making shoyu in Japan from 1968 to 1977. The amount of whole soybeans decreased from 15,000 tonnes to 9,000 tonnes, the amount of defatted soybean meal increased from 147,000 tonnes to 176,000 tonnes, the amount of wheat increased from 127,000 to 178,000 tonnes, and the amount of salt from 170,000 to 204,000 tonnes. The amount of amino liquor (HVP) decreased from 140,000 tonnes to 89,000 tonnes.

Table 9 shows shoyu production in Japan from 1967 to 1976. Factory production grew from 1,201 kiloliters (kl) in 1967 to a peak of 1,403 kl in 1973, down slightly to 1,349 kl in 1976. Farmer (household) production decreased steadily from 20 kl in 1967 (1.67% of factory production 1.63% of total production) to 9 kl 1976 (0.66% of factory production and 0.66% of total production). Total production and annual per capita consumption increased from 1,221 kl 1967 (12.0 liters/year) to a high of 1,411 kl in 1973 (12.6 liters/year), then down slightly to 1,355 kl in 1976 (11.9 liters/year).

Table 10 shows that in 1977 there were 3,135 shoyu factories in Japan. Of these, 2,654 (85% of the total) were in the smallest scale, having 10 or fewer employees, while 5 had 201-300 employees, and 8 had 301 or more employees.

Fig. 2 shows the percentage of shoyu that is distributed through various channels as it moves from the factory to large or small consumers. Address: College of Agriculture, Meiji Univ., Ikuta, Tama-ku, Kawasaki-shi, Japan.

471. Kan, Johnny; Leong, Charles L. 1980. Eight immortal flavors. Rev. ed. San Francisco, California: California Living Books. xiii + 236 p. Illust. 24 cm. 1st edition 1963.

• **Summary:** The title page states: "Including new recipes kitchen-tested by Master Chef Sun Pui Wong, Executive Chef, Kan's Restaurant." This book is almost identical to the original 1963 edition. However Roman numerals have been assigned to the front matter, so the recipes are on different pages. None of the original soy-related recipes or definitions have been changed or deleted.

On the rear cover (undated): "Will probably become a standard reference work... It is admirable for its scope and authenticity." Address: 1. Chef, Chinatown; 2. Historian of Chinese life in America.

472. Shandler, Nina; Shandler, Michael. 1980. How to make all the "meat" you eat out of wheat: International gluten wheat "meat" cookbook. New York, NY: Rawson, Wade Publishers, Inc. xiv + 241 p. Index. 24 cm. [10 ref]

• **Summary:** How to make and use wheat gluten in a vegetarian diet, with 250 American and international recipes. Contents: Acknowledgements. Author's note. Part I. Introducing wheat "meat": 1. The cost of the meat-centered diet: How meat consumption affects ecology, economy and health, food economy, fuel conservation, water reserves and pollution, heart disease, cancer and meat

eating, premature aging, chemical residues in meat, medical costs. 2. Introducing wheat "meat": a low-cost, homemade alternative to meat (gluten meats cost about \$0.15 per serving). 3. How to make "meat" from wheat: Preparing raw gluten (from 7 cups whole wheat flour), seven varieties of wheat "meat," cutlets (a veal substitute), steak (a mock beef steak), ground gluten (a hamburger taste-alike), spiced links (an alternative to sausage), roast with a beef flavor, seawheat (a clam alternative), poultry pieces (chicken-flavored wheat "meat), using the reserved starch, bran and germ: Gluten-free crackers, and cold crunchy cereal.

Part II. Hundreds of international ways to serve wheat "meat": 4. All-American wheat meat recipes. 5. Mexican wheat "meat" food. 6. Latin American. 7. British. 8. French. 9. Spanish. 10. Italian. 11. Austrian. 12. Greek. 13. African. 14. Indian (from India). 15. Chinese. 16. Japanese wheat "meat" cooking.

Note 1. Tamari soy sauce and miso are used to flavor a number of recipes in this book. Other soy-related recipes include: Spiced bean curd and cutlet (with tofu, p. 212). Spares with black beans (mock spare ribs with "Chinese prepared black beans [fermented black soybeans], p. 216). Family-style bean curd (with tofu, p. 219). Poultry with orange-flavored soy sauce (p. 228-29). Seawheat in soy and ginger sauce (p. 229). Seawheat with bean curd and vegetables in casseroles (p. 230). Seawheat with vinegared miso (p. 231). Note 2. This book does not mention "seitan," but a Japanese recipe titled "Seawheat in Soy and Ginger Sauce" is quite similar; It uses tamari soy sauce and grated gingerroot, and kombu is used in making Seawheat, a clam alternative. A photo on the inside back dust jacket shows Nina and Michael Shandler.

Talk with Michael Shandler in Amherst, Massachusetts. 1992. Jan. 14. He and Nina became vegetarians in 1969. They were first introduced to wheat gluten in about 1970; at that time they were served gluten steaks by a friend, Jayanti Peterson, in Santa Cruz, California. At the time their book was published, they were probably not aware of "seitan." They did not know of any other books on gluten when they were writing their book—which is why no gluten books are listed in their bibliography. The book sold about 2,000 copies in hardcover and 5,000 to 6,000 in quality paperback; it went out of print 6-7 years ago. They have had many requests for the book since it went out of print. He is an organization development consultant and Nina is a child psychologist. Food is their hobby. Their best-selling book is *The Complete Guide and Cookbook for Raising your Child as a Vegetarian* which has sold over 50,000 copies (Shocken & Ballantine). Address: Amherst, Massachusetts. Phone: 413-549-1671.

473. Su, Yuan-Chi. 1980. Traditional fermented foods in Taiwan. In: Proceedings of the Oriental Fermented Foods. Food Industry Research and Development Institute, P.O. Box 246, Hsinchu, (300) Taiwan. iv + 229 p. See p. 15-30. Held

10-14 Dec. 1979 in Taipei, Taiwan. 8 tables. 9 figs.

• **Summary:** Contents: Introduction. Bean sauce: Soy sauce, black bean sauce (*in-yu* [inyu]), *in-si* or *tou-si* (Taiwanese fermented black soybeans / salted fermented soybeans made from the dried mash of black bean sauce). Fermented jam: Tou-chiang (Taiwanese soybean jiang), tou-pan-chiang (made from sprouted broad beans; soy is not used), tien-mien-chiang (made with wheat flour; no soy). Fermented tou-fu: Tou-fu-ju (also named *sufu*, soybean cheese, or Chinese cheese), chou-tou-fu (also named “fetid bean curd” [stinky tofu]). Anka (also called ang-kak or red koji, made by growing a *Monascus* mold on rice). Discussion. Color photos are given of *in-si* (*tou-si*) and the pehtze of fermented tofu overgrown with *Mucor* mold species.

Flow sheets (without quantities of ingredients) show the basic process used in making each of the following: fermented soy sauce, *in-yu* and *in-si* (*tou-si* [pronounced doushi, fermented black soybeans]), *tou-chiang* (soybean jiang), *tou-pan-chiang*, *tien-mien-chiang*, *tou-fu-ju*, *anka*.

Note 1. This is the earliest English-language document seen (Oct. 2011) that uses the term “Tou-fu-ju” to refer to fermented tofu.

Note 2. This is the earliest English-language document seen (Oct. 2011) that uses the term “fetid bean curd” to refer to stinky tofu.

In 1978 there were 433 soy sauce plants in Taiwan (39 produced a class-A product, and 12 produced class B; most were unclassified) with an annual production capacity of 160,000 kiloliters. This is equivalent to an annual consumption of 9 liters per capita. The 8 largest manufacturers control 45% of the Taiwanese market. 25% of the soy sauce is 100% fermented, 5% is HVP chemical soy sauce, and 70% is a blend of the two. “Originally, whole soybean was used as the protein source. Now it is replaced by defatted soybean [meal], and the whole soybean is used only when high quality soy sauce is desired. The Chinese National Standards (CNS) for soy sauce were established in 1954 and have since been revised several times. On 24 Oct. 1971 the CNS 423 was established. Grade A soy sauce must have the following composition in gm/100 ml: Pure solid matter excluding NaCl > 12, total nitrogen > 1.3, formol nitrogen > 0.56, and pH from 4.5 to 5.3. The corresponding figures for grade B are: Pure solid matter excluding NaCl > 9, total nitrogen > 0.9, formol nitrogen > 0.40, and pH from 4.5 to 5.3.

*In-yu* or black bean sauce is undoubtedly Taiwan’s the oldest prepared condiment. *In-yu* is different from soy sauce in that it is produced from black [soy] beans and its flavor becomes stronger as it is cooked. Therefore it is used by many families in frying and cooking meat. Currently, in south Taiwan, the market for *in-yu* is about 30% that of soy sauce. Black soybeans are produced in Pingtung, Taiwan. The amount produced is not enough to meet the local demand. Therefore, black soybeans are imported from

Thailand for making *in-yu* (fermented black soybean sauce). Table 4 gives the general composition of black soybeans grown in Taiwan.

Figure 2 shows a flow sheet for making *in-yu* or *in-si*. Wash the black beans, soak (for 2-3 hours in summer, 4-5 hours in winter); after soaking, the weight of the black soybeans should have increased by about 80-100%. Then steam the soaked black soybeans at 0.5 to 0.7 kg per square cm for 20 minutes or at atmospheric pressure for 2 hours. When finished, pour them out onto a flat bamboo tray and allow to cool and dry (at 32-33°C in summer, 40-42°C in winter) until they are no longer sticky. Inoculate by mixing in the starter culture [*Aspergillus oryzae* mold spores]. Spread the inoculated soybeans on koji trays to a depth of 1.5 to 2.2 cm and incubate in a koji room at 32-33°C for 5 days to make soybean koji. Optional washing step (see p. 29): Wash the finished koji with water for 2 minutes to remove the spores and mycelium that grew on the surface and thereby to prevent an undesirable moldy odor and bitter taste in the final product; with this step about 3-4% of the total nitrogen is lost but the weight of the koji will have increased by about 50%. Now place the washed soybean koji in bamboo baskets (30 kg capacity) for pre-fermentation (6-8 hours in summer or 16-20 hours in winter). Now mix in salt (adding 30-32 kg of NaCl per 100 kg of black soybeans), then put the salted mixture into a ceramic pot (30 kg capacity for fermentation. Note that no additional water is added). Seal the mouth of the pot using calcium carbonate paste. Allow the fermentation to proceed for 1.5 to 2 months in summer or 2-3 months in winter. The resulting mature *in-yu* mash is ready to be pressed, filtered and pasteurized to make Taiwanese black bean sauce (*in-yu*). Or instead it can be dried to make *in-shi* (*tou-shi*; Taiwanese fermented black soybeans). These dry fermented black soybeans, which are widely used in Taiwanese meals, have the following analytical data: (Table 6): NaCl 12.7%. Acidity 1.2. Formol nitrogen (F.N.) 0.98, Ammoniacal nitrogen (A.N.) 0.36. Total nitrogen (T.N.) 3.22. Ratio of F.N. to T.N. 30.4. Ratio of A.N. to T.N. 11.2. The Chinese national standards define 3 grades of *in-yu* (Table 5).

Production of Taiwanese miso (*tou-chiang*) is currently 11,000 tons. Per capita consumption is decreasing.

Fermented tofu (*Tofu-fu-ju*) is produced both commercially and domestically. The annual production is about 10,000 tons while weekly consumption is about 12 gm per capita. Address: Dep. of Agricultural Chemistry, National Taiwan Univ., Taipei, Taiwan.

474. Root, Waverley. 1981. A cordial bow to the byproducts of the soybean. *Los Angeles Times*. Jan. 15. p. J42.

• **Summary:** This article is indebted to: Simonds, Nina. 1979. “Chinese cuisine: Bean curd.” *Gourmet*. Sept. p. 28-29, 84-91.

The soybean, which offers extraordinary versatility as

a human food, can be transformed into soybean milk, “the soybean milk skin [yuba] derived from the milk, the bean sticks [dried yuba sticks] made from the milk skin, the also edible sediment given off by the milk [okara], untreated bean curd [regular tofu and perhaps silken tofu], pressed bean curd which produces bean curd noodles [pressed tofu noodles], more tightly compressed bean curd cakes, and frozen-and-thawed bean curd [dried frozen tofu].” Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “frozen-and-thawed bean curd” to refer to dried frozen tofu.

In the process of making “pressed bean curd, another soybean food is created—bean curd skin [*pai yeh*, pressed tofu sheets], which should not be confused with soybean milk skin [yuba]. Dried bean curd skin,” which needs no refrigeration and is often stuffed, for example with chopped meat, is sold by weight by Chinese specialty shops throughout the world; five or six sheets weigh one ounce.

“There is a whole family of foods made from fermented bean curd” [fermented tofu]. Bean curd can be fermented in various ways. Bean curd loaves, for example, can be stored for the winter in a cool dark place; micro-organisms from the air cause fermentation. “The loaves acquire a fungoid coating, which has to be scraped off, and as far as I know is not used for food,…” Fermented bean curd, which has been called “soybean cheese,” is easier to digest than unfermented bean curd. Bean curd can also be marinated in rice wine, flavored with spices, and then allowed to ferment. A most unusual type of fermented tofu is stinky bean curd (*sh'ou tou fu*), a favorite Chinese snack. In Taipei, there are many street vendors who ply the streets with their portable deep fryers. This fermented tofu is usually deep-fried and usually eaten with one's choice of soy sauce, vinegar, mashed garlic, and chili paste.

Other fermented foods include miso, natto, hamanatto (which is of Korean origin), tempeh (of Indonesian origin), and shoyu (Soybean sauce, soy sauce).

“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 a superb soy sauce requires ‘as much art in its preparation as good French wines.’”

Flavorings are added to some Chinese soy sauce “various herbs, especially citronella; spices (ginger); aromatic vegetables (onions); and not only fermented fish, but even fermented chicken meat. To produce three liters (3.1 quarts) of sauce requires on kilogram (2.2 pounds) of beans.

“Fukien has the reputation of producing the best soy bean sauce in China and consequently stews many foods in it, giving them a color which has caused the culinary techniques of this region to be called ‘red cooking.’”

Soybean sauce is “often an important ingredient in many more complicated sauces—for instance Hoisin sauce in China and Worcestershire sauce in England.”

475. Wang, H.L.; Hesseltine, C.W. 1981. Use of microbial cultures: Legume and cereal products. *Food Technology* 35(1):79-83. Jan. [38 ref]

• **Summary:** Contents: Introduction. Use of nontoxin-producing cultures. Safety of fermented foods: Several factors contribute to their safety: Soaking and cooking, salting, acid formation, antibiotic production, alcohol production, low surface moisture, decrease of aflatoxin by *Rhizopus* and *Neurospora*. Shelf life of fermented foods. Nutritive value of fermented foods: Complementary effect of mixed proteins, protein efficiency ratio and digestibility, vitamins. Future of fermented legume-cereal foods.

The following fermented soy-related foods are described briefly, including names, area of origin, organisms used, substrate, and nature and use: Soy sauce (chiang-yu, shoyu, toyo, kanjang, kecap, see-ieu). Miso (chiang, doenjang, soybean paste, tauco). Fermented bean (hamanatto, tou-shih, tao-si). Sufu (fu-ru, fu-ju, tou-fu-ju, bean cake, Chinese cheese). Tempeh (tempe kedele). Natto. Ontjom (onchom). Address: NRRC, Peoria, Illinois.

476. Chu, Yung-shung. 1981. Soybean protein food in China. *J. of the American Oil Chemists' Society* 58(2):96A, 98A, 100A. Feb. Reprinted in APCC Quarterly, 30 June 1981, p. 23-27.

• **Summary:** Contents: Abstract. Methods of preparation: Bean curd (tu fu), bean curd derivatives (tough bean curd, smoked tough bean curd, dried soybean sheets, fried bean curd, vegetable chicken), fermented bean curd (fu ru), dried bean milk cream (fu tsu [dried yuba sticks]).

For 4,000 years soybean have been one of the main crops cultivated in China. The history of extracting protein to prepare tofu is about 1,000 years old. The soybean was important not only as a food but also as a seasoning. The earliest fermented soybean products were dou-jiang (soybean ch'iang) and dou-chi [fermented black soybeans].

Note: This is the earliest document seen (Nov. 2011) that uses the term “dou-chi” to refer to fermented black soybeans.

The preparation of these two products was recorded briefly in *On Medical Emergency Treatment* written by Si Yu during the Western Han Dynasty (100 B.C.). [Note: This is the *Chi chiu p'ien* by Shih Yu.] Later, these procedures were described in detail in the *People's Agricultural Calendar* written by Cui-Zi during the Han Dynasty (200 A.D.). Illustrations of techniques appeared in 600 A.D. in special chapters of *The Principal Methodology of Economics*, by Jia Si-Yi.

According to historical literature of the Min [Ming] and Qing [Ch'ing] Dynasties, the preparation of bean curd [tofu] was first recorded in Han Zi, written by Liu An, King of Huai Nan (179-122 B.C.) In the book of Qin-Yi, Tao Gu (907-960 A.D.) said that bean curd was a common food in the market of the south Huai district.

Fu ru is the fermented form of bean curd. The earliest

record of this is in the book called *Night Dialogue Under the Shade*, written by Li Ri-huo (1636-1661). He said that fu ru was prepared between summer and autumn in the Qi Men district and briefly described the procedure. In a famous book on Chinese herbal medicine, *Compendium of Materia Medica*, the author, Li Shizen (1518-1593), describes the preparation technique in detail.

Later, these procedures were described in detail in the *People's Agricultural Calendar* written by Cui-Zi during the Han Dynasty (200 A.D.). Illustrations of techniques appeared in 600 A.D. in special chapters of *The Principal Methodology of Economics*, by Jia Si-Yi. Address: Oil and Fat Research Inst., Shaanxi, China.

477. Shurtleff, William; Aoyagi, Akiko. 1981. The book of miso: Food for mankind. Revised. New York, NY: Ballantine Books. xx + 618 p. March. Illust. by Akiko Aoyagi Shurtleff. Index. 18 cm. [82 ref]

• **Summary:** Contents: What is miso? Preface. Acknowledgments. Part I. Miso: Savory, High Protein Seasoning. 1. Soybeans, protein and the world food crisis. 2. Miso as a food. 3. The miracle of fermentation. 4. The varieties of miso: Regular Miso: Rice miso (red / aka, light-yellow / shinshu, mellow red / amakuchi akamiso, mellow beige / amakuchi tanshoku, mellow white / shiro koji, sweet red / edo or edo ama-miso, sweet white / Kyoto shiro miso), barley miso (karakuchi mugi, mellow barley / amakuchi mugi), soybean miso / mamé miso (miso-dama, Hatcho miso, soybean miso / mame miso, tamari miso). Special Miso: Finger lickin' miso / Namemiso (Kinzanji miso, moromi miso, hishio, namémiso, natto miso, goto miso), sweet simmered miso / nerimiso. Modern Miso: Akadashi miso, dehydrated or freeze-dried miso, low-salt / high-protein miso.

Part II. Cooking with Miso (400 recipes). 5. Getting started. 6. Recipes from East and West. Part III. The Preparation of Miso. 7. Making miso at home and in communities. 8. Japanese farmhouse miso. 9. Traditional and modern miso production.

Appendixes: A. A history of chiang, soy nuggets [fermented black soybeans], miso, tamari, and shoyu. B. Other East Asian misos: Chiang, jang, taicho, and tausi. C. The microbiology and chemistry of miso fermentation. D. People and institutions connected with miso. E. Miso additives. F. Miso with seafoods, chicken, and meat. G. Measures, weights, and equivalents. H. So you want to study miso in Japan? Bibliography. Glossary.

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term "soy nuggets" to refer to Fermented black soybeans. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

478. Levy, Paul. 1981. Eastward advance: Paul Levy's not so dim Chinese summing up. *Guardian (England)*. April 5.

p. 36.

• **Summary:** Near Harvard University in Massachusetts was a Chinese restaurant named Peking on the Mystic, located in Medford, a dismal suburb of Boston, on the Mystic River.

The key to turning a Chinese restaurant meal into a feast is to order the meal in advance. Give the chef a budget but leave the details of the menu up to him.

One of the writer's "fondest memories of Chinese meals is of the crabs in black bean and ginger sauce eaten..." in a tiny restaurant on Lisle Street in London.

479. Soyfoods Center; Soycrafters Assoc. of North America. 1981. Soyfoods Production in America and the West (News release). Lafayette, California: New-Age Foods Study Center. 1 p. April. Updated in Sept. 1981 in a neater format.

• **Summary:** A table shows production statistics for 25 types of soyfoods. Number of manufacturers in the USA, Canada, Other West, Total; Tons of raw soybeans/year used by each food. Yield of food from 1 unit weight of soybeans. Wholesale value. Retail value. Number of people employed. Address: P.O. Box 234, Lafayette, California 94549.

480. Wang, Hwa L. 1981. Oriental soybean foods: Simple techniques produce many varieties. *Food Development* 15(5):29-34. May.

• **Summary:** Methods of preparation are given for the following soyfoods: Tofu, soy sauce, miso, hamanatto, sufu, tempeh, natto. A table gives local names, descriptions, and uses for traditional East-Asian non-fermented soyfoods: "Fresh green soybeans (mao-tou, edamame)," soybean sprouts (huang-tou-ya, daizu no moyashi), soybean milk (tou-chiang), protein-lipid film (tou-fu-pi, yuba), soybean curd (tofu, tou-fu, tubu, tahoo, touhu, taufoo, dou-fu, dan-fu), and soybean flour (tou-fen, kinako). Local names, organisms used, substrate, and description of the product are given for traditional East-Asian fermented soyfoods: soy sauce, miso, hamanatto, sufu, tempeh, and natto.

Note: This is the earliest English-language document seen (Feb. 2004) that uses the word "taufoo" to refer to Chinese-style tofu. Address: NRRC, Peoria, Illinois.

481. Iino, Catherine. 1981. Sushi: When the urge hits, yield, then deal with the leftovers later. *Washington Post*. June 11. p. E1, E22.

• **Summary:** When her brother came to visit and wanted Chinese food for dinner, she "steamed the fish [rockfish] with black bean sauce." This article includes a recipe for "Steamed bass with Chinese black bean sauce," whose ingredients include "1 tablespoon preserved black beans (available in Oriental groceries)." Then: "Press the black beans with one side of a cleaver to crush," then saute the beans and garlic in sesame oil to release their flavors. Spread this mixture over the fish, then sprinkle on ginger.

Note: This is the earliest document seen (Sept. 2008) in

all major U.S. newspapers digitized by ProQuest that uses the term “preserved black beans” to refer to fermented black soybeans. The new term appears in only 3 documents, in 1981, 1989, and 1999.

482. Chu, Yung-shung. 1981. Soybean protein food in China. *APCC Quarterly Supplement*. June 30. p. 23-27. [Eng]

• **Summary:** This article was first published in the Journal of the American Oil Chemists’ Society (1981, Feb. p. 96A). Address: Oil and Fat Research Inst., Shaanxi, China.

483. Nakano, Masahiro. 1981. Seimin yôjutsu no shi. *Koten e no kaiki*. I. [Fermented black soybeans in the Ch’i-min Yao-shu: A new look at ancient classic documents]. *Miso no Kagaku to Gijutsu (Miso Science and Technology)* No. 329. p. 2-10. July. [Jap]

Address: Central Miso Research Inst., Shinkawa 1-26-19, Chuo-ku, Tokyo 104, Japan.

484. Fabricant, Florence. 1981. Dining out: Dim sum on the East Side. *New York Times*. Aug. 23. p. L123.

• **Summary:** This is a review of the Chinese restaurant Ming’s HSF (Montauk Highway, Bridgehampton—a hamlet and census-designated place) in the South Fork of Suffolk County [Long Island], New York.

A “platter of blue crabs in their shells with lashings of garlic, salty black beans and egg were some other fine entrees,…”

“Chunks of black-bean chicken came in a sauce almost unbearably salty from an overdose of black beans.”

485. Nakano, Masahiro. 1981. Wamyôshô, Senchû wamyô ruijûshô oyobi Wakan sansai zue (no miso to shi). *Koten e no kaiki*. III. [Miso and fermented black soybeans in the *Wamyosho, Senchu Wamyô Ruijusho* and *Wakan Sansai Zue*: A new look at ancient classic documents]. *Miso no Kagaku to Gijutsu (Miso Science and Technology)* No. 331. p. 11-19. Sept. [Jap]

Address: Tokyo, Japan.

486. Adilman, Sid. 1981. Relief from chow mein: Breaking bread. *Toronto Star (Ontario, Canada)*. Oct. 11. p. F15.

• **Summary:** Outside of Toronto’s Chinatown the writer discovered an excellent restaurant named Dinner King, that serves Chinese vegetarian food. From “the four pages of strictly vegetarian offerings” he chose and enjoyed: (1) Bean curd and straw mushroom soup. Sparkling—with fresh tofu, straw mushrooms juicy and round, and no MSG. (2) Sangkan with pepper in garlic and black bean sauce. The writer was unable to find out what “Sangkan” was; it “had the texture and look of fried bean curd, made with dough.” He called it “Breathtaking!” (3) Fried bean curd skin [yuba] rolls.

487. Hua, J.; Wang, I.H.; Chen, S.K.; Hsu, W.H. 1981.

Fermented sauce made from black soybean (*inyu*). *Advances in Biotechnology* 2:517-23. [10 ref]

• **Summary:** Inyu is black soybean sauce fermented with the mold *Aspergillus soyae* or *Aspergillus oryzae* N-2. About 30% of the fermented soy sauce consumed in Taiwan in 1973 was inyu, made from whole black soybean koji with no wheat or other grain. After describing the traditional method for making inyu, modern techniques are applied to its fermentation. A flow sheet (p. 520) shows the traditional process. Black soybeans (the sole substrate) are washed, soaked at room temperature for 4-7 hours (7 hours in the coldest weather) and drained. Then they are steamed at 117°C for 30 minutes, then inoculated with the koji mold. The inoculated beans are spread to a depth of about 3 cm in small, flat trays, each about 100 cm in diameter and 5 cm deep. The trays are stacked atop one another but with a gap of 5-15 cm between trays. This gap is larger between trays at the top than between those at the bottom.

The soybean are incubated at room temperature for about 5 days or until they are entirely covered with a mycelium of white mold. Note that heavy sporulation in the koji may result in an off-flavor in the final product and may interfere with water absorption. Therefore these spores must be partially removed before each stage. After being washed with water, NaCl is added to give a final salt content in the washed koji of 25-30% by weight of the original black soybean used. This mixture is put into an earthen vat, which is sealed tightly for an anaerobic fermentation called aging, which takes about 90 days (compared with 180 days for typical soy sauce fermentation). After complete maturation, the mash is pressed, cooked, pasteurized and bottled. The press-cake is used for animal feed. Address: Food Industry Research and Development Inst., Hsinchu, Taiwan 300.

488. 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, 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 rear 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 (Feb. 2004) that uses the word “tao koan” (or “tao-koan”) to refer to tofu. Address: United Kingdom.

489. Shurtleff, William. 1981. Questions about the history of fermented black soybeans (tou-ch’ih or hamanatto). Sent to people who offered to edit “16. Soy Nuggets” chapter. 4 p. Unpublished typescript. Typed, on letterhead.

• **Summary:** There are 72 numbered questions. People were asked to answer them by number. Many have a person’s name or a place (such as China, Malaysia) in the column to the left of the question. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549. Phone: 415-283-2991.

490. 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.

491. Yan, Martin. 1981. The Yan can cook book. Garden City, New York: Doubleday & Company Inc. 355 p. Illust.

• **Summary:** This Chinese cookbook, published in both hardcover and paperback, contains at least 15 recipes using bean curd (tofu), especially in the chapter titled “Bean Curd, Eggs, and Other Protein-Rich Foods” (p. 179-99). Tofu is usually referred to as “soybean curd” or “bean curd.” Pages 185-87 contain a recipe for making tofu at home, and give a nutritional comparison of firm bean curd, chicken eggs, ground beef, and cottage cheese. In the chapter “Saucy Dips” is a recipe for “Black Bean Sauce” using “salted black beans” [fermented black soybeans].

The glossary (p. 313-) gives good descriptions of the following soyfoods: Black beans salted, brown soy sauce, Hoisin sauce, Hot bean paste, MSG (monosodium glutamate), soy sauce, bean curd, and soybean sheets dried (yuba).

The author is the star of a popular daily Chinese cooking show named “Yan Can,” which he has hosted since 1978. Born and raised in Kwongchow, China, he left China in 1963 and began cooking at the age of 13 as an apprentice in a popular Hong Kong Restaurant (owned by his uncle) and at age 18 he had earned a diploma from the Overseas Institute of Cookery. Arriving in the USA in 1969, he earned a masters degree from the University of California at Davis.

492. Quebral, Florenco C. 1982. [Soybeans in] The Philippines. *INTSOY Series No. 22*. p. 166-71. J.B. Sinclair and J.A. Jackobs, eds. Soybean Seed Quality and Stand Establishment (College of Agric., Univ. of Illinois at Urbana-Champaign).

• **Summary:** Contents: Introduction. Cultivar improvement. Planting. Inoculation and fertilization. Pests and diseases. Intensive cropping. Utilization. Costs and returns. Marketing. Marketing program. Areas that need attention. Cooperating agencies.

“The domestic supply of soybeans has never been sufficient to meet national demands for food, feed, and industrial uses. Total domestic soybean production in 1978 was reported to be 7,099 metric tons. Approximately 176,000 metric tons of soybeans, costing \$30.8 million, were imported.

“To boost domestic production, the government has launched projects like Masaganang Maisan, the white corn and feed grains program, and the National Soybean Development Program...

“Researchers at the University of the Philippines at Los Baños have produced bottled soymilk (Philsoy) using the hot water grind technique... Fermented soybean products, such as soy sauce, soy cheese (tokwa [tofu]), soy paste (miso), soy curds (tahuri [tofu in brine]), and canned salted beans (tausi [fermented black soybeans]) are the most common soybean products used as ingredients in traditional Filipino dishes. A cheese-like product served with sugar syrup (taho) is sold by ambulant peddlers in urban centers.” Address: Prof. of Plant Pathology, College of Agriculture, the Univ. of the Philippines at Los Baños.

493. Deakin, Doris. 1982. Hand-me-down recipes that taste of tradition. *Washington Post*. May 26. p. E1, E8, E10.

• **Summary:** In this era of fast foods, we have lost the tradition of mothers handing down to daughters their favorite recipes—often handwritten and often together with stories about the family. These recipes and stories are a special kind of nourishment.

Yet many other cultures have their traditional dishes and story accompanies many of them. In China, one such dish is Ma-Po Tofu. Victoria Chen, formerly of Shanghai and Taiwan, who teaches Chinese cooking in Montgomery County, tells her students this story. “Ma” means smallpox scar and “Po” means woman. “Tofu” is bean curd. After this woman contracted smallpox, her face was scarred. Then her brother died, leaving a widow and two children. The family land was so small that they could not earn a living from it. To help her brother’s family, the scarred woman tried to find a husband, but she could not. So the sisters-in-law developed this recipe, and sold it to passers by. In this way all were able to survive.

The recipe calls for “1 pound bean curd... 1 tablespoon black fermented beans, chopped... 2 tablespoons soy sauce... 1 tablespoon hot doe-ban paste [douban-jiang] for hot bean sauce.” Cut the “tofu” into 1 by 1 by ½-inch pieces. Saute the “black beans” for a few minutes but do not crush.

494. Leviton, Richard. 1982. Discovering Japanese soyfoods.

*Vegetarian Times* No. 57. May. p. 60-62, 65. [1 ref]

• **Summary:** Recently Richard Leviton traveled to Japan with a group of Americans to get a firsthand look at the Japanese soyfoods industry. There he got his first look at the fabled neighborhood corner tofu shop. He discusses tofu (the Japanese consume 10 million cakes a day) and tofu manufacturers (large and small), types of tofu include silken tofu (called kinugoshi), fresh soft tofu called momen. “In the typical supermarket we counted as many as 60 different soyfood items (often several brands or product sizes), ranging from fresh miso and tofu to packaged soymilk and shoyu, natto, dried frozen tofu, yuba rolls and kinako powder.”

Also: Takatsuka Marugo (a large tofu maker that churns out 100,000 lb/day of tofu), Yuba Han (a traditional yuba shop in Kyoto), Asahimatsu Kori-dofu Co., natto, Hamanatto, soymilk, cooked soybeans with wakame, soy sprouts, kinako powder, packaged green soybeans in the pods, miso (fresh and freeze-dried), Linda Barber (an American home economist who is teaching at Kobe Girl’s College in Nishinomiya, and also teaching American-style tofu recipes to Japanese housewives via television and the print media), and Sasa-no-Yuki, a 279-year old restaurant that specializes in tofu cookery.

Photos show: (1) Eleven different tofu dishes in bowls as served at Sasa-no-Yuki restaurant in Tokyo. (2) A man hanging up fresh yuba at Yuba Han. (3) Members of the group seated on tatami mats on the floor around a huge table enjoying dishes served at Sasa-no-Yuki. Address: 100 Heath Rd., Colrain, Massachusetts 01340. Phone: 413-624-5591.

495. *Sunset (Menlo Park, California)*. 1982. New ways with Chinese black beans... with potatoes, pasta, cheese, celery root, spinach. May. p. 218, 220.

• **Summary:** “Exotically flavored fermented black beans, with their pleasantly distinct aroma, are a popular seasoning element in Chinese cuisine. Also called salted black beans, this variety of soybean becomes pungent and slightly sweet during the tenderizing fermentation process, and they acquire an almost meat-like richness. After processing, they look and feel like dried currants, but they are coated with salt (you rinse off the salt in a strainer under cold running water before using). Sold in plastic bags, cans, and small jars, they cost less than 10 cents an ounce and they keep well.” Contains 5 Western-style recipes.

496. Shurtleff, William; Aoyagi, Akiko. 1982. History of fermented black soybeans (formerly soy nuggets) (shih or chi, douchi or doushi, hamanatto, Daitokuji natto). Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 27 p. June 4. Unpublished typescript.

• **Summary:** A comprehensive history of the subject. Contents: Introduction. Etymology. How soy nuggets are made. Part I: History of soy nuggets in China. Early

developments; Han Dynasty (206 B.C.-229 A.D.). Developments from the third to the 16th century. The *P'en-t'sao Kang-mu* (1578). 17th to 20th century.

Part II: History of soy nuggets in Japan. Early developments (746-1700's). Daitokuji soy nuggets in Kyoto (*Daitokuji natto*). Savory soy nuggets in Hamamatsu (*hamanatto*). Modern developments with soy nuggets (1900-1982).

Part III: History of soy nuggets in Southeast Asia. Philippines (*tausi* or *tao-si*). Malaysia (*tao si*).

Part IV: History of soy nuggets in the West. Europe. United States.

2011 Dec. For updated and greatly expanded free information on this subject, on our website go to "Historical Bibliographies and Sourcebooks on Soy," then click on the corresponding subject. A lengthy digital book will appear in PDF format. It is searchable using Adobe Acrobat or Adobe Reader. Address: Lafayette, California. Phone: 415-283-2991.

497. Anderson, Eugene N. 1982. Re: Answers to questions in questionnaire about fermented black soybeans. Letter to William Shurtleff at Soyfoods Center, June 10—in reply to inquiry. 2 p. Typed, with signature on letterhead. [4 ref]  
**• Summary:** Contains many valuable and detailed answers to questions and comments on this draft manuscript. A fine and very generous scholar. Address: Dep. of Anthropology, Univ. of California, Riverside, CA 92521.

498. Bo, Thi-an. 1982. Hishio to shôyu 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 gosukujji ni kaete; Present address,

China.

499. Shurtleff, William; Aoyagi, Akiko. 1982. *Soyfoods industry: directory and databook*. 2nd ed. Lafayette, California: Soyfoods Center. 56 p. June. 28 cm. [24 ref]  
 • **Summary:** A detailed study of the rapidly emerging soyfoods industry and market. Contains original statistics compiled by the Soyfoods Center through interviews with companies. Contents: 1. Terminology: The many types of soyfoods. I. Traditional low-technology soyfoods. 1A– Nonfermented soyfoods: Fresh green soybeans, whole dry soybeans, soynuts and soynut butter, soy sprouts, whole soy flour & grits, roasted soy flour & soy coffee, soymilk and dairylike soymilk products, tofu (eight types), okara or soy pulp, yuba.

1B–Fermented soyfoods: Tempeh, miso, soy sauce, shoyu & tamari, natto & thua-nao, fermented tofu & soymilk, soy nuggets (Hamanatto & tou-ch'ih).

II. Modern soy protein foods: Defatted soy flour, grits & flakes, soy protein concentrates, textured soy protein products, soy protein isolates.

III. Soy oil products: Soy salad oil & cooking oil, soy oil margarine & shortening, soy lecithin.

2. *Soyfoods industry directory: Names and addresses of over 850 soyfoods manufacturers in the Western world, plus major soymilk, miso, shoyu, and yuba manufacturers in East Asia.* 3. *Analysis of the soyfoods industry in the U.S.*

4. *Trends in U.S. and world soybean production: Graph of world soybean production (1922-1979) including graphs for the world total, USA, Asia total, and Latin America. Graph of U.S. soybean production, yields, and exports (1924-1979).*

5. *Analysis of the tofu industry in the West: The U.S. tofu market: overview and outlook. Graph of the number of tofu (and tempeh) manufacturers in the West from 1975 to 1982. Four-year analysis of the tofu industry in the West. Listing of North America's largest tofu manufacturers and their weekly tofu output. Japan's largest tofu manufacturers and their daily output. Favorite tofu, soymilk, and tempeh recipes as served at U.S. soyfoods, delis, cafe, and restaurants, or marketed as ready-to-serve products. Books on tofu published in America.*

6. *Analysis of the tempeh industry in the West: Graph of number of tempeh manufacturers. Recipes. Listing of North America's largest tempeh manufacturers and their weekly output.*

7. *Analysis of the worldwide soymilk industry: Analysis of the soymilk industry in the United States. Analysis of the soymilk industry in Japan. Major Japanese soymilk companies and their products.*

8. *Analysis of the soy sauce / shoyu and miso industries worldwide. Statistics on fermented soyfoods in East Asia. The shoyu / soy sauce market in Japan (1886-1980). The miso market in Japan (1930-1980). Overview of the miso*

market in the United States. Miso exports from Japan (1981). Japan's ten largest miso manufacturers and their output.

9. *Other: Analysis of the soynuts industry in the U.S. North America's larger soyfoods delis, cafes & restaurants. The soybean crushing industry; overview.*

10. *Soyfoods terminology and standards (Glossary of soyfoods terms): I. Traditional nonfermented soyfoods: Fresh green soybeans, okara, roasted soy flour (soy coffee, soy chocolate), soybeans, soymilk (soymilk ice cream, soymilk soft serve, frozen soymilk yogurt, soymilk mayonnaise, soy shakes, soy nog, soymilk whipped cream), soynuts, soy sprouts, tofu (regular tofu, deep-fried tofu {deep-fried tofu cutlets called nama-age or atsu-age in Japan, deep-fried tofu burgers or burger balls, called ganmodoki or hiryozu in Japan, deep fried tofu pouches (called aburage in Japan; the words "deep-fried" may be dropped from the names after the initial usage, and in recipes or on package labels, if desired}), silken tofu {made without separation of curds and whey, called kinugoshi in Japan; modern types, all made with glucono delta-lactone as coagulant, and all known in Japanese as juten-dofu, are packaged lactone silken tofu, bagged lactone silken tofu (fukuro-dofu), sealed lactone silken tofu (buro-dofu), and Ever-Fresh Lactone Silken Tofu (in Tetra-Pak)}, grilled tofu, frozen and dried-frozen tofu. (Note: It is illegal to describe the latter product as "freeze-dried tofu," since freeze-drying is a completely different process), terms associated with making tofu {fresh soy puree, a coagulant or curdling agent, forming box, filter bag or pressing sack, tofu comes in cakes, not blocks}), whole soy flour, flakes, and grits, yuba.*

II. *Traditional fermented soyfoods: Fermented soymilk products (soymilk yogurt {Soy Yogurt, Soyogurt, Soygurt}, acidophilus soymilk, soymilk kefir, viili, piima, buttermilk {Soy Kefir, etc.}), fermented tofu (wine-fermented tofu, brine-fermented tofu), miso (rice miso, barley miso, soybean miso, Chinese soybean chiang), natto (thua-nao from Thailand and kenima from Nepal; all are non-salted), soy nuggets [fermented black soybeans] (Chinese soy nuggets know as shih, tou-ch'ih, tou-shih, or dow-si; savory soy nuggets called Hamanatto in Japan, Daitokuji soy nuggets called Daitokuji natto in Japan, Philippine soy nuggets called tausi or tao-si in the Philippines, Indonesian soy nugget paste called tauco, formerly spelled tao-tjo, Malaysian soy nugget sauce called tao-si), soy sauce (shoyu. The five basic types of Japanese shoyu are: regular shoyu called koikuchi shoyu in Japanese, light-colored shoyu called usukuchi shoyu, tamari shoyu, clear shoyu called shiro shoyu, and rich shoyu called saishikomi shoyu), tempeh, other fermented soyfoods.*

III. *Soy oil and modern soy protein foods: soy oil, defatted soy flour, flakes and grits, soy protein concentrate, soy protein isolate, textured soy protein products (TSP, TVP is a registered trademark of the Archer Daniels Midland Company and cannot be used as a generic name for this product), meat analogs (foods typically made from spun soy*

protein fibers to resemble meat, fish, or poultry products).

11. Names of soyfoods around the world: Names of 40 products. Brazilian / Portuguese names. British English names. Chinese names (fermented tofu is Tofu-fu or Sufu). French names, German names. Japanese names. Spanish names.

12. Key institutions working with soyfoods in the West: The Soyfoods Center, Soyfoods Association of North America, INTSOY, American Soybean Association, Bean Machines, Inc., Soycrafters Apprenticeship Program, USDA Northern Regional Research Center, Sojaquelle.

About The Soyfoods Center.

Note: This is the 2nd market study published by Shurtleff. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

500. Dominguez de Diez Gutiérrez, Blanca. 1982. Re: Names of soyfoods around the world: Spanish. Form filled out and returned to William Shurtleff at Soyfoods Center, July 9. 1 p. Handwritten. [Eng]

• **Summary:** Gives the names of all the various soyfoods in Spanish. Note: A typed list of these names is published in *Soyfoods Industry and Market: Directory and Databook*, 1985. 5th ed. p. 164.

“Fresh green soybeans–Frijol de soya tierno o ejote de soya. Whole dry soybeans–La soya, Frijol de soya. Black soybeans–Frijol de soya negro. Fresh soy puree–Pure de frijol de soya. Soy sprouts–Germinados de soya. Soy nuts–Soya-nuez (nuez means walnuts or pecans), Soya-huate (means peanuts from cacahuate). Oil roasted soy nuts–Soya nuez tostada (meaning nut). Dry roasted soy nuts–Soya-huate tostado (meaning peanuts). Soy nut butter–Mantequilla de soya. Roasted soy flour–Harina de soya tostada (kinako). Soy coffee–Soyafee. Soy chocolate–Soyalate. Soymilk–Leche de soya. Soymilk ice cream–Helado de leche de soya. Soymilk curds–Cuajada de soya, Jocoque de leche de soya. Tofu–Tofu, Queso de soya, Cuajada de soya. Soft tofu–Tofu blando. (Regular) Tofu–Tofu comun. Firm Tofu–Tofu firme. Extra firm tofu–Tofu extra firme. (Deep fried) Tofu cutlets–chuletas de tofu. (Deep fried) Tofu burgers–Hamburguesas o tortitas de tofu. (Deep fried) Tofu pouches–Saquitos de tofu. Silken tofu–Tofu sedoso. Pressed silken tofu–Tofu sedoso prensado. Grilled tofu–Tofu a la parrilla. Dried frozen tofu–Tofu seco congelado. Okara or soy pulp–Okara, pasta de soya, pulpa de soya. Yuba–Yuba. Fermented black soybeans–Palanquetas de soya. Miso or soybean jian–Miso (el). Soy sauce–Salsa de soya. Shoyu–Shoyu (el). Tamari–Tamari. HVP soy sauce–Have not found it. Tempeh–Tempeh (el). Fermented tofu–tofu fermentado. Fermented / cultured soymilk–Leche de soya fermentada. Natto, thua-nao, kinema–Natto (el). Soy oil–aceite de soya. Soy lecithin–Lecitina de soya. Soy flour–Harina de soya. Whole (full fat) soy flour–Harina de soya entera. Defatted soy flour–Harina de soya degreasada. Soy grits and flakes–Soya martajada

y hojuelas de soya. Cereal-soy blends (CSM, WSB, etc.)–Soyavena (with oatmeal). Soy protein concentrate–Concentrado de proteína de soya. Soy protein isolate–Aislado de soya. Textured soy protein products–Productos de soya texturizada. Textured soy flour, TSF, or TSP–Harina de soya texturizada. Textured soy concentrates–Concentrados de soya texturizada. Textured soy isolate–Aislados de soya texturizada. Spun soy protein fibers–Fibra de proteína hilada de soya. Soy casmar, Soya Cocoa, Coco soya–Beverages made with chocolate or cocoa. Patisoya–Like spaghetti or noodles of different kinds made with soy flour–commercial products. Vegesoya–Commercial products for soups. Soya mex and Chocosoya–for beverages. Soya pac–Textured soya like meat, also a commercial product.” Address: Apdo. Postal 226, Jalapa, Veracruz, Mexico.

501. Pautz, Jane Abe Cadwell. 1982. Re: Brazilian names for soyfoods. Letters to William Shurtleff at Soyfoods Center, July 15 and Aug. 22. 3 p. Typed.

• **Summary:** Portuguese names for the following foods are given: Green vegetable soybeans, whole dry soybeans, fresh soy puree, soy nuts, soy nut butter, deep-fried tofu cutlets, tofu burgers, tofu pouches, fermented black soybeans; isolated soy protein, textured soy protein products, textured soy flour.

Jane’s book is the first book published in Brazil that is exclusively on soyfoods. Address: Sao Paulo, Brazil.

502. Shurtleff, William; Aoyagi, Akiko. 1982. History of natto and its relatives. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 39 p. July 17. Unpublished typescript.

• **Summary:** A comprehensive history of the subject. Contents: Introduction. Etymology. Part I: History of natto in Japan. Sources of information. Theories of origin. Heian period (794-1185). Kamakura period (1185-1333). Muromachi period (1338-1600). Edo (Tokugawa) period (1600-1868). Meiji period (1868-1911). Taisho period (1912-1925). Showa period (1926-1981 and beyond). Popular types of Japanese natto. Natto in the prefectures. Pictures of natto containers. Part II: History of relatives of natto in East Asia. Unsalted / bland soy nuggets in China. Joenkuk-jang in Korea. Thua-nao in Thailand. Kinema in Nepal. Sere in Bali, Indonesia. Part III: History of natto in Europe. Part IV: History of natto in the United States. Address: Lafayette, California. Phone: 415-283-2991.

503. Fitzpatrick, Michele Larson. 1982. Dining out- Good bet: Jade Garden. *Chicago Tribune*. Sept. 3. p. SD16.

• **Summary:** This is a review of the Cantonese Chinese restaurant Jade Garden, 1001 Cermack Rd., Broadview–about 10 miles west of Chicago, Illinois. One of the dishes served is “Dow See Har, jumbo shrimps cooked with baby black beans and seasoned with garlic.”

504. *Soyanews (Sri Lanka)*, 1982. Recipes: Gourmet dishes

with bean curd. 5(4):7. Dec.

• **Summary:** Taucho [sic, tahuri] (fermented tofu immersed in brine) is now available at the Darley Road sales room of Lankasoy, “It is a salty preparation quite flavorful like our *jaadi* and a little adds a lot to make dishes extra tasty.”

Recipes are given for: Braised bean curd (with “4 slabs bean curd (tofu) cut into 8 slices each”). Spicy bean curd sambol (with “2 slabs tofu. 2 tbsp. preserved soya beans (taucho”). “Note: The taucho may be fairly salty: wash before use.”

Note: Taucho is Filipino miso, whereas tahuri is Filipino brine-fermented tofu. The recipe probably intends to call for tao-si (fermented black soybeans from the Philippines).

505. 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.”

506. Alejandro, Reynaldo G. 1982. *The Philippine cookbook*. New York, NY: Coward, McCann & Geoghegan. 256 p. Illust. Index. 25 cm.

• **Summary:** Tausi [fermented black soybeans] is called for in two recipes: Lapu-lapu with tausi: Grouper with black bean sauce (with “1 tablespoon minced ginger, 4 tablespoons tausi {black beans; sold in Oriental food stores}, p. 141). Alimango sa tausi: Crabs in black bean sauce (with “8-ounce can black bean sauce,” p. 149).

Bean curd or tokwa is called for in recipes on 7 pages including p. 19, 33, 140, 141, 163, 167, 187. Page 163: “1 cup diced tokwa or bean curd (sold in Oriental food stores).”

Soy sauce is mentioned on 58 pages, including pages 12, 13, 18, 20, 23, 24, etc. “Adobo” is defined as “cooked in vinegar, soy sauce, and garlic.”

The “Glossary” (p. 238-41) includes: Misu—soybean paste. Tausi—black soy beans, salted and fermented. Togue—bean sprout. Tokwa—soy bean cake [tofu]. Address: Manhattan, New York City, New York.

507. Ebine, Hideo. 1982. *Fermented soybean foods in Japan*. In: S. Saono, F.G. Winarno, and D. Karjadi, eds. 1982. *Traditional Food Fermentation as Industrial Resources in ASCA Countries*. xvii + 259 p. See p. 41-52. Proceedings of a technical seminar, held 9-11 Feb. 1981 at Medan, Indonesia.

• **Summary:** Production statistics for miso and natto from 1970-1979 were presented. Miso increased from 552,207 tonnes in 1970 to a peak of 590,137 tons in 1973, followed by a gradual decrease to 567,776 tons in 1979. Natto production increased from 100,000 tonnes in 1970 to 158,000 tonnes in 1979. Statistics on the production of fermented black soybeans (Tera Natto or Hama Natto) are not available, but are roughly estimated at 10,000 tons.

An outline is then given of the chemical composition of the different types of miso and natto as well as their methods of manufacturing. Of the many beneficial characteristics of miso, the following are worthy of note: it has strong antioxidative activity, a strong buffering activity, and a bactericidal like effect against pathogens.

“Natto is one of the typical and popular soybean foods in the Japanese diet. It is classified into 2 major types; one is called Hama Natto which resembles soybean miso in colour and flavour; the other is called itohiki natto. When referred to simply as natto, it generally means itohiki natto. Natto is a unique soybean food, fermented by *Bacillus natto*. The surface of fermented natto is covered with characteristic viscous and slimy substances consisting of *B. natto* cells and polymers of glutamic acid.” Address: Applied Microbiology Div., National Food Research Inst., Ministry of Agriculture,

Forestry and Fisheries, Yatabe, Ibaraki-ken, Japan.

508. Ko Swan Djien. 1982. Indigenous fermented foods. *Economic Microbiology* 7:15-38. A.H. Rose, ed. Fermented Foods. [67 ref]

• **Summary:** Contents: 1. Introduction. 2. Foods fermented by moulds: Roles of the moulds. 3. Foods fermented by bacteria: Fermented vegetable products, fermented fish products, fermented seeds (natto, thua-nao, dagé), fermented starch-rich raw materials (fermented maize products, fermented rice products, fermented cassava), fermented plant juice.

4. Foods fermented by a mixture of moulds and yeasts: Ragi, micro-organisms, fermented starch-rich raw materials.

5. Foods firstly fermented by moulds [as in making koji], followed by a fermentation with a mixture of bacteria and yeasts (the salt-tolerant yeasts are species of *Saccharomyces* and *Torulopsis*; the bacteria are species of *Pediococcus* and *Streptococcus*): Tane koji, soy sauce, other fermented soybean products (tauco {porridge or dry consistency}, miso, hamanatto {which is soft and has a high moisture content}, tou-shih {which has a much lower water content than hamanatto and is therefore not so soft}). These “fermented soybean products are also used as flavouring agents in cooking as well as table condiments or as a side dish”.

6. Specific aspects of fermented foods: Mould species, lactic-acid bacteria, yeasts, salt. 7. Acknowledgement. References.

Concerning soy sauce (p. 30-31): “Japanese *shoyu* is made from equal amounts of soybeans and wheat.” The “raw materials are inoculated with tane koji which contains spores of selected strains of *Aspergillus oryzae* and *A. soyae*. In less sophisticated soysauce factories throughout South East Asia, mould species grow spontaneously on the soybeans by natural contamination from the air and from the bamboo trays on which soybeans of former batches were incubated (Bhumiratana et al., 1980). The moulds involved are species of *Aspergillus*, *Rhizopus*, or *Mucor*. Some Indonesian *kecap* manufacturers inoculated the cooked soybeans with tempe [tempeh] inoculum which contains spores of *Rhizopus oligosporus*.”

Tables: (1) Conferences discussing aspects of indigenous fermented foods (1977-1981, chronological). (a) Symposium / Workshop on Indigenous Fermented Foods, Nov. 21-26, 1977, Bangkok, Thailand. (b) World Conference on Vegetable Food Proteins, Oct. 29–Nov. 3, 1978, Amsterdam, The Netherlands, (c) Symposium on Fermented Foods, Nov. 22, 1978, London, England. (d) International Symposium on Oriental Fermented Foods, Dec. 10-14, 1979, Taipei, Taiwan. (e) United Nations University Workshop on Research and Development Needs in the Field of Fermented Foods, Dec. 14-15, 1979, Bogor, Indonesia. (f) VIth International Fermentation Symposium, July 20-25, 1980, London,

Ontario, Canada. (g) Eighth Conference of Association for Science Cooperation in Asia (ASCA), Feb. 9-15, 1981, Medan, Indonesia.

(2) Origins of various fish sauces. (3) Origins of various fish pastes. (4) Names given in various countries to an inoculum used to manufacture food products. (5) Names given in various countries to fermented glutinous rice (*Oryza sativa glutinosa*). (6) Names given in various countries to rice wine. (7) Names given to soy sauce in different countries (*Chiang-yu* in China, *Kan jang* in Korea, *Kecap* in Indonesia, *Shoyu* in Japan). (8) Soybean foods produced by a two-stage fermentation (*Hamanatto and miso* in Japan, Soy sauce in the Orient, *Taoco* in Indonesia, *Tao-si* in the Philippines, and *Tou-shih* in China). Address: Dep. of Food Science, Agricultural Univ., Wageningen, Netherlands.

509. Reed, Gerald. ed. 1982. Prescott & Dunn’s industrial microbiology. 4th ed. Westport, Connecticut: AVI Publishing Co. xii + 884 p. Illust. Index. 23 cm.

• **Summary:** Chapter 12 (p. 492-538; 129 refs.), by H.L. Wang and C.W. Hesseltine, is titled “Oriental Fermented Foods.” It discusses: Soy sauce, miso, tempeh, ontjom, Hamanatto (known as tou-shih in China, tao-si in the Philippines, and tao-tjo in the East Indies [No! Tao-tjo is Indonesian-style miso]), sufu (also called Chinese cheese or bean cake), natto, idli, ang-kak, fermented fish products (incl. nuoc-mam), absence of mycotoxin in fermented foods, summary. Address: Vice president, Amber Labs, Milwaukee, Wisconsin.

510. Simonds, Nina. 1982. Classic Chinese cuisine. Boston, Massachusetts: Houghton Mifflin. xi + 353 p. Illust. Map. Index. 23 cm.

• **Summary:** This is a remarkable book by one who is part “of a new generation of American chefs and food writers.” The Pinyin system of romanization, which was of romanization, “which was officially adopted by the People’s Republic of China in 1979, has been used for most of the Chinese words in this book” (p. vi).

A map of China (facing page 1) shows the individual provinces and the four main culinary schools: northern, western, eastern, and southern—as explained on pages 1-4. Taiwan is considered part of the eastern school. The southern school is comprised of only two provinces: Guangdong (which includes the city of Guangzhou—formerly named Canton) and Guangxi.

Soyfoods are used and discussed liberally throughout this book. The section titled “Condiments, seasonings, and special ingredients” (p. 5-11) gives detailed discussions of hoisin sauce, oyster sauce, soy sauce (the three grades are light, medium and heavy, with light having a delicate and slightly more subtle flavor than the other varieties), sweet bean sauce (and bean pastes including brown bean paste and yellow bean paste), fermented black beans (and black bean

sauce).

The next section, “Selected fresh and pickled vegetables” (p. 11-14) has an entry for bean sprouts (the two main types are sprouted from mung beans {which are green} and soybeans {which are yellow}; soybean sprouts have a stronger flavor and require longer cooking).

Soy related recipes: Beef with noodles in a pot (with “2 cakes bean curd,” p. 76). Cold spicy noodles (with “2 cakes bean curd, about 3 inches square and 1 inch thick,” p. 80).

One chapter, titled “Soybeans and bean curd” (p. 113-29) begins with a charming introduction to “stinky bean curd” (fermented tofu). As evening fell after dinner, luscious scents and fragrances filled the air. Yet there was “a putrid smell that defied classification. What was that baffling, pungent odor, present in every part of the city.” After a bit of research she soon discovered that it came from “stinky bean curd (*chou dou fu*), a favorite snack of the Chinese.” Vendors of this unusual “delicacy ran rampant all over the city with their portable deep deep-fryers. My Chinese surrogate sister and brothers, who were great fans of the stuff, used to race outside, armed with empty bowls and chopsticks, at the sound of the stinky bean curd man’s call. (The smell usually preceded him by two blocks, giving everyone plenty of notice.)” It is “made by fermenting fresh bean curd squares in a brine with assorted spices and pickled vegetables.” The resulting cakes are deep-fried... until golden and eaten with soy sauce, vinegar, mashed garlic, or chili paste.”

The soybean is used to make various Chinese seasonings including soy sauce, hoisin sauce, sweet bean sauce or paste, and hot bean paste. Fresh green soybeans are cooked and served with soy sauce and sesame oil. Whole dry soybeans are fried and eaten as a snack.

“The nutritious properties of the soybean further explain why it is so popular with the health-conscious Chinese.”

Heating soybean milk gives “bean milk sheets (*fu pi*)” [yuba]. Also mentions “bean curd sticks (*fu zu*)” [dried yuba sticks], bean curd sheets (*bai ye*),” and “bean curd noodles (*gan si*).” In terms of consistency, the three basic types of bean curd are soft, medium, and hard (*dou fu gan*).” “Bean curd is also fermented in rice wine and spices to make a popular seasoning (*dou fu ru*), which has a “slightly cheeselike flavor.”

Nina concludes the introduction: “As most nutritionists will agree, the soybean and its many by-products are the foods of the future.” Line drawings show: soybeans, bean curd, bean milk sheets, bean curd sheets, bean curd sticks, and bean curd noodles. Recipes in this soy chapter: Meatball and soybean casserole (with “4 cups dry soybeans, p. 116). Sweet soybean milk (How to make at home; the Chinese equivalent of America’s cup of coffee for breakfast, with 2 cups dry soybeans and 1 cup sugar. Typically accompanied by a sesame flat bread [*shao bing*] and a fried cruller [*you tiao*]). Stir-fried soybean sprouts with red-in-snow. Stuffed bean curd rolls (with “8 dried bean curd sheets or bean

milk sheets”). Sweet-and-sour fish slices (with “10 dried bean milk sheets”). Eggplant rolls (with “6 dried bean milk sheets”). Buddha’s delight (a well-known vegetarian dish, with “2 ounces bean curd sticks”). Cold tossed bean curd and celery shreds (from Sichuan, with “8 cakes bean curd, about 3 inches square and 1 inch thick”). Red-cooked bean curd. Braised bean curd with black mushrooms in oyster sauce (from Sichuan). Stuffed bean curd (from Canton). Ma po bean curd (from Sichuan). Eight-treasure stir-fried vegetables with meat (with “3 cakes bean curd, about 3 inches square and 1 inch thick”). Northern-style bean curd (p. 129).

More soy related recipes: Steamed fish fillets in black bean sauce (with “1 tablespoon fermented black beans, rinsed, drained, and minced,” p. 183). Double-cooked pork slices (with “3 cakes bean curd,” p. 230). Steamed spareribs in black bean sauce (with “2 tablespoons fermented black beans, rinsed, drained, and coarsely chopped,” p. 234). Stuffed peppers in black bean sauce (with “1 tablespoon fermented black beans, rinsed, drained, and minced,” p. 272).

One entire chapter is titled “Vegetarian dishes” (p. 279-94). The introduction discusses the Kuantu Temple (a Buddhist-Taoist sanctuary about 1 hour drive from Taipei), and the origin of vegetarian cuisine in China in early Buddhist and Taoist monastery kitchens. Wheat gluten (*mian jin*) and related preparations such as deep-fried wheat gluten balls (*mian jin pao*) steamed wheat gluten chunks (*kao fu*), plus seasonings such as “pickled bean curd (*dou fu ru*)” are often used. Soy related: Broccoli in mock crabmeat sauce (with “1 cake bean curd,” p. 285). Vegetarian lion’s head (with “4 cakes bean curd,” p. 287). Mock goose (with “20 bean milk sheets,” p. 290-91). Vegetarian eight treasures (with “2 cakes bean curd,” p. 291). Wheat gluten (how to make at home from wheat flour, p. 292).

More soy related: Eight-treasure mixed soup pot (with 2 cakes bean curd,” p. 310-11). Hot and sour soup (with “2 cakes bean curd,” p. 316).

About the author: A photo of Nina Simonds (in Chinese clothing) appears on the inside rear dust jacket. She studied Chinese food and cooking, language and culture, in Taiwan for more than three years (she arrived there at age 19) with Chinese master chefs at the Wei-Chuan school in Taipei, while living with a Chinese family. She subsequently received the Grand Diplôme from La Varenne École de Cuisine in Paris, where she also taught Chinese cooking. “For the past eight years (prior to 1982) she has taught in cooking schools all over the United States and Canada and her articles have appeared in *Gourmet* and *Cuisine* magazines and the *Boston Globe*” (from the inside rear dust jacket). Address: Salem, Massachusetts.

511. Tropp, Barbara. 1982. *The modern art of Chinese cooking*. New York, NY: William Morrow and Co. 623 p. Illust. Index. 23 cm.

• **Summary:** One of the best and most authoritative books



on Chinese food written by a Westerner, who is a Chinese scholar turned Chinese cook, and who lives in San Francisco. Contains an excellent, long “Glossary of Ingredients” (p. 529-81) with extensive information about Chinese foods (plus their names spelled phonetically in Mandarin and Cantonese) including: Hoisin sauce (Mandarin: hai-hsyen-jyang; Cantonese: hoi-seem-jyenug. The characters mean “sea-freshness sauce.” She uses a widely distributed brand, Koon Chun, that is jam-like in consistency and on the sweet side). Mock meat (Mandarin: myen-jin; Cantonese: ming-gun. incl. Companion brand Braised Dried Bean Curd, Curried Braised Gluten, Curry Vegetarian Mock Duck, and Longevity brand Curried Mock Abalone). MSG (“Originally made from dried fermented wheat gluten”). Salted black beans (Mandarin: doe-jr; Cantonese: dao-see; fermented black soybeans. This “popular Chinese seasoning is also known as Chinese black beans, salted beans, fermented black beans, and occasionally ginger black beans.” “Shreds of ginger or orange peel or a dash of five-spice powder occasionally added to season the beans in the final soaking stage.” Barbara prefers salted black beans that are seasoned with ginger and she avoids the kind seasoned with five-spice powder. She uses Mee Chun brand and does *not* wash salted black beans, as is common; it is a practice she has never understood).

A recipe for Hot and sour Hunan chicken (p. 142-43), in the ingredients section titled “Aromatics,” calls for “2 tablespoons Chinese salted black beans (page 561).”

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “Chinese salted black beans” or the term “ginger black beans” to refer to fermented black soybeans. This term former is also used in recipes for Garlic-stewed sparerib nuggets (p. 203) and Hunan eggplant with spicy meat sauce (p. 293).

Soyfoods: Introduction, soy sauce (Kikkoman soy sauce {Barbara’s everyday favorite}, thin soy sauce, black soy sauce, mushroom soy sauce; good Chinese brands are Superior and Koon Chun). Tofu (fermented tofu {incl. Pepper Bean Cake with hot chili flakes—[*la jiao doufu-ru*]}, fresh tofu, pressed tofu.

“Mushroom soy sauce is a flavored soy sauce, something between thin soy sauce and black soy sauce in saltiness. The brand I like best is Pearl River Bridge, which is made specifically with straw mushrooms and is classified in Chinese as black soy sauce owing to a touch of sugar that is included in the mixture,” p. 569).

Note: This is the earliest document seen (June 2011) that uses the term “ginger black beans” to refer to fermented black soybeans (*douchi*).

Ms. Tropp (see photo on inside rear dust jacket) studied Chinese language, poetry, and art history at Columbia University, Yale, Princeton, and the University of Taiwan. Her two-year sojourn in Taiwan found her living with remarkable Chinese families. On the rear cover is a nice long

quotation from James Beard.

512. Wang, H.L.; Hesseltine, C.W. 1982. Oriental fermented foods. In: G. Reed, ed. 1982. Prescott & Dunn’s Industrial Microbiology, 4th ed. Westport, CT: AVI Publishing Co. xii + 883 p. See p. 492-538. Chap. 12. [129 ref]

• **Summary:** Contents: Introduction. Soy sauce. Miso. Tempeh. Ontjom. Hamanatto. Sufu. Natto. Idli. Ang-kak. Fermented fish products (esp. nuoc mam). Absence of mycotoxin in fermented foods. Summary. Address: NRRC, Peoria, Illinois.

513. *Washington Post*. 1983. Media heavies ante up at the Brady brunch: Press Corps lets its money do the talking. March 21. p. B1.

• **Summary:** Jim and Sarah Brady hosted a lunch at Germaine’s restaurant. There was an auction with Art Buchwald as auctioneer. “Brunch was a feast of Southeast Asian dishes such as glazed chicken, fish with black bean and ginger sauce,... four kinds of saté,...”

Note: Brady was a former Assistant to the President and White House Press Secretary under President Ronald Reagan. After nearly being killed and becoming permanently disabled as a result of an assassination attempt on Reagan by John Hinckley, Jr., on 30 March 1981, Brady became an ardent supporter of gun control. The auction was to raise money for a foundation he had established.

514. Steinkraus, Keith H.; Cullen, R.E.; Pederson, C.S.; Nellis, L.F.; Gavitt, B.K. eds. 1983. Handbook of indigenous fermented foods. New York, NY: Marcel Dekker. ix + 671 p. May. Illust. Index. 26 cm. Microbiology Series, Vol. 9. [200+ ref]

• **Summary:** Contents: Foreword by E.J. Da Silva. Preface. 1. Indonesian tempeh and related fermentations: Protein-rich vegetarian meat substitutes. 2. Indigenous fermented foods involving an acid fermentation: Preserving and enhancing organoleptic and nutritional qualities of fresh foods.

3. Indigenous fermented foods in which ethanol is a major product: Types and nutritional significance of primitive wines and beers and related alcoholic foods.

4. Indigenous fermented amino acid / peptide sauces and pastes with meatlike flavors (p. 433-571): Introduction.

(A) Soy sauces: Japanese shoyu: Koikuchi, usukuchi, and tamari; Chinese chiang-yu, by Tamotsu Yokotsuka (p. 437-51). Taiwanese soy sauce, by Liu (p. 451-56). Malaysian soy sauce: Kicap, by Ong, Mercian, Poesponegoro and Tanuwidja (p. 456-61). Indonesian soy sauce: Kecap, by Saono, Poesponegoro and Tanuwidja (p. 461-65). Korean soy sauce, by Chang (incl. homemade kanjang and meju, p. 465-66). Taiwanese black bean sauce: Inyu, by Jan et al. (p. 466-67). Philippine taosi [fermented black soybeans], by Steinkraus (p. 467).

(B) Fermented soybean pastes: Japanese miso, by Ebine,

Shurtleff and Aoyagi (p. 468-79). Indonesian tauco, by Saono et al. and Winarno (p. 479-82). Korean Doenjang and kochujang, by Chang, Shurtleff and Aoyagi (p. 482-87).

(C) Fermented fish-shrimp sauces and pastes (p. 487-526).

(D) Fish-soy sauce and fish-soy paste, by Ismail (p. 526-30).

(E) Miscellaneous Oriental fermentations. Japanese natto (itohiki natto), by Hayashi and Ota (p. 530-45). Japanese Hama-natto (hamanatto) and related products (incl. yukiwari natto, p. 545-47). Chinese red rice: Anka (Angkah [ang-kak, angkak]), by Lin, Su and Wang, Sooksan and Gongsakdi, and Pichyangkura (p. 547-53). Chinese sufu, by Su and L.-P. Lin (incl. nyufu, p. 553-61). Note: Chapter 4 contains about 195 references.

5. Mushrooms: Producing single cell (microbial) protein on ligno-cellulosic or other food and agricultural wastes.

6. General papers related to indigenous fermented foods: Contributions of the western world to knowledge of indigenous fermented foods of the orient, the importance of microbial genetics in indigenous food fermentations, new uses for traditional food fermentations, mycotoxin problems in indigenous fermented foods and new methods for mycotoxin analysis.

Less widely known fermented foods include: Idli, dosa/dosai, dhokla (with soy, 131-35), enjera (162), tef/teff (164), wot (165), hopper (173), kishra (175), lambic (179), ogi (with soy, 189-98), mahewu (203), gari (208), dahi (249-57), srikhand and lassi (256-57), laban rayeb, laban zeer, yogurt (257-59; cultured soy yogurt is mentioned on p. 616), liban, mast, mass, taw (260), tairu (with soy, 260-65), kishk or kushuk (267), Metchnikoff (266), trahanas or tarhanas (271-76), rabdi, jalebi (275), koumiss (276), kefir (277-80).

Alcoholic beverages and foods: Honey wine, mead, metheglin (305), tej (306), sugar cane wines, basi, bubod, binubudan (307), palm wine or toddy (315-28), pulque (328-37), kaffir (344), tesguino (352), bouza (357), pito (358), busaa (365) sake (373-79), yakju and takju (379), tape = tapeh (381-400), ragi (381), tapuy (400), lao-chao (402), madhu (406), brem (408), tropical vinegar (410-14), nata (414-20), tea fungus (421), nuoc-mam (516-21).

Reviewed in *Scientific American* (Nov. 1983, p. 37), and in *Bio/Technology* (1984, p. 364). Address: Inst. of Food Science, Cornell Univ., Geneva, New York.

515. Mayer, Jean; Goldberg, Jeanne. 1983. Nutrition. *Washington Post*. June 1. p. E4.

• **Summary:** A reader writes to ask about the sodium content of Chinese condiments. Ans: In the April 1983 issue of the *Journal of the American Dietetic Association*, Theresa Chew, a registered dietitian, published statistics (including sodium content) on 14 different condiments commonly used in Chinese cooking. For some condiments, she found considerable variation among brands.

Although Chinese condiments are generally considered to have a very high sodium content, several contained less than 200 milligrams of sodium per teaspoon. They are: sweet bean sauce, hoisin sauce, satay sauce, fermented bean cake [fermented tofu], fermented black beans, and dried shrimp.

516. Shurtleff, William. 1983. In Harbin (June 6-7) (Document part). In: William Shurtleff. 1983. Log of Soyfoods Research Trip to China and Japan: 29 May to 10 July. Lafayette, California: Soyfoods Center. 117 p. See p. 10-12. Unpublished manuscript.

• **Summary:** 6:00 a.m. I walk to the local market. See one stall (a mobile cart) selling gelled tofu curds (*doufu-fa*) over which is poured a sweet brown sauce then topped with some diced red chilies and green herbs. Served with deep-fried breadsticks. One other place serves soymilk hot with deep-fried breadsticks. No tofu at all in the market. Some say it is sold only in winter. No other soyfoods seen.

Soymilk terminology: (1) Dou Nai—it sounds more modern than “Dou Jiang.” Implies or connotes no beany flavor, is thicker and has a higher protein content. (2) Dou Ru—(Alfa Laval used this) is harder to pronounce.

[Henan Area grows lots of soybeans]: more than Heilongjiang? The money to build soymilk plants in China is partially foreign capital. People and institutions are falling all over each other to help China develop “China Orient Leasing.” 50% are Japanese.

Eaton [Eton], A consortium from Cleveland, Ohio, is planning to build a \$50 million oil extraction and protein refining plant in Jiamusi. Oil = extract, refine, make margarine, shortening, etc. Protein = feed, isolate, concentrate, tofu and soymilk production.

Tuesday June 7, 1983 (Harbin): Min-Lite = the Ministry of Light Industry is interested in a soymilk plant. Also, the State Farm Bureau (Bean processing division) and the Soybean Institute is working in breeding (for both protein and oil), diseases, and physiology.

Soymilk Taste Tests in Harbin: Chocolate was vastly the first choice, second was sweetened, third was plain / dairy-like. They dislike added oil in soymilk and would like to try fruit-flavored soymilk (apple, pineapple). Added fat coats the mouth with a greasy / gummy film. Vitasoy has no added fat.

Dou Ru Fen: Niu Nai Mai Jing. 205 gm. This product consists of a white powder containing 10% cow's milk powder, 40% soymilk powder (spray-dried traditional soymilk, not soy flour), and 50% (!) sugar. 1000 tonnes a year are made, starting in 1978 or 1979. Sold to housewives who use it to make breakfast soymilk. Costs RMB 0.78–0.80 = 70–80 cents. Cow's milk powder is stirred into hot soymilk. The mixture is concentrated and spray dried. Also made in Beijing, but this one is the best quality.

Pure: Soymilk powder is made in Beijing by Beijing Foodstuff Corp. since 1980. Called Doujiang-Fen (Soymilk powder) and also retailed to housewives for breakfast use. It

is 50% powdered soymilk and 50% sugar. It is spray dried.

Fresh green soybeans (Maodou = Hairy bean): Mostly eaten by farmers. Also sold in markets. Not packaged or canned. Whole dried soybeans: some canned in China. It is sold in Beijing.

Tofu in Heilongjiang: None is sold during the summer because it spoils easily and people do not like to eat tofu in the summer. A lot is sold in winter.

Soybean use: Of China's 9 million tonnes produced, one man estimates that 80% of soybeans are crushed. The meal is used mainly for feed, but some for tofu, soy sauce, and textured vegetable protein (TVP).

Main uses for foods made with whole soybeans in approximate order: (1) Tofu and kan-dofu. (2) Soymilk. (3) Soy sauce. (4) Miso = Doujiang. (5) Yuba. (6) Fermented tofu.

Main uses for foods made with defatted soybean meal: (1) Tofu. (2) Soy Sauce. (3) Miso. (4) Soymilk.

Soy nuggets [fermented black soybeans] are made only in the south of China. This state farm bureau man estimates that there are 200,000 tofu shops in China, one in every village, but there are no statistics on tofu.

Big tofu factory in Harbin. Ministry of Light Industry people in charge. He does not think as many soybeans will ever be used for soymilk as for tofu.

Many government groups are doing research on soyfoods, such as tofu and shoyu, but no single group. Address: P.O. Box 234, Lafayette, California 94549. Phone: 415-283-2991.

517. Shurtleff, William. 1983. In Beijing. Our guide. Meet Mr. Pan. (June 9) (Document part). In: William Shurtleff. 1983. Log of Soyfoods Research Trip to China and Japan: 29 May to 10 July. Lafayette, California: Soyfoods Center. 117 p. See p. 17-18. Unpublished manuscript.

• **Summary:** Morning: Ms. Chen Xihau is our guide. She says fear is everywhere in China. Everyone is a potential spy.

Fermented tofu (*doufu-ru*) and soy nuggets (*douchi*, [fermented black soybeans]) are sold in "salty vegetable" (*sien tsai*) shops.

Mr. Pan is the top man in the federal Ministry of Light Industry (MinLight). Super guy. He is director of the Food Industry Bureau. He is interested in developing a soymilk industry in China. Cow's milk cannot meet the demands of a large population. A new policy in China is to increase soybean production. Recently the American Soybean Association (ASA) sponsored 6 MinLight (Ministry of Light Industry) people (both federal and Beijing municipality) on a trip to study soymilk production in Hong Kong, Japan, and Thailand. They are now considering whether or not to use the "wet" or "dry" process. He says that Vitasoy uses the dry process.

The traditional Chinese method of making soymilk extracts / recovers only about 60% of the protein in the

soybeans; the modern method and technology recovers 80-85%.

New products he would like to make from soymilk are ice cream (he saw it in Japan, tasted it and liked it), yogurt, and infant foods. He would like to use soybean protein in meat products (they are testing this now). He attended a recent meeting in Shanghai (not related to ASA) on the use of soy protein isolates. China seems unaware of the vast potential of soy flour.

He says that the government policy based on direct use of the soybean as food makes better use of the land than use in a feedlot or feeding soybeans to animals and then eating the animals. The policy is for plant protein to be the major source of protein and for animal protein to be secondary.

Vitasoy is Witanai (pronounced wi-TAH-nai). Hi-C is Yangwan.

For soymilk, Mr. Pan prefers the term *douru* to *dounai*.

Danny Wang says the World Bank is helping to finance reclamation of 2 million ha (hectares) of farmland in the three rivers area of Heilongjiang. One-third of this will be planted to soybeans. Address: P.O. Box 234, Lafayette, California 94549. Phone: 415-283-2991.

518. Foley, Terrence B. 1983. Work with soybeans and soyfoods in China (Continued-Part II) (Interview). In: William Shurtleff. 1983. Log of Soyfoods Research Trip to China and Japan: 29 May to 10 July. Lafayette, California: Soyfoods Center. 117 p. See p. 27-28. Unpublished manuscript.

• **Summary:** Continued. Soy oil: 90% is degummed crude, packed in 55 gallon drums and distributed by trucks. Shanghai is the leading center of oil refining. Only 20% of China's internal is solvent extracted; the rest is expelled. Largest plant is 350 tonnes/day, solvent extracting. Most are 50-150 tones/day. Oil is rationed. In retail shops it's pumped out of 55-gallon drums into your personal bottle, about 1 liter/month. Only about 5-10% of all soy oil in China is refined, and much of that by commercial crushers.

People in Northeast China and Shanghai like soy oil especially. Canton only uses peanut oil. It's also a function of price. After refining, they make margarine, shortening, and dressings in Shanghai. In China, there is a problem with sickness from eating raw veggies in salads.

The Chinese are extremely conservative with food. They do not like foreign food. During his soymilk tour to Japan, he ate no Japanese food at all on the trip. They found a Chinese restaurant for every meal!!! Do the Chinese prefer refined soy oil to crude?

In 1997, the US Wheat Association built a full-scale bakery in China. Ed Quinones and Dennis Blankenship were very excited about the potential of soymilk worldwide. Quinones is the regional manager for Asia and Latin America. He is Terry's boss. A 6 man team & the American Soybeans Association agreed to build China a soymilk pilot

plant. Now, they want a big one, with one factory equaling 2,000 L/hr. Mr. Pan thinks 2,000 L/hr is the ideal plant size. The China soybean embargo also affects the ability to raise funds for the Chinese market. Everyone likes the idea but doesn't have the money beyond \$30,000 for the demo plant.

Cyrus Eaton's company pioneered trade with the Communists. It got together with farmland, the largest agricultural co-op in the USA. Gene Vickers and Bob Bergland of Farmland-Eaton (in Crystal City, Virginia) are working on the Manchuria plant project. He is concerned that they may not be up to it. He hears that it's off.

Question #8. No idea; total blank. Only 5% of the soybeans in China are used for feed. There is a lot of unease and soybean trips and inhibitors. A little soybean meal is still used for fertilizer. Most solvent extraction is done with variants of the Rotocel design, not the Desmet.

Question #13. Everyone fries everything, like doufu and soy sauce. There is a great need for milk. Soy flour won't succeed until the Ministry of Commerce does better toasting or does subsequent toasting in food plants. There is great potential in China for tofu and soymilk. The Chinese system "falls apart in the middle from bureaucratic sludge."

There are no trade associations in the Chinese soyfoods industry; this is one reason for the slowness to modernize.

The Chinese don't know much about isolates and concentrates, but they are convinced they can be used to advantage. They want to make them in China, not import them. They aren't sure which applications are best. There are lots of applications for tofu and soymilk production. USA uses concentrates and isolates in modern foods; China has no modern foods.

Alfa Laval. The concept of offering soymilk to Beijing on a 1 year trial basis is still under discussion and isn't yet finalized. John Wilson will decide. It's probably about 500 liters/hr, not 2000 liters/hr. It's not yet in the bag, at all. That project will not obviate the need for the American Soybean Association's \$30,000 pilot plant. In Shenyang and Shanghai, he's not sure whether or not Alfa has contracts, but they have made some progress. These are autonomous municipalities, so they have their own funds.

The crux of the American Soybean Association's programs are teams and technical travel. Terry wants to draw more on East Asian trips. Countries are at various stages of development here, but the Chinese have no interest in low level technology. All third world countries must have the *best*, yet they espouse self-sufficiency, not small-is-beautiful. They eschew foreign or traditional things.

Soybean acreage in China: Heilongjiang. World Bank. Heilongjiang is reducing soybean acreage by 20%.

Exports from China: Exported meal. Low price, low quality. The cost of U.S. soybeans delivered to South China is probably less than the cost of soybeans "imported" from Heilongjiang.

The Chinese have never imported much U.S. soybeans,

around 500,000 tonnes maximum. They cut this off after the textile quotas squabble, only because it wasn't important to them. This is a symbolic gesture. They could do without it. Terry expects they will be a *net* soybean importer over the next 5-10 years. Brazil has no export office in China, but does have a few traders.

Terry does not know how much soybeans are grown on the banks of rice paddies or about the Jilin seminar, as he was not invited. He's not interested in Chinese expansion of soybean production and, like Susan, does not think it will expand much.

American Soybean Association dispenses technology; China must receive and implement it.

In Beijing, the Chinese eat fermented black soybeans when they have a fever.

The word for "soybean" is *da dou*, not *huang dou*. *Da dou fen* for soy meal and cake. *Dou bing* is soybean cake.

The American Soybean Association (ASA) is like an agricultural extension office. They dispense publications and do translations.

Foley does not now get *Soyfoods* magazine. What a shame.

American Soybean Association is committed to upgrading Chinese soybeans and animal technology.

There is a 25% discount on books bought by Foley from us. Send him a list of all of our books and check history materials.

Foley would like Leviton to come to China when he visits East Asia but visas are nightmarish to get, as are hotel reservations.

The tofu and soymilk production plant in Tientsin (which is Peking's port) is under the Ministry of Commerce. Also, there are oil plants in the southern suburbs.

We talked for a long time about the need for a Soyfoods Industry Directory in China, giving names, addresses, phone numbers, and key contact people of major organizations or researchers involved actively with soyfoods. We made a sample table of contents. Terry will follow up on this. Perhaps give it to Beth as a project. I met Beth in the Beijing Hotel that night and we discussed it. Address: Director, China Office, American Soybean Assoc.

519. *SoyaScan Notes*. 1983. Early history of fermented black soybeans in China and Japan (Overview). July 10. Compiled by William Shurtleff of Soyfoods Center.

• **Summary:** Fermented black soybeans are a fermented, salted soybean product that comes in small soybean-sized chunks that are very dark brown or black in color, fairly firm, and very salty. Used as a seasoning, fermented black soybeans have many names worldwide. In English cookbooks they are often called "fermented black beans" or "salted black beans." In China they are called Douchi or Doushi (in pinyin), Tou-shih or Toushih, Tou-ch'ih, or Dow-si or Dow See (in Canton). They are China's oldest

known soyfood. In 1972 fermented black soybeans were unearthed from a Han dynasty tomb—Mawangdui #1—in the eastern suburbs of Changsha in Hunan, China. They were dated from the Western Han Dynasty (206 B.C. to 24 A.D.). Daitokuji Natto are said to have been introduced to Japan by Ikkyu Sojin (lived 1396-1481), a famous priest and Zen master of the Rinzaï sect, and a literary figure noted for his eccentricities. In 1474 he became head of Daitokuji temple, located in the northern part of Kyoto. It is said that he learned the method for making fermented black soybeans originally transmitted from China and passed it on to his students and disciples, one of whom founded Ikkyu, a small shop that in the 1980s was located just outside the gates of Daitokuji's huge compound. Ikkyu, the first commercial producer of Daitokuji natto, has carried on the tradition to this day, largely as a secret transmission.

Note: This is the earliest document seen (Nov. 2011) which states that the tradition of making Daitokuji natto is said to have been started by Ikkyu Sojin (lived 1396-1481).

Another traditional maker of these Kyoto-style fermented black soybeans is Ikkyuji, located south of Kyoto. It is said that the priest Ikkyu left Daitokuji for Ikkyuji and took the fermented black soybean tradition with him. Ikkyuji's fermented black soybeans, a unique product, are called *Ichimei Ikkyuji Natto*. In 1984 about 330 pounds a year were made in traditional wooden vats for tourists.

Fermented black soybeans (specifically *Daitokuji natto*) have long been a part of the *Shojin Ryori* (Buddhist Vegetarian Cookery) tradition in Japan; they are best known at the temple named Ikkyuji (also called Ikkyu-dera).

Note: Most of the above information was collected by William Shurtleff and Alfred Birnbaum in 1978 during visits to several old manufacturers of fermented black soybeans in Japan.

520. Guo, Xiang-ao. 1983. Research on heat denaturation of soy protein after solvent extraction, and traditional Chinese soy foods. *INTSOY Series* No. 25. p. 64-66. B.J. Irwin, J.B. Sinclair, and Wang Jin-ling, eds. Soybean Research in China and the United States (College of Agric., Univ. of Illinois at Urbana-Champaign).

• **Summary:** Solvent extracted soybean flakes and meals (moisture content 9.6%) were subjected to 80°C, 90°C, and 100-105°C temperatures for 15 or 20 minutes. The critical temperature for protein denaturation was 80°C. At higher temperatures, solvent-extracted soybean meal was denatured more rapidly than soy flakes. Preparation of the following traditional Chinese soyfoods was described briefly: Soy sprouts (*dou ya*), soybean jiang (*dou jiang*), fermented black soybeans (*dou chi*), soy sauce (*jiang you*), soy beverage (*dou jiang*), tofu (regular and soft, *doufu*), firm tofu (*doufu gan*), pressed tofu sheets (*doufu yi*), vegetarian chicken (*su ji*), fried tofu (*you-doufu*), fermented tofu (*doufu-lu*), and yuba (*doufu pi*). Address: Zhengzhou Grain College, China.

521. Sheraton, Mimi. 1983. Restaurants: A long line forms in Chinatown. *New York Times*. Aug. 19. p. C16.

• **Summary:** This is a review of the Cantonese Chinese 3-star restaurant Siu Lam Kung Restaurant (18 Elizabeth St., south of Canal Street). One exceptional soup is meat broth with straw mushrooms and a side platter of bean curds, green vegetables and pork. A tasty first course is clams in black-bean sauce. Both lobster and cracked crab are delicious with black-bean sauce, or with ginger and scallions. Likewise pork chops with pepper and black-bean sauce. Another masterpiece is crisp cushions of bean curd stuffed with minced shrimp.

Yocca, a leafy vegetable resembling spinach but with a haunting licorice flavor, is generally not on menus, yet it is ordered by Chinese customers. Yocca was served in a winy sauce with garlic and fermented bean cake [fermented tofu]. "Braised bean curd with black mushrooms and Chinese broccoli in oyster sauce" was also flavorful.

522. Shurtleff, William; Aoyagi, Akiko. 1983. The book of tofu. 2nd ed. Berkeley, California: Ten Speed Press. 336 p. Illust. by Akiko Aoyagi Shurtleff. Index. Aug. 28 cm. [321 ref]

• **Summary:** Three parts of this new edition have been extensively revised and updated: (1) "Tofu Makers in the West" (p. 313-16) has been updated and now includes 310 tofu producers in the Western world (with the name, address, phone number, and contact person for each company), arranged by state or foreign country. This is the only tofu book containing such a directory.

(2) The "Bibliography" (p. 319-324) has been a greatly expanded and updated. It now contains 321 publications on tofu, including all known scientific and nutritional journal articles, the 33 books about tofu written in North America since publication of the first edition of *The Book of Tofu* in 1975, and other key articles and books about tofu from East Asia and Europe, the earliest from Europe dating back to 1613!

(3) An updated listing of "People and Institutions Connected with Tofu" in the U.S. and around the world, including researchers, major tofu manufacturers in Japan, trade associations, publications, equipment dealers, and tofu apprenticeship programs.

The "Glossary" (p. 325-27) has been condensed to make space for the expanded bibliography and back matter. There is a new page about the Soyfoods Center (p. 333). The page "About the Authors" (autobiographical) has been expanded, and the photograph has been updated. "Sending Tofu to the Four Directions" (p. 335) and the inside rear cover have both been updated. Still contains 500 vegetarian recipes—both western and eastern style.

Note: A news release of 17 Aug. 1983 states: "The Book of Tofu, which introduced the Western world to tofu and

inspired the founding of more than 200 tofu shops and soy dairies in North America, has sold 340,000 copies to date, making it the world's best-seller on this popular new 'protein source of the future.'" Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

523. Shurtleff, William; Aoyagi, Akiko. 1983. History of soyfoods in China. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 19 p. Aug. Unpublished typescript.  
 • **Summary:** A comprehensive history of the subject. Contents: Introduction: Soyfoods widely used in all parts of China. Overview of Chinese food and diet. Animal products and soyfoods as protein sources in China. China's great cuisines and soyfoods. General characteristics of Chinese soyfoods industry. Information on soyfoods. Soy trade associations. Attitudes toward technology, modernization, and traditional soyfoods. Private enterprise, bureaucracy, and competing ministries. Availability of soyfoods. Address: Lafayette, California. Phone: 415-283-2991.

524. Leviton, Richard. 1983. Soyfoods in your kitchen: The variety is infinite! *Your Good Health: Review & Digest* 1(6):16-18. Oct.

• **Summary:** An introduction to tofu and tofu products, tofu main dishes, tofu desserts, tempeh, miso, soysage, "green soybean pods in plastic bags," soynuts, natto, Hamanatto, and yuba.

Gives recipe names and ideas for each soyfood type, but no actual recipes. Concludes with the thought: "If you remember this diversity of applications of tofu and tempeh... never again will you comment, 'Tofu is nice but it's just a bland white block.'" Address: Colrain, Massachusetts 01340.

525. Zhang, Fazhu. 1983. Doujiang zhizou qiuyan kaobian [A critical investigation of the origins of soybean chiang production]. *Tiaowei Fushipin Keji (Condiment Science and Technology, China)* No. 1. p. 15-18. [27 ref. Chi; eng]

• **Summary:** Contents: The jiang mentioned in pre-Ch' in times (221 B.C. was not soybean jiang). A critical examination of historical data concerning the earliest record of making soybean jiang. Looking at the origins of soybean jiang from cultural archaeological data. The *Chi Chiu Pien* by Shih Yu (Western Han, 206 B.C.–24 A.D.) does not state clearly that soybeans were used to make jiang, but they may have been. The earliest unambiguous record of using soybeans to make jiang is found in the *Szu Min Yüeh Ling* by Tsui Shih (Eastern Han, 25–220 A.D.). Research shows that the original text of this document, which was probably written in Loyang [Luoyang] during the Yen-hsi period of the Huan Emperor (158-166 A.D.) is now lost, but a fragment of approximately 3,000 characters is preserved in the *Ch'i-min yao-shu* and is also found in the *Yü Chu Pao Tien* written by Tu T'ai-ching during the Northern Chou dynasty (557-581 A.D.). An analysis of Tsui Shih's words shows that at

that time *mo-du jiang* was made from soybeans throughout Loyang, and also that jiang was made from pickled (stored) pumpkins, which may be the earliest surviving historical record in China of vegetables pickled in jiang (to make *jiangcai*).

The earliest existing literary work to discuss the production of jiang with beans and wheat is the *Ch'i-min yao-shu* in the section titled "Ways to make jiang #70."

In 1972 an international sensation was created when a perfectly preserved female corpse and a wealth of funeral articles were unearthed from a Han dynasty tomb—Mawangdui #1—in the eastern suburbs of Changsha in Hunan. An archaeological report published in 1973 indicated that many foods which could still be identified were found within this tomb. Some 22 of the ceramic pots unearthed were completely filled with food and 3 of these were filled with a food made from some type of bean. Vessels #126 and #301 contained fermented black soybeans, as described on bamboo strip #101.

"The bean food that filled wide-mouth vessel #132 was 'a black-color jiang type of material,' and this corresponded to the jiang recorded on bamboo strip #106. A report of an analysis entitled 'An Investigation of the Biological Specimens Unearthed from Han Tomb—Mawangdui #1—in Changsha' was published in 1978, and this report indicated that the material that filled the ceramic vessel was in fact a soy bean product. From the above data, it is possible to conclude that among these burial foods were samples of soy jiang; the jiang recorded on the bamboo strip really was soy jiang. Thus, it may be inferred that every (otherwise unspecified) mention of jiang in Chi Chiu P'ien and Shih Chi: Huo-chih lieh-chuan from the Western Han Dynasty (206 B.C.–24 A.D.) could likewise have been soy jiang." Among these were various types of jiang as well as fermented black soybeans (*chih*). Address: Fuzhou Municipal Vegetable, Jiang, and Qi Corporation.

526. Chinese menus: Great meals in minutes. 1983. Alexandria, Virginia: Time-Life Books. 104 p. Illust. (some color). Index. 29 cm.

• **Summary:** These recipes were contributed by nine chefs; a brief biography and photo is given for each. Barbara Tropp and Nina Simonds are among them (p. 4). Contains detailed instructions on the preparation of Chinese food, recipes, and sample menus.

The section titled "Pantry (for this volume) includes: On the shelf—"Black beans, canned or packaged. Chinese fermented black beans, also known as Chinese salted black beans." Hoisin sauce (sweet, soybean based). Oils: Oriental sesame oil, a highly aromatic oil, is for garnishing, not cooking. Always buy Chinese or Japanese brands. Sesame paste. Soy sauce: Extracted from fermented soybeans, comes in light and dark. In the refrigerator—Bean curd or tofu.

Soy related recipes: Bean curd salad with peanuts

(p. 65). Steamed sea bass with black bean sauce (which includes “1 tablespoon Chinese fermented black beans,” p. 65). Mushroom soy sauce is good to have on hand (p. 71). Crisp chicken strips with black-bean orange sauce (the sauce ingredients include “2 tablespoons Chinese salted black beans,” p. 81).

Diced chicken with fermented black beans (p. 87). Stir-fried spinach with fermented bean curd (with “1 small square fermented bean curd, mashed,” p. 90).

527. Dahlen, Martha; Phillipps, Karen. 1983. A popular guide to Chinese vegetables. New York, NY: Crown Publishers, Inc. x + 113 p. Illust. Index. 29 cm. [2 ref]

• **Summary:** This book was written for non-Chinese in the maze of Hong Kong’s street markets; it originally appeared in 1980 and 1981 as two volumes, published in Hong Kong. The Romanization of names in this book represent the Cantonese pronunciation system of Herklots.

The section on “Seasoning sundries” has entries (p. 3-4) for: Light soy sauce (2 Cc = Chinese characters are given) See yau [Note: See = fermented black soybeans] or Sang chau. “This is the best grade of sauce. ‘Light’ means it is not thick or viscous and has a delicate or fine flavor.”

Dark soy sauce (2 Cc) Lo chau. “‘Dark’ here means thick and of stronger flavor.” There are various types, each of which has been fermented with different special ingredients such as mushrooms, ginger, etc. Yet they all stain food black.

Fermented black beans (2 Cc). Dau see [fermented black soybeans]. “These are whole soybeans which have been cooked, salted and fermented.” “These beans are one of the most versatile, convenient, economical and flavourful Oriental seasonings. The Cantonese usually mash them with garlic and stir-fry or braise them with pork, beef, shellfish, fish or vegetables, particularly with green and red vegetables for colour.

“General directions for making black bean sauce are as follows: Use approximately twice as much, by volume, of black beans as garlic. Crush the garlic cloves by smashing them with a single blow of a heavy object (flat side of a cleaver) on a cutting board. Remove the papery husk, then put both beans and garlic in a small bowl and mash together, either with a spoon or the butt of the cleaver’s handle. Approximately 1 tablespoon of mash will season 1-2 cups of food.

“To cook, add the mash to the hot oil before the ingredients. In a mixture, add the mash just before the last batch of ingredients to be fried, return all the rest to the wok, season with a pinch of sugar and light soy sauce,... Vary the sauce from heavy to light.”

The section on “Soybean sprouts” (*Daai dau nga choi*, 4 Cc = large bean sprout vegetable) has an unusual structure. First comes information on soybean sprouts: Appearance, quality, general comments, preparation, cooking. Then a nice color illustration, followed by two recipes using these

sprouts. Then come subsections on Bean curd (*Dau fu*, 2 Cc).

Water bean curd (*Seui dau fu*, 3 Cc. “This is the most common, and perhaps most versatile, kind of bean curd.” Three recipes).

Wrapped bean curd (*Bo baau dau fu*, 4 Cc. This type is sold from tubs of water rather than from a wooden board. “Each square has been wrapped in cloth, so pieces have rounded edges and cost 2-3 times more than common fresh dau foo. This is the finest, most delicate curd, and is usually used only for steaming” as in Lo Siu Ping On, a traditional Cantonese dish).

Dry or pressed bean curd (*Dau fu gonn*, 3 Cc [pressed tofu]. This type is firm and therefore “easily sliced or cut into shreds and stir-fried. Two types exist as illustrated; the larger, 3-inch square white one is plain; the smaller, 2-inch square reddish one is lightly coated with 5-spice powder {ng heung fun, 3 Cc}.” One recipe is given).

Deep-fried bean curd (*Dau fu pok*, 3 Cc. These are small cubes or squares about 1 inch on a side. Color illustration. One recipe is given).

Page 81. Recipe for Mushrooms & ribs with black bean sauce. In the section on Lotus root is a recipe (p. 87) for Braised pork and lotus which calls for “Fermented red bean curd” (*Naam yue*, 2 Chinese characters are given).

“Because the ‘naam yue’ tends to preserve the other ingredients, this dish will keep for at least a week in the fridge, and will improve in flavour as it keeps.

Note: “A combination of equal parts dark and light soy sauce may be substituted for the ‘naam yue,’ but the taste” and texture will be completely different.”

On page 106 is a short section on Kudzu (*Fun got*, 2 Cc, with no specific recipes but with suggestions for cooking).

528. Editors of *China Pictorial*, Beijing. 1983. Chinese cuisine from the master chefs of China. Boston, Massachusetts, and Toronto, Ontario, Canada: Little, Brown and Co. 240 p. Illust. Index. 26 x 24 cm.

• **Summary:** An overview with many color illustrations. The section titled “The ingredients” contains color photos of them plus a glossary that includes Chinese names: Dried bean curd stick, dried bean curd sheets, bean curd fresh gluten, fried gluten (p. 42-43). Soybean paste (salted and fermented), fermented bean curd, soy sauce (p. 47). Qingdou (green soybean), huangdouya (soybean sprouts) (p. 51). Doufu (bean curd, tofu), fuzhu (dried soybean milk [dried yuba sticks]), mianjin (gluten), youpi (dried soybean curd sheets [pressed tofu sheets]), kaofu (wheat gluten / vegetable steak) (p. 52). Jiangyou (soy sauce) (p. 54). Huang jiang (soybean paste, salted and fermented), jiangdoufu (fermented bean curd).

White soup (bai tang, with soybean sprouts, p. 56).

Folk nutrition: “All illnesses originate from what is taken into the mouth.” On this page is a description of the therapeutic properties of: “Soybeans: their flavor is sweet,

raw; their character is warm, and when fried [or cooked] it becomes hot..."

A long section on soybeans (p. 74) begins: "They are the pivot-point of Chinese flavor and nutrition." Includes brief descriptions on how to make soybean milk, bean curd, deep-fried bean curds, "bean curd puffs," and yuba.

Soy-related recipes: Slab bacon with fermented bean curd (Nanru kouru, with "3 cubes fermented bean curd, p. 113). Sweet bean paste sauce (tiendoujiang, for Peking duck; it is made from "fermented black soybeans," p. 140). Braised "shark's fin in white sauce (baipa yuchi, with white soup and soy sauce, p. 199). Mrs. Pockmark's bean curd (mapo doufu, p. 207). Silkworm cocoon bean curd (canjian doufu, p. 208).

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term "fermented black soybeans" to refer to fermented black soybeans.

There is a section of seven vegetarian recipes (p. 199-205).

529. 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.

530. Harris, Lloyd J. 1983. The book of garlic. 3rd rev. ed. Los Angeles, Berkeley, San Francisco, California: Panjandrum/Aris Books. 286 p. See p. 254. Illust. (line drawings by Licita Fernandez). 22 x 18 cm. [105\* ref]

• **Summary:** "Eggplant Chiu-Hwa. This is a delicious Chinese dish known as Eggplant Pekinese. The ingredients include Chinese salted black beans which you can get in most markets or specialty shops" (p. 254-55).

531. Santa Maria, Jack. 1983. Chinese vegetarian cookery. London: Rider & Hutchinson Publishing Group. 159 p. Illust. by Kate Simunek. Index. 23 cm.

• **Summary:** A 1987 edition was published in the USA by CRCS Publications, P.O. Box 20850, Reno, Nevada 89515. The recipes fall into 12 categories, one of which is "Bean Curd" (Dòufu, p. 51-66, 30 recipes). There are also many tofu recipes in other chapters, plus recipes using soy beans, "bean curd sheets" and "bean curd sticks" [yuba], "salted black beans" [fermented black soybeans] "Black soya beans fermented with malt [sic, mold], salt and flour are obtained in an almost dry form. They are particularly good for enriching the flavor of a bean curd dish."

All recipes have both their English and Chinese names, with the latter written in pinyin with the four tonal marks (very useful). The author notes that "Since 1958, Pinyin ('phonetic transcription') has been the officially endorsed romanization of Chinese, although the West has taken some time to abandon the confusing Wade-Giles system. Pinyin gives a more accurate rendering of spoken Chinese."

532. Wang, H.L. 1983. Oriental soybean foods. In: Ivan



A. Wolff, ed. 1983. CRC Handbook of Processing and Utilization in Agriculture. Vol. II: Part 2. Plant Products. Boca Raton, FL: CRC Press, Inc. See p. 91-106. Illust. Index. 26 cm. CRC Series in Agriculture. [10 ref]

• **Summary:** Contents: Introduction. Traditional nonfermented soybean foods. Fermented soybean foods. Tables: (1) Oriental nonfermented soybean foods: Fresh green soybeans, soybean sprouts, soybean milk, protein-lipid film [yuba], soybean curd [tofu], soybean flour (local names: Tou-fen, kinako). (2A) Composition of some indigenous soybean foods, 100 g, edible portion. (2B) Composition of some indigenous soybean foods, 100 g, edible portion. (3) Essential amino acid content of some indigenous soybean foods. (4) Oriental fermented soybean foods. (5) Characteristics of rice miso in relation to fermentation condition. (6) Average composition of soy sauce made from whole soybeans and defatted soybean meal. (7) Composition of various types of miso.

Figures: (1) Flow sheet for the preparation of soybean milk and its related products. (2) Flow sheet for manufacture of soy sauce. (3) Flow sheet for manufacture of miso. (4) Flow sheet for making hamanatto. (5) Flow sheet for preparation of sufu. (6) Flow sheet for tempeh fermentation. (7) Flow sheet for preparation of natto.

Note: Vol. 1 is "Animal products." Vol. 2 is "Plant products," Part A. Vol. 3 is "Plant products," Part B. Address: NRRC, Peoria, Illinois.

533. Yeo Hiap Seng Ltd. 1983. Yeo's quality foods and beverages. Singapore. 25 p. [Eng]

• **Summary:** "Yeo Hiap Seng's heritage dates back to 1900 in China. The Company started operations in Singapore in 1935, as a manufacturer of fine soya sauces." A photo shows the store front at one of its early locations. Many color photos show the company's products, which include the following soyfood products: Soy sprouts, salted black beans, salted yellow beans, hoi sin sauce, crushed yellow bean sauce, black bean sauce, salted soya beans, soy sauces (light or dark), and Yeo's soya bean drink (canned). Most product names are given in English, French, and Chinese. The company has offices (whose address and phone are given) in Singapore, Malaysia, Hong Kong, United Kingdom, USA (San Jose, California), and Canada (Richmond, BC).

Photos from this booklet show: (1) One of the company's early offices—the date and place are not given. (2) Yeo's range of Oriental sauces. (3) Yeo's Eastern condiments.

Photos (by William Shurtleff) show: (4) The company's soy sauce products. (5) Other related soy products. Address: Singapore.

534. Shurtleff, William; Aoyagi, Akiko. 1984. Brief history of Yeo Hiap Seng Ltd. and the company's work with soymilk worldwide (Document part). In: Shurtleff and Aoyagi. 1984. Soymilk Industry and Market: Worldwide and Country by Country Analysis. Vol. 1. 177 p. See p. 100-02.



• **Summary:** “Soy milk entered the modern age in Singapore in 1954, when Yeo Hiap Seng introduced the first commercial bottled soy milk. The company traces its origins to the year 1900 when the patriarch of the Yeo family, Mr. Yang (in the Amoy dialect, his name was pronounced Yeo Keng Lian) purchased a small company named “Hiap Seng” in the city of Chang-chou (Zhang Zhou), Fukien (Fujian) province, China. “Hiap Seng” means “unite to succeed.” Yeo Keng Lian changed the company’s name to reflect his family’s ownership. He worked as a manufacturer and retailer of fermented soybean seasonings: soy sauce (*jiang-you*), Chinese-style miso (*dou-jiang*), and fermented tofu (*furu*). All three products were sold from day one under the “Light House” brand.

Note: This is the earliest English-language document seen (Oct. 2011) that uses the word “furu” to refer to fermented tofu.

By working together, the family did succeed. Their soy sauce, fermented in the traditional Chinese way in wooden vats and earthenware jars, was of superior quality and the business prospered. The original plant was located near the center of Chang-chou. In about 1920 a second plant was established in the eastern part of the city, and in the late 1920s a third plant was set up in the southern part of the city. Each of the three fermented soy products were produced in all three plants; the second and third plants also produced some pickled vegetables.

In 1935, during the Japanese invasion of China, when life was difficult and unsettled in Fukien province, Yeo Keng Lian sent his eldest son, Yeo Tian In, to Singapore to investigate possibilities there. The son founded the Yeo Hiap Seng Sauce Factory at 410 Outram Road, Singapore 3. He was joined shortly by the rest of the family. The company continued to make the same three fermented soy products that it had made since 1900 in China. In 1947 the growing business was moved into larger quarters at 950 Dunearn Road, its present location. The move out of China was a wise one, for in 1949 the three Yeo Hiap Seng plants in Fukien were taken over by the Chinese Communists. By the mid-1940s, Yeo’s quality soy sauce was a common sight in Singapore.

In 1950 YHS decided to diversify into canned products, such as chicken curry, fish, and meat. Then in 1954 they launched their first soy milk. Called Beanvit, it was subsequently renamed Yeo’s Soybean Drink. A rather sweet soy milk sold like a soft drink in sterilized bottles, it was marketed in both Singapore and Malaysia, where it was the first product of its type. (Vitasoy was first sold like a soft drink in sterilized bottles in Hong Kong in 1953.) In 1955 the company changed its structure to that of a “Limited” (Ltd.) company. In 1958-59 YHS expanded its soft drink line by bottling favorite traditional Chinese beverages, such as chrysanthemum teas and herb teas. In 1962 YHS began its first export sales to Hong Kong. In 1967 YHS soy milk and

teas were first sold in UHT (Ultra High Temperature) aseptic Tetra Pak cartons (tetrahedral/pyramid shaped; 285 ml).

“YHS was the world’s first company to package soy milk in aseptic Tetra Pak cartons, and the first to use Tetra Pak for any beverage in Singapore. (Vitasoy in Hong Kong did not start using Tetra Pak until 1976). Shortly after introducing sweetened soy milk in the tetrahedral pack, YHS launched enriched Vitabean in the same carton. It was fortified with half of the adult Minimum Daily Requirement of most essential vitamins. Sterilization in bottles would have destroyed most of the added vitamins, but the UHT process did not. In 1974 packaging was changed to Tetra Brik (250 ml), but bottling continued. During the late 1970’s YHS changed its soy milk brand name to Yeo’s. By 1976 Yeo Hiap Seng’s soy milk production had climbed to 50 million bottles and cartons a year, and by 1980 to 75 million (250,000 a day), prompting the company to build a new plant to double its capacity. In 1983 YHS had the biggest share of the Singapore soy milk market (Alan Yeo, personal communication, 1982, 1983).

“Yeo Hiap Seng pioneered soy milk throughout Southeast Asia. In 1959 they opened their first soy milk plant at Kuala Lumpur in Malaysia. By 1984 they had four soy milk plants there at Kuala Lumpur, Johore Baru, Prai, and Kuching. Malaysia, with its 14 million people, was a bigger market than Singapore, with its 2.4 million people. By 1984 YHS had the lion’s share of the Malaysian soy milk market. During the 1970’s, YHS started exporting soy milk to Hong Kong (where they got a small share of the market). In 1979 they began exporting canned soy milk to the USA, where they had offices and a warehouse in San Jose, California. In early 1983 they introduced a low-sugar soy milk to the US. Sales, however, were slow. YHS was not interested in the China market, since they thought that it would be too difficult to get profits out in hard currency. They were franchising their soy milk process and technology in Indonesia, where the product is being marketed under the YHS name. They plan to share in the promotion, too.

Starting in 1974 Yeo Hiap Seng began a new phase of its expansion and diversification by acquiring the Singapore franchises for Pepsi-Cola and Mirinda. These were followed by franchises for Schweppes in 1985 and 7-Up in 1986. In 1985 the company acquired distribution rights for Budweiser beer and in 1987 they branched out into prawn farming.

“The 1981 Annual Report of Yeo Hiap Seng Ltd. shows that this publicly held company was run by Yeo Tian In (Chairman) and Alan Yeo Chee Yeow (Managing Director). From 1977 to 1981, sales of all products grew from \$39.5 to \$95.8 million and pre-tax profits from \$7.1 to \$11.5 million. Their Soft Drinks Division, one of the largest in Singapore, Malaysia, and Hong Kong, provided the main thrust of company growth.” Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

535. Wang, Hwa L. 1984. Tofu and tempeh as potential protein sources in the Western diet. *J. of the American Oil Chemists' Society* 61(3):528-34. March. [22 ref]

• **Summary:** Contents: Abstract (uses the word "soybean foods" several times). Introduction. Traditional soybean foods. Trends in market growth for tofu and tempeh (based on statistics gathered by Shurtleff & Aoyagi of The Soyfoods Center in California, 1983). Tofu. Tempeh.

Traditional soybean foods can be classified as either nonfermented or fermented. Tables show: (1) Oriental nonfermented soybean foods (gives food name, local names, description, uses): Fresh green soybeans (local names: mao-tou, edamame). Soybean sprouts (huang-tou-ya, daizu no moyashi). Soybean milk (tou-chiang). Protein-lipid film (tou-fu-pi, yuba). Soybean curd (tofu, tou-fu, tubu, tahoo, touhu, tau-foo, dou-fu, dau-fu). Soybean flour (tou-fen, kinako) (Wang 1983).

(2) Oriental fermented soybean foods (gives food name, local names, microorganisms used, substrate, nature of product): Soy sauce (local names: chiang-yu, shoyu, toyo, kanjang, ketjap, see-iu). Miso (chiang, doenjang, soybean paste). Hamanatto [fermented black soybeans] (tou-shih, tao-si, tao-tjo [sic]). Sufu (fu-ru, fu-ju, tou-fu-ju, bean cake, Chinese cheese). Tempeh (tempe kedelele). Natto.

(3) Tofu industry in the United States (No. of manufacturers and annual production in 1975, 1979, 1981, 1982, and 1983).

(4) Soybean solids and proteins in soybean soak water as affected by soaking conditions (temperature vs. time; Lowry protein / Lowry's protein). (5) Ratio of protein to oil content of tofu and soy milk as affected by protein content of soybeans (for different soybean varieties; the highest ratios come from the varieties Wase-Kogane, Vinton, Toyosuzu, and Coles).

Figures: (1) Flow diagram for the preparation of tofu. (2) Graph: In vitro digestibility of soybean milk as affected by the duration of boiling. Best digestibility is 12-14 minutes. (3) Four graphs: Relationship of concentration and type of coagulant to the yield of tofu. Coagulants are calcium sulfate, calcium chloride, magnesium sulfate, and magnesium chloride. The 4 graphs are: Gross weight of tofu. Moisture content. Total solids recovery. Nitrogen recovery. Calcium sulfate gives the highest values on all four graphs. (4) Four graphs: Relationship of concentration and type of coagulant to the texture characteristics of tofu. Same coagulants. The four graphs are: Hardness. Brittleness. Cohesiveness. Elasticity. (5) Flow diagram for tempeh fermentation. Address: NRRRC, ARS, USDA, Peoria, Illinois 61604.

536. Leviton, Richard. 1984. Japanese soyfoods. In: Camille Cusumano. 1984. *Tofu, Tempeh, & Other Soy Delights*. Emmaus, Pennsylvania: Rodale Press. x + 261 p. See p. 144-49.

• **Summary:** Contents: Brief biography of Leviton and introduction. Deep-fried and grilled tofu treats: age, atsuage, ganmo, yaki-dofu, doufu-gan. Tofu haute cuisine (at 280-year-old Sasa-no-Yuki in Tokyo, dried-frozen tofu, wine-fermented tofu). Delights of soymilk and yuba (incl. Yuba Han). Natto, miso, and savory soy condiments (incl. Hamanatto or "savory fermented black soybeans," thua nao from Thailand, and natto miso). And still more: Cooked soybeans with wakame, "soy sprouts packed in a sausagelike clear tube, green soybeans in the pods, kinako powder (a flour made from dry roasted soybeans, used as a basis for confections or nut butters), freeze-dried instant miso soup powder, instant silken tofu powder (just add water and stir), and dry meat sauces for tofu." Address: 100 Heath Rd., Colrain, Massachusetts 01340. Phone: 413-624-5591.

537. Shurtleff, William; Aoyagi, Akiko. 1984. History of soy sauce, shoyu, and tamari. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549. 118 p. June 6. Unpublished typescript.

• **Summary:** A comprehensive history of the subject. Contents: What is soy sauce? Etymology. World overview. Part I: History of soy sauce in China and Taiwan. Early Chinese soy sauces (shih-you and jiangyou). The 1800's. 1900-1948. 1949-1980's (People's Republic of China). Taiwan. Hong Kong. Part II: History of soy sauce in Southeast Asia and Korea. Dissemination and common characteristics. Association of Southeast Asian Nations (ASEAN)—general. Philippines (1912-). Thailand (1974-). Malaysia (1970-). Singapore. Indonesia. Vietnam. Korea. Part III: History of shoyu in Japan. Hishio (jiang), tamari, and other forerunners of shoyu (700-1600). The development of shoyu (1500-1700). Standardization of the shoyu formula (1716-1867). The rise of shoyu in Japan (1750-1867). Overview of origins. Shoyu during the Meiji period (1868-1911). Shoyu from 1912-1945. The postwar period and modern times (1945-1981). Part IV: History of soy sauce in Europe. Part V: History of soy sauce in Australasia and the Pacific. Part VI: History of soy sauce in the United States. Part VII: History of soy sauce in Latin America, Africa, the Indian Subcontinent, and the Middle East.

The period during World War I was one of consolidation for the shoyu industry. In 1914 three of the larger manufacturers at Choshi (Higeta, Jigamisa, and Kagidai) merged to become Choshi Shoyu Co. Ltd. In 1917 eight (later nine) major manufacturers in Noda, all related by descent or marriage, withdrew from the Noda cartel and joined to form a corporation, the Noda Shoyu Company, Ltd., which later became Kikkoman Inc. The company began operations on 1 January 1918, and quickly modernized its entire organization. In 1925 it restructured itself by amalgamating four related companies under the control of a holding company, thus greatly increasing its capital and scope. In 1918 Choshi Shoyu Co. changed from a limited partnership to a stock corporation and adopted a common

trademark, Higeta. The Hamaguchi family, originally from Kishu, which ran Yamasa in Choshi, chose not to join the Choshi Shoyu Co. Rather, in 1928 they incorporated as the Yamasa Shoyu Co., Inc. Address: Lafayette, California. Phone: 415-283-2991.

538. Bo, Thi-an. 1984. Tōshi no engen to sono seisan gijutsu ni tsuite [On the origins of fermented black soybeans [douchi] and their production technology. I and II.]. *Nippon Jozo Kyokai Zasshi (J. of the Brewing Society of Japan)* 79(4):221-23. April; 79(6):395-402. June. [7 ref. Jap]

• **Summary:** A definitive history of the subject. Includes a discussion of *shuidouchi*, which might be called salted Chinese natto; it is fermented with *Bacillus subtilis* and made in Shandong province in China—directly west of South Korea. Address: Iwate Daigaku Nōgaku-bu, Sogaku 80 shunen no gosukujji ni kaete; Present address, China.

539. Watanabe, Tokuji; Kishi, Asako. 1984. The book of soybeans: Nature's miracle protein. New York, NY: Japan Publications. 191 p. June. Illust. General index. Recipe index. 26 cm. [21 ref]

• **Summary:** Contents: Introduction. Part 1. General information: 1. Characteristic traits: Agronomic and other biological characteristics, physical properties, chemical properties, soybean protein, properties of soybeans as food material. 2. Current ways of using and processing soybeans: Throughout the world, traditional ways of using and processing, new soybean food products. 3. Tofu and other nonfermented soybean food products: Tofu, deep-fried tofu, dried-frozen tofu, soy milk, yuba, roasted soy flour (kinako), soybean sprouts. 4. Miso and other fermented soybean products: Miso, natto, Hama-natto (tera-nattō), soy sauce, sufu, tempeh. 5. Other ways of eating soybeans—Simple traditional Japanese foods: Parched soybeans, boiled soybeans (*budo-mame*; *hitasahi mame*), beaten and mashed [or ground] soybeans (*go*, or (from edamamé) *zunda* or *jinda*), molded soybean mash (*jinta-dōfu*), molded mashed soybeans and rice flour (*shitogi*), soybean soybean-mash paste. 6. New soybean protein products.

Note 1. This is the earliest document seen (Nov. 2008) that mentions *zunda*. The text (p. 84) reads: “When fresh green soybeans (edamame) are used in cooking, they are boiled for from ten to twenty minutes; ground; and flavored with salt, sugar, and soy sauce. The resulting dish is called *zunda* or *jinda*.”

Note 2. *Zunda* is a healthy and tasty snack or treat made from mashed edamamé. It is sweet, rich in protein, high in fiber and emerald green. It is said to have originated hundreds of years ago in Japan in Miyagi prefecture. In and around Sendai (capital of Miyagi prefecture) one can find many shops and booths that sell *zunda* cakes, *zunda* mochi treats, and *zunda* shakes, all made from edamamé (green vegetable soybeans). One well-known company in Japan that

markets delicious *zunda* products is *Zunda Saryo*.

Part 2. Cooking with soybean food products: Tofu, yaki-dofu, kori-dofu, nama-age, abura-age, gammodoki, yuba, natto, miso, soy milk, soybeans, bean sprouts. Afterword. Bibliography.

In the chapter on tofu, pages 43-44 discuss *okara* or *unohana* (the residue remaining after soy milk production); a photo shows it in a glass bowl. “Though it formerly appeared on many Japanese tables seasoned and cooked with vegetables, today it is most often fed to animals. As the number of animals raised in urban and suburban areas decreases, however, tofu manufacturers are finding it harder to dispose of residue.”

Page 99 notes of tofu: “At a certain temple in Kyoto is a plaque bearing the following inscription, which, while comparing this food to religious faith, clearly shows the esteem in which the Japanese people hold tofu. ‘Religious faith should be like tofu: it is good under any circumstances. It is good boiled, grilled, or fried. Raw, chilled, served with soy sauce and other seasonings, it is good with steamed rice. Simmered in hot water and flavored, it is good with sake. Because it is soft, old people and sick people welcome it, but children and young people like it too. Men like it, women like it; poor and rich both like it. Though common, it has elegance enough to find a place in the upper class.

“It cuts clean and well for use in clear broths. It is good in the meatless diets of religious training. It can be crushed for use in miso soup. It is used all the time and in all seasons. It is inexpensive yet numbered among the delicious treats. It is welcomed everywhere, in mountains as well as in big cities. It is well received at dinners for dignitaries and guests yet is convenient enough for college students who do their own cooking. Women especially should be like tofu. The mature and cultivated person should be tender, yet firm, like tofu. Though apparently tasteless, it is delicious. Though apparently ordinary, it is extraordinary.”

Other ways of eating soybeans (p. 83-84): (1) Parched—“Parched gently in unglazed ceramic dishes made for the purpose,” then tossed by people at Sestubun in February around their houses as they chant “Demon out! Good luck in!” “Then they pick up the beans and eat them. “Parched soybeans are included in some varieties of *mochi* (glutinous rice cake) and in *okoshi* a confection made of puffed rice bound together with sugar syrup. In the past they were eaten with salt, miso, or soy sauce.”

Note: In the USA, parched soybeans are called “dry roasted soynuts.”

Tables show: (1) World production of soybeans (1977-1982). (2) Price trends in dollars per ton for wheat, soybeans, and corn (1970-1981). (3) Soybean yields in the USA and Japan (1974-1981). (4) Chemical composition of soyfoods: Tofu, abura-agé, kōri-dōfu, yuba, kinako, soybean sprouts, nattō, miso (dark yellow), soy sauce (common), soybean (Japanese). (5) Statistics on production of modern soybean

products in Japan (1975-1981). (6) Annual production and prices of modern soy protein products in the USA (May 1983).

Japan once produced a million tonnes (metric tons) of soybeans annually. This figure decreased dramatically during World War II. After the war, as soybean imports from the United States steadily increased, Japan's domestic crop gradually fell to the level of no more than 100,000 tonnes. In 1977 it was 111,000 tonnes, yet by 1982 it had jumped to 226,000 tonnes as rice acreage was reduced.

All photos are black and white. Figures show: (2) Line drawing of soybean plant with flowers and leaves. (2) Cross section of soybean seed-coat and cotyledon. (3) Graph of protein solubility (NSI) of defatted soybean meal at different pH values. (4) Graph of protein solubility (NSI) of defatted soybean meal at different concentrations of calcium chloride. (5) Graph of relationship between time and temperature of soaking soybeans in water (colder water temperature requires longer soak time). (6) Flow sheet for making regular tofu. (7) Photo of regular (*momen*) "cotton tofu." (8) Line drawing of grinder (horizontal type) used with soaked soybeans when making tofu. (9) Photo of continuous filter for soy-milk preparation. (10) Photo of small-scale soy-milk processing plant. (11) Line drawing of molding box [forming boxes with lids] for making regular tofu. (12) Photo of yaki-dofu [grilled tofu]. (13) Photo of okara in a glass cup. (14) Line drawing of molding box [forming box] for silken tofu. (15) Photo of silken tofu. (16) Flow sheet for packaged tofu production [GDL]. (17) Photo of packaged tofu in package. (18) Flow diagram of large-scale process for making tofu and abura-age with 26 pieces of equipment labeled. (20) Flow diagram of continuous process for making packaged tofu [GDL]. (21) Photo of 2 pieces of abura-agé. (22) Photo of deep fryer for making abura-agé. (23) Photo of nama-agé [deep fried tofu cutlet]. (24) Photo of two types of ganmodoki. (25) Line drawing for tofu kneader for ganmodoki production. (26) Photo of kôri-dofu [dried frozen tofu]. (27) Flow sheet for making dried-frozen tofu. (28) Flow diagram of process for making large-scale dried-frozen tofu. (29) Photo of aseptic carton and glass of soy milk. (30) Flow sheet for making aseptically packaged soy milk. (31) Photo of 5 different forms of dried yuba. (32) Photo of kinako in two clear glass bowls. (33) Photo of soybean sprouts in a woven bamboo basket. (34) Flow sheet for making miso. (35) Three different types and colors of miso on 3 bamboo rice paddles (*shamoji*). (36) Line drawing of cut-away view of traditional pressure cooker (*koshiki*) for rice cooking. (37) Diagram of continuous rice cooker with 7 parts labeled. (38) Line drawing of *Aspergillus oryzae* with conidia (spores), sterigmata, and mycelium labeled. (39) Photo of pieces of koji. (40) Diagram of modern fermentation room for making koji. (41) Cut-away view of miso fermenting in a wooden vat with stone weights above vinyl film on top. (42) Line drawing of a mashing machine for miso. (43) Photo of

natto in rice straw wrapper and polystyrene tray. (44) Cross sectional view of pressure cooker for soybeans. (45) Line drawing of rotating mixer to combine cooked soybeans with pure-cultured *Bacillus natto*. (46) Photo of soy sauce table dispenser. (47) Flow sheet for making Japanese soy sauce (shoyu). (48) Transparent view of crusher (roller) for roasted wheat in making soy sauce. (49) Photo of modern stainless steel fermentation tanks / vats (indoors). (50) Photo of a jar and a cup of sufu [fermented tofu]. (51) Diagram showing relationships between modern soy protein foods.

Note: Surprisingly, edamamé, one of the most popular soyfoods in Japan, is mentioned only once, in passing (p. 84) in this book.

Photos on the rear cover show Tokuji Watanabe and Asako Kishi. A brief biography of each is given.

Tokuji Watanabe: Born in 1917 in Tokyo, he graduated from the Faculty of Agriculture of Tokyo University in 1941, with Doctor of Agriculture. In 1945 he entered the National Food Research Institute (NFRI), of which he became director in 1971. In 1977 he resigned that position and became a professor at the Kyoritsu Women's University, where he now teaches. Address: 1. D. Agr., Kyoritsu Women's Univ., Tokyo.

540. Watanabe, Tokuji; Kishi, Asako. 1984. Hama-nattô (Tera-nattô). In: Tokuji Watanabe and Asako Kishi. 1984. The Book of Soybeans: Nature's Miracle Protein. New York, NY: Japan Publications. 191 p. See p. 75-76.

• **Summary:** To make Hama-natto: Ingredients: Selected soybeans, wheat, salt, and ginger. Soak soybeans in water at about 20°C for 3-4 hours, then drain and steam for 5-6 hours. Allow to stand in the steaming vessel overnight [so that their color darkens]. When their temperature has fallen to less than 40°C, mix soybeans with toasted and ground wheat (sometimes barley is used instead) and inoculate with koji starter (*tane-koji*). Mix well and distribute among shallow wooden koji boxes. Store these [typically in a koji incubation room] at from 30-35°C for 50 hours, until beans are covered with a fragrant mold mycelium.

Spread out beans and dry in the sun until a mixture that formerly contained 30-35% moisture contains only 20-25% moisture. [The color of the beans will also become still darker]. Place molded beans in a vat, just cover with brine (Baumé 15 degrees), cover with a pressing lid, weight the lid, and allow to stand for 6-12 months. (Sometimes soy sauce is used in place of brine).

Spread the beans on clean lines in a clean place and dry once again in the sun. Finally mix with ginger that has been pickled in soy sauce.

"Hamma-natto retains the shape of the original soybeans but is a lusterless blackish color." It has a high salt content (about 10%) and a low water content (36-38%), and it keeps for a long time. Hama-nattô is a specialty of a city named Hamamatsu in Shizuoka prefecture, which is adjacent to

Aichi prefecture; the latter is famous for its soybean miso [including Hatcho miso]. Clearly there is a close relationship between Hama-natto, a sort of salted soybean koji, and varieties of soybean miso.

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “Tera-nattô” (or “tera-natto”) to refer to fermented black soybeans. Address: 1. Kyoritsu Women’s Univ., Tokyo.

541. Chen, Steve. 1984. Soyfoods in the Far East and USA: Products, markets, trends. In: American Soybean Assoc., ed. 1984. First European Soyfoods Workshop, Proceedings. Brussels, Belgium: ASA. 36 p. See p. C1-C38. Held Sept. 27-28 at Amsterdam, Netherlands. [11 ref]

• **Summary:** Contents: Summary. 1. Introduction: Ten reasons why soybeans will be a key protein source for the future. 1. Soyfood products. A. Non-fermented soyfoods: Fresh green soybeans, soybean sprouts, soynuts, soymilk, soy flour, yuba or soy protein film, tofu. B. Fermented soyfoods: Soy sauce, miso, tempeh, natto, fermented tofu, fermented black soybeans (tou-shih, hamanatto). 3. Soyfoods markets and trends in the Far East: Taiwan, China, Japan, South Korea, Indonesia, Malaysia, Singapore, Thailand, Philippines. 4. Soyfoods markets and trends in the U.S. 5. References. Plus 15 tables and 8 figures.

“It is our [American Soybean Association’s] strong intention that marketing and consumption of soy protein should not in any way deter the expansion of the production and sale of as much animal protein as the world can be expected to produce in the years ahead. Soy protein foods are being intentionally brought to the market to complement and not necessarily to replace animal protein products.”

“Taiwan imported 1.41 million tonnes (metric tons) of soybeans in 1983 and used about 250,000 tonnes as soyfoods for direct human consumption, which made Taiwan one of the highest in per capita consumption of soyfoods (13.2 kg or 29 lb) in the world. In the past 10 years (1974-1983), the consumption of traditional soyfoods showed an average increase of 3% per year as compared to 12% and 8.1% for poultry and soy oil, respectively. The market for packaged soymilk, soy pudding and tofu has also been expanding rapidly in recent years in Taiwan.” Table 7 shows the production of soymilk in Taiwan, which grew from 103,600 tonnes in 1974 to 210,000 tonnes in 1983, for an average growth rate of 8.2% a year.

China produces about 9 million tones of soybeans a year, and about half of these are consumed as soyfoods, giving a per capita consumption of 4.5 kg of soyfoods. “An improvement in the general economy and soyfood technology and equipment will bring a sharp increase in soybean demand and more soyfoods consumption.”

In South Korea soymilk consumption has increased more than seven-fold in the last 4 years. Currently about 10,000 tonnes of soybeans are used to make 70,000 tonnes

of soymilk. “It is projected that soymilk production in Korea will double in 1984 as compared to the previous year.”

Indonesia continues to be Southeast Asia’s largest consumer of soybeans as food. In 1982/83 soybean consumption was 6.7 kg per capita. Indonesia consumes about 1 million tonnes of soybeans annually, 60-65% of them in the form of tofu and 35 to 40% as tempeh.

Malaysia consumes only about 30,000 tonnes of soybeans per year as food. In Singapore, more than 75% of the population of 2.5 million are Chinese. Therefore tofu, soysauce, and soymilk are the predominant traditional soyfoods consumed.

Thailand consumes about 40,000 tonnes of soybeans a year as food, mainly in the form of tofu. The Philippines uses only 5,000 tonnes of soybeans annually for food, mainly as tofu.

To summarize (Table 6), annual per capita consumption of soybeans in various East Asian countries, in descending order of the amount consumed, is as follows: Taiwan 13.2 kg (population 19 million); Japan 8.3 kg (population 120 million); South Korea 7.5 kg (population 40 million); Indonesia 6.7 kg (population 150 million); Singapore 6.25 kg (population 2.4 million); China 4.5 kg (population 1,000 million); Malaysia 2.1 kg (population 14 million); Thailand 0.8 kg (population 50 million); Philippines 0.3 kg (population 15 million). Address: Director, American Soybean Assoc., Room 603, Kwang-Wu Building, No. 386, Tun Hua South Road, Taipei, Taiwan.

542. 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 of 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 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.? (2) 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 [soy nuggets],

About the author (from the rear 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.”

543. Chan, Anita; Madsen, Richard; Unger, Jonathan. 1984. *Chen Village: the recent history of a peasant community in Mao’s China*. Berkeley and Los Angeles, California: University of California Press. viii + 293 p. Illust. Index. 22 cm. [20 ref]

• **Summary:** *Chen Village* opens a fascinating window on the two eventful decades (from early 1960s to early 1980s) that transformed the countryside of China—and one village in South China. Based on detailed interviews with 26 villagers now living in Hong Kong.

Page 14: “The monotony of their starch diet was

lightened only by bits of tiny salt-dried fish, pickles, fermented bean curd, and fermented black beans, the kind of strong tasting condiments that in small amounts could go a long way on rice or in gruel.”

Page 105: The peasants used soy sauce with their rice. Address: 1. Sociologist and Research Fellow, Center for East Asian Studies,.

544. Clergeaud, Chantal; Clergeaud, Lionel. 1984. *Mystères et secrets du soja* [Mysteries and secrets of soya]. Paris: Editions La Vie Claire. 134 p. Illust. 21 cm. [Fre]

• **Summary:** Contents: 1. A little history, the properties of soya, soybean culture, soya and animal feeding, recipes based on whole soybeans (*fèves de soja*). 2. Soy flour, soy proteins, recipes based on soy flour and soy proteins. 3. Soy sprouts, recipes based on soy sprouts. 4. Soy oil, recipes based on soy oil. 5. Soymilk, recipes based on soymilk. 6. Tofu, recipes based on tofu. 7. Fermented soy products: miso, recipes based on miso, tamari, tamari-shoyu, recipes based on tamari and tamari shoyu, tempeh, recipes based on tempeh. 8. Other [fermented] soy-based products consumed in the world: Chee fan (fermented tofu), Hamanatto, ketjap (Indonesian soy sauce), Meitauza (fermented okara tempeh), Sufu (fermented tofu). Address: Naturopathes–Ostéopathes, France.

545. Kagaku Gijutsu-cho, Shigen Chosa-kai (Science & Technology Bureau). 1984. *Shitei shokuhin seibun hyō* [Standard tables of food composition in Japan. 4th ed.]. Tokyo. 370 p. Introduction by R. Kagawa, Joshi Eiyo Daigaku. 28 cm. [Jap; Eng]

• **Summary:** Pages 76-80 gives a nutritional analysis of the following Japanese soyfoods: Soybeans: whole domestic (dry, or boiled), USA whole dry, Chinese whole dry. Green immature: raw, or boiled. Soybean sprouts: raw, or boiled. Defatted soybeans: whole, or dehulled. Kinako (roasted, ground soybeans). Budō-mame. Tofu: regular (momen), silken (kinugoshi), soft, packed, Okinawa tofu, grilled (yaki-dofu), nama-agé (deep-fried tofu cutlets), abura-agé (deep-fried tofu pouches), ganmodoki, kori-dofu, Tofu chikuwa (steamed, or roasted). Natto: Itohiki natto, goto-natto, tera-natto (fermented black soybeans). Miso: Rice koji miso (ama miso, light yellow miso, dark yellow miso), barley koji miso, soybean koji miso, dried miso, kinzanji miso, hishio miso. Okara. Soymilk: regular, reconstituted, soft drinks. Yuba: Fresh, or dried.

Page 254 gives the amino acid composition of soybeans, tofu, dried frozen tofu, yuba, okara, natto, and 3 types of miso. Address: Japan.

546. Leung, Albert Y. 1984. *Chinese healing foods and herbs*. Glen Rock, New Jersey: AYSL Corporation. \*

• **Summary:** A classic. Address: Glen Rock, New Jersey.

547. Leung, Albert Y. 1984. *Chinese herbal remedies*. New York, NY: Universe Books. 192 p. Illust. (drawings by Bing Fun Leung). Index. 21 cm. [48 ref]

• **Summary:** The book is arranged by plant- or food type. Each entry has all or most of the following subcategories: General information, effects on the body, traditional uses, modern uses, home remedies (and specific conditions it is used to treat), availability. Entries include:

Bean curd [tofu] (p. 33-35). Types include “dried bean cake” [pressed tofu], fried bean cake [fried tofu] and fermented bean cake [fermented tofu]—“all derived from bean curd.” Bean curd is said to have cooling properties. Since it does not have much taste of its own, “it can be made to taste like anything—hence its popularity in vegetarian dishes.” “Bean-cake residue” has traditionally been used therapeutically “mainly for skin conditions, such as ulcers and sores, for which both the uncooked and cooked (baked) forms are made into patties and applied directly onto the affected skin.” A common use for bean curd in Canton is for treating the common cold. It was made into a soup with green onions; optional ingredients include mint leaves, ginger, and fermented black beans. The exact recipe used by the author’s grandmother is given.

Garlic (p. 67-70). Ginger (p. 71-74). “To treat coughing, wheezing, and excessive phlegm due to colds, a popular Cantonese remedy combines the use of ginger and black beans” [fermented black soybeans].

“If one has accidentally ingested an unknown poison which cannot be treated with a specific antidote, a decoction of 31 gm. (1.1 oz.) each of licorice and black soybeans [fermented black soybeans] or mung beans can be used” (p. 94-95).

Mung bean (p. 105-07): Used as a home remedy to “prevent heat rash or prickly heat.”

Soybean (soya) (p. 142-45). “Two varieties of soybean are used in Chinese medicine—black soybean and yellow soybean” (*hei da dou* and *huang da dou*). Black soybean skin [hull, seedcoat], when used medicinally, is known as *hei da dou pi*. Traditional food products derived from the soybean include “bean cake [tofu], soybean milk, soy sauce, soybean oil, and bean sprouts.” Plus “fermented black beans.”

“Traditional uses: The recorded use of black soybean in Chinese medicine preceded that of yellow soybean. The former dates back at least 2,000 years, being listed in the Shennong Herbal, while the latter dates back to only around A.D. 1330.”

Black soybean skins are prepared as follows. Black soybeans are soaked in water until they germinate / sprout, or until the skins / hulls / seedcoats separate easily. The latter are then removed and sun-dried, then stored in a dry place. The earliest known medical use of black soybean skins dates from the middle of the 8th century [mid-700s] during the Tang Dynasty [618-906]. They are said “to nourish the blood, clear one’s vision, and drive away disease-causing



factors.” They are also “used in treating excessive sweating, night sweat [night sweats], dizziness, headache, and rheumatoid arthritis.” They are usually taken in the form of a decoction, with a typical daily dose of 9-16 gm (0.3 to 0.6 oz).

There are two types of fermented black soybeans (*dou chi* in Chinese)—unsalted and salted. “Although the only difference between the two is the added salt, the former is more commonly used in Chinese medicine.” In making fermented black soybeans, black soybeans are soaked in a water extract of white mulberry leaves and a wormwood herb (such as *Artemisia annua*) followed by steam cooking and fermentation. Other herbs, such as licorice and *Ephedra sinica* (*ma huang*, in which ephedrine [a stimulant] was first discovered) are also used.

The earliest known use of fermented black soybeans in Chinese medicine dates from the early 6th century (early 500s) during the Liang dynasty (502-557). It is said to have a bitter taste “and is said to be good for treating illnesses that affect the lungs and the digestive system. It is used in treating colds, fevers, typhoid, headache, and discomforts in the chest.” For these illnesses it is consumed as a decoction, with a daily dose of 6-12 gm (0.2 to 0.4 oz). Many other medicinal uses are given.

“Availability: Yellow soybeans are available in health food stores, groceries, Chinese groceries, and some supermarkets. Black soybeans, fermented black beans, and yellow soybean sprouts are available in Chinese groceries.”

548. Shi, Shenghan. 1984. *Qimin yaoshu* (yinshibu) [The food and drink section of the *Qimin Yaoshu* (Ch’i-min yao-shu)]. Peking, China: Commercial Publishers. [Chi]\*

• **Summary:** Wade-Giles reference: *Ch’i Min Yao Shu* (*yin shih pu*), by Chia Ssu-hsieh. This section of Shi Shenghan’s modern translation of the *Qimin Yaoshu* (1957-58) was published separately in 1984. H.T. Huang used this extensively in his book on *Fermentations and Food Science* (2000) in the Joseph Needham series. Address: China.

549. Reichl, Ruth. 1985. Adding up the pluses and minuses at Abacus. *Los Angeles Times*. Jan. 20. p. T81.

• **Summary:** This is a review of the Chinese restaurant Abacus (11701 Wilshire Blvd., West Los Angeles). Crab in black bean sauce was mediocre. Catfish was overwhelmed with a messy black bean sauce. “Braised bean curd stuffed with meat was entirely undistinguished.”

550. 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.

551. Wang, Lianzheng. 1985. [The origin, evolution, and distribution of soybean]. *Dadou Kexue* (*W.-G. Ta Tou K’o Hsueh; Soybean Science, China*) 4(1):1-6. Feb. [31 ref. Chi; eng]

• **Summary:** The English abstract states that in 1959 archaeologists unearthed soybeans [fermented black soybeans] dating (by carbon dating) from ca. 300 B.C. in Houma Co., Shanxi province, China. The weight of 100 seeds was about 18-20 grams. These are the earliest and oldest archaeological soybean seed relics in the world. So the soybean was cultured over 2,300 years ago.

In the *Shijing* (Book of Poetry) [Book of Odes], the word *shu* (soybeans) is mentioned several times. This book consists of a collection of more than 300 songs. The song titled “Xiao Yao” states that *shu* was found in central China and farmers collected it. Another song, “Gaofen,” stated that “October rice and soybeans are collected.” This song belongs to an early stage, about 1,000 B.C. in the Western Zhou dynasty. [Note: Wilkinson (2000, p. 10) says that Western Zhou lasted 1045 to 771 B.C.]. The place of origin of this song was Bin County, Shanxi Province. Thus: The history of soybean culture [cultivation] in China dates back several thousand years, at least 3,000 years, according to the *Shijing*.

However other speculative comments in the abstract about the early history of the soybean in China make one wonder about the author’s objectivity and knowledge of the subject. He says that soybean cultivation in China may date back as far as 4,500 years or more according to the *Shigi*.

Letter (e-mail) from H.T. Huang, expert on the history of foods in China. Concerning the book *Shigi*: “I think the author means is *Shiji* (or W.-G. *Shih Chi*) Historical Records, the first book of history in the Chinese language, completed at about 90 BC. The earliest mention of soybean is undoubtedly in the *Shijing* (W.-G. *Shih Ching*) the Book of Odes, dated from 800 to 1200 BC.” Address: Heilongjiang Academy of Agricultural Science.

552. Byrne, Maureen. 1985. The future for soyfoods. The first European Soyfoods Workshop was held in Amsterdam by the American Soybean Association, and papers covered subjects from marketing to microbiological standards. *Food Manufacture* (London) 60(3):49, 51, 53. March.

• **Summary:** Contains an interesting full-page table in which Oriental soyfoods are classified into two types: Non-fermented and fermented. The non-fermented soyfoods are: Fresh green soybeans, soybean sprouts, soynuts, soymilk, soy flour, soy protein-lipid film (yuba, tou-fu-pi), soybean curd (tofu). For each food is given the local names,

description, and uses.

The fermented soyfoods are: Soy sauce, miso, tempeh, natto, fermented tofu, and fermented black soybeans. For each fermented soyfood is given the local names, organisms used, description, and uses.

Soy sauce includes *chiang-yu* from China, *shoyu* from Japan, *ketjap* from Indonesia, *kanjang* from Korea, *toyo* and *see-ieu* from Southeast Asia.

Fermented black soybeans include *tau-shih* from China, *tao-si* from the Philippines, *tau-cheo* from Malaysia, *tauco* from Indonesia, and *Hamanatto* from Japan.

553. *American Type Culture Collection Quarterly Newsletter*. 1985. Fermented black beans—Important ingredient in Chinese cooking. April. p. 9. [2 ref]

• **Summary:** Gives a recipe for making *Hamanatto* using whole black beans [presumably soybeans] and *Aspergillus oryzae*. “*Hamanatto*, which resembles raisins in appearance, is much more palatable to people from Western countries [than *itohiki natto*]. It is also sometimes referred to as *dowski*, *taosi*, or *dou shih*.” *Yukiwari-natto* is made using both *Aspergillus oryzae* (in a rice koji) and *Bacillus subtilis*.

Note: This is the earliest English-language document seen (Nov. 2011) that uses the word *dowski* to refer to “fermented black soybeans.”

554. *New York Times*. 1985. Conserving on two fronts. May 1. p. C13.

• **Summary:** Contains a recipe for “Clams in *dow see*.” The ingredients include “1 tablespoon *dow see* (see note).” Then: Rinse the *dow see*; mash and mix with Sherry. “Note: *Dow see*, or fermented black beans, are sold in Oriental groceries and in some supermarkets.”

555. Cronin, Isaac; Johnson, Paul. 1985. The fish market: Things to know in cooking squid. *Los Angeles Times*. May 23. p. L59.

• **Summary:** The recipe for “Squid in black bean sauce” calls for “¼ cup fermented, salted black beans... 2 tablespoons soy sauce.” Plus 1 tablespoon each chopped garlic and chopped ginger, etc. Then: “Slightly crush black beans and combine with Sherry and soy sauce. Set aside 20 minutes.” Then stir fry with the other ingredients.

556. Tsujimura, Katsura. 1985. Re: Thinking about tempeh, salted koji, and natto. Letter to William Shurtleff at Soyfoods Center, June 12. 2 p. Typed, with signature. [Eng]

• **Summary:** He thanks Mr. and Mrs. Shurtleff for their present of the new edition of “The Book of Tempeh,” and makes a few observations about the symposium “Non-Salted Soybean Fermentation” to be held July 15-18 at Tsukuba Science City.

He is interested in understanding the connection between the microorganisms of *kinema*, *thua-nao*, *natto*, and

*onchom merah* of Indonesia (*Neurospora*).

“You have mentioned a food named ‘*Tou Chiah Ping* (soy bean fried cake),’ reported and photographed at Beijing [China] in 1931. (p. 155)” Is its Chinese characters [three handwritten characters]?

“Unfortunately you could not get new information by asking 10 Chinese. None of them knew about it. This means that the food was lost or was eaten only by lower classes.

“You have referred to the relation of *tou ching ping* and *tempe*. I also imagine *tou-chiah-ping* was one of the original types of the consumption of soybean-koji, before it was used for enzyme reaction, as in the case of miso production. Salted koji (in Japan it is known variously as *Tera-natto*, *Daitokuji-natto*, *Hama-natto* or *Shiokara-natto*) is another type of consumption. It improves preservation and serves as an appetizer of boiled rice. From it miso and soya sauce were developed.

“At present grain-koji (made of rice or wheat) is usually used for miso and soya-sauce production. Soybean protein is hydrolyzed by grain-koji. Grain-koji itself is never eaten directly. It is also used as enzyme preparation to hydrolyze starch to make ‘*Amasake*’ or as the raw material for ‘*Sake*’ making. Whether grain-koji was eaten in ancient time or not, I have no information.

“*Natto* and ‘*Oncom merah*’ are unique products utilizing *Bacillus* and *Neurospora* respectively. I suppose both might developed from failed production of molding.

“There are two kinds of *onchom*, black *onchom* and red *onchom*; the former is made using *Rhizopus*, and is the analogue of *tempeh*. You have classified this as a type of *tempe*...”

“*Natto* resulted from the failure of soybean-koji production, I suppose. *Natto* developed in northeast Japan, where the climate was cooler than in southeast. One must maintain warm temperature to grow *Aspergillus* to get koji. So they packed the cooked soybean in the straw parcel, and this resulted in the growth of *Bacillus* instead of *Aspergillus*. The wet condition on the surface of boiled soybean may benefit to the *Bacillus* (unfortunately I have no experimental evidence).

“I am interested that the process of the development of *natto* and *onchom* (red *onchom*), which seem to be resemble each other. Sincerely yours,...” Address: Prof. of Nutrition, Higashi Nakano 2-5-5, Nakano-ku, Tokyo 164, Japan.

557. Kawakami, Kozo; Kimura, Eiichi. 1985. *Daizu ryōri kotoba no rekishi*. *Tōfu wa mukashi* “*tōfu*” to *kaita* [History of soyfoods terminology in Japan. “*Tofu*” was previously written with different characters]. *Daizu Geppo* (*Soybean Monthly News*). July. p. 34-39. [8 ref. Jap]

• **Summary:** A full-page table (p. 39) lists all of the major Japanese soyfoods and gives a citation for the earliest Japanese-language document seen by the authors in which each of their names first appears. Address: 1. Nōgaku

Hakase, Shusai, Ryori Genten Kenkyukai; 2. Daizu Geppo Staff.

558. Kawakami, Kozo; Kimura, Eiichi. 1985. Daizu ryôri kotoba no rekishi [History of soyfoods terminology in Japan: Tera natto / shiokara natto (fermented black soybeans) (Document part)]. *Daizu Geppo (Soybean Monthly News)*. July. p. 34-39. [2 ref. Jap]

• **Summary:** A full-page table (p. 39) lists all of the major Japanese soyfoods and gives a citation for each of their early names.

Tera Natto: The term *shiokara natto* (“salty natto”) appears in the work titled *Gunsho Ruiju (Katsuji-hon)*, page 344, lower section, line 5). The authors think that this is the earliest document seen that mentions *tera natto* or non-stringy natto [fermented black soybeans]. But after that time, the same food appears to be called *ko no daizu* or *kaori no daizu* (“fragrant soybeans”), and that term first appeared in the *Hôchô Kikigaki*, a cookbook that was published about 1560-1580 and that is part of the *Gunsho Ruiju (Katsuji-hon)*, page 800, upper section, line 6). The term *ko no daizu* or *kaori no daizu* also appeared in the *Sotan Chakai Kondate Nikki (Master Sotan's Tea Ceremony Cookery Menu Diary)*, in the morning menu for 19 March 1588. Address: 1. Nôgaku Hakase, Shusai, Ryori Genten Kenkyukai; 2. Daizu Geppo Staff.

559. Hesseltine, C.W. 1985. Fungi, people, and soybeans. *Mycologia* 77(4):505-25. July/Aug. [92 ref]

• **Summary:** In this Mycological Society of America Annual Lecture, presented on 7 Aug. 1984 at Colorado State University (Fort Collins, Colorado), Dr. Hesseltine gives a nice history of the research conducted by him and others at the Northern Regional Research Center (NRRC) on Asian soybean fermentations, including fermented tofu (Frank Meyer, early USDA plant explorer, in a letter dated 21 Nov. 1916, states: “Parcel No. 125c contains first quality Chinese soybean cheese: please taste a little on the point of a knife; it is extremely appetizing.”), *sofu*, *shoyu*, *miso*, *tempeh*, Chinese black beans (fermented black soybeans), *natto*, and “the use of lactic acid bacteria to produce a yogurt product from soybeans.” He also studied non-fermented tofu.

Dr. Hesseltine pays a nice tribute to the work of Dr. A.K. Smith of the NRRC (p. 506-07). After his trip to East Asia shortly after World War II, Dr. Smith (a protein chemist) made great efforts to promote cooperation between the USDA, particularly the NRRC, and Japan in conducting research to understand how our exported soybeans were used for food. He had the foresight to recognize the importance of studying soybeans used in such huge quantities for processing into human food. Dr. Smith was instrumental in arranging for two Japanese scientists (Dr. Tokuji Watanabe and Dr. Kazuo Shibasaki) to come to the NRRC to do research on tofu and *miso*. “This really began a new era of

research on use of Oriental methods to produce foods from soybeans” (p. 507).

“My first real involvement in fermentation of soybeans was the arrival [in Oct. 1958] of Professor K. Shibasaki of Tohoku University to study the *miso* fermentation. He was sponsored by the American Soybean Association and USDA's Foreign Agricultural Service. When he arrived, I was told that since I was curator of the mold collection and since the *Aspergillus oryzae* strains used in the *miso* process were in my charge, I would be the person he would work with. I had no background and no interest in soybean fermentations, but this was a fortuitous happening because it acquainted me with Oriental food fermentations. All my background was in conventional liquid agitated pure culture fermentation. The *miso* fermentation introduced me to two new concepts in fermentation: (1) solid state fermentation, and (2) use of mixed pure culture inoculum” (p. 510).

“Probably my interest in fermented foods would have abated had it not been for the acceptance of Mr. Ko Swan Djien of Indonesia, who came to us in 1960 for practical training. In my first discussion with him, we talked about the kind of work he would do. Since I knew that a fermentation was conducted in Indonesia using soybeans and reportedly the fermentation organism was a species of *Rhizopus*, I asked him if he was familiar with the product; his answer was yes, that he often ate it, but he knew nothing about how the fermentation was conducted. It was decided that during his 6 months at Peoria this might be an interesting subject to study, especially since he could obtain samples of the *tempeh* cake from his wife, who was in Java and could tell good *tempeh* from bad. Dried samples were quickly obtained; from these cakes, four species of *Rhizopus* were isolated” (p. 514-15). Eventually many strains of *Rhizopus* were isolated and investigations showed that *Rhizopus oligosporus* strain NRRL 2710 produced especially good *tempeh*.

Photos show four famous Japanese scientists who studied fermented foods: (1) Prof. Teizo Takahashi. (2) Ryoji Nakazawa. (3) Kin-ichiro Sakaguchi. (4) Kendo Saito. Address: NRRC, ARS/USDA, Peoria, Illinois.

560. Aubert, Claude. 1985. Les aliments fermentés traditionnels: Une richesse méconnue [Traditional fermented foods: An unrecognized richness]. Paris: Terre Vivante. 261 p. Index. 21 cm. Series: Collection les Vrais Aliments d'Aujourd'hui et de Demain. [173\* ref. Fre]

• **Summary:** The author gives good, brief introductions to the fermented soyfoods *tempeh*, *miso*, *miso* pickles, *shoyu*, *tamari*, *sofu*, *natto*, *soy idli*, and *hamanatto*. Related foods that are also discussed include *koji*, *amazake* (*amasaké*), and *ontjom*. See especially chapter VII: The fermentation of legumes (p. 73-78). Part IV (p. 153-216) is a dictionary of fermented foods and beverages, in which they are listed alphabetically; basic information and references for each are given. Instructions are given for preparing many of these

foods on a home scale, and for some foods (such as tempeh) even recipes are given (fried tempeh, tempeh goreng). The book contains many beautiful illustrations and an excellent bibliography. The author acknowledges his extensive use of the material in *Handbook of Indigenous Fermented Foods* (1983) edited by K.H. Steinkraus. Address: Ingénieur agronome de formation, France.

561. Brown, Ellen. 1985. *Cooking with the new American chefs*. New York, NY: Harper & Row. 367 p. Illust. Index. 28 cm.

• **Summary:** A decade ago the home cook would have had to venture to the nearest Chinatown to buy fresh snow peas, but not such ingredients are increasingly found in the produce section of mainstream American supermarkets and grocery stores.

“Credit for this must go to a great extent to produce wholesaler Frieda Caplan, who along with her daughter, Karen, runs Frieda’s Finest, a specialty produce supply house in Los Angeles, known by its lavender-and-black labels.” In 1962 she popularized the kiwi fruit by renaming it; formerly it had been the “Chinese gooseberry.”

In the produce area, over the past twenty years, Frieda has been responsible for many firsts, including the idea of moving tofu out of the dairy case and into the produce section, next to fresh foods, such as ginner root, with which it would most often be used.

Note: However, in the produce section, tofu was rarely refrigerated to the level required by law.

A recipe for “Chinese crab” (developed by Wolfgang Puck) calls for “2 tablespoons Chinese fermented black beans” (p. 258). Address: Food industry consultant, food writer, restaurant critic, and former food editor of *USA Today*.

562. 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.

563. 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].

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.”

564. 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.

565. Salunkhe, D.K.; Kadam, S.S.; Chavan, J.K. 1985. Postharvest biotechnology of food legumes. Boca Raton, Florida: CRC Press. 160 p. Illust. Index. 26 cm. [25 soy ref]  
 • **Summary:** Contents. 1. Introduction. 2. Seed structure, production, and distribution (Soybean, p. 8-10, 17-18). 3. Chemical composition. 4. Nature and causes of losses. 5. Harvesting, threshing, and drying (Soybean, p. 69-70). 6. Storage. 7. Processing and utilization (Soyfoods, p. 121-36). 8. Food legumes in protein crisis.

Chapter 7, “Processing and utilization,” discusses tofu, tempeh, soy flour, soymilk, miso, shoyu, natto, Hamanatto, and cereal-soy blends. Address: 1. Vice-Chancellor; 2. Prof. of Food Science & Technology; 3. Asst. Food Science & Technol. All: Mahatma Phule Agricultural Univ., Rahuri, Maharashtra State, India.

566. Yan, Martin. 1985. Martin Yan: The Chinese chef. Garden City, New York: Doubleday & Company Inc. 179 p.  
 • **Summary:** “From the National Public Television Series “Yan Can Cook,” now in its sixth season since 1978. One of the show’s sponsors is Kikkoman. The recipes in this book are divided by geographical region. “The best way to grasp the diversity of China’s cuisine is to consider the land as divided into four major culinary regions [north, south, east, and west], each boasting its own cultural identity. Contents: Introduction. Canton. Szechuan and Hunan. Peking. Shanghai. Nouvelle cuisine.

On pages 8-9 is a gorgeous color photo (2-page spread) showing all the foods and seasonings described in the “Glossary” that follows (p. 11-15). On page 10 is the numbered “key” to the names of items shown on pages 8-9. These include:

Bean curd (“Also known as ‘tofu.’ Types include: dried [yuba] {in sheets or sticks}; fermented {either red or white and fermented in rice wine}; fresh {in cakes or blocks}; and fried {in small pouches or cubes}. See also p. 79.”  
 Bean paste, sweet (“Sweetened fermented soy bean paste used as a seasoning in many Szechuan and Hunan dishes”).  
 Bean sauce, brown (“Also referred to as yellow bean sauce. Thick sauce made from fermented soy beans”).  
 Bean sprouts (“Tender sprouts from mung beans or soy beans”).  
 Black beans, fermented (“Small, fermented black [soy] beans with pungent aroma and salty taste. Used in Cantonese-style dishes. Sold canned or bulk in plastic bags... Rinse before using”).  
 Hoisin sauce (“Dark brown, thick sauce with a sweet, spicy flavor; made from fermented soy beans, flour, vinegar, sugar, garlic, and spices”).  
 MSG (“... not called for in this book”).  
 Soy sauce. Tofu (“See Bean curd”).

A recipe for “Black bean sauce” (p. 32) calls for “¼ cup fermented black beans,” 2 tablespoons vegetable oil, 3 cloves minced garlic, 3 tablespoons dry sherry, 2 tablespoons dark soy sauce, 1 tablespoon brown sugar, and 2 teaspoons sesame oil. It is made in a wok.

Contains 9 recipes for tofu (the term now preferred by the author to “bean curd,” though he uses both). These include: Tofu & green bean salad (with “1 package {about 1 pound} firm tofu {bean curd}, drained,” p. 136, photo p. 151). Bean curd family style (with 1 package firm tofu, p. 141). Vegetarian bean curd roll (with “6 dried bean curd [yuba] sheets, p. 155). “Red fermented bean curd” is mentioned on page 10 (no. 48 in list) and as an optional ingredient (“for more exotic flavor”) in a recipe for Chinese BBQ pork (p. 38).

On page 79 is a description of the many uses of the soybean, including dark/thick and light/thin soy sauce, tofu (fresh bean curd), deep-fried bean curd, dried bean curd sheets or sticks (yuba), and fermented bean curd [fermented tofu] in red and white versions.

“Dark soy sauce has a heavier consistency and is somewhat sweeter. Its dark color imparts a reddish-brown hue to the foods cooked in it, so it is used in ‘red-cooked’ dishes. Light soy is an all-purpose soy sauce often used in marinades and in stir-fry dishes.” Address: Yan Can & Company, Inc., P.O. Box 4755, Foster City, California 94404.

567. Yokotsuka, T. 1985. Fermented protein foods in the Orient, with emphasis on shoyu and miso in Japan. In: B.J.B. Wood, ed. 1985. Microbiology of Fermented Foods. Vol. 1. Essex, England: Elsevier Science Publishing Co. xx + 371 + 14 p. See p. 197-247. [146 ref]

• **Summary:** This book chapter is very similar to Yokotsuka (1982), “Industrial application of proteinous fermented foods.” However it contains some new, additional, and very interesting information, especially concerning history, on pages 198-209 as follows: Introductory definitions of enzymatic hydrolysis, *Aspergillus* molds, miso (whose per capita consumption in Japan is about half that of shoyu by weight), saké, mirin, amasaké. Table 1 shows “Per capita annual consumption of fermented foods prepared from *Aspergillus* moulds in Japan (1981).” Shoyu 10.1 litres. Miso 4.9 kg, sake 12.3 litres, mirin 0.6 litres, shochu 2.2 litres, rice vinegar 0.25 litres, (vinegar) 2.5 litres. Note: Beer 39.5 litres. Whiskey and other foreign alcoholic beverages 3.7 litres. Japanese population 117.85 million on 1 Oct. 1981.

History: History of fermented proteinous foods in China: Chu (koji), chiang, shi or tou-shi [fermented black soybeans], chiang-yu (soysauce), shi-tche (the extracted juice of fermented black soybeans). History of shoyu and miso in Japan: Hishio, sho, soya or soy, miso or misho, tamari, miso-damari, tare-miso and usudare, shoyu, miso of today.

Shu [Qu; koji] was first mentioned in the *Shu-Ching* [pinyin: *Shujing*] written 3,000 years ago during the Chou [Zhou] dynasty (1121-256 BC), which stated that chu is essential for making alcoholic beverages. Two different colors of chu were described: yellow and white. “The most popular one, which had a yellow colour indicating perhaps *Aspergillus oryzae*, was called yellow robe. The white one is presumed to be *Rhizopus* or *Mucor* and was called white robe.” Originally, chu was made in granular form and called *san-chu*. But by about AD 947-79 chu was developed in cake form called *ping-chu*. Address: Kikkoman Inc., Noda, Japan.

568. Mori, Yutaka; Kiuchi, Kan. 1986. [Heterocyclic nitrogen-containing compounds in Hamanatto]. *Shokuhin Sogo Kenkyujo Kenkyu Hokoku (Report of the National Food Research Institute)* No. 48. p. 213-15. March. [14 ref. Jap; eng]

• **Summary:** Reprinted from *Nippon Jozo Kyokai Zasshi (J. of the Society of Brewing, Japan)* 80(4):278-80 (1985). Address: National Food Research Inst., 2-1-2 Kannondai, Yatabe-machi, Tsukuba-gun, Ibaraki-ken 305, Japan.

569. Lee, Karen; Branyon, Alexandra. 1986. Food: The sauce is the thing. *New York Times*. April 6. p. 318-19.

• **Summary:** This article about Chinese sauces states: “The staples that require no refrigeration are fermented (salted) black beans, vinegar, and dark soy sauce.”

“The pungency of black bean sauce” offers many savory possibilities when stir frying meat, poultry, fish or seafood (such as shrimp, scallops, lobster and crab).

The recipe for “Steamed whole fish with black bean sauce” calls for “1 recipe for black bean sauce (see below).” This detailed recipe for “Fermented black bean sauce” calls for “2 tablespoons fermented black beans, minced” plus 1

teaspoon each minced fresh ginger and minced garlic. All ingredients are stir-fried in a wok, yielding enough sauce to season one pound of meat, fish, or poultry.

570. Maeda, Toshiie. 1986. *Miso no furusato* [The homeland of miso]. Tokyo: Kokon Shoin. 258 p. April. Illust. 20 cm. [124 ref. Jap]

• **Summary:** Contents. 1. The homeland of miso: The birthplace of miso. Cultural factors that gave birth to miso. 2. The paths of dissemination of miso: Southern and northern paths in China. The arrival of miso in Japan and its spread there. History of miso in Japan. 3. The taste and nutritional value of miso: Theories of change in miso. Miso in our lifestyle. 4. Miso as a commercial product: The movement of miso from producer to consumer. The price of miso. Future prospects for miso culture. Present status of changes in miso culture. Explore these new miso products from the principles of changes in miso culture. Proposal for the future of miso culture.

This creative book discusses miso’s history, the present status of the Japanese miso industry, the future of miso in the westernized Japanese diet, and the fact that the use of miso mainly in miso soup presents a big problem. The first solution to the problem is to use miso in thick ketchup-like sauces. The second is to return to the non-salted fermented foods such as Japanese natto, Nepalese kinema, Indonesian tempeh, and Chinese fermented black soybeans (shi), which are the ancestors of miso. He emphasizes tempeh, which he feels is a wonderful food that can be used in various ways, and is nutritious and healthy. He explains that tempeh is becoming popular in the USA and Europe, and concludes that tempeh alone can be used to start a food industry. Address: Sozosei Kaihatsu Kenkyusho Shusai.

571. Farrington, Sharon. 1986. Grilling with an Asian accent: Exotic flavors go beyond barbecue. *Washington Post*. May 25. p. K1.

• **Summary:** Many Americans now prefer the word “grill” to the word “barbecue.” Teriyaki and Yakitori from Japan are both grilled favorites among many Americans; in Japan they are grilled on the small, efficient hibachi.

A recipe for “Dow see pai quat (Twice-cooked Cantonese spare ribs in black bean sauce)” has ingredients that include: “¼ cup soy sauce,... 2 tablespoons fermented black beans, 1 tablespoon ginger root, grated, 1 tablespoon garlic, minced,...” Grill over hot coals.

572. Takao, Shoichi. 1986. *Nattô kenkyû no rekishi-teki kôsatsu* [An historical overview of natto research]. In: Kô Aida, et al. eds. 1986. *Proceedings of the Asian Symposium on Non-Salted Soybean Fermentation*. Japan: Takeshima Shigeru. 319 p. See p. 61-69. Held July 1985 at Tsukuba, Japan. English-language summary in *Symposium Abstracts*. p. 52. [Jap]

• **Summary:** “Natto in Japan generally means Itohiki-Natto, which is a unique product in this country. A very small amount of Shio-Natto derived from China is also manufactured in some limited localities.

“The first description of Natto bacterium was by Dr. Kikuji Yabe in 1894, who isolated three *Micrococci* and one *Bacillus* from Natto, but was unable to determine that those isolates were responsible for Natto fermentation. In 1905, Dr. Shin Sawamura first isolated a bacterium that could produce good Natto by its single inoculation, and named the isolate *Bacillus natto* Sawamura, a novum species. This was the discovery of Natto Bacillus.

“Subsequently, Prof. S. Muramatsu of Morioka Agricultural Academy, and Prof. Jun Hanzawa of Hokkaido University did research and extension / education on natto manufacture with pure starter cultures of Natto Bacillus, and it was Prof. Hanzawa’s great contribution that the natto technology which is widely used in the nation today was firmly established and disseminated.

“The traditional manufacture of Natto, namely wrapping of cooked soy in rice straw to ferment the beans, depended on natural inoculum from straw, but that process had problems with sanitation and did not guarantee a consistent quality of products. Prof. Hanzawa introduced not only good starter cultures, but also a new method, to use a container in place of straw. He organized in 1919 an association of natto container improvement, started to publish a journal ‘Natto’ and was greatly committed to the education of Natto manufacturers. Mr. Jirô Miura, The First President of National Natto Manufacturer’s Association (presently National Federation of Natto Manufacturers’ Cooperatives) established in 1940, was among those who were directly guided by Prof. Hanzawa.

“The new technology rapidly disseminated in the nation and even in the Japanese communities on the Chinese mainland and Latin America. This fact reflects the excellence of the new technology developed under the guidance of Prof. Hanzawa.

“In microbiological research on Natto Bacillus, a great number of reports were published on taxonomy, nutrient requirements, formation of mucous materials, enzymes, antibiotic activities and phage infection. *Bacillus natto* named by Dr. Sawamura was included in *Bacillus subtilis* in Bergey’s Manual of Determinative Bacteriology 6th Edition (1948), and has not been recognized as an independent species since then. However, Natto Bacillus has many different properties from *Bacillus subtilis*, and still maintains its naming at present, especially in the Natto manufacture.”

Contains numerous photos, including: 1920 post card from the Society for the Improvement of the Natto Container. Ad for the first pure-culture natto bacteria cultured by Dr. Hanzawa. Dr. Jun Hanzawa. Address: Hokkaido Univ., Nôgaku-bu.

573. Toyoda, Motoo. 1986. Jiba sangyô to shite no nattô to sono eisei kanri [Natto manufacture as a rural agro-industry and its sanitary management]. In: Kô Aida, et al. eds. 1986. Proceedings of the Asian Symposium on Non-Salted Soybean Fermentation. Japan: Takeshima Shigeru. 319 p. See p. 263-67. Held July 1985 at Tsukuba, Japan. English-language summary in Symposium Abstracts, p. 75. [4 ref. Jap]

• **Summary:** “Natto is one of the most efficient nutritious foods and first appeared in food history more than 2,000 years ago. There are two types of Natto, ‘Shiokara-natto (salted)’ and ‘Itohiki-natto (non-salted)’... Ibaraki prefecture is one of the largest producers of ‘Itohiki-natto’ and the best place to maintain their high quality in Japan. The ‘Itohiki-natto’ in Ibaraki prefecture is also known as ‘Mito-natto’ and is one of the major genuine products in Ibaraki prefecture. There are 34,000 tons of ‘Mito-natto’ produced annually, comprising 20% of all products in Japan (1984).

“There are several reasons why ‘Mito-natto’ is so popular with consumers. ‘Mito-natto’ is made from small grain soybeans. Therefore, the taste of ‘Mito-natto’ is very mild and soft. Due to the Kanto loam, only small grain soybeans can grow in Ibaraki prefecture. From the Tokugawa Era (200 years ago), these small grain soybeans have been harvested before the typhoon season due to their early-ripening character... The small grain soybeans are difficult to use for making Tofu and Miso... Interestingly, *Bacillus natto* can grow better on small grain soybeans than large ones. This feature allows ‘Mito-natto’ to have unique stickiness with special flavor.

“The container of ‘Mito-natto’ is quite unique. More than 96% of manufactured ‘Mito-natto’ is packed in PSP (polystyrene paper) containers. This Natto is distributed widely through grocery stores. The remaining 4% of ‘Mito-natto’ is packed in a traditional container called ‘Tsuto-natto’ made of straw. Ibaraki is the only place where ‘Tsuto-natto’ is permitted to be used as a Natto container. Historically, ‘Mito-natto’ was first sold at Mito station in 1889. Since then, this type of Natto is mainly sold in souvenir shops, especially Kiosks, located on major JNR (Japan National Railway) stations...

“In 1961, Ibaraki prefecture established the standard methods for inspecting the quality of Natto. In Ibaraki, three organizations, Ibaraki prefectural Institute of Health, Environmental Sanitation Section of Ibaraki Government and Ibaraki Natto Maker’s Association, have been working closely to prevent any possible safety problems associated with the manufacturing and marketing of Natto.” Address: Technical advisor of Ibaraki prefecture, and Purima Hamu K.K. (Prima Ham).

574. Yoshida, Shuji. 1986. Minzokugaku kara mita muen hakkô daizu to sono shûhen [The origin of non-salted fermented soybeans from the viewpoint of ethnology]. In: Kô



Aida, et al. eds. 1986. Proceedings of the Asian Symposium on Non-Salted Soybean Fermentation. Japan: Takeshima Shigeru. 319 p. See p. 166-78. Held July 1985 at Tsukuba, Japan. English-language summary in Symposium Abstracts, p. 62-62. [20 ref. Jap]

• **Summary:** “Two of the earliest kinds of fermented soybeans were *shì* and *dòu-jiàng*. The former antedates the latter, because *shì* can be traced to the Han Dynasty (206 BC-A.D. 200), whereas *dòu-jiàng* does not emerge until the description in *Qimin Yaoshu* (A.D. 536-550). Good descriptions of *shì* and *dòu-jiàng* are given in *Qimin Yaoshu*. *Shì* is made as follows: A yellow mold is permitted to grow on boiled beans, which are then washed and wetted, after which they are fermented in a cellar for 10-12 days. *Shì* was eaten as a condiment.

“However, *shì* as a food would have appeared prior to *shì* as a condiment. *Sake* which was made from grain through mold fermentation, was originally not for drinking, but rather for eating. Such a primitive *Sake* is still used in Yúnnán. I suppose that a primitive *shì* also was eaten, and that the place of origin of *shì* was South China, according to the description in *Bencao Gangmu* (*shì* was commonly made in South China), and *Bówùzhì* (*shì* was exotic).

“*Dòu-jiàng*, which may have been first mentioned in *Bencao Gangmu* (1596), was a simple mold bean and was technologically more primitive than *shì*, although the existence of *dòu-jiàng* or a similar substance cannot be traced in the literature before *Qimin Yaoshu*. It seems that the first product of fermented beans would be *dòu-jiàng*, or a similar substance, and that its making would have been influenced by *sake* production. Later, *shì* as a food would have appeared and then *shì* as a condiment was produced, as we see from the *Qimin Yaoshu*.

“On the other hand, *dòu-jiàng* was developed from *ròu-jiàng*, preserved meat... *Natto*, *kinema* and *tempeh* would be identified as a substance similar to *dòu-jiàng*, which was a primitive fermented soybean product. Boiled beans became *dòu-jiàng* if they were covered by *Imperata cylindrica* grass, *kinema* if covered by certain leaves, *tempeh* if covered by leaves of *Hibiscus tiliaceus* or banana leaves, and *natto* if covered by ricestraw.

“We know that various kinds of plants are used for making *sake* or mold bran. The species used varies by place. Fermented soybeans occur within the *sake*-making area and only at the margin of the distribution. That means several new fermented soybean products like *shì* and *dòu-jiàng* were made in the center of the fermented soybean distribution, and the area gradually expanded toward the margins. They were accepted in areas close to the center, but the most primitive forms would have remained only in the marginal places, where new ones were not accepted.”

A large chart (p. 169) shows the relatives and development of fermented black soybeans (*shì*); it includes the names of various unsalted fermented soyfoods and soy

condiments (with their geographical area in parentheses). Relatives (fermented soyfoods made from yellow soybeans): Akuni (Sema Naga, in the Himalayas in northeast India), kinema (Limbu, in eastern Nepal), pe-bout (Shan, in eastern Burma), itohiki natto (Japan), and tempeh (Indonesia). Stage 1. Itohiki natto became Chon Kujjiang [perhaps *chungkuk jang*, Korean-style natto] of the Zhanguo Warring States period (475-221 BC) in China. Stage 2A: Unsalted fermented black soybeans were originally used as a food, rather than as a seasoning. To these unsalted fermented black soybeans, koji was added to create homemade unsalted fermented black soybeans (*doushi*, of China), Stage 2B: Salt was added to the unsalted fermented black soybeans to make various salted foods (each with a firm texture like raisins): Daitokuji natto (Japan; with wheat flour added), *pe-ngapi* (upper Burma), and *seang* (Cambodia). Stage 3. Unsalted fermented black soybeans (*doushi*) developed into closely related danshi. Koji was added to danshi to make *rul-kre* (of Bhutan). Cooked soybeans were shaped into balls and fermented naturally to make miso-dama (“unsalted miso balls” [meju], Korea and Japan). Then salt was added to the miso-dama to make various seasonings (each with a consistency like applesauce or paste / miso): Korean soybean jang (*doen jang*), Korean soy sauce (*kan jang*), or soybean miso (*mamé miso*, Hatcho miso, Japan). Stage 4. Salt was added to unsalted fermented black soybeans (*shi*) to make salted fermented black soybeans, from which developed inyu (a fermented soy sauce made with black soy beans, in Taiwan), *inshi* (meaning unclear, of Taiwan), and taucho (*tauco*, of Indonesia). Stage 5. Koji was added to salted fermented black soybeans to make *shi* for food use, and *doushi* (of Sichuan, China). Stage 6. Flour was added to salted fermented black soybeans to make red pepper jang (*kochu jang*, Korea) and spicy fermented black soybeans (*doubanshi*, China).

Note: This chart may be easier to understand when viewed in chart form, however the logic and some of the products seem a bit unclear. It is also unclear which products are fermented with bacteria (like natto). Soyfoods Center has an English-language translation of this chart. Address: National Museum of Ethnology, Osaka (Kokuritsu Minzokugaku Hakubutsukan).

575. Sung, S.K.; Lee, C.M.; Young, J.D.; Chen, C.N. 1986. High levels of tyramine in some Chinese foodstuffs. *Human Psychopharmacology* 1(2):103-07. [17 ref]\*

• **Summary:** Tyramine was assayed by high pressure liquid chromatography (HPLC) in 9 common Chinese foods including soy sauce, fermented soybean, fermented bean curd, red fermented bean curd, chili soybean paste, soybean paste, and preserved vegetables. Contents were highest in fermented soybean and fermented bean curd. Results are discussed in terms of hypertensive risk for patients taking monoamine oxidase inhibitors.

Note: *Webster's Dictionary* defines tyramine (derived

from tyrosine + amine) as “a phenolic amine  $C_8H_{11}NO$  that has a sympathomimetic action and is derived from tyrosine.” It defines sympathomimetic as “simulating sympathetic nervous action in physiological effect.” Address: Dep. of Psychiatry, Chinese Univ. of Hong Kong, Shatin, N.T., Hong Kong.

576. Bensky, Dan; Gamble, Andrew; Kaptchuk, Ted. comp. and trans. 1986. Chinese herbal medicine: Materia medica. Seattle, Washington: Eastland Press. xiv + 723 p. Illustrations adapted by Lilian Lai Bensky. Index. 29 cm. [1 ref]

• **Summary:** The soybean is discussed and illustrated on p. 61-62. The illustration shows several clusters of fresh soybean leaves, with flowers and pods. The pharmaceutical name of the preparation is Semen Sojae Preparatum Chinese: *dan dou chi*. Japanese: *tantôshi*. Korean: *tamdugo*. English: Prepared soybean. Properties: sweet, slightly bitter, cold or warm (depending on preparation). Channels entered: Lung, Stomach. Text in which first appeared: *Treasury of Words on the Materia Medica*. The soybean is also listed in “Major combinations” on p. 48 (with scallion or spring onion to treat chills or fever), and on p. 79 (with cape jasmine or gardenia fruit to treat deficiency irritability and insomnia resulting from lingering Heat disturbance in the chest).

Also discusses: Kudzu root—*Radix Puerariae*—*Pueraria lobata*, *P. omeiensis*, or *P. thomsanii* (p. 66-67).

Note: Ted Kaptchuk was born in 1947 and Andrew Gamble in 1946.

577. Chan, Sucheng. 1986. This bittersweet soil: The Chinese in California agriculture, 1860-1910. Berkeley: University of California Press. xxv + 503 p. Illust. Index. 28 cm. [200+\* ref]

• **Summary:** A marvelous, very original, in-depth study. In Chapter 3, titled “Feeding the miners,” table 7 (p. 83) lists “Merchandise stocked in a Chinese store, Camanche, Calaveras County, 1865.” Listed along with rice, tea, and salt are “25 lb. of China beans, \$2.50; 20 lb. of China peas, \$1.00.”

Page 84 notes that a great variety of food was imported by Chinese into California. “Robert Spier examined the records of the Customs House at San Francisco and found that as early as 1852, shipments of food arrived from Hong Kong consigned to Chinese firms in San Francisco. Items listed on the invoices included... salted beans [probably fermented black soybeans], dried bean curd... and vinegar.”

See also Jan. 1988 Soyfoods Center interview with the author. Address: Univ. of Calif. at Santa Cruz.

578. Chiao, J.S. 1986. Modernization of traditional Chinese fermented foods and beverages. *Mycologia Memoir* No. 11. p. 37-53. Chap. 3. (C.W. Hesseltine and Hwa L. Wang, eds. Indigenous Fermented Food of Non-Western Origin. Berlin

& Stuttgart: J. Cramer). [22 ref]

• **Summary:** Published in 1981 in *Advances in Biotechnology* 2:511-16. Contents: Introduction. Varieties of traditional Chinese fermented foods and beverages: Soy products include: Soy sauce (4-6 month fermentation), soy sauce by Gun-tou method (no wheat is used, 1 year fermentation, new batch concentrated for 1-2 months under the sun), soy paste, sufu, red sufu (with qu = chu = Chinese-style koji added), tou-si (made from black soybeans and salt, fermented with *Aspergillus oryzae* for 10-12 days). There are also many white spirit fermentations. “Wine was made in China as far back as 4,000 years, and white spirits made their appearance in the 13th century. Li-shi-zheng of the Ming Dynasty gave a description of the distillation process in detail in his famous Ben-Chao-Gong-Mu. Nowadays the alcohol content ranges from 40-65%.”

In 1970 the San-jia Starch Factory in I-Chang, Hupeh, used liquid proteinase for a new soy sauce process using the waste water from starch processing, thus simplifying the ordinary soy sauce process. But this product was inferior in color, taste, and flavor to regular soy sauce made by a solid substrate fermentation. In 1976 and 1979 the Experimental Plant of the Shanghai Grain and Oil Industry Co., by selecting mutant strains of *Aspergillus oryzae* having high proteinase potency, was able to get an improved soy sauce (though still not as flavorful as regular soy sauce) using the liquid proteinase process. A flowchart of this soy sauce is shown. Address: Dep. of Microbiology, Shanghai Inst. of Plant Physiology, Academia Sinica, Shanghai, China.

579. Committee for Soybean (The). 1986. The Philippines recommends for soybeans. Los Baños, Laguna, Philippines: Philippine Council for Agriculture and Resources Research and Development. 111 p. Technical Bulletin Series No. 14A. Revision of 1976 edition. [51 ref. Eng]

• **Summary:** Written by The Soybean Committee (Dr. Florendo C. Quebral, a plant pathologist at UPLB, chairman), this work focuses on recent technologies for soybean production. A foreword by Ramon V. Valmayor, Executive Director of PCARRD, notes: “The importance of soybean has been stressed continuously. To encourage its widespread production, the Ministry of Agriculture and Food (MAF) launched the Soybean Production Program in Mindanao. Likewise, PCARRD initiated and coordinated the implementation of Soybean Pilot Production Project in 1983 to demonstrate the feasibility of growing soybean profitably in Luzon.”

Contents: Foreword. Acknowledgments. The Soybean Committee. Introduction. Production management. Marketing. Soybean cropping system. Crop protection. Seed production. Processing and utilization: Raw materials for industry, soybean as food. References. Appendixes. List of tables. Lists of figures.

Table 1 shows soybean production in the Philippines

from 1974 to 1985. Area in hectares grew from 2,780 ha in 1974 to a peak of 11,250 ha in 1976 and was 8,479 ha in 1985. Production grew from 2,214 tonnes in 1974 to a peak of 11,466 tonnes in 1982 and was 8,430 tonnes in 1985. Yield grew from 0.80 tonnes/ha in 1974 to a peak of 1.05 in 1982 and was 0.99 in 1985. Local production does not begin to supply local demand. In 1984 380,691 tonnes of soybeans and products were imported. Most of the imports were soybean meal.

Table 2 shows imports and exports of *tausi* (salted, fermented soybeans), oil cake (huge imports), soy sauce (large exports), soy oil (refined; large imports), soybean paste, *taho* (soymilk curds, often sold topped with a little brown sugar), bean cheese (*tokwa* [tofu]), hypoallergenic soy food, crude soy oil. Page 50 shows all current uses of soybeans in the Philippines, and p. 51 gives the nutritional composition of Philippine soyfoods. Note the terms Geerligs cheese (*Tahu*; 92.7% moisture and 2.9% protein), Soybean curd (*Tahuri*; 61.3% moisture and 11.4% protein), Fermented soybean cheese (*Tausi*; 51.5% moisture and 13.8% protein), and Soybean cheese (*Tokwa*; 77.0% moisture and 12.9% protein).

Recipes are given for preparing soy sauce, miso, *tahu* (soymilk curds), *tokwa* (soybean cheese, or firm tofu), *tao-si* (salted, fermented soybeans [fermented black soybeans]), soybean milk, and soybean coffee. Descriptions are given for *sufu*, *tempeh*, soy flour and grits, soy protein concentrates and isolates.

Note: In the section on nutritional composition, two words are incorrectly defined. The term “*Tahuri*” actually refers to tofu in brine, and “*tausi*” refers to salted, fermented soybeans. Address: PCARR.

580. Durston, Diane. 1986. *Old Kyoto: a guide to traditional shops, restaurants, and inns*. Tokyo, San Francisco: Kodansha International. 240 p. Foreword by Donald Richie. Illust. (photos by Lucy Birmingham). Indexes (by type of shop; alphabetical list of shops). 19 cm. [17 ref]

• **Summary:** “A completely revised version of the classic guidebook to Kyoto, with a foreword by Donald Richie. Down the cobbled paths and behind the tranquil noren curtains of Kyoto, the old way of life goes on, nurtured in the restrained furnishings of the traditional inns and in the old shops where fine handmade items still add a touch of quality to life. Since the first edition appeared in 1986, this lovingly written travelogue-cum-guidebook has become de rigueur for knowledgeable travelers seeking to find “the real Kyoto.” With 51 maps and over 120 photos of the living heart of this ancient capital—and a vanishing way of life. Each shop featured in the book is accompanied by a photo showing its front and a map showing its location (from the publisher).

Tofu is mentioned on pages 9, 30, 53, 55, 116, 121 (*Okutan*), 123, 147, 158, 193, 201, 234, 239.

Miso is mentioned on pages 53, 100, 123 (*dengaku*),

147, 179, 213, and 233.

*Yuba* is mentioned on pages 30, 59, 61, 147, and 234. *Natto* is mentioned on pages 49, 183, 233, and 239.

*Shōjin ryōri*, the vegetarian [actually vegan] food served in Buddhist temples, was also developed in Kyoto from its prototype, *fucha ryōri*, brought from China by priests. *Yuba*, uncooked wheat gluten (*nama-fu*), and *tofu* are all part of *shojin ryori* (p. 30).

*Fuka* (p. 50-52) is a shop that specializes in making wheat gluten, including *nama-fu*, the chewy variety, that is made from half regular wheat gluten and half glutinous rice flour (*mochi-gome*). Wheat gluten is an important part of the vegetarian diet of Zen monks.

*Iriyama Tofu* (p. 53-55) makes *tofu* (*momen-dōfu*) in the traditional way, using *nigari* as a coagulant. The owners (Mr. and Mrs. Iriyama) are 9th generation *tofu* maker, working in a 120 year old building. Using a charcoal fire they make grilled *tofu* (*yaki-dōfu*). They also make deep-fried *tofu* pouches (*o-age*) and *tofu* balls (*hiryōzu*).

*Yubahan* (p. 59-61) makes *yuba* in the traditional way using a wood fire and soybeans cooked over an old clay *kamado* stove. “No clocks or timers are involved.” Tomizo Asana is the 9th generation *yuba* maker.” “*Yubahan* started making *yuba* in 1716, but all family records were destroyed in the huge fire of 1864 that destroyed much of the city.”

*Takasebune* (p. 98-100) specializes in *tempura*, with a *tempura* dinner (*tempura teishoku*) including a “generous bowl of miso soup.”

*Tamatomi* (p. 116-17) offers *teppin-age* (a fry it yourself *tempura* meal) and *oden* stew (with *tofu*).

*Okutan* (p. 120-23), inside the north gate of famous *Nanzen-ji* temple, is famous for its *tofu* cookery. It has served *yudofu* (fresh *tofu* simmered in a big ceramic pot over a charcoal fire, with a *shoyu* dipping sauce) for 12 generations and 300 years. Side dishes include vegetable *tempura* and *tofu dengaku*.

*Nakamura-ro* (p. 136-38) is famous for its *tofu dengaku* (with miso).

*Bunnosuke-jaya* (p. 142-44) specializes in *amazake*.

*Ikkyū-an* (*Ikkyū-an*, p. 145-47) serves *fucha ryori* (Chinese-style vegetarian temple food, including sesame *tofu*, *tofu dengaku*. It is named after the famous Zen monk and priest *Ikkyū Sōjun* {*Ikkyū Sojun*}).

*Takocho* (p. 158), 100 years old with 15 seats at the counter, features *oden* stew with *tofu*.

*Ichiwa* (p. 178-80) which makes rice cakes (*mochi*) and *abura mochi* (cakes of glutinous rice flour dough that are charcoal grilled on green bamboo skewers then dipped into a sweet miso sauce).

*Isoda* (p. 181-83, 41 *Shimomonzen-cho*, *Murasakino*, *Kita-ku*, southeast of *Daitoku-ji*. Phone: 075-491-7617) is said to be the best and oldest maker of *Daitokuji natto* in Kyoto; their fermented black soybeans are sold in a small wooden box. After *Daitoku-ji* “was destroyed in the Onin

Wars (1467-77), an eccentric Zen priest named Ikkyū supervised the reconstruction of the temple and became its 47th (and most celebrated) abbot. According to legend it was Ikkyū who introduced the Chinese Buddhist recipe for this compact, high-protein treat” for mendicant Zen monks. The original recipe, which is still used at Isoda, is described. Because warm weather and natural sunlight are necessary, Daitoku-ji natto can only be made during the summer months, most often in August after the rainy season has abated. Even Sen no Rikyu, the famous Japanese tea master, is said to have been an ardent fan of the salty morsels—which are still served with ceremonial tea. Chūgo Isoda, the present owner, is a 17th generation maker of Daitokuji natto. He and his wife work together during the hot summer making the fermented black soybeans. A full-page photo shows Mr. Isoda mixing a shallow tub of the dark fermenting beans. Daitoku-ji natto are also mentioned on page 49.

Nishiki (p. 197-99) is famous for its kaiseki ryori. “Every month the ingredients are completely changed to match the season.” One dish is karashi-dōfu (“mustard tofu”).

Sagano (p. 201-02) serves simmering tofu (*yudōfu*) in the bamboo forest just south of Tenryū-ji temple.

The excellent “Glossary” (p. 230-32) includes entries for: Amazake, fu (wheat gluten), kaiseki, miso, mochi, nattō (fermented soybeans), oden, o-hagi, shōjin ryōri, sukiyaki, tofu, yuba, yūdofo. Address: Kyoto, Japan.

581. Hesseltine, C.W.; Wang, Hwa L. 1986. Food fermentation research and development. *Mycologia Memoir* No. 11. p. 9-22. Chap. 1. (C.W. Hesseltine and Hwa L. Wang, eds. Indigenous Fermented Food of Non-Western Origin. Berlin & Stuttgart: J. Cramer). [13 ref]

• **Summary:** The following fermented soyfoods are discussed: Miso, shoyu, natto, hamanatto, sufu, tamari, ontjom, tempeh. Address: USDA/NRRC, 1815 N. University St., Peoria, Illinois 61604.

582. Ohta, Teruo. 1986. Natto. In: N.R. Reddy, M.D. Pierson, and D.K. Salunkhe, eds. 1986. Legume-Based Fermented Foods. Boca Raton, FL: CRC Press. [viii] + 254 p. See p. 85-93. Chap. 5. [25 ref]

• **Summary:** Contents: Introduction: Types of natto, production and consumption. Method of preparation: raw materials, preparation of itohiki natto (soaking and cooking of soybeans, inoculation and packaging, fermentation, maturation and stabilization), preparation of yukiwari natto and hama-natto, fermentation microorganisms. Composition and physical properties: Chemical composition, physical properties (mucous material, spots on natto, organoleptic properties). Nutritional quality. Toxicology. Conclusions.

The three major types made in Japan are itohiki natto, yukiwari natto, and hama-natto; each has its own method of preparation. Itohiki natto (sticky natto) is made by

fermenting whole cooked soybeans with *Bacillus natto*; it is made in large quantities and, in Japan, accounts for more than the total production of the other two types. Yukiwari natto is made by mixing itohiki natto with rice koji and salt, then aging the mixture. Hama-natto is made by inoculating cooked soybeans with the koji mold, *Aspergillus oryzae*. Hama-natto is made in and around only two small parts of Japan: the cities of Hamamatsu and Kyoto, where it is sold as a local souvenir food item.

The earliest document known to have mentioned the word “natto” is the *Shin Sarugaku Shiyu*, written by A. Fujiwara [Fujiwara no Akihira] in 1068; yet no description was given of the method for making this natto. Itohiki natto has long been used as a feed for livestock by village farmers and as a food in Buddhist temples during the winter. During its early history, natto was prepared by simply wrapping warm, cooked soybeans in rice-straw bundles, and leaving the wrapped soybeans at ambient temperature. Modern techniques involved the use of starter cultures such as *Bacillus natto* developed after the 1920s.

Production and consumption in Japan: In 1982 the production of itohiki natto was about 170,000 metric tons (tonnes), requiring the use of about 85,000 tonnes of soybeans. [So from 1 kg of soybeans one gets about 2 kg of finished natto]. This amount is nearly a 10% increase over 1980. This large increase, in only two years, which is extraordinary among Japanese traditional fermented foods, may be due to: (1) the growing concern of the Japanese public over the relationship between diet and health, and over the excess intake of animal fats and salt. (2) The fact that natto contains no salt. (3) The high and uniform quality of commercial natto and its long shelf life, which has been extended by the use of refrigerated distribution from natto factories to households.

The majority of natto makers in Japan are small family businesses that make about 300 kg of natto a day. These companies distribute their fresh natto locally. However, there is a growing number of large factories that make more than 3,000 kg per day.

Annual consumption of natto in Japan is 760 gm per person. Until the 1950s, natto was made and consumed mostly in the northeastern region Japan. This localization has recently changed due to the acceptability of natto in the rest of Japan.

In Japan, natto is eaten with thinly sliced leeks (*negi*), nori (a black, paper-thin sheet made of a sea vegetable), and mustard mixed together with a small amount of soy sauce, as a side dish for a bowl of cooked rice—typically for breakfast and/or dinner. Natto is also used as one ingredient in nori-wrapped sushi and in noodle soup. Address: Director, Applied Microbiology Div., National Food Research Inst., Ministry of Agriculture, Forestry, and Fisheries, Tsukuba, Ibaraki, Japan.

583. Pierson, M.D.; Reddy, N.R.; Odunfa, S.A. 1986. Other legume-based fermented foods. In: N.R. Reddy, M.D. Pierson, and D.K. Salunkhe, eds. 1986. *Legume-Based Fermented Foods*. Boca Raton, FL: CRC Press. [viii] + 254 p. See p. 219-31. Chap. 13. [43 ref]

• **Summary:** Contents: Introduction. Ugba. Inyu and Kecap. Waries. Kenima. Meitauza. Philippine Tao-si. Fermented cowpeas and chickpeas.

Tao-si is a fermented food made from soybeans in the Philippines. To make tao-si, soybeans are first soaked overnight at room temperature. The beans are then boiled for 1 hour, drained, and cooled. At room temperature, the soybeans are coated with either raw or roasted wheat flour and inoculated with *Aspergillus oryzae*, a mold. The beans are then spread on bamboo trays, covered with banana leaves, and incubated for 2-3 days in a warm place until the soybeans are overgrown with a mycelium of white mold. The mold-covered soybeans are immersed in a brine solution (18% w/v = 18 gm of salt per 100 cc of water) and heated to boiling to prevent further mold growth and to inactivate enzymes.

Note: Unlike most fermented black soybeans, tao-si does not undergo two sequential fermentations. Address: 1-2. Dep. of Food Science and Technology, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA; 3. Dep. of Botany, Univ. of Ibadan, Ibadan, Nigeria.

584. Reddy, N.R.; Pierson, Merle D.; Salunkhe, D.K. eds. 1986. *Legume-based fermented foods*. Boca Raton, Florida: CRC Press. viii + 254 p. Illust. Index. 26 cm. [585 ref]

• **Summary:** An overview with information on nutrition and processing of fermented soyfoods. Contents: 1. Introduction. 2. Soy sauce. 3. Miso. 4. Sufu. 5. Natto. 6. Tempe. 7. Fermented soybean milk and other fermented legume milk products. 8. Oncom (fermented peanut press cake). 9. Idli. 10. Dhokla and Khaman. 11. Dawadawa. 12. Papads. 13. Other legume-based fermented foods (Inyu, kecap, kenima, meitauza, Philippine tao-si). 14. Future of legume-based fermented foods. Address: 1-2. Dep. of Food Science & Technol., Virginia Polytechnic Inst. and State Univ., Blacksburg, VA; 3. Vice-Chancellor, Mahatma Phule Agricultural Univ., Rahuri, Maharashtra State, India.

585. Reddy, N.R.; Pierson, M.D.; Salunkhe, D.K. 1986. Introduction. In: N.R. Reddy, M.D. Pierson, and D.K. Salunkhe, eds. 1986. *Legume-Based Fermented Foods*. Boca Raton, FL: CRC Press. [viii] + 254 p. See p. 1-3. Chap. 1. [5 ref]

• **Summary:** Contents: A two-page table titled “Legume-based fermented foods,” which summarizes all foods discussed in this book, has 5 columns: Name of food, substrate, microorganisms involved, use of food, and areas (where made and used). For example. Natto: Soybeans. *Bacillus natto*. Cake as a meat substitute [sic, neither a cake

nor a meat substitute]. Japan (northern part).

Note: Kenima should be spelled “Kinema.” “Kecap” is not a different food from “ketjap.” The latter is simply the old spelling. Address: 1-2. Dep. of Food Science and Technology, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA.

586. Wang, H.L.; Fang, S.F. 1986. History of Chinese fermented foods. *Mycologia Memoir* No. 11. p. 23-35. Chap. 2. (C.W. Hesseltine and Hwa L. Wang, eds. *Indigenous Fermented Food of Non-Western Origin*. Berlin & Stuttgart: J. Cramer.) Previously published in 1981 in USDA Miscellaneous Publication FL-MS-333. [6 ref]

• **Summary:** Discusses the early history of numerous types of chu [ch’ü, qu] (similar to koji, with a substrate of wheat, barley, millet, and/or rice), chiang [jiang] (salted sauce), shi or tou-shi (fermented beans) [fermented black soybeans], chiang-you, tou-yu and shi-tche (the liquid from shi [fermented black soybean sauce]; “It is a very dark but clear liquid and was the most popular seasoning in the sixth century”), tou-fu-ru (fermented tofu or sufu), La-pa-tou (Mucor fermented beans), Mei-tou-tcha (Meitauza, fermented okara), tsu (vinegar), yan-tsai (salted vegetables).

The three main sources of early information on fermented soyfoods are: (1) *Shih chi* [pinyin: *Shiji* by Sima Qian] (90 B.C., historical record). (2) *Ch’i-min yao-shu* [pinyin: *Qimin yaoshu*, by Jia Sixie, AD 544, “Important arts for the people’s welfare”] (+6th century agricultural encyclopedia). (3) *Pen-ts’ao kang-mu* [pinyin: *Bencao gangmu*, by Li Shizhen, AD 1596, “The great pharmacopoeia”] (16th century botanical encyclopedia).

Concerning shi or tou-shi [fermented black soybeans]: The first written record “appeared in the *Shi-chi* (the historical records) written by Szuma Chien in the second century B.C., which stated that shi as sold next to salt, indicating shi was already a popular food seasoning.” In the *Qimin yaoshu* (6th century AD) the method of preparing shi is described in detail. Temperature is said to be the most important factor in making shi, and June was found to be the best month for preparing this fermented seasoning. A detailed description of the process is given.

The *Bencao gangmu* (16th century AD) described many types of shi made at different localities, and give the medicinal use of each.

“In more recent times, shi can be classified into three general types.” (1) *Aspergillus oryzae* mold type, which is the traditional type, also known as tou-shi, and is the most common type, prepared as described above, but using pure cultures of *Aspergillus oryzae*. Today the fermentation is carried out at 25°C in wooden barrels. “In some areas, the washed, molded beans are mixed with 16-18% salt and fermented at 35°C for 30 days.” (2) *Mucor* mold type, which is usually made in Szechuan in wooden trays. The process is described. The mold is *Mucor racemosus* Fresenius. (3)

*Bacillus* bacteria type, called shui-tou-shi [pinyin: shui-dou-chi], is probably the same product as natto in Japan [except that it is salted]. To make shui-tou-shi: Clean, soak, and boil soybeans until soft. Place in a cloth bag and cover with straw [an excellent natural source of *B. subtilis*]. After incubation for 1-2 days at 25-30°C the soybeans will be covered with viscous substances. The quality of the product is ascertained by the stickiness of the beans. Mix the sticky soybeans are with minced ginger and salt, then pack tightly into jars, and age for one week. They are now ready to consume. “The organism responsible for this fermentation has been identified as *Bacillus* species.

Note: Is the third type salted? If it is, it would seem to be an intermediate form between tou-shi (fermented black soybeans, salted) and natto (unsalted). If it is not, it would seem to be Chinese natto. Address: 1. USDA/NRRC, 1815 N. University St., Peoria, Illinois 61604; 2. Inst. of Microbiology, Academia Sinica, Beijing, China.

587. Wang, H.L.; Hesseltine, C.W. 1986. Glossary of indigenous fermented foods. *Mycologia Memoir* No. 11. p. 317-44. Chap. 18. (C.W. Hesseltine and Hwa L. Wang, eds. Indigenous Fermented Food of Non-Western Origin. Berlin & Stuttgart: J. Cramer). [29 ref]

• **Summary:** The section titled “Fermented Legume Products” defines chao (Vietnamese fermented tofu), chiang-chu (Chinese koji), ch’ou-toufu and ch’ou-toufu-ru (fermented tofu), Damsuejang and doenjang (Korean miso), furu, sufu, hon-fan or red sufu (fermented tofu), in-shi (“Fermented black soybeans from China”), in-yu (Type of Chinese soy sauce made from black soybeans), kanjang (Korean soy sauce), kenima [sic, kinema], ketjap or kecap (Indonesian soy sauce from black soybeans), meitauza or mei-tou-cha (fermented okara), meju (maiju or maeju; Korean soybean koji), natto, oncom (onchom or oncom), see-iu (see-iew; Thai soy sauce made from whole soybeans); soy sauce, soybean paste, tahuri (tahuli; Filipino fermented tofu. See sufu), tao-chieo (tao-jiao; Thai miso), taohu-yi (Fermented tofu from Thailand. See sufu), taokoan, tempe (many types), thua-kab (dry thua-nao), thua-merk (wet and cooked thua-nao), thua-nao (Thai natto), tosufu (see sufu), toufu-ru (fermented tofu), tsue-fan (tsui-fan, chee fan; fermented tofu).

Note 1. This is the earliest English-language document seen (Nov. 2011) that contains the term “Fermented black soybeans from China,” or that uses these terms to refer to *in-shi*.

Under “Fermented Cereal-Legume Products” we find: chiang, chiang-yu (chau-yu, Chinese soy sauce), fermented soybeans (fermented black soybeans), hamanatto, kochujang (kochu chang), miso, shoyu, tamari, taotjo (tao-tjo, tao dji; Fermented soybeans from Indonesia or Thailand [No! *Tao-tjo* is Indonesian-style miso and *tao dji* is Indonesian fermented black soybeans]), tao-tjung or tou-chiang (chiang),

tao-yu (tou-yu; Chinese soy sauce), tauco (taocho, taoco, taucho; Indonesian miso), tou-pan-chiang (Chinese fava bean miso), tou-shi (toushih; Chinese fermented black soybeans), toyo (Filipino soy sauce). Note 2. This is the earliest English-language document seen (March 2009) that uses the word “taocho” to refer to Indonesian-style miso.

Fermented Vegetable Products include: Chiang-tsai (chiang-tsay; Vegetables in China pickled in chiang or soy sauce or tien-mien-chiang), miso-zuke. Address: USDA/NRRC, 1815 N. University St., Peoria, Illinois 61604.

588. Miller, Bryan. 1987. From nuts to soup for Chinese New Year. *New York Times*. Jan. 30. p. C17.

• **Summary:** Brief reviews of seven Chinese restaurants. At the restaurant named “20 Mott Street” (at that address in Chinatown) the reviewer’s favorite dish was “Chinese-style roast duck with black bean sauce. The combination of rich moist meat, caramel-toned skin and slightly salty black beans is superb. Hard-shell crabs smothered with black bean sauce are sweet and delicious, too,....”

589. Burros, Marian. 1987. Restaurants: Cantonese fare that’s unusual. *New York Times*. Feb. 17. p. C22.

• **Summary:** This is a review of the Cantonese Chinese two-star restaurant Lan Hong Kok Seafood House (131 Division Street). Recommended dishes include: Crabs with black bean sauce. “Braised bean curd with vegetables and black mushrooms.” The dim sum of black beans.

Other excellent dishes: Maryland crabs sautéed with black beans [probably fermented black soybeans]. Stuffed bean curd. Bean curd mixed with black mushrooms.

590. Katagiri, Mitsuaki; Shimizu, S.; Kaihara, H.; Katagiri, C. 1987. [Determination of esterified and free carboxylic acids in the various kinds of natto by gas chromatography]. *Nippon Shokuhin Kogyo Gakkaishi (J. of the Japanese Society of Food Science and Technology)* 34(5):305-08. May. (Chem. Abst. 107:174685). [9 ref. Jap; eng]

• **Summary:** Free and esterified fatty and organic acids in various samples of natto (9 types of itohiki-natto and 6 types of tera-natto [fermented black soybeans]) were determined by a modified standard method and compared with those of common miso. Ethyl esters of fatty acids present in large quantities in miso were not detected in itohiki-natto, but found in small quantities in tera-natto. Lactic acid was the dominant organic acid in hama-natto, (470.1 mg/100 gm) and in tera-natto (26.2 mg/100 g) and was not detected in either itohiki- or hoshi-natto. Average contents of the major volatile organic acids in itohiki-natto were (mg/100 gm): acetic acid, 124.7; propionic acid, 28.4; iso-butyric acid, 44.1; and iso-valeric acid, 46.7. The last 2 acids, which gave unfavorable odor at higher concentrations, were found in small amounts in hama-natto and tera-natto. Address: Dep. of Domestic Science, Iida Women’s Junior College, Matsuo

610, Iida-shi, Nagano 395, Japan.

591. Currim, Mumtaz. 1987. The sweet 'n' sour palate: The big bite. *Times of India (The) (Bombay)*. Aug. 9. p. SM2.

• **Summary:** It's easy to prepare Chinese vegetarian food; just use tofu (soybean curd) in place of meat.

It's the all-important sauces and seasonings that give Chinese cookery its unique taste—like light and dark soya sauces, black bean paste. These are now available at delicatessens. So also is tofu, although tofu is also made locally and sold fresh.

Contains a recipe for Braised mushrooms with bean curd, which calls for “4 squares bean curd.” “Soya sauce” is called for in most of these recipes.

An illustration (line drawing) shows a Chinese dragon standing upright.

592. Miller, Bryan. 1987. Restaurants: Midtown Greek and Chinatown. *New York Times*. Aug. 14. p. C22.

• **Summary:** This is a review of the Cantonese Chinese restaurant Oriental Town Seafood Restaurant (14 Elizabeth St., south of Canal St., New York City). Recommended dishes include “Deep-fried bean curd.”

A good way to start “is with the golden bean curd cubes holding morsels of shrimp in the middle. They are delicious with some coriander-flecked soy sauce. Every Chinese family in the house seems to be eating a special, giant steamed oysters smothered in black-bean-and-ginger sauce.” Also served was “Squid in black bean sauce.”

593. Snyder, Harry E.; Kwon, T.W. 1987. Soybean utilization. New York, NY: Van Nostrand Reinhold Co. xii + 346 p. Illust. Index. 23 cm. An AVI Book. [381 ref]

• **Summary:** Contents. Preface. 1. Production, marketing, and sources of information: Introduction, agricultural production, marketing, sources of information. 2. Morphology and composition: Morphology, chemical composition. 3. Processing of soybeans: Preparation, flaking, expellers, solvent extraction, oil refining, protein products. 4. Quality criteria for soy products: Protein and oil products. 5. Functional properties of soy proteins: Interactions of soy proteins with water, interactions of soy proteins with lipid, foaming, commentary on functionality. 6. Nutritional attributes of soybeans and soybean products: Inherent attributes of soybeans, changes due to processing.

7. Oriental soy food products: Traditional nonfermented soybean food products, traditional fermented soybean food products. 8. Soybean-supplemented cereal grain mixtures: Protein-rich food mixtures containing soy flours, composite flours containing soy flour, cereal blends containing soybeans. 9. Soy protein food products: Baked goods, meat products, dairy products, other foods containing soy protein. 10. Soybean oil food products: Salad and cooking oils, mayonnaise, and prepared salad dressings, shortenings,

margarines and related products, soybean lecithin products. 11. Grades, standards, and specifications for soybeans and their primary products: Grades of soybeans, specifications for soybean meals and flours, trading specifications for soybean oils, specifications for lecithins, standards for the use of soy protein products in other foods. References in each chapter. Glossary.

This book is well written (though largely a repetition of previous works) in the area of modern soy protein products. It is weak and poorly researched in the area of “Oriental Soy Food Products,” which comprises only 1 chapter (22 pages) of the total, making the book unbalanced. The author of this chapter seems to be almost completely unaware of the many major developments in the Western world during the past 10 years.

Note the following Korean soyfood terms: Fresh soybean = Put Kong. Toasted soy powder = Kong Ka Ru. Soy sprouts = Kong Na Moal. Soymilk = Kong Kook or Doo Yoo. Yuba (Soymilk film) = no name. Tofu (Soy curd) = Doo Bu. Tempeh (Fermented Whole Soybeans) = no name. Natto = Chung Kook Jang. Soy sauce = Kan Jang. Miso (Soy Paste) = Doen Jang. Fermented tofu (Fermented Soy Curd) = no name. Fermented okara (fermented soy pulp) = no name.

Note: This is the earliest English-language document seen (Dec. 2005) that uses the term “Toasted soy powder” to refer to roasted soy flour. Address: 1. Prof., Food Science Dep., Univ. of Arkansas, Fayetteville, AR; 2. Principal Research Scientist, Div. of Biological Science & Engineering, Korea Advanced Inst. of Science and Technology, Seoul, South Korea.

594. Howe, Joyce. 1987. In Mah's kitchen in Queens, the Cantonese food was genuine. *New York Times*. Oct. 14. p. C6.

• **Summary:** Yu Kin Seid is the mother of Joyce Howe, the writer. Her mother (Mah) made delicious, authentic Cantonese meals; “dinners of four or five dishes eaten with rice, the menus including pepper steak, steamed sea bass with ginger and scallions, string beans with fermented bean curd and pork,…”

Recipes include: Pepper steak (with 3 tablespoons fermented black beans [fermented black soybeans]). Lobster Cantonese (with 4 tablespoons fermented black beans).

595. Beuchat, Larry R. 1987. Food and beverage mycology. 2nd ed. New York, NY: Van Nostrand Reinhold. xiii + 661 p. Illust. Index. 23 cm. [20+ soy ref]

• **Summary:** Contents: Contributors. Foreword. Preface. Classification of food and beverage fungi, by E.S. Beneke and K.E. Stevenson. Relationships of water activity to fungal growth, by Janet E.L. Corry. Fruits and fruit products, by D.F. Splittstoesser. Vegetables and related products, by R.E. Brackett. Meats, poultry, and seafoods, by James M. Jay. Dairy products, by Elmer H. Marth. Field and storage

fungi, by C.M. Christensen. Bakery products, by J.G. Ponte, Jr. and C.C. Tsen. Traditional fermented food products, by L.R. Beuchat. Alcoholic beverages, by G.G. Stewart. Edible mushrooms, by W.A. Hayes. Poisonous mushrooms, by Donald M. Simons. Fungi as a source of protein, by A.J. Sinskey and C.A. Batt. Fungal enzymes and primary metabolites used in food processing, by R. Bigelis and L.L. Lasure. Mycotoxins, by N.D. Davis and U.L. Diener. Methods for detecting mycotoxins in food and beverages, by L.B. Bullerman. Methods for detecting fungi in foods and beverages, by B. Jarvis and A.P. Williams. Appendix. Regulatory action levels for mold defects in foods.

Chapter 9, "Traditional fermented food products, has a section on koji and a long section on fermented soybean foods that discusses: Shoyu, miso, natto (incl. itohiki-natto, yukiwari-natto, and hama-natto / hamanatto; called tu su by the Chinese and tao-si by the Filipinos), sufu, meitauza, and témpé [tempeh]

Tables show: (9.1) Some fermented foods of fungal origin. For each food is given: Product name, geography, substrate, microorganisms, nature of product, and product use. Soy-related products include: Chee fan, Chinese yeast, Hamanatto, kecap, kinema, ketjap, meitauza, meju, miso (incl. chiang, jang, doenjang, tauco, tao chieo), natto, soybean milk, soy sauce (incl. chiang-yu, shoyu, toyo, kanjang, kecap, see-ieu), sufu (tahuri, tao-kaon, tao-ju-yi), tao-si, taotjo, tauco and témpéh. Address: Dep. of Food Science, Agric. Exp. Station, Univ. of Georgia, Experiment, GA 30212.

596. Campbell-Platt, Geoffrey. 1987. Fermented foods of the world: A dictionary and guide. London and Boston: Butterworths. xxiii + 291 p. 26 cm. [25 soy ref]

• **Summary:** The author classifies fermented foods into 9 groups: Beverages, Cereal products, dairy products, fish products, fruit and vegetable products, legumes, meat products, starch crop products, and miscellaneous products. Fermented legume products are particularly important in the diets of East Asia, Southeast Asia, and the Indian subcontinent. He has sections on many fermented soyfoods: Dawadawa, hama-natto, kenima [sic, kinema], miso, natto, tempe (incl. tempeh, tempe bengook, tempe bongkrek, tempe gembus [okara tempeh], tempe lamtoro, tempe mata kedele), and sufu (incl. teou-fu-ru). He lists major areas consumed, related terms, how consumed, types, how produced, microbiology and biochemistry, and a few key references. His research began in Ghana with dawadawa made from the African locust bean. Address: National College Prof. of Food Technology, Dep. of Food Science & Technology, Univ. of Reading, Reading, Berkshire, UK.

597. Newman, Jacqueline M. 1987. Chinese cookbooks: An annotated English language compendium / bibliography. New York & London: Garland Publishing, Inc. x + 324 p.

Author index. Title index. Artist index. 23 cm. [732\* ref]

• **Summary:** A superb work, based on years of interest in this specialized field. The annotations for each work are informative and well written. The entries are listed alphabetically by author; we think a chronological listing would be more interesting. Unfortunately there is no subject index, so one cannot find (for example) which books mention bean curd (tofu), bean curd sheets (yuba), soy sauce, fermented black beans (fermented black soybeans), etc. Address: Dep. of Home Economics, Queens College of the City Univ. of New York, 65-30 Kissena Blvd., Flushing, NY 11367. Phone: 718-520-7219.

598. Yu, Youtai. 1987. Agricultural history over seven thousand years [in China]. In: Sylvan Wittwer, Yu Youtai, Sun Han, and Wang Lianzheng, eds. 1987. Feeding a Billion: Frontiers of Chinese Agriculture. East Lansing, Michigan: Michigan State University Press. 462 p. See p. 19-33. Chap. 2. [9 ref]

• **Summary:** Chinese agriculture originated in the primitive society of the early and middle New Stone Age (5000-2100 B.C.). Farming villages established in the Wei and Yellow River valleys of northeast China cultivated millet, wheat, beans, rice, hemp, cabbage, and melon. The Slave Society period went from 2100-476 B.C. The description of the "five grains" (millet, glutinous millet, soybeans, wheat, and rice) first occurred during the Spring and Autumn period (770-476 B.C.). Feudal Society went from 475 B.C. to A.D. 1840.

The earliest Chinese characters, inscribed on bones and tortoise (land-loving turtle) shells date from around the 14th century B.C. These were first excavated in Anyang County of Henan Province at the end of the 19th century. The earliest book which systematically recorded Chinese agricultural activities was *Xia Xiao Zheng*. It was the calendar of the Zia Dynasty, estimated to have been written around the 16th century B.C. and comprising about 400 words. The main crops were broom millet, grain millet, wheat, rice, bean, hemp, vegetables and melons. Nearly 400 books on ancient Chinese agriculture were published prior to the middle of the 19th century and before the end of the Chinese Feudal Society. The 11th Century B.C. saw the progressive expansion of Chinese agriculture.

In Western Europe, land was inherited by only one son of the noble landlord and was not allowed to be sold. This permitted centralized planning and utilization of land resources. By contrast, during the Feudal Society of China, land was inherited by many sons.

Discusses intensive cultivation which began in Chinese agriculture as far back as the 3rd century B.C.

The first priority in Chinese agriculture has been the production of the food crops known as the "Five Grains." Second is the production of livestock known as "Six Animals." The "six animals" are horses, cattle, sheep, chickens, dogs and pigs. The expression of "five grains" first



appeared in the Chinese literature of the eight-fifth centuries B.C. The grains were millet, glutinous millet, soybean, wheat and rice. They were first defined as the 5 basic food crops cultivated in the reaches of the Yellow River.

“Shu” is broomcorn millet (*Panicum miliaceum*); “Ji” is a variety of “Shu.” The main difference is that “Ji” is not as glutinous when cooked as is “Shu.” In the most ancient Chinese characters inscribed on bones and tortoise shells, these 2 words appeared most frequently of all the grain crops.

In ancient times, farmers would grow some soybeans as a part of their food production program each year. Equal importance was given to millet and the soybean as substitutes for “Shu” and “Ji.” Food processing technologies were developed after China entered the Feudal Society. Then fermented and salted soybeans [fermented black soybeans], thick soybean sauce, bean curd, bean sprouts and many other products became commonplace. The soybean then moved from a main food crop to the category of a nonstaple food and an oil crop. Wheat increased, as the soybean declined as a major food crop.

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “fermented and salted soybeans” (or “fermented and salted soybean”) to refer to fermented black soybeans.

599. Amoy Industries (International) Ltd. 1987? Amoy: We bring the tastes of China to the world. Hong Kong. 16 p. Undated. 28 cm. Catalog. [Eng]

• **Summary:** This attractive color brochure, with a globe and carved ivory dragon ball on the cover, presents Amoy and its products. The company began as one small factory in the southern Chinese port of Amoy, making only soya sauce. An old photo shows that factory, with many earthenware crocks of soy sauce fermenting outdoors. “Amoy is now one of the largest manufacturers of exportable oriental food in Hong Kong.” Amoy has an affiliation with Pillsbury including Burger King and Haagen-Dazs.

Color photos (p. 6-7) show four of Amoy’s soy sauce products (Gold label lo chau; Silver label lo chau; Gold label sang chau; and Silver label sang chau), and of many traditional Chinese earthenware soy sauce fermentation crocks. Photos also show Amoy black bean sauce, Yellow bean sauce, fermented tofu. Plus non-soy Royal Dragon wonton, spring roll, shaomai, and dimsum combination. Address: 11-15 Dai Fu Street, Tai Po Industrial Estate, Tai Po, Hong Kong. Phone: 651-6633.

600. Kanai, Noritoshi. 1988. Miyako Oriental Foods, Mutual Trading Co., Rice Koji, Amazake, Natto, and Miso (Interview). *SoyaScan Notes*. March 4 and 10. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** Mr. Kanai recalls that the brochure describing how to make miso and amazake using Cold Mountain Koji

was printed in 1976, the same year the Miyako factory began. They immediately started to sell the koji, using the brochure. Miyako is owned 60% by Mutual Trading Co. and 40% by Yamajirushi Miso Co., a joint venture.

Mutual Trading Co. started to import Amazake from Japan to American in about 1968. He thinks they were the first company to do so. If that is correct, this would have been the first amazake sold commercially in the USA. The product was imported frozen in non-aseptic polyethylene bags. At the same time they imported frozen natto, and non-frozen miso and Hamanatto. Mutual Trading presently imports amazake in 6.3 oz (180 ml) cans. It is ready to drink. His amazake is made in Japan by Morinaga, the confectionery company, not the milk company. It is a real amazake, not a sake kasu type. Nishimoto also imports amazake in 6.3 oz tins; the brand is Imuraya. North American Food in San Francisco, a sister company (not a subsidiary) of Mutual Trading Co. Tokiwa in Los Angeles, Hosoda Brothers in San Francisco, and Central Boeki in Long Island, New York, probably do not import amazake. He thinks that total imports are about 1,000 cases a year. Mutual Trading imports about 200 cases a year (48 x 6.3 oz cans/case).

Miyako has recently reached its full capacity for making koji. So they are planning to expand by installing an automatic koji making machine. The machine has already been ordered from Nagata (preferred over their competitor Fujiwara) in Japan. The machine should be in Los Angeles in late April or early May, and start operation by June. He is thinking of adding barley miso and a new variety of rice miso. Now they use only half of the building’s floor space, so there is plenty of room for expansion. They plan to expand upward one level. Address: Los Angeles, California.

601. Pecjak, Marinka. 1988. Soja v kulinariki [Soybeans in the kitchen]. Ljubljana, Yugoslavia: Feniks. 138 p. Illust. Plus 16 pages of color plates showing recipes. 21 x 30 cm. [Slv]

• **Summary:** Features 300 recipes that use soybeans and soyfoods. Contents: Introduction: In the beginning there was the soybean, almost anything can be made from soya (a diagram shows many food and non-food products), soya is concentrated, soybeans in cuisine, how to use these recipes. Whole soybeans (p. 17): Recipes for coffee, different kinds of spreads, salads, soups, green soybeans with rice, dips with whole soybeans, soybeans with mushrooms, patties, soybean roast, sausages made of whole soybeans, stuffed duck, stuffed trout.

Soybean flakes and textured proteins (p. 40): Spread, party balls, filled bread, soups, pancakes, Australian pie, Buckwheat with flakes, flakes in mushroomy sauce, baked potatoes, stuffed cabbage leaves, chilled stuffed tomatoes, stuffed roasted peppers, stuffed eggplant.

Soymilk and dairylike products (p. 74): Various spreads,

soups and salads with herbs, pancakes, baked potatoes, baked noodles, soy pudding, soymilk ice cream, avocado milk. Soy flour and semolina (p. 111): Soy noodles, pasta, pancakes, fish balls, soy bread.

Soy sprouts (p. 122): Soups, salads, sprouts with potatoes, chicken with sprouts and wine, pork with sprouts. Soy sauce and other forms of fermented soybeans (p. 128): Chart showing fermented soy products (incl. miso, tempeh, sufu, natto), salads, soups, chicken with sprouts and soy sauce, meat with fermented black soybeans, roast cutlets, Hoisin dip.

602. Maeda, Toshiie. 1988. Mura okoshi–Tenpe sonjuku [Revitalizing a village–the tempeh village school. I.]. *Toyō Shinpo (Soyfoods News)*. June 1. [Jap; eng+]

• **Summary:** The author, a representative of the school, wrote a book titled *Homeland of Miso (Miso no Furusato)*. He discussed the fact that the use of miso mainly in miso soup presents a big problem. The first solution to the problem is to use miso in thick ketchup-like sauces. The second is to return to the non-salted fermented foods such as Japanese natto, Nepalese kinema, Indonesian tempeh, and Chinese fermented black soybeans (shi), which are the ancestors of miso. He emphasized tempeh, which he feels is a wonderful food that can be used in various ways, and is nutritious and healthy. He explained that tempeh is becoming popular in the USA and Europe, and concluded that tempeh alone can be used to start a food industry.

“Because of this book, I received a visit from 2 people from the “Vitalizing Village Committee” of Kasuga-cho, Hyogo-gun, Hyogo-ken. They asked me to give a lecture on tempeh, for they wanted to consider whether tempeh could be used to help vitalize the village. I accepted the offer, but realized I needed more information on the subject. So I contacted Murata sensei, professor emeritus at Osaka Shiritsu Daigaku, who played a key role in organizing the first international Asian Symposium on Non-Salted Soybean Fermentation in Japan. She and others at the university sent me an encouraging letter, four articles on tempeh, and information on tempeh cookery from the university.

“In late August 1987 I used these material to give a 40 minute lecture on tempeh followed by 20 minutes of questions. It was decided to have a follow-up meeting for tempeh tasting. Through Dr. Murata’s introduction I received 2 kg of free tempeh from a maker in Aichi-ken. The sampling was a big success and was written up in the newspaper in a big way. The local Hyogo prefecture high school food processing department started to experiment with tempeh, and a women’s group, the Kasuga-cho Commerce and Industry Group, began to experiment with tempeh cookery. At the end of Sept. 1987 on of the teachers at the high school succeeded in making tempeh, which made the news. Then they started to make second generation tempeh products, such as confections and breads. At their local school festival

in October 1987 he presented the products and gained a good reputation.”

603. Shurtleff, William; Aoyagi, Akiko. 1988. *Das Tofu-Buch: Herstellung, Verwendung, Ernahrungswert, Rezepte* [The book of tofu: Preparation, uses, nutritional value, recipes]. Munich, West Germany: Goldmann Verlag. 384 p. Illust. by Akiko Aoyagi Shurtleff. Index. 18 cm. [Ger]  
• **Summary:** A pocket book edition of the original 1980 German edition of *The Book of Tofu*. Contains 300 recipes. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

604. Anderson, Eugene N. 1988. *The food of China*. New Haven, Connecticut: Yale University Press. xvi + 313 p. Index. 24 cm. [380 ref]

• **Summary:** Contents: Preface. Acknowledgments. Chronology of food and agriculture in China. 1. The natural environment. 2. Prehistory and the dawn of civilization. 3. The crucial millennium: Chou through Han. 4. Food from the West: Medieval China. 5. Definitive shaping of the food system: Sung and the conquest dynasties. 6. Involution: Late imperial China. 7. The climax of traditional agriculture. 8. Chinese foodstuffs today. 9. Some basic cooking strategies. 10. Regions and locales. 11. Traditional medicinal values of food. 12. Food in Society. Appendix: Dinner at the Ngs.

Soybeans and soyfoods are mentioned as follows: North China is the native home of the soybean (p. 3). Soybeans seem to have been introduced to China in about 1000 B.C., but they were not popularized until the early Eastern Chou period (Ho 1975). Called, *shu*, they “seem to have come from the Jung people, northern and northeastern neighbors of the Chinese, who may have been Tungusic or Altaic, and were perhaps related to or descended from the Hungshan.” Domesticated soybeans are descended from wild soybeans (p. 29).

Fan Sheng-chih wrote an agricultural manual in the first century B.C.; it survives in extensive fragments quoted in later agricultural works. This manual mentions the “Nine Staples”: wheat, barley, millet, glutinous millet, spiked millet, soybeans, rice, hemp, and small beans (*Vigna* spp.) (p. 50).

The art of fermenting soybeans was perfected sometime in the late Chou period, or perhaps even as late as the very early Han. Thereafter, Han texts devote much space to salt-preserved soybeans [fermented black soybeans], called *tou shih* (or *shih*), the *tausi* of modern Cantonese cooking. *Chiang*, fermented sauce, was made from beans, but also from meat and elm products (p. 51).

During the late Southern Sung, Wu Tzu-mu coined the famous phrase: “the things that people cannot do without every day are firewood, rice, oil, salt, soybean sauce, vinegar, and tea” (Freeman 1977, p. 151). By the Sung, *chiang* had come to refer unequivocally to soy sauce; as late as the

T'ang, it would probably have been understood, at least in literary contexts, to refer to a variety of fermented foods (p. 82).

Bean curd or *tou fu* (Japanese tofu) was first mentioned in the early Sung; its invention was attributed to Liu An of the Han Dynasty, "but this is preposterous." In fact, tofu "was invented in the late T'ang or early Sung—possibly by Taoists and/or people from the Huainan region, who then ascribed it, out of a sort of respect, to Liu An, the Taoist prince of Huainan (B.W.-C. Young, pers comm). Buddhists quickly took over the food as a good substitute for meat and for dairy foods..."

Soybean curd is also fermented; the firm tofu cubes are packed in brine and sold. "They constitute the Chinese equivalent of a cheese and are apt to be overpowering, reminiscent of strong German hand cheese [*Handkäse*, a German regional sour milk cheese]. They are graphically known as *ch'ou tou fu* (stinking bean curd). Only the very stoutest of heart eat them and then only in small quantities."

Also discusses: Vegetarian cooking (p. 66, 86, 118, 150, 196, 204, 249). Vegetarianism came to China with Buddhism during the T'ang dynasty. Fish farming (p. 103, 129). Note: Eugene Newton Anderson was born in 1941. Address: Dep. of Anthropology, Univ. of California, Riverside, CA 92521.

605. Carpenter, Hugh. 1988. Pacific flavors: Oriental recipes for a contemporary kitchen. New York, NY: Stewart, Tabori & Chang: Distributed by Workman Pub. 270 p. Illust. (color, by Teri Sandison). Index. 29 cm.

• **Summary:** Appendix 2, titled "Oriental ingredients" (p. 256-65) includes: Bean sauce (sometimes called "brown bean sauce"). Bean sprouts are 3-day old mung bean sprouts.

"Black bean sauce: Made from chilies, salted black beans [fermented black soybeans], soy sauce, garlic and orange rind, this ingredient adds a spicy, complex, rich taste when added to sauces..." Use only ½ teaspoon at a time. "Storage: Sold in glass jars. Keeps indefinitely when refrigerated." "Substitute: You can improvise a 'house blend' by combining rinsed and chopped black beans, garlic, grated orange peel, Chinese chili sauce, and peanut oil. Best brand: Mai Ling China, Inc."

Black beans, salted: Also called "fermented black beans." "They are always rinsed, coarsely chopped, and then combined with ginger and garlic for stir-fried dishes or rubbed across the surface of fish fillets." "Best brand: Purchase salted black beans sold in a yellow cardboard canister... far superior to the salted black beans sold in plastic bags. Ask for Yang Jiang Preserved Beans with Ginger, Pearl River Bridge brand."

Chili sauce, Chinese: The spicy Chinese condiment made from soybeans is called "hot bean sauce."

"Fish Sauce... is used in Thai and Vietnamese cooking the way the Chinese use soy sauce."

Hoisin sauce: Made with soy bean flour, chilies, garlic,

ginger, and sugar. Buy only Koon Chun Hoisin Sauce.

"Monosodium glutamate (MSG):... MSG is used by chefs of little skill to rejuvenate food of poor quality... Chinese cooks who take pride in their cuisine agree that MSG is a crutch. It is neither recommended nor used in this book."

Soy sauce, dark: Also called "heavy" or "black" soy, it is light soy to which molasses or caramel has been added. Best brands: Mushroom Soy Sauce.

Soy sauce, light: Also called "thin" soy sauce. Best brands: Superior Soy Sauce, Pearl River Bridge, Kikkoman. Another product called "Soy Superior" is a dark soy sauce.

The index contains many recipes for Black beans, and several for Black bean sauce, including: Steamed shark with spicy black bean sauce (with 1 tablespoon salted black beans {Pearl River Bridge Brand}, p. 93, 134). Black bean scallops on julienned vegetables (p. 109). Game hens in black-bean tomato sauce (with "2 teaspoons black bean hot sauce {see Appendix}," p. 140). Artichokes in black-bean tomato sauce (p. 217). Asparagus in black-bean butter sauce (p. 220). Address: Head, cooking school, Santa Barbara, California.

606. 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 doufu, 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].

607. Philippine Council for Agriculture, Forestry and Natural Resources Research and Development. 1988. Mga Gamit ng UTAW Bilang Pagkain [The uses of soybeans as food]. Diliman, Quezon City, Philippines. 46 p. Illust. DA/ATI-PCARRD Farm Primer No. 3. Series of 1988. AC-R4-P-S-V-2-88. [3 ref. Tag]

• **Summary:** Part 1 (p. 1-20) of this Tagalog-language booklet, which contains many illustrations (line drawings), is titled “Soybean Products.” It describes how to make basic soyfoods, such as soybean ketchup (*Ketsup na utaw*), soy coffee (*Kapeng utaw*), pastillas, soymilk curds (taho), tokwa (tofu), polboron (a confection usually made with powdered milk, but in this case using soybean powder), soymilk, soy flour (harinang utaw; note that utaw is word for soybean in Tagalog), tao-si (fermented black soybeans), soy sauce (toyo), and miso.

Part 2 (p. 25-45) titled “Soybean Recipes,” includes chicken with miso, tofu with miso, tofu with mushroom soup, soymilk custard, fried meat (pork; Baboy), fried meat with miso, bamboo shoots with miso, baguio beans with miso, fried tofu with sweet & sour soy sauce, miso with noodle soup, chicken soup with tofu, and fried tofu with vegetable sauce. Address: Philippines.

608. Hodgson, Moira. 1989. Spicy cooking adds heat to a cold day. *New York Times*. Feb. 5. p. CN20.

• **Summary:** Includes a recipe for “Shrimp in black bean

sauce with Oriental noodles.” The ingredients include “4 tablespoons Chinese preserved black beans,... 2 tablespoons hoisin sauce,... 1 tablespoon soy sauce.” Then: “Rinse the black beans thoroughly under cold running water and chop them fine.” Stir-fry the scallions, garlic and ginger for 1-2 minutes. Add the black beans and chili and stir-fry for one minute.

Note: This is the earliest document seen (Nov. 2011) that uses the term “Chinese preserved black beans” to refer to fermented black soybeans. This new term appears in only 2 documents, in 1989 and 1999.

609. Dalodom, A.; Chainuvati, C.; Charnnarongkul, S. 1989. Rapid expansion of soybean production in Thailand. In: A.J. Pascale, ed. 1989. World Soybean Research Conference IV. Buenos Aires: Continuing Committee. xxviii + 2152 p. See p. 650-57. [9 ref]

• **Summary:** Soybean is an important field crop in Thailand. Production has increased from about 100,000 tonnes in 1980 to 366,400 tonnes in 1986, the peak year. Yields in the same period rose from 793 to 1,238 kg/ha. There are three seasons for soybean cultivation: early rainy season, late rainy season, and dry season.

Soybeans produced in Thailand are used in food products in two ways: First, the medium scale food industry produces soy milk and soy starch for local food mixtures. The other is family-scale food industry that produces fermented soybean chip for food ingredients, bean sprout, custard, curd, local soymilk and Tao si, etc. The main industries for soybean grain are oil and meal. Soybean oil annually produces about 40,000–45,000 tonnes. It can be categorized into 2 groups: 1. Sea food product canning that demands 15,000 tonnes of soybean oil a year. 2. Cooking oil, resin for light color paint and other canning uses which demand about 25,000–30,000 tonnes a year. Address: Dep. of Agricultural Extension, Bangkhen, Bangkok, Thailand.

610. **Product Name:** Grilled Tofu in Peanut Sauce, or Grilled Tofu in Black Bean Sauce.

**Manufacturer’s Name:** Jaclyn’s Food Products, Inc.

**Manufacturer’s Address:** P.O. Box 1314, Cherry Hill, NJ. Phone: 609-983-2560.

**Date of Introduction:** 1989. July.

**Ingredients:** Peanut Sauce: Organically grown brown rice, tofu (organically grown soybeans, purified water, nigari, calcium sulfate), peanuts, green beans, carrots, corn, onions, peanut oil (non-hydrogenated), tamari, garlic, rice syrup, sea salt, sesame seed oil (lightly roasted), natural herbs and spices. Ingredients for the second recipe are identical except that Black Beans are used in place of peanuts.

**Wt/Vol., Packaging, Price:** 10.75 oz box, 6 per case. Retail for about \$3.09–\$3.66 each.

**How Stored:** Frozen.

**Nutrition:** Per 10.75 oz. serving: Calories 270, protein 19

gm, carbohydrate 44 gm, fat 9 gm, cholesterol 0 mg, sodium 145 mg.

**New Product–Documentation:** Leaflet. 1989. April. “Jaclyn’s microwaveable frozen dinners.” Shows both packages and lists all ingredients. “Jaclyn’s Food Products, Inc. was begun about one year ago [4/88?] to develop and market natural foods products for health and natural foods stores. They are sold exclusively through health food distributors.

Soya Newsletter. 1989. May/June. p. 8. Contact Robert Savar. Microwaveable. Tardosky. 1989. Whole Foods. Nov. p. 50. They are natural TV dinners. Both come with a side order of organic brown rice and a vegetable medley. The dinners were developed by a five star chef says company president Robert Savar.

Label. 1989. 7.5 by 6 by 1.25 inch deep paperboard box. Brown, black, light blue and dark blue on pinkish tan. Front panel has a color photo of the meal. “All natural. Cholesterol free. Dairy free. High fiber. Reduced calories. Reduced sodium. Heat and serve in your oven or microwave.” Soyfoods Center product evaluation. 1990. Feb. 12-13. Both entrees contain frozen tofu with a chewy texture. The black bean sauce is nice. The peanut sauce could be much better.

611. Karta, Susani K. 1989. Traditional Chinese soyfood. In: T.H. Applewhite, ed. 1989. Proceedings of the World Congress on Vegetable Protein Utilization in Human Foods and Animal Feedstuffs. Champaign, IL: American Oil Chemists’ Society. xii + 575 p. See p. 382-87. [18 ref]

• **Summary:** Contents: Abstract. Introduction. Variables in manufacturing tofu: Soybean variable, processing variable, maceration and extraction (soaking and grinding) stages, filtration and heating stages, coagulation stages, types and concentration of coagulants used in tofu manufacturing. Tofu products.

Tables: (1) Chinese nonfermented soy food products. Five columns show: Food items, Chinese names, organisms used, description, uses. The soy foods are: Fresh green soybeans (*mao-tou*). Toasted soy powder (*tou-fen*). Soy sprouts (*huang-tou-ya*). Soy milk (*tou-chiang*). Soy milk film / yuba (*tou-fu-pi*). Soybean curd (*tou-fu*).

(2) Chinese fermented soy food products. Five columns (same as table 1) The soy foods are: Fermented whole soybeans (*tou-shih*). Soy sauce (*chiang-yu*). Soy paste (*chiang*). Fermented tofu (*so-fu [sic]*). Actinomucor or Mucor molds are used. Description: Creamy cheese, mild flavor, salty. Uses: Relish, also cooked with meat or vegetable.

(3) 1987 consumption of soybeans as foods in Asian countries. The results are presented here in descending order of per capita consumption: Per capita soybean consumption, country (population), total soybean consumption in 1,000 tonnes. 13.3 kg/capita, Taiwan (19.6 million), 260,000 tonnes. 9.3 kg/capita, Japan (122.2 million), 1,141,000

tonnes. 9.0 kg/capita, Indonesia (175 million), 1,575,000 tonnes. 7.8 kg/capita, South Korea (42.1 million), 330,000 tonnes. 7.7 kg/capita, Singapore (2.6 million), 20,000 tonnes. 6.9 kg/capita, China (1,062 million), 7,325,000 tonnes. 3.4 kg/capita, Malaysia (55 million), 55,000 tonnes. 2.2 kg/capita, Thailand (53.6 million), 118,000 tonnes. 0.3 kg/capita, Philippines (61.5 million), 18,000 tonnes. (4) Nutritional composition of traditional nonfermented foods: Fresh green soybeans, toasted soy powder, soy sprouts–raw, soy milk, soy milk film / yuba, tofu (Source: *Food Composition Table for Use in East Asia*, 1978). (5) Nutritional composition of traditional fermented foods: Fermented soybeans [tou-shih], soy sauce, soy paste [doujiang], fermented tofu (Source *Food Composition Table for Use in East Asia*, 1978).

In China, fried tofu is called Tou-Pok. Address: American Soybean Assoc., 541 Orchard Rd., #11-03 Liat Towers, Singapore 0923, Republic of Singapore.

612. Johnson, Dale W. 1989. General uses of whole soybeans. In: E.W. Lusas, D.R. Erickson, and Wai-Kit Nip, eds. 1989. Food Uses of Whole Oil and Protein Seeds. Champaign-Urbana, IL: American Oil Chemists’ Society. vii + 401 p. See p. 12-29. Chap. 2. Proceedings of the Short Course on Food Uses of Whole Oil and Protein Seeds held at Makaha, Hawaii, May 11-14, 1986. [35 ref]

• **Summary:** Contents: Introduction: Introduction. Oriental nonfermented products: Yuba, kinako Thai desserts (tofu guan, med khaon), Thai foods (protein crisp, cooked baby food, canned evaporated soybean milk, taow-huey, kanom ping kaset). Fermented foods: Natto, hama-natto, tao tjo (a miso-type product made in Indonesia and Thailand), ontjom (made from peanuts, coconut press cake, or okara), kochu chang, ketjap, sufu, yogurt-type products, tauco, soy sauce, miso, tempeh. Western world type products. Full fat soy flour (enzyme active, heat treated). Soybean hulls. Whole soybeans in animal feed. Chapatty [chapati]. Full fat soy grits. Heat treatment of soybeans. Heat treatment and texturizing. Low-fat products. Snacks (soynuts–dry roasted or oil roasted, plain or seasoned). Soybean sprouts. Soy butter [soynut butter]. Combinations of soybeans and cereals. Soybeans as vegetables (mao-tou, edamame, or fresh green soybean). Defatted products. Nutrition. Soybean handling and equipment considerations. Solvent plant considerations. Address: Food Ingredients (Minnesota) Inc., 2121 Toledo Ave. North, Golden Valley, Minnesota 55422.

613. Echols, John M.; Shadily, Hassan. 1989. An Indonesian-English dictionary. Third ed. Ithaca, New York, and London: Cornell University Press. xix + 618 p. 24 cm. [Ind; Eng]

• **Summary:** Soy-related words include: (1) bijan (sesame; also wijen or bijen). (2) bungkil kedelai (soybean meal). (3) kacang (pea, bean, peanut), including kacang asin (salted peanuts), kacang atom or kacang ganéfo (peanuts fried in

batter), kacang goréng (peanuts fried crisp), kacang hijau or kacang ijo (mung bean), kacang kedelai (soybean), kacang tanah (peanut). (4) ketchup (soy sauce; kecap ayam {chicken prepared with soy sauce}). Note: kecap manis is not mentioned here or at “manis.” (5) kecipir (four-sided bean eaten as a vegetable [winged bean; *Psophocarpus tetragonolobus*]). (6) kedelai, kedelé (soybean). (7) oncom (fermented cake made from soybean sediment). (8) ragi (yeast, fermentation agent). (9) tahu (tofu, soybean curd), including tahu goréng (fried tofu), tahu isi (tofu filled with meat), tahu kuning (firm yellow tofu), tahu pong (deep-fried puffy tofu), tahu témpé (tofu and tempeh).

(10) tahua (a by-product of tofu similar to yogurt in consistency). (11) takoa, takoah (see takua). (12) takua (firm spiced tofu). (13) taosi (see tauci [fermented black soybeans]). (14) tapai, tapé (sweet cake made of slightly fermented rice or tubers). (15) tauci, tauco, taucyo (fermented bean paste [like miso] used as a condiment).

Note: This is the earliest (and only) English-language document seen (Feb. 2009) that uses the word “taucyo” to refer to Indonesian-style miso. “Taoci” probably refers to fermented black soybeans, not to miso.

(16) taugé (bean sprouts). (17) témpé (fermented soybean cake, tempeh; something trivial and unimportant or low grade in quality; *Dlm jaman penjajahan org Indo témpé pribumi* = “During the colonial times the Eurasians considered the natives to be no better than tempeh”). Address: 1. Ithaca, New York; 2. Jakarta, Indonesia.

614. Food & Agriculture Organization (FAO). 1989. Utilization of tropical foods: Tropical oil-seeds. Rome, Italy: Food & Agriculture Organization of the United Nations (FAO). xiv + 82 p. 21 cm. Series: FAO Food and Nutrition Paper 47/5. \*

• **Summary:** The 1st chapter, titled “Leguminous oil-seed crops, has this contents: Soybean (p. 1-35): The golden bean from China, varieties and production, soybeans in the tropics. Hydrolysis of soybeans using microbial enzymes. Nutritional and acceptability aspects of soybeans: Cooking characteristics, soybean flavour, digestibility of soybeans. Soybean processing in eastern Asia: Fermentation of soybeans. Fermentation inoculants: Koji and ragi, angkak and masam [a green fermentation starter from Nepal, made from wheat and selected moulds], preparation of koji. Preparation of soy sauce: Traditional Japanese shoyu, other types of soy sauce. Fermented soybean pastes: Types of miso, preparation of miso koji, preparation of mame miso, preparation of hamanatto. Other fermented soybean products: Natto and thua nao. Indonesian tempe: Preparation of tempe ragi, production of tempe kedele, other types of tempe, domestic use and nutritional content of tempe. Foods fermented by molds: Role of moulds in food processing, food safety aspects. Non-fermented soybean products: Production of soy milk, improving soymilk flavour. Soybean

protein products: Preparation of tofu, preparation of yuba. Soybean cheese products: Preparation of sufu (“The Chinese prepare a fermented soy curd called *sufu*, which resembles a moulded, soft-texture cheese.” Red sufu is made using “red rice koji” (angkak)). Use of soy milk and tofu residues: Preparation of oncom tahu, preparation of meitauza. Use of soybean sprouts. Soybeans as a cash crop. Soybean as an oil-seed: Problems of small-scale extraction. Solvent extraction of soybean oil: Economic aspects, extraction process, refining operations. Nutritional and organoleptic aspects of soybean oil. Commercial production of vegetable fats and oils: Solid shortenings, effects of hydrogenation, hardness of fats. Margarine production: Composition of margarine, manufacture of margarine. Production of soybean grits and flour. Commercial production of soybean protein products: Protein concentrates, protein isolates, economic aspects. Introduction of soyfoods at the village level: Snack foods, vegetable relish, pastes and flour. Preparation of soybeans at the village level: Reducing bitter flavours, preparation of soybean flour. Prospects for soybean products in the tropics.

Concerning the preparation of sufu (p. 21): “... the cubes [of tofu] are drained and heated for about 15 minutes at 100°C to sterilize them. The sterilized cubes are cooled, placed on trays, and inoculated with one of the following fungi: *Actinomucor elegans*, *Mucor lienialis*, or *Rhizopus chinensis* var. *chungyen*, depending on the type of ‘cheese’ to be produced. They are then incubated at 12-20°C for three to seven days. At that stage, the cubes become covered with a white mycelium and are known as *pehtzu* [pehtze].

“In the final stages, the cubes of *pehtzu* are transferred to ageing tanks, where they are immersed in a mixture of rice wine and salt, 2-5% sodium chloride, for forty to sixty days. The alcohol content of this ‘dip’ (approximately 10 percent) is much higher than that normally obtained by anaerobic fermentation using osmophilic [osmophilic] yeasts. The final product, after completing the ageing period, is soft and pale yellow, with a pleasant taste and aroma. It is often served with sesame oil. More pungent cheeses are prepared by related processes, by adding other components to the final brine solution. These may include red rice koji, fermented rice mash, anise or pepper. An outline of a preparation from Thailand, using red rice koji to give a red sufu is shown in Figure 3” (a flow sheet, p. 22; Source: Narudom Boon-Long. 1983. “Traditional fermented food products.” United Nations University (UNU) Workshop Paper, CFTRI, Mysore, India).

The peanut from Peru (p. 36+).

615. Fukushima, Danji. 1989. Historical development of soy sauce and fermented black soybeans in China (Document part). In: K. Steinkraus, ed. 1989. Industrialization of Indigenous Fermented Foods. New York and Basel: Marcel Dekker, Inc. xii + 439 p. See p. 2-8.

• **Summary:** “1. Chiang. In 1979, Kinichiro Sakaguchi proposed a unique hypothesis regarding the origin of

soy sauce and miso as a result of historical biochemical investigations, and this hypothesis was later introduced by this author in English (Fukushima, 1985a, 1986b). However, new literature on the origin of soy sauce and miso appeared based on more detailed historical evidence (Pao 1982a, 1982b; 1984a, 1984b). According to these papers, soy sauce was derived from a Chinese food called 'chiang' ('hishio' in Japanese).

"Chiang is a tasty mash product and does not come in a liquid form. Therefore chiang belongs in the category of 'miso' in Japan. The first record of chiang can be found in the book entitled *Chou-li* (*Shurai* in Japanese) by Chou-kung (*Shuko* in Japanese), which was published around 1,000 B.C. in the Chou (*Shu* in Japanese) dynasty (1,222 BC to 249 BC). This book covers the matters on the early years of the Chou dynasty in ancient China (about 3,000 years ago). According to this document, chiang was made by the following procedure. First, yellow aspergilli were grown on millet. (Such mold-grown cereals are called 'koji' in Japanese.) Then the millet koji and the meat of fish, flesh, or fowl and salt were mixed with a good liquor in a bottle and kept for 100 days. Soybeans were not used in this chiang. The first literature 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 AD in China. This indicates that the chiang in which soybeans was used originated sometime between the Chou and Han dynasties, when the cultivation of soybeans prevailed. The meats in the chiang described in *Chou-li* were gradually replaced by soybeans in the course of time and further cereals such as wheat, barley, and rice came to be used instead of millet, resulting in the production of many types of chiang. In the process of making chiang during these periods, soybeans were not used as a raw material in koji; rather they were added to the harvested koji prepared from the other cereals. The soybeans were digested by the enzymes of the koji. This digestion mixture was the final product, which was in the form of a mash. 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 A.D.).

"There is a description of the liquid product which was made by separating the liquid portion from the chiang in *Ssu-ming Yueh-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.' The manufacturing processes of chiang and chiang ch'ing are shown in Figs. 1 and 2. Chiang ch'ing is a prototype of soy sauce but it differs from 'chiang-yu' which means literally shoyu or soy sauce in the Chinese characters. The first appearance of the name of chiang-yu was in *Shan-chia Ch'ing-kung* (*Sanya-Seikyo* in Japanese) by Lin Hung (Rin Ko in Japanese) in the Sung dynasty (960-1127 AD).

"The first record indicating use of all the raw materials to prepare koji for soybean chiang appeared in the *Nung-sung I-shin Ts'o-yao* (*Noso-Ishoku-Satsuyo* in Japanese) by Lu Ming-Shan (Ro Meizen in Japanese), published in the Yuan (Gen in Japanese) dynasty (1271-1368 AD). The flow sheet of this soybean chiang is shown in Fig. 3." (In this process, soybeans are roasted, dehulled, cooked, then mixed with wheat flour and spontaneously molded to form koji. The koji is dried in the shade, winnowed, and pounded, then mixed with spices and salt water to form a mash, which is insulated and aged to make the soybean chiang.) 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 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, as will be described later. The general manufacturing methods of soy sauce in the Ch'ing (Shin in Japanese) dynasty are recorded in *Ch'ing-yuan Lu* (*Seienroku* in Japanese), written by Li Hua-nan (Ri Kanan in Japanese). Cooked soybeans and uncooked wheat were the raw materials used in koji making. The resultant koji was mixed with brine. After aging, the soy sauce was collected by pressing a deep bamboo colander into the aged mash and ladling out the liquid which had accumulated.

"The original chiang was a mash-type product made with a koji that had been prepared from wheat, barley, rice, etc., and not from soybeans. Therefore, the soybean constituents were only changed through the in vitro biochemical reaction by the enzymes from the mold grown on the cereals. Accordingly, the degree of change of the soybean constituents was not very great and most of the soybean proteins were partially hydrolyzed into polypeptides through the in vitro enzyme action. The degree of liquefaction was not very large and the flavor was not as strong. In the case of chiang-yu, however, mold is grown on both the soybeans and cereals and, as a result, the soybean constituents are changed largely through the biochemical reaction both in vivo and in vitro by the mold throughout the entire process of manufacturing. Accordingly, much of the soybean constituents can be liquefied. The soybean proteins are hydrolyzed to single amino acids and, therefore, the flavor is sharp and strong in chiang-yu. Thus, it can be concluded that (a) the progenitor of miso is chiang, originated in China about 3,000 years ago; (b) the progenitor of soy sauce is chiang ch'ing, originated in China about 2,000 years ago; (c) chiang ch'ing had developed into chiang-yu in China and the regular type of shoyu called

koikuchi in Japan at least 1,000 years ago.

“It is an amazing fact that the Chinese had utilized the enzyme action of mold in food manufacturing as early as 3,000 years ago. They deliberately selected yellow aspergilli from many types of aspergilli because they best facilitated the manufacture of chiang. If the definition of ‘biotechnology’ is to make the products necessary for the welfare of humans by using life phenomena, it can be said that people in ancient China had already produced foods by biotechnology as early as several thousand years ago. In this sense, it is not an exaggeration to say that soy sauce was a pioneer of the actual application of biotechnology.

“2. Shih. Shih is a fermentation product of soybeans, the form of which is a tasty nugget with or without salt. Shih is classified into five types by the kind of microorganism used in its manufacture. Those are *Aspergillus* type (called shih in the areas of Pei-ching, Hu-nan sheng, and Taiwan; and called hamanatto in Japan), *Mucor* type (shih in the area of Shan-tung sheng and natto in Japan), *Rhizopus* type (tempeh in Indonesia), *Bacillus* type (shih in the area of Shan-tung sheng and natto in Japan), and *Neurospora* type (oncom in Indonesia). The shih described here is the shih of *Aspergillus* type, which relates to soy sauce.

“The earliest literature in which shih appeared is *Shih-chi* (*Shiki* in Japanese) by Ssu-ma Ch’ien (Shiba Sen in Japanese), which was published in 85 BC. Shih is also described along with chiang in *Shuo-wen Chie-tzu* (*Setsubun-kaiji* in Japanese) by Hsu Shen (Kyoshin in Japanese), the oldest dictionary in China published in 121 AD in the later Han dynasty. The raw material of the shih is soybeans as shown in Fig. 5. (In the process described in the *Shi-ching* by Hsie Feng (which survives only in the *Ch’i-min yao shu*), soybeans are washed, soaked, drained, and steamed. The cooked soybeans are cooled, then spread, furrowed, and piled. The last 3 steps are repeated 3 times a day for 3 days until the beans have become spontaneously molded. The resulting soybean koji is mixed with soybean cooking liquid, barley koji, and salt, put into an earthen pot, sealed, and insulated. It is then dried in the shade, mixed with a mulberry leaf extract, and steamed. The last 3 steps are repeated 3 times, resulting in salted soybean shih. In the second process 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.) Therefore the resultant shih (soybean nugget) contains a high amount of protein. In shih, much of the soybean constituents are present in a liquid state. The soybean proteins are hydrolyzed to single amino acids and, therefore, the flavor is sharp and strong. The flavor constituents of shih can be extracted easily by a salt solution. The original

shih was served as nuggets; the brine extract came to be used as a seasoning gradually. In *Chi-min Yao-shu* (535 AD), there is a description of about 70 kinds of cookeries using shih extracts. It should be mentioned that shih and its brine extract developed into today’s tamari shoyu in Japan.” Address: Managing Director, Kikkoman Corp., Chiyoda-ku, Tokyo, Japan.

616. Fukushima, Danji. 1989. Introduction of soy sauce to Japan (Document part). In: K. Steinkraus, ed. 1989. *Industrialization of Indigenous Fermented Foods*. New York and Basel: Marcel Dekker, Inc. xii + 439 p. See p. 9-10.

• **Summary:** “There is no literature on the exact time chiang and shih (fermented black soybeans) were introduced into Japan. In 702 AD, however, the Hishiotsukasa, the Bureau for the Regulation of Production, Trade and Taxation of Hishio, was established by the Taiho-Ritsuryo, one of Japan’s earliest constitutions. This bureau was located at the imperial palace and produced various kinds of hishio (chiang) which was consumed by the imperial household. Among these products, the word ‘misho’ is found with the words ‘chiang’ and ‘shih.’ It should be noted that the word ‘misho,’ which is very close to the present word ‘miso,’ is found as one of the products in the bureau. Misho is also found in *Engishiki*, the enforcement regulation of the statutes, which was completed in 927 AD and became effective in 967 Japan. The first appearance of the present word ‘miso,’ was in *Nihon-Sandai-Jitsuroku*, a Japanese dictionary published in 1597 during the Muromachi period. In the Edo period (1603-1867), several pieces of literature describing miso and shoyu were written, such as *Wakan Sansai Zue* (Narushima, 1712), *Honcho Shokkan* (Hitomi, 1695), *Mankin Sangyotai* (Miake, 1732), *Yoshu Fushi* (Kurokawa, 1682), and the like. The manufacturing processes described in these works are close to the present methods for producing miso and koikuchi-shoyu, thus it is presumed that the basic manufacturing processes of today’s Japanese soy sauce had been formed by the early 17th century.

“In the second half of the 17th century, large-scale, industrial production of soy sauce began for consumption in large cities such as Edo (now Tokyo). Surprisingly enough, there are written records that soy sauce had been exported to India, southeast Asia, and Europe as early as the middle of the Edo period [the Edo Period was from 1600 to 1868] (Noda Shoyu Co. 1953). According to documents of the Dutch East India Company stored in the Archives in the Hague, Holland, soy sauce was exported [by Dutch merchants] from Nagasaki in the Kyushu district of Japan to several parts of India: Coromandel in 1668 and 1716, Ceylon in 1670 and 1699, Surat in 1717, Bengal in 1699, and Nagappattinam [Nagapattinam] in 1699. Carl Thunberg, a ship’s doctor for the Dutch East India Company who stayed in Japan for a year and a half from 1775 to 1776, published a book of travels in 1796 (Thunberg, 1796). According to his



book, a large quantity of soy sauce was shipped to Batavia (the former name for Djakarta [and Dutch capital of the East Indies]), India, and European countries." Address: Managing Director, Kikkoman Corp., Chiyoda-ku, Tokyo, Japan.

617. Hesselstine, C.W. 1989. Fermented products. In: Ruth H. Matthews, ed. 1989. Legumes: Chemistry, Technology, and Human Nutrition. New York and Basel: Marcel Dekker, Inc. x + 389 p. See p. 161-85. [29 ref]

• **Summary:** Contents: Introduction: Fermented legume products. A table lists about 85 products with the vernacular name, legume from which it is made, country, and microorganism(s) used. Products made from soybeans include: Miso (bean paste), Shoyu (soy sauce), Sufu (Chinese cheese), Ontjom (Oncom), Hamanatto, Idli (with and without soy), Natto, and Tempeh. Address: Human Nutrition Information Service, USDA, Hyattsville, Maryland (and NRRC, Peoria, Illinois).

618. Steinkraus, Keith H. ed. 1989. Industrialization of indigenous fermented foods. New York, NY: Marcel Dekker. xii + 439 p. 24 cm.

• **Summary:** This book contains the following chapters on soyfoods: 1. Industrialization of fermented soy sauce production centering around Japanese shoyu, by Danji Fukushima. 2. Industrialization of Japanese miso fermentation, by Hideo Ebine. It also contains chapters on the industrialization of the production of sake, tapai, African beers, magehu, ogi, and gari. The final chapter is titled "Industrialization of indigenous fermented food processes: Biotechnological aspects."

The book is dedicated "To the memory of Prof. Andre G. van Veen, a pioneer in the study of indigenous fermented foods." Address: Inst. of Food Science, Cornell Univ., Geneva, New York.

619. Vanka-Kawat B.V. 1990. Topmerken in de Aziatische levensmiddelen: Prijslist [The top brands in Asiatic foods: Price list]. 3e v.d. Kunstraat 18, 2521 BB Den Haag, Netherlands. 22 p. [Dut]

• **Summary:** The subtitle is "Import-Export Asian Food Specialties." Imported items are listed by country of origin. Non-imported are listed by product type: China: Pearl River mushroom soy, soy superior, and superior soy. Philippines: Silver Swan soy sauce. Hong Kong: Best black soy, Best light soy, Best soy light, Best soy sauce, Black soy, Black soy yellow label, Hoi sin sauce Meechung, Taotjo bean sauce. Japan: Akamiso, Kikkoman menmi, Kikkoman shoyu, Kikkoman steak sauce, Kikkoman teriyaki sauce, Marukin soy sauce, Morinaga silken tofu, Nagatani-en aka-miso, shiro-miso, Teriyaki sauce. Ketjap: Ketjap kaki tiga, Ketjap A, Ketjap 'A' manis, Ketjap benteng asin, Ketjap benteng manis, Ketjap vital, Superior soy, Tiger brand soy, Yellow label. Singapore: Salted soy beans sin sin, Taotjo bean sauce,

Taotjo flower brand, Taotjo taksan. Taiwan: Black beans fermented [fermented black soybeans], Soy sauce ve wong, Tahoe amigo, Tauge [sprouts]. Fresh products: Vacuum packet fresh tofu. Fresh tempeh. Address: The Hague, Netherlands. Phone: 070-388- 88 04.

620. Cardenas, Danilo C. 1990. Status of the Philippine soyfood industry. Paper presented at the International Conference on Soybean Processing and Utilization. Held 25-29 June 1990 at the Jilin Academy of Agricultural Sciences, Gongzhuling, China. \*

Address: Supervising Science Research Specialist, Philippine Council for Agriculture, Forestry, and Natural Resources Research and Development (PCARRD), Los Baños, Laguna 3720, Philippines.

621. **Product Name:** Cauldron Foods Tofu Kitchen {Frozen Ready Meals} (Indonesian: Vegetables & tofu in spicy satay sauce, Cantonese: Stir fry vegetables with tofu in black bean sauce, Shanghai: Sweet & sour vegetables with tofu, or Punjabi: Vegetable brian with tofu).

**Manufacturer's Name:** Cauldron Foods Ltd.

**Manufacturer's Address:** 149 South Liberty Lane, Ashton Vale Trading Estate, Bedminster, Bristol, Avon, BS3 2TL, England. Phone: (0272) 632835.

**Date of Introduction:** 1990. July.

**Ingredients:** Indonesian: Spicy satay sauce (water, sieved tomatoes, onions, peanut butter, creamed coconut, soy sauce, tomato puree, spices and seasonings, modified starch, vegetable oil, salt), Marinated Tofu (tofu-water soya beans, calcium sulphate, marinade-water, shoyu sauce, sugar, salt, garlic, ginger, citric acid), baby sweetcorn, sugar, snap peas, red peppers, vegetable oil. Fried rice: Cooked white and brown rices, sweet-corn, vegetable oil, onions, chives.

**Wt/Vol., Packaging, Price:** 400 gm box.

**How Stored:** Frozen.

**Nutrition:** Per 100 gm.: Protein 5.9 gm, fat 5.9 gm, carbohydrates 13.9 gm, calories 147.

**New Product-Documentation:** Letter (fax) from Philip Marshall. 1990. July 9. This product, in 4 varieties, was introduced in 1990. Labels (4) sent by Philip Marshall of Cauldron Foods. 1990. July 9. 9 by 7 by 1.25 inches. Multi-color. A large color photo of the ready-to-serve dish (accompanied by chopsticks or fork) is in the upper left hand corner of the front panel; behind it is a pastel blue, green, yellow, and black map of that part the world from which the dish originates. Below the product name is a brief description of the dish. "Microwave or oven cook. A complete vegetable meal." Suitable for vegetarians: Circled green V certification symbol. Serves 1. The back panel gives information about tofu and detailed cooking instructions.

622. Atlas, Nava. 1990. Vegetarian celebrations: Menus for holidays and other festive occasions. Boston, Massachusetts:

Little, Brown and Co. [xii] + 276 p. Illust. (by Atlas). Index. 24 x 19 cm.

• **Summary:** The recipes are organized by holiday, and the main holidays are arranged chronologically: 1. The New Year. 2. Valentine's day. 3. Easter and St. Patrick's Day, etc.

Soy related: Silken tofu pudding (p. 15). Chinese cabbage with bean curd soup and mushrooms (with "½ pound tofu (bean curd), cut into ½-inch dice," p. 78). Tofu and potato kebabs (with "2 pounds firm tofu," p. 98). The vegetarian barbecue—Tofu, tempeh and seitan (with a description and discussion of each, p. 106-08). Sweet and savory grilled tofu. Grilled tofu teriyaki. Grilled tempeh teriyaki. Sweet and savory grilled tempeh. Curried grilled tempeh. Grilled seitan teriyaki. Seitan and grilled vegetables teriyaki. Sweet and savory grilled seitan. Teriyaki marinade (with "natural soy sauce," p. 113). Tofu in black bean sauce (with "1/3 cup fermented black beans, rinsed and chopped," p. 212-13. Note: They are made from soy beans). Soy and honey nuts (with natural soy sauce and 4 cups shelled nuts—a mixture of peanuts, cashews, and almonds is very good, p. 237-38). Tofu mayonnaise (p. 257).

623. Miso, shōyu no rûtsu wa doko ka? O-shōyu sukii tanken-tai [Where are the roots of miso and shoyu? Two shoyu-lovers go exploring in China]. 1991. Television broadcast. Channel 26. California. June 9. Sat. 8-9 P.M. [Jap]

• **Summary:** This program is part of the series "Shin Sekai Kikō" (New World Homeward Voyage). In Japan, the two explorers first visit two historic places in Wakayama prefecture: In one shop, Kinzanji miso is still made. The Buddhist monk Kakushin from Shinshu in Japan learned to make this miso from a temple named Kinzanji in southern China. They also visit Kadocho, a shop where shoyu is still made in the ancient way. They then travel to China, arriving in Shanghai, and go directly to Hangchow (also spelled Hangzhou; Pinyin: Hangzhou; Japanese: Kōshu), the capital of Chekiang province, located a little to the southwest. In the market there they find a relative of Kinzanji miso, named *tien tou-shih* (sweet fermented black soybeans) sold at a soy sauce shop.

The shop owners suggest that they go to Chungking (pinyin: Chongching; Japanese: Jûkei), a major city in Szechuan province, to learn more. There they find *tou-shih*, which resembles Japan's Hamanatto or Daitokuji Natto. Then they visit the ruins of Kinzanji temple where Kakushin learned to make miso. After walking up a long, steep rock path they discover that only a historic bell tower is left.

Now they travel to Yunnan province, in central southern China, wedged between Vietnam and Burma. They arrive at Kunming (pinyin: Kungming; Japanese: Konme). In this area the weather is semi-tropical and many types of fermented foods are made. Now they travel 800 miles by car to the southern tip of Yunnan to a mountain village named Shisan Panna. There lives the primitive Aini tribe, in

thatched houses with barefoot children. An elderly woman shows them how she makes miso. Roast the soybeans in a wok, then add water and cook. Pour into a bamboo basket (1 foot diameter, 10 inches deep) lined with a banana leaf, fold the ends of the leaf over the top, and place then basket on a rack over the open-hearth fireplace sunk in the middle of the room's floor (Jap: *irori*) for 2-3 days so that the warmth aids the fermentation. Transfer the fermented soybeans to a wooden mortar, add salt and hot chilies (no grain), then pound to a paste. Shape this into 3-4 inch diameter patties, put these on a shallow 2.5 foot diameter bamboo tray, and place on the rooftop in the sun for 3 days. Broil the patties directly over the fire, put in a mortar, add more salt and chilies, and pound to a paste. Now add boiling water and serve. The result is a spicy miso soup with a bit of a natto flavor (Japanese: *natto-jiru*). Thus, the Japanese apparently did not invent miso soup! Address: Japan.

624. *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).

625. *Toyo Shinpo (Soyfoods News)*. 1991. Daitokuji nattô-iri wagashi: Kyoto-Murasaki-Take no "Nattô Matsukaze" [Japanese confection contains Daitokuji natto: Natto Matsukaze, made by Moriguchi Kakô Shokuhin in Kyôto]. Nov. 4. p. 3. [Jap]

• **Summary:** Name of the confection: Natto Matsukaze. Name of manufacturer: Moriguchi Kakô Shokuhin. Brand: Murasaki-Take. A photo shows the product in a stylish little cloth or paper pouch. Address: Kassui Joshi Tanki Daigaku, Japan.

626. Knickerbocker, Peggy. 1991. Color-coordinated Christmas. *House and Garden* 163(12):72, 74. Dec. See p. 74

• **Summary:** In the far right column is a recipe for Steamed string beans with miso. The ingredients include "4 tablespoons red miso. ½ teaspoon Chinese black bean sauce."

627. **Product Name:** Tofu, Fried Soy Protein [Fried Yuba], Soy Milk.

**Manufacturer's Name:** Wen's Food Inc.

**Manufacturer's Address:** 9179-Red Branch Road, Columbia, MD 21045. Phone: 410-730-6699.

**Date of Introduction:** 1991.

**New Product-Documentation:** U.S. Soyfoods Directory. 1999. p. 45. Talk with Mr. Ting-yi Wen. 1999. May 6. The parent company of this company was started in 1987 in Taiwan. Then Mr. Wen came to Maryland and in 1991 began making the products shown above. Today he makes a host of innovative products. Tofu: Regular Tofu, Soft Tofu, Tofu Curds (*Doufu-Hwa*), Extra Firm Tofu (*Doufu-Gan*), two types of Tofu Noodles (Plain, and Spicy with Soy Sauce), Five-Spice Pressed Tofu Sheets (*Wu-hsiang pai-yeh*), and Seasoned, Rolled, Pressed Tofu Sheets (ssu-chi or suji, made from pai-yeh; season the sheets, then roll and steam).

Yuba: Crispy Soy Chicken (new name for fried yuba), plain fresh yuba (*bai dou-pi*). But he stopped making the

yuba last year because: (1) It was too labor intensive; (2) Working in the hot, steam-filled room was so uncomfortable that at the end of each day he felt like a steamed dumpling. Soymilk (plain or sweetened with sugar) in ½ gallons.

Products to be introduced soon: (1) Soymilk in small single-serving cups similar to those in which yogurt is now sold (a unique packaging idea). (2) A line of soy yogurts. (3) A line of Chinese frozen entrees, such as Crispy yuba chicken with black bean sauce.

Business card sent by Ting-Yi Wen. 2001. Wen's Food Inc. makes tofu products and sauces, with Mao Pao, Kung Pao, and BlackBean flavors, plus Soy Chicken, Soy Pudding, Soy Milk, Soygurt, etc. They are still at the address above.

628. 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 (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").

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. 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: 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). Contains a recipe for homemade "Bean Curd" plus 3 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. (6) 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. Also known as: Daai dau nga choy (soybean sprout), ngunn nga choy (silver sprouts), nga choy, sai dau nga choy (mung bean sprout) (China); tauge (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 (Daufu-nou, China): See Bean curd “brains.” Doufu pok (daufu 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). Foo yu (Fu you, China). See Bean curd by-products (fermented). Forng 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.

629. Passmore, Jacki. 1991. *The encyclopedia of East Asian food and cooking* (Document part II). New York, NY: William Morrow. 320 p. Illust. Index. 24 cm. [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 tsbushi-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.

630. Yokotsuka, Tamotsu. 1991. Proteinaceous fermented foods and condiments prepared with koji molds. In: Dilip K. Arora, K.G. Mukerji, and E.H. Marth, eds. 1991. *Handbook of Applied Mycology*. Vol. 3: Foods and Feeds. New York, NY: Marcel Dekker, Inc. x + 621 p. See p. 329-73. Chap. 11. [118 ref]

• **Summary:** Contains a great deal of very interesting information. Contents: 1. Introduction. 2. Fermented soybean foods in East and Southeast Asia: A. Douchi (China), Hamanatto (Japan), and in-yu (Taiwan). B. Shuidouchi (Shandong province, China), thua-nao (Thailand), kinema (Nepal), and natto (itohiki natto) (Japan). C. Tempe [Tempeh] and Oncom [Onchom] (Indonesia) (Making soybean tempe, volatile flavor of tempe, chemical composition and nutritional value of tempe, tempe bongkrek). D. Fermented tou-fu (soybean

curd) products: Sufu (China and Taiwan), Tofuyo (Okinawa, Japan).

3. Fermented salty condiments in a slurry or paste made from soybeans and cereals: A. Doujiang (touchiang) (China) and Tauco [taucho] (Southeast Asia). B. Doubanjiang (Toupanchiang). C. Tianmianjiang (Tienmienchiang). D. Gochujiang and Doenjang (Korea). E. Hishio (Japan). F. Miso (Japan) (Production and consumption of miso, making rice miso and barley miso).

4. Fermented salty liquid condiments made from soybeans and cereals: A. Japanese shoyu (Manufacture of koikuchi and usukuchi shoyu, manufacture of tamari shoyu). B. Soy sauce produced in east and southeast Asian countries other than Japan (Korea, Taiwan, Hong Kong, Singapore, Malaysia, Indonesia, Thailand, People's Republic of China {the process, acid hydrolysis illegal until recently}, chijhi or whole soybean soy sauce still made in the basins of the Zhujiang {Pearl} River and the Huanghe {Yellow} River).

5. Biochemistry involved in shoyu and miso manufacture: A. Selection of raw materials. B. Contribution of improved cooking methods of raw materials to increase the enzymatic protein digestibility. C. Selection and improvement of koji molds. D. Improvement in koji making. E. Microbial and chemical control of salty mash fermentation. F. Flavor evaluation of koikuchi shoyu. G. Stability of color of pasteurized shoyu. H. Nutritional concern about shoyu and miso (salt content). Safety of koji molds and shoyu (aflatoxins).

6. Conclusion.

Tables show: (1) Chemical composition of kinema, thua-nao, and douchi. (2) Changes in nitrogenous compounds during Natto Fermentation. (3) Changes of nitrogen compounds in sufu making. (4) Constituents of some types of miso. (5) Chemical composition of various kinds of genuine fermented shoyu in Japan. (6) Effect of cooking conditions of thoroughly moistened defatted soybean grits on the enzymatic digestibility of protein. (7) Differences between *A. oryzae* and *A. sojae* used for shoyu fermentation. (8) Proteinases produced by *Aspergillus sojae*. (9) Enzyme composition of koji as influenced by the difference of material. (10) Various metabolic patterns by lactobacilli in shoyu mash. (11) Digestibilities of protein in shoyu, miso, natto, and tempe fermentations. (12) Results of quantitative analysis of flavor constituents in koikuchi shoyu.

Figures show: (1) Flow sheet of tempe making. (2) Flow diagram of sufu making from 1 kg soybeans (with all quantities of ingredients, temperatures, and times). (3) Flow diagram of rice-miso fermentation from 1,000 kg soybeans and 600 kg milled rice. (4) Flow diagram of koikuchi shoyu fermentation from 330 kg defatted soybean meal (or 400 kg whole soybeans) and 340 kg wheat kernels. (5) Flow diagram of tamari-shoyu fermentation from 800 kg defatted soybeans, 346 kg wheat, 20 kg roasted barley flour, and 439 kg NaCl. (6) Microflora changes in shoyu mash

fermentation. (7) Classification of *Aspergilli*. (8) Fermented foods and condiments made from soybeans mixed with or without cereal grains or flour.

Concerning *shuidouchi* (*Chinese salted natto with minced ginger*, p. 332-35): This unusual product can be considered an intermediate form between *douchi* (salted fermented soybeans / fermented black soybeans) and the *itohiki-natto* family of foods; unlike *douchi* it is fermented with a *Bacillus* bacterium rather than with an *Aspergillus* mold, but unlike *natto* it is a salted product and has ginger added. To make *shuidouchi*: Boiled soybeans are naturally inoculated with *Bacillus subtilis* and incubated at high humidity and at 30-40°C. This preference for a high temperature may be why the *Chi-min yao-shu* (6th century China) recommended that, when making *douchi* [fermented black soybeans], the temperature during incubation be kept rather low. In Shandong, China, *shuidouchi* are made as follows: Clean, soak, and boil soybeans until soft. Place in a cloth bag and cover with straw, which is the best natural source of *B. subtilis*. After incubation for 1-2 days at 25-30°C the soybeans will be covered with viscous substances. Mix the sticky soybeans with minced ginger and salt, then pack tightly into jars, and age for one week. They are now ready to consume (See references 5 and 6). Address: Research Div., Kikkoman Corp., Noda City, Chiba prefecture, Japan.

631. *Toyo Shinpo* (*Soyfoods News*). 1992. Nattô zuihitsu. Kara nattô. Nattô wa nattô demo shioaji no kiita kôji hakkô shokuhin [Natto essay. Salty fermented black soybeans. Even though it's called "natto," it is salty and a fermented food made with koji]. March 1. p. 10. [Jap]

• **Summary:** About Daitokuji fermented black soybeans. A photo shows the fermented black soybeans being fermented in wide-mouthed, shallow wooden vats, each bound together with two hoops of braided bamboo. Address: Kassui Joshi Tanki Daigaku, Japan.

632. Root, Evan. 1992. Recollections of early work with Erewhon and Sanae. Trip to Japan with Paul Hawken (Interview). *SoyaScan Notes*. April 11. Conducted by William Shurtleff of Soyfoods Center. Followed by a letter of April 29.

• **Summary:** Evan (his first name rhymes with "heaven") does not have any early Erewhon catalogs, but he thinks Marc van Cauwenberghe might have some in his library on macrobiotics. He does have a letter to the general public announcing the opening of the first Erewhon retail store on 9 April 1966. It was at 303-B Newbury St., below street level. Initially Evan owned (titularly) 100% of the stock in Erewhon, but soon he passed it to Aveline Kushi after legal documents were drawn up. While he was at Erewhon the little retail store sold the following soy products: whole soybeans and probably soy flour (probably from Walnut Acres or a Mennonite community, both in Pennsylvania), soy

sauce and miso (probably both obtained from Infinity Foods in New York; Infinity imported these products from Japan). Hamanatto was also sold. No tofu was sold at the store, but firm tofu was available from nearby Chinatown.

The Kushis imported miso, shoyu, condiments, etc. from Japan about twice while Evan was managing the Erewhon retail store. This direct importing was infrequent and the quantities were small due to the lack of cash. It was much easier to buy from Infinity or Chico-San and not tie up the money. In fact it was the norm to stretch out those friendly distributors as long as possible for payment.

Before he left Erewhon, in Oct. 1967, Evan personally hired Paul Hawken, with Aveline's permission, to take his place. Then Evan opened the first macrobiotic restaurant in Boston, named Sanae (meaning "young rice plant" in Japanese); it opened in early 1968 on Newbury St. In late March 1969, Evan and Paul Hawken left Boston and traveled to Japan together. Several months before they left, Evan had been given 50% of the shares of stock in Sanae by the Kushis for the work he had done at Sanae. The Kushi's lawyer, Morris Kirsner, had drafted the agreement to read that if Evan did not return to management of the company within 18 months, he would agree to sell this stock back to the Kushis at an agreed-upon price. Evan thinks that Paul had a similar type of stock arrangement in Erewhon, but he is not sure what it was (Note: See interview with Aveline Kushi, March 1993). Evan went to Japan mainly to study the language and culture. He ended up staying there 3 years and 7 months, largely in Tokyo (Setagaya-ku, Shoinjin-ja-mae). He studied Japanese at the Tokyo School of Japanese Language. After 18 months, there was a lad name Hiro Fujieda living with the Kushis in Boston. Rather than Hiro pay rent to the Kushis, Hiro's family would pay Evan monthly in Japan on a monthly basis—until the value of the stock was paid off. Evan used this money to support his studies.

After about a year, in late 1971 or early 1972, Evan went to work for Muso Shokuhin in Osaka. He translated letters that arrived from Europe and America into spoken Japanese, and then answered the correspondence. By the end of his stay in Japan, Muso was exporting quite a volume of natural foods and exports were a big part of the company focus. Evan thinks that Ty Smith took his place when Evan left.

Returning to Boston in early Oct. 1972 (along with Mr. Masuda and Michelle Matsuda), Evan became an employee of Sanae after several months, working as maître d'. In 1971, while Evan was in Japan, Sanae had expanded to open another larger branch restaurant in Boston, originally called "Sanae" but informally called "Big Sanae," then later formally named The Seventh Inn (at 269 Boylston St.). When Evan was in Japan, he heard that the restaurants were not doing well, so Yuko Okada (originally of Muso Shokuhin, who was working at Erewhon) took over management of Sanae. Hiroshi Hayashi, a top cook in a

lineage, traveled to Boston from Japan, bringing with him his disciple, Chika Abe, to take charge of cooking at Sanae. His disciple, Mr. Yozo Masuda, later joined them. Hayashi is now at a restaurant named Latacarta in Peterborough, New Hampshire (Phone: 603-924-6878).

Evan's recollection is that Paul Hawken's trip to Japan was more to study the language and culture, but he did work on Erewhon business while he was there. Moreover, he returned from Japan after about 9 months to work at Erewhon. Evan feels that few of the people involved in early macrobiotic businesses saw themselves strictly or even mainly as businessmen. "None of us were in it, as I saw it, for the money. For us, the whole thing was a Cultural Revolution with respect to Japan." Evan also identified strongly with the phrase "Biological Revolution."

When Paul Hawken returned from Japan, he built Erewhon into a big natural foods company. Address: 541 Washington St., Brookline, Massachusetts 02146. Phone: 617-566-4783.

633. Dong, Minsheng. 1992. Re: Tempeh and fermented black soybeans (douchi) in China. Letters to William Shurtleff at Soyfoods Center, April 24 and June 18. 1 p. and 2 p. respectively. Typed. [Eng]

• **Summary:** "The first tempeh factory in China, Jiangdou Nutritive Food Factory, is located in Jongdou, Jongdou County, Jiangsu Province, China. It first started to sell tempeh in Oct. 1991. Production capacity is 1,000 kg/week. Tempeh has various Chinese names such as danbei, tianpei, tianpei, or doufu [Chinese characters are given for each], which were chosen to sound like "tempeh." Some scholars call tempeh "Indonesian Tou Chiah" [i.e. *doushi* or *douchi* (pinyin) or *tou-ch'ih* (Wade-Giles) = fermented black soybeans] because they think tempeh is similar to Chinese *douchi*, a fermented soyfood made with specific molds. But I think tempeh is different from Chinese *douchi* in three respects: 1. In making *douchi*, it is not necessary to dehull the soybeans; in fact the hull should remain intact; 2. *Douchi* is fermented with *Aspergillus oryzae*, *Micrococcus* species, and/or *Mucor* species, never with *Rhizopus* species; 3. *Douchi* is composed of separate black particles; it is not a white cake.

"You mentioned that in 1931 William Morse observed a tempeh-like product in Beijing, China, which he called *tou chiah ping* ("soybean cake fried"). I have never heard of *tou chiah ping* [Chinese characters are included]. China has not previously produced tempeh. Very interestingly, I found tempeh to be very analogous to the koji used to make *douchi*, yet this koji is not usually used as food.

In 1991 Jiang Han-hu and Dong Min-sheng (both of the Dept. of Food Science, Nanjing Univ.) presented a paper on tempeh titled "Isolation, screening, and identification of a thermotolerable tempeh-producing strain RT-3." It was published in Chinese in the Proceedings of the Annual

Meeting of the Chinese Microbiological Society (1991, Jiangsu, p. 20).

Dr. C.W. Hesseltine, one of America's leading microbiologists and experts on East Asian fermented foods notes (personal communication 24 May 1992) that he has never heard of Tou Chiah, but he would guess that it is a Hamanatto-like food [such as *douchi*].

In response to a letter asking what "Tou Chiah" is, Dong replies that "tou chiah" is written as "douchi" or "douchi" in pinyin. There are two types of *douchi* [fermented black soybeans] in China: (1) *Xian douchi* [also called *yanshi*] is the salted variety, which is made throughout China. To prepare it, black (or yellow) soybeans are soaked in water, cooked and made into koji. The koji is washed, and fermented, then salt and spices are added. It is aged, then sprayed with water then dried to give *xian douchi*. (2) *Dan douchi* [*danshi*] is the unsalted variety, which is made only in certain parts of Shandong (Shantung) and Hunan (Hunan) provinces. To prepare *dan douchi*, black (or yellow) soybeans are dry steamed in a cooker, cooled, inoculated with *Aspergillus oryzae*, and made into koji. The koji is washed with water, fermented, then aged with distilled wine. Address: Dep. of Food Science, Nanjing Agricultural Univ., Nanjing, Jiangsu Province, China.

634. Cardenas, Danilo C.; Legaspi, Benjamin M. 1992. The status of soybean production and utilization in the Philippines. In: Increasing Soybean Production in Asia: Proceedings of a Workshop. 1992. Bogor, Indonesia: CGPRT Centre. 187 p. See p. 119-35. Held 21-24 Aug. 1990 at Phitsanulok, Thailand. [8 ref]

• **Summary:** Contents: Introduction. Production situation: Production trends, economics of soybean production, price trends, marketing of soybean. Philippine foreign trade situation: Soybean imports, soybean exports. Soybean utilization. Government policies/programs affecting the industry: Policies, programs. Major problems besetting the local soybean industry. Conclusions.

The soybean, also known locally as "utao," has become an increasingly important economic crop in the Philippines. Yet in 1987 (the latest year for which figures are given) only 5,698 tonnes (metric tons) were harvested from 6,490 hectares, having a value of 45,169,000 pesos. This represented only 0.02% of the total Philippine quantity of agricultural production, and only 0.05% of total farm area and value. Philippine soybean production peaked at 11,466 tonnes in 1982. Most of the country's soybeans are grown in the southern Mindanao region (72.1%), followed by northern Mindanao (10.0%) and central Mindanao (9.4%). Imports of soybeans and products have steadily increased since Philippine farmers do not produce enough soybeans to meet local demands; the value (FOB US\$) rising from \$61,989,000 in 1980 to \$127,981,000 in 1988. The main imports are soybean meal (accounting for 86.87% of total



import value), refined soybean oil (5.19%), soybeans (4.18%), and crude soybean oil (223%). Before March 1986 the National Food Authority (NFA) had the sole authority to import soybeans, but with the introduction of the trade liberalization program, importation has reverted to private firms. In 1989 the country's major sources of imported soybeans were China (which supplied 42% of total imports), Brazil (34%), and the USA (15%). Exports, which are negligible, have grown from \$136,000 to 1,123,000 during the same period. The main exports are soy sauce (accounting for 91.03% of total value), salted and fermented soybeans [fermented black soybeans] (tausi, 3.34%), and soybeans (2.65%).

Table 7 lists and describes "Soybean-based food products popularly used in the Philippines." Fermented products include soy sauce, salted and fermented soybean (*tausi*), tempe (tempeh), soybean paste (miso), and soybean curd (fermented tofu cubes; a soft cheese-type product with a salty but mild flavor, eaten as a relish or cooked with meat and vegetables). Non-fermented products include soybean sprouts (*toge*), soybean cheese (*tokwa* [tofu]), Geerlings cheese (taho, soymilk curds; a sweet dessert or snack food for children), soybean milk, and roasted soybean (soy coffee).

"In terms of food usage, Filipinos, unlike other Asians, have not developed a taste for soya-based products... Most of the soy products available in the market are either made at home or in family-operated shops.

"It is interesting to note from the report of Co (1987) that small scale food processors engaged in manufacture of taho and tokwa preferred locally grown beans to imported ones. They claimed that local soybeans have a distinctive 'fresh' quality which imparts a finer and smoother texture to their finished products providing a longer shelf life than that produced from imported beans.

"Recently, several developments in the local economy have signaled a revival of interest in the use of soybean as food. In 1980 Nestle Philippines Incorporated began commercial production of powdered soymilk products and later a baby soya-cereal food formulation and a soya-based meat extender which is produced primarily for export to other Asian countries. Today Nestle Philippines, in co-operation with the Land Bank of the Philippines, the Regional Offices of the Department of Agriculture and PCARRD is encouraging local production of soybean and had adopted a no importation policy.

"Some years ago, the use of TVP also gained a permanent foothold in the local processing industry. It is used in the manufacture of ground meat products and as a meat extender. Almost all TVP used in the country is imported except for the locally manufactured full-fat TVP which is being produced by the Vitarich Corporation, one of the biggest feed millers in the country. The company has built a full-fat soya processing plant capable of utilizing 900

MT [metric tons] of soybean per month. Unfortunately, all its raw soybean requirements are imported from the U.S. and China.

"Soybean flour, protein concentrate and protein isolates are the newest soya-based products and are now used extensively in the country for the formulation of meat emulsion products. All raw materials are imported and there is no local manufacturing capability at present."

"Programmes: As early as the 1970s, the government tried to involve itself to some degree in boosting national soybean output, despite the low priority it accorded to soybean in general. It was an involvement borne out of an urgent need to meet the growing requirements of the local feed milling and livestock industry, rather than of a need to address the high incidence of malnutrition among Filipinos. Accordingly, the government launched a number of programmes to improve soybean production, most of which failed to achieve their goals. At present, only the PCARRD-coordinated Soybean Pilot Production Programme continues to function. This programme was initiated in late 1983." Address: 1. Supervising Science Research Specialist, Philippine Council for Agriculture, Forestry, and Natural Resources Research and Development (PCARRD); 2. Dep. of Agriculture Bureau of Plant Industry, Los Baños National Crop Research and Development Centre. Both: The Philippines.

635. Gregorson, Jon. 1992. *The good earth*. Vancouver, Toronto, Canada: Whitecap Books. viii + 211 p. Index. 23 cm. [30 ref]

• **Summary:** The entry for "Chinese green bean (*Vigna sesquipedalis*) (p. 50-51) states: "Chinese green beans are excellent very lightly steamed and served with oil and chopped garlic. They are also very good in a black bean sauce with rice or millet." The entry for "Soybean (*Glycine max*) (p. 166-67) states: The "importance of soybean products for vegetarians can scarcely be overemphasized. Such products include tofu or bean curd, tempeh, soy "milk," soy flour, and the various soybean sauces and pastes..." Tofu is perhaps the most important soybean product. Address: Eugene, Oregon.

636. 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 green 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: Aduki / 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, dulce, gomashio, 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.

637. So, Yan-kit. 1992. *Classic food of China*. London: Macmillan. xii + 387 p. \*  
Address: England.

638. Tropp, Barbara; Schreil, Arminda Aspre. 1992. *China Moon cookbook*. New York, NY: Workman Publishing. x + 518 p. Illust. (by Sandra Bruce). Index. 24 cm.

• **Summary:** China Moon Cafe is a small restaurant that Barbara opened in 1986 in downtown San Francisco in a 1930s art deco coffee shop on Post St. Barbara says she is primarily a cooking teacher but she is also one of the best writers in the world of food, and a superb interpreter of real Chinese food and ingredients to Westerners. Each recipe is made from scratch, in the traditional way, and comes with interesting (often lengthy) headnotes or sidebars.

Barbara prefers not to peel gingerroot but all of her chefs and sous-chefs insist that it be peeled—so it is (p. 8-9).

Ingredients for infusion: "Chinese fermented black beans should be moist and pliable to the touch. They should taste good, with a nice range of flavor in the aftertaste. My favorite brand is Pearl River Bridge, in a round yellow box. Don't use beans that are hard and shriveled" (p. 14).

The index contains 17 entries for hoisin sauce, 7 for black bean(s) (Chinese fermented), 5 for black bean sauce, 4 for bean sauce (all soy-based), 1 for mushroom soy sauce, and none for tofu (although it is described on p. 508).

"Mushroom soy sauce—infused with dried black (shiitake) mushrooms is the flavorful star of the black soy sauce family" (p. 148).

Black beans: "Don't wash 'em! Black bean sauces are usually flat and murky affairs. A practice followed religiously by most all Chinese cooks is to wash off the salt and mash the beans." Barbara does neither (p. 245).

Bean pastes: "All in the family: Hot bean paste, sweet bean paste, and hoisin sauce are close culinary cousins. Soy bean- and wheat-based condiments all, they might easily have been one in ancient times. Regional distinctions and the march of modernity have given us three separate products with flavors that work beautifully in combination." Barbara likes Koon Chun hoisin sauce and Szechwan brand hot and sweet bean pastes. They are made in Taiwan and are widely available (p. 308).

The "Glossary of special ingredients" (p. 501-08) includes descriptions of: Bean pastes (hot bean paste, sweet bean paste). Black soy sauce (Concentrated, made with molasses; her favorite is Pearl River Bridge. The English label reads "Soy, Superior Sauce." "The Chinese name for black soy sauce is 'old head soy,' referring to the extra aging process that gives this soy its savor"). "Hoisin sauce: This brown, salty-sweet sauce has a fascinating history in China; it changes its name and style from region to region,

being wheat-based in some areas and soybean-based in others." She prefers Koon Chun brand. Salted black beans: They are fermented black soybeans. She prefers Pearl River Bridge brand packed in a cardboard box. Soy sauce: Her favorite brand is Pearl River Bridge; its label reads "Superior Soy." "Tofu: This protein-rich white substance made from soybeans delights the Chinese and baffles Westerners."

On the rear cover: "Barbara Tropp is the Julia Child of the Chinese Kitchen"—San Francisco Chronicle. Two color photos show Barbara Tropp, one on a motor scooter. And there is a brief biography Address: San Francisco.

639. Hachmeister, Kathleen A.; Fung, Daniel Yee-Chak. 1993. Tempeh: A mold-modified indigenous fermented food made from soybeans and/or cereal grains. *Critical Reviews in Microbiology* 19(3):137-88. [185 ref]

• **Summary:** An excellent review of the literature. Contents: Introduction. Mold-modified indigenous fermented foods: Miso, shoyu (soy sauce), hamanatto, sufu, fermented rice (sierra rice), tapé (lao-chao), ang-kak, ogi, tempeh, ontjom (oncom, lontjom), bongkrek (tempeh bongkrek), kenima. Processing developments in legume tempeh manufacture: Traditional tempeh fermentation, industrial production of tempeh, methods of preparation (cleaning, dehulling, hydration and acid fermentation, partial cooking, draining, cooling, and surface drying, inoculation, fermentation containers, incubation, harvesting, storage, and preservation, uses and preparation of tempeh). Organoleptic properties of tempeh. Microbiological aspects of legume tempeh: Microbial ecology, traditional and modern soaking methods, effect of soaking, acidification, and initial bean pH, effect of boiling prior to inoculation, effect of *Klebsiella* and *Enterobacter*, effect of lactic acid bacteria and yeasts, microbiological safety and quality, heating prior to consumption. Nutritional quality of legume tempeh. Chemical and biochemical changes in legume tempeh: Changes in protein and amino acids, changes in carbohydrates, changes in lipids, antioxidant potential, changes in minerals, changes in vitamins. Antinutritional factors associated with legumes: Flatulence-producing factors, protease inhibitors, tannins, phytic acid, hemagglutinins, other antinutritional factors. Cereal grain tempeh—practical applications: Background information, materials and methods, results and discussion, conclusions and future developments. Summary. References. Address: Dep. of Animal Sciences and Industry, Kansas State Univ., Manhattan, KS 66506.

640. Shi, Yanguo; Ren, Li. 1993. Dadou zhipin gongyi-xue [The technical arts of soybean products]. Beijing, China: Zhongguo Qinggong Yechu Banshe [Chinese Ministry of Light Industry]. xii + 484 p. Illust. No index. 18 cm. [34 ref. Chi]

• **Summary:** Wade-Giles reference: *Ta-tou chih p'in kung-i*

*hsüeh*, by Shi, Yen Kuo; Jên, Li. Contents: Preface. 1. Introduction to soyfoods: Terminology and classification, origin and development, future prospects. 2. Soybeans: Production, seed structure and components. 3. Chemical composition of soybeans: Soybean lipids, carbohydrates, minor components. 4. Soy proteins: Overview, molecular weight and classification, water solubility, denaturation, functionality, soy enzymes and antinutritional factors.

5. Soy oil extraction: Oil extraction from soybeans, solvent extraction principles and process outline, pre-extraction preparation, extraction process, other extraction technology, supercritical CO<sub>2</sub> extraction. 6. Chinese traditional soyfoods: Principles and ingredients, soybean soaking and cleaning, soymilk preparation for tofu processing, coagulation and molding, lactone tofu, yuba, meat alternatives. 7. Fermented tofu: Varieties (total 14 discussed), ingredients, microorganisms, mucor fermented tofu & process, top 8 products. 8. Fermented black soybeans and fermented soy paste (miso): Fermented black soybeans, fermented soy paste.

9. Soymilk (soy beverages): Production principle and outline, beany flavors and reduction, several commercial production lines, fermented soymilk, dry soymilk products. 10. Products from defatted meal: Defatted soy flour, soy protein concentrates (*dadou fenli danbai*), soy protein isolates (*dadou nongsuo danbai*), structured soy protein products, soy emulsifiers, applications of soy protein products. 11. Soy by-products utilization: Okara and its uses, soy whey and its uses. 12. Biological and chemical assay methodology: Assay for protein solubility, soy protein isolation, soy protein molecular weight measurement, gas chromatographic analysis of soy oligosaccharides, HPLC analysis of soy oligosaccharides, phytic acid assay, assay for hexanal Å the major beany flavor component, trypsin inhibitor assay, lectin assay, urease assay, lipoxigenase assay, soybean cell biology: thin sample preparation technology, soybean cell biology: ultra thin sample preparation technology.

Concerning fermented tofu (Chapter 7): Fermented tofu may be named after the region where it is made. Some famous products in China include: (1) Shaoxing furu. Famous for its rice wine, Shaoxing is a city in northeastern Zhejiang, a coastal province in central eastern China. (2) Guilin furu. Guilin is a city in the northeast of the Guangxi Zhuang Autonomous Region of far southern China. (3) Kedong furu. Kedong is a county in Heilongjiang province in northeastern China. (4) Jiajiang furu. Jiajiang is a county in Sichuan Province, southwest China. (5) Tangchang doufu-ru. Tangchang is a town in Sichuan province.

Note: Talk with KeShun Liu. 2001. July 9. Green vegetable soybeans (*maodou*) are not mentioned in this book. Address: China.

641. Bensky, Dan; Gamble, Andrew; Kaptchuk, Ted. comp.

and trans. 1993. Chinese herbal medicine—Materia medica. Revised ed. Seattle, Washington: Eastland Press. xxv + 556 p. Illustrations adapted by Lilian Lai Bensky. Index. 29 cm.

• **Summary:** The soybean is discussed and illustrated on p. 45-46. The illustration shows several clusters of fresh soybean leaves, with flowers and pods. The pharmaceutical name of the preparation is Semen Sojae Preparatum Chinese: *dan dou chi*. Japanese: *tantôshi*. Korean: *tamdugo*. English: Prepared soybean. Properties: sweet, slightly bitter, cold or warm (depending on preparation). Channels entered: Lung, Stomach. Text in which first appeared: *Treasury of Words on the Materia Medica*.

Note: Ted Kaptchuk was born in 1947 and Andrew Gamble in 1946.

642. Escano, Crisanto R.; Gaddi, Virgilio Q. 1993. Country report 11—Philippines. In: N. Chomchalow & P. Narong, eds. 1993. Soybean in Asia: Proceedings of the Planning Workshop for the Establishment of the Asian Component of a Global Network on Tropical and Subtropical Soybeans. Bangkok, Thailand: FAO Regional Office for Asia and the Pacific. viii + 218 p. See p. 92-108. RAPA Publication (FAO), No. 1993/6. [12 ref]

• **Summary:** Contents: (1) Introduction. (2) Production: Status, major growing seasons and cropping systems, constraints, resolving constraints. (3) Processing, utilization and marketing: Status, supply and demand, exportation of soybean products, constraints, resolving constraints.

Figures: (1) Trend in soybean production, Philippines, 1980-90. (2) Soybean area harvested, Philippines, 1980-90. (3) Trend in the soybean yield, Philippines, 1980-90. (4) Regional shares of total production, Philippines, 1990. (5) Soybean and soybean product shares in importation, Philippines, 1990. (6) Country of origin, soybean meal import, Philippines, 1990. (7) Country of destination, soysauce export, Philippines, 1990.

Tables: (1) List of soybean-based food products popularly used in the Philippines. (2) Volume and value of soybean imports, 1980-90.

Soybean production increased from about 9,800 tonnes (metric tons) in 1980 to a peak of 11,466 tonnes in 1982, then decreased to 5,614 tonnes in 1990. Area planted to soybeans increased from about 10,000 ha in 1980 to a peak of about 11,000 ha in 1982, then decreased to about 7,000 ha in 1990. The average yield for the period 1980-1990 was 920 kg/ha, but has generally been falling since 1983. Southern Mindanao has been the single most important soybean producing region in the Philippines for more than a decade, accounting for about 67% of total Philippine soybean production in 1990; Central Mindanao comes next with about 23%.

A brief history of soybean production in the Philippines from 1983 to 1990 appears on pages 99-10. Popular soyfoods products in the Philippines include: A. Fermented

products: Soy sauce (toyo), fermented soybean curd (tausi [sic, fermented black soybeans]), tempeh (tempe), soybean paste (miso), soft fermented soybean curd (tahuri). B. Non-fermented products: Soybean sprouts (toge, taugé), soybean cheese [curds] (tokwa), Geerlings cheese (taho [tofu]), soybean milk (soymilk), and roasted soybean powder (soy coffee).

Philippine imports of soybeans and soybean products have increased rapidly since 1980, yet 93% of these imports in 1990 were soybean meal, of which 38% comes from India, 33% comes from the USA, 22% from China, and 7% from others.

In April 1991 the General Milling Corporation's soybean solvent extraction plant began operation in Tabango, Batangas. It is expected to reduce the country's imports of soybean meal but increase the imports of raw soybeans. Address: 1. Scientist III; 2. Subject Matter Specialist. All: PCARRD, Los Baños, Laguna, Philippines.

643. So, Yan-kit. 1993. Yan-kit's classic Chinese cookbook. London: Dorling Lindersley 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.

644. Miyako Oriental Foods, Inc. 1994. Cold Mountain Miso: Ethnic versatile seasonings (Portfolio). Baldwin Park, California. Six inserts. 31 cm.

• **Summary:** The portfolio jacket was printed in about 1993 or 1994. The six inserts (all leaflets), printed over a period of ten years, include: (1) “Miso: Made from organic soy bean” (March 1995; two sides, color photo of four products on front, recipes on the back). (2) “Cold Mountain Miso: A traditional taste of Asia to the modern world” (March 1997; two sides, color photo of four products on front). (3) “Miso: Made from organic soybeans” (1983; two sides, printed brown on light beige). Gives specifications for three types of miso. (4) “Miso: Made from organic soybeans” (1983; two sides, printed brown on tan). Gives specifications for Cold Mountain dehydrated miso. (5) “Fermented black bean paste: Versatile seasoning” (1995; two sides, printed brown on light blue). Gives specifications for Cold Mountain fermented black bean paste. Ingredients: Black soybean, rice, salt, water, *Aspergillus oryzae*. (6) “Dehydrated fermented black bean paste: Versatile seasoning” (1996; two sides, printed brown on light gray). Gives specifications for Cold Mountain dehydrated fermented black bean paste. Address: 4287 Puente Ave., Baldwin Park, California 91706. Phone: 818-962-9633.

645. Pan, Lynn. 1994. Sons of the Yellow Emperor: A history of the Chinese diaspora. New York: Kodansha International. xx + 418 p. Illust. (16 pages of plates). Index. 22 cm. [174\* ref]

• **Summary:** On page xiv is a very interesting map of southern China, with a blowup of southern Kwangtung [Guangdong] province, the area around Canton the Pearl River, the South China Sea, Macao, and Hong Kong. For this area was at the heart of the Chinese diaspora—especially in the 19th and 20th centuries and especially from two small areas southeast of Canton: (1) Sam Yap (Three Districts) of Punity, Shuntak, and Namhoi—the more affluent counties. (2) Sze Yap (Four Districts) of Hoiping, Sunwui, Toishan, and Yanping—the poorer and ruder area southwest of Sam Yap. Although the people from both areas speak Cantonese, they have difficulty understanding each other’s speech. Other important languages of the diaspora were Hakka and its numerous variants (spoken in Guangdong, Fujian, etc.) and Hokkien (spoken in southern Fujian, Taiwan, and by many overseas Chinese throughout Southeast Asia). It is closely related to Teochew / Teochiu, though mutual comprehension is difficult,

In Part Four: 1960s to 1980s, Chapter 16, titled “Food”

contains a history (p. 320-23) of Amoy Food Limited, now an international firm, with its headquarters in Hong Kong, owned largely by overseas Chinese. For many overseas Chinese, “perhaps no label has quite the resonance of Amoy.” In 1908, T’ao-hua Ta-t’ung, the predecessor of the company, was founded in Xiamen for producing bottled soy sauce and dairy milk. Its founder was Yang Ko-fei, who soon brought in other shareholders. In 1911 clashes between the founder and other shareholders lead to a break-up of the company, with one party going it alone as T’ai-hua (Tao Fia), and the other as Ta-T’ung. Yang Ko-fei went with the latter company, whose chief shareholder was Tan Kah Kee, the rubber and pineapple magnate.

It became increasingly apparent, however, that the two companies would do much better if they operated as a single unit. So in 1928, when a new rival appeared, they merged, with the smaller of the two now located in Hong Kong. Thereafter the company experienced steady growth. Eventually the branch in Hong Kong came to eclipse the parent company in Amoy. In 1937, when the Japanese invaded China and war broke out, almost the entire canning plant was moved to Hong Kong from Amoy. In 1951, when the company went public, the ownership passed mainly into the hands of overseas Chinese.

Today Amoy Foods’ products are on the shelves of supermarkets and Asian markets in 37 countries. Half of Amoy Foods’ shares are owned by the American food giant Pillsbury (owner of Haagen-Dazs and the Burger King hamburger chain) and the other half by Hang Lung (a Hong Kong real estate company). Amoy’s line of 34 sauces include dark soy sauce (lau-ch’ou), light soy sauce (*sheng-ch’ou*), black bean sauce [made of fermented black soybeans], sweet and sour sauce, etc.

On the roof of the Amoy factory’s main building a visitor can see a demonstration of the old-fashioned process; “here, an old man with sleeves rolled up goes from earthen vat to earthen vat at plunging his arm into the thick brew of black and yellow soy beans to give it a gentle, almost loving stir. He works rhythmically, with deep concentration. A Soy Master with thirty or forty years behind him, he stands in a line which goes back to the fifth century, from when dates the earliest surviving soy sauce recipe.”

Companies like Amoy have helped to make Chinese foods more widely available in the West. Not so long ago, Chinese cookbooks published in England said that Worcestershire sauce was an acceptable substitute for soy sauce, because the latter was available only at delicatessens and specialty shops [Asian grocery stores] in London. Even during the last five years, the range of Chinese foods available in London’s Chinatown has grown remarkably. In Chinatowns in the United States [and especially those in San Francisco {California} and New York] the selection of Chinese foods has long [perhaps always] been greater than at those in London or other places in Europe.

Page 324: The first person to make tofu in Europe was Li Shih-tseng [Li Yü-ying, Li Shizeng], a Chinese intellectual and educator. As a young student of biochemistry in France in 1900, Li was to be greatly influenced by the writings of Nietzsche and Bergson. A Francophile, Li was one of the founders of the Work and Study Program, which sent Chinese students abroad for part-time work and part-time study. One of these students, who would later become famous, was Deng Xiaoping. While establishing his tofu [beancurd] factory in France, Li drew on his knowledge of biochemistry; the factory provided jobs for many students in the Work-Study Program.

Li, a vegetarian, was a firm believer in the nutritional value of tofu and other soybean foods. His factory also made and sold soybean flour, fermented tofu, soy-bean milk, and soy-bean jam, and these foods nourished not just Chinese, but also Westerners, including American soldiers who fought in France during World War I (Lin Hai-yin 1971, p. 125). “All this was before the faddish demand for tofu by health food enthusiasts, and before it became widely known as an unbeatable source of protein. The company closed after the war, but among certain Chinese *émigrés* [emigrants from China] France was never to lose its reputation for beancurd. In Europe up to the 1980s *tofu kan*, a particular variety of fermented beancurd [sic, pressed tofu] much demanded by eastern Chinese palates, could only be had in Paris, and the handful of *émigrés* in London had to send over for it.”

Li was also a founder of the Université Franco-Chinoise at Lyons, a sort of accommodation and placement agency.

About the author (facing p. 418). Lynn Pan was born in Shanghai; she left as a child. She “has lived as an immigrant in North Borneo and England, and worked as a social scientist, journalist and writer in London, Geneva, Helsinki, and Hong Kong.” In 1981 she returned to Shanghai for the first time, and was gripped by deep, haunting sensations of nostalgia. She had found the place where she belonged, her inheritance, and she began to write this book. She is the author of at least five other books—all listed facing the title page. Her Epilogue and Afterword at the end of this book are both very interesting.

646. *New York Times*. 1995. Good eating: Northern lights, south of the park. Feb. 5. p. CY16.

• **Summary:** This is a brief restaurant review of China Grill (60 West 53rd St., New York City). “Among starters are steamed mussels with a ginger black bean sauce;...”

“Main courses include grilled aged Sichuan beef tossed with sake, shallots, soy [sauce] and cilantro.” Reviewed 19 Nov. 1993.

Note: This is the earliest (and only) document seen (Nov. 2011) that uses the term “ginger black bean sauce” to refer to a sauce made from salted fermented soybeans (fermented black soybeans) and ginger.

647. **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.”

648. **Product Name:** Cold Mountain Fermented Black Bean Paste [Regular, or Dehydrated].  
**Manufacturer's Name:** Miyako Oriental Foods, Inc.  
**Manufacturer's Address:** 4287 Puente Ave., Baldwin Park, CA 91706.  
**Date of Introduction:** 1995. April.  
**Ingredients:** Black soybeans, rice, salt, water, *Aspergillus oryzae*.  
**New Product–Documentation:** Portfolio sent by Terry Shimizu of Miyako Oriental Foods. 1999. Nov. 22. Talk with Terry Shimizu. 1999. Nov. 29. The regular product was introduced in April 1995, and the freeze-dried form in June 1996.

649. *New York Times*. 1995. Make it ‘Borough of restaurants’: In Queens, culinary homes for all. May 28. p. C12.  
**• Summary:** Contains summaries of previous reviews of the Golden Monkey and the Taipei Wall Sea Street Taiwanese Restaurant, described in detail by Ruth Reichl in the Feb. 24 issue of this newspaper (p. C24). Mentions “fermented bean curd.”

In addition, there is a summary review of Penang Cuisine Malaysia which includes “Penang rojak, a refreshing peppery salad of cucumber, jicama, pineapple, zucchini and tofu enhanced by a pungent fermented shrimp paste, and tofu stuffed with ground fish and served in a spicy coconut milk and bitter melon sauce.” Also: “Whole fried pompano in black bean sauce.”

650. 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.

651. Huang, Hsing-Tsung. 1995. Early history of soybeans and soyfoods in China (Interview). *SoyaScan Notes*. Dec. 28. Conducted by William Shurtleff of Soyfoods Center.

**• Summary:** The early *jiang* in China was made from meat or fish. The *jiang* used by Confucius was almost surely made from meat and fish. Many of the ancient books were annotated during the Han dynasty in an attempt to explain the meaning of certain words and passages. A very eminent scholar in the late Han dynasty (about 100 A.D.), talking about events in roughly 500 B.C., said that the *jiang* used by Confucius was made from meat and fish.

The soybean was not an important crop in China until the early Han, say 200 to 300 B.C. The soybean is mentioned in the *Book of Odes*, which is the most ancient and most reliable of Chinese books, not as a crop but as a plant that people gathered from the wild. Then is are a series of books that were traditions of the Chou dynasty; these were codified and gathered by about 300 B.C., but in them there are not many references to the soybean. However by the time of the Western (Former) Han (206 B.C. to 8 A.D.) there were references in the literature to cartloads and big urns of *jiang* [Chinese-style miso]; *shi* (fermented fermented black soybeans) was also mentioned many times in the literature. Both these foods had become commodities.

Soy is also found in the Han Tomb No. 1 at Ma-wang-tui (pronounced “ma-wang-DUI”), a big archaeological find in China. A woman ruler was buried here in about 165 B.C. with all the 5-6 major grains, including wheat, barley, rice, 2 kinds of millet, soybean (*shu*), and hemp. Also found in the tomb were several seasonings including “soy sauce (*jiang*), *shi* (‘salted darkened beans’), and leaven (*qu*).”

The earliest reference to pasteurization in China concerns pasteurization of wine, around the 11th century, long before the Japanese were pasteurizing shoyu before

shipping it to Holland. He is not aware of any early reference to the Chinese pasteurizing soy sauce, but he will look again. However soy sauce is so highly salted that it does not require pasteurization, whereas wine does. The wine was filled into to earthenware jars with a small mouth, which was covered with cloth or leaves, then sealed with mud.

Dr. Huang will travel to China next month (to Foochow, capital of Fujian province) and he hopes to see some of the existing traditional fermentation processes. Soymilk was not an important traditional food in China, but it was becoming important when he traveled there in the 1940s with Dr. Joseph Needham. When they visited northern China, early in the morning people would have a huge iron wok of hot soymilk, which they sold for breakfast. Joseph liked the soymilk with bits of *youtiao* (deep-fried bread sticks; W.-G. *yu t'iao*).

One of the chapters in Dr. Huang's book deals with nutrition in China. The Chinese diet is said to be lacking in calcium. It is well known that for calcium to be absorbed, you need lactose, and the ability to tolerate lactose. Thus, it would be surprising to find higher bioavailability of the calcium in soymilk or tofu. Before the time of Confucius (551-479 B.C.) the Chinese ate a lot more animal products than they do now, but the agricultural system developed with the emphasis on grains, less emphasis on animal products, and no emphasis on milk—probably because of the lactose intolerance of the Chinese people. Thus, the Chinese never developed a dairy industry. Mongols are not as lactose tolerant as northern Europeans, but they are heavily dependant on animal milks as a source of food. They get around this problem by converting animal milk into yogurt. This fermentation converts the lactose to lactic acid, which both solves the lactose intolerance problem and extends the life of the product by lowering the pH.

Another interesting problem: Europeans are the only ones who make true cheese, using rennet. The Mongolians and all the pastoral people in Asia rely on various animal milks, including horse's milk to make koumiss, and they even make a type of cheese that is sort of like cottage cheese, coagulated by acid. Dr. Huang thinks the discovery of rennet is one of those major, accidental discoveries that is very rare. If you wash an animal stomach carefully before using it to store milk, that will wash all the rennet away. Another such major discovery is the Chinese discovery of *chu* or koji. Address: 309 Yoakum Parkway #403, Alexandria, Virginia 22304.

652. 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).

653. 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.

• **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.

654. Zibart, Eve. 1996. *The very fertile vegan field*. *Washington Post*. Jan. 26. p. N24. Weekend section.

• **Summary:** The article begins: "It's not unusual anymore for non-vegetarians to eat at such green hot spots as the Health Zone, Food for Thought or Planet X (which is turning into the caterer-of-choice for veggie and vegan alternative rock types). Likewise, it's easier and easier for vegetarians to find foods they like at new nutrition-conscious restaurants such as Felix, Greenwood, etc.—as well as at mainstream spots.

Today, more and more restaurants are offering vegan dishes, which contain no animal products whatsoever. A vegan diet precludes not only meat, poultry and seafood, but dairy products, eggs, butter, lard and other animal fats, cream sauces, cheese, etc. Yet that still leaves plenty of room for fine dining.

Most Asian cuisines (except Korean and Filipino) limit the use of dairy products and eggs. Malik, a downtown Thai restaurant, has a dozen vegetarian / vegan entrees, "including several featuring that heart-healthy favorite tofu" in various sauces such as red curry, black bean sauce, and peanut curry.

The Vegetable Garden in Rockville is the only wholly vegan Chinese restaurant in the area, although most Chinese eating places have a good variety of choices. The key words are "mock" and "Buddha." Mock chicken and mock pork are nicknames for tofu and other soy-based meat alternatives. The word "pork" sometimes refers to seasoned tempeh dishes. Since Buddhists are also vegans, correctly labeled "Buddhist delights" contain no animal products.



Most Japanese restaurants offer hot or cold tofu and “lightly salted soybean pods called edamame.”

Ends with a directory of ten restaurants in the Washington, DC, area that offer a good selection of vegetarian or vegan dishes.

655. Manfredi, Steve. 1996. Soybean made simple. *Financial Review (Sydney, Australia)*. Feb. 2. p. 11. Weekend.

• **Summary:** The writer, Tami Ohnui (a specialist soybean grower) and Kei Fukui (an excellent Japanese cook) explain very briefly how to make fermented black bean sauce, soy sauce, fermented black beans (*shi*), tofu, fermented tofu, and edamamé.

656. 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, dulce (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.

657. Hastings, Carl. 1996. Soybean products in human foods. Paper presented at Regional Workshop on Soybean Processing and Utilization for Central America and the Caribbean. 4 p. Held Sept. 15-18 in Jamaica.

• **Summary:** Contents: Introduction. Soy sprouts. Whole soybeans: Cooked green beans, cooked soybeans, roasted or deep fat cooked soybeans (soy nuts—salted, flavored, etc., candy coated, salad topping, bakery ingredient or topping, soynut butter, soy coffee) fermented soybeans (tempeh—*Rhizopus*, natto—*Bacillus*, hamanatto—*Aspergillus*). Cereal blends: CSM (Corn-Soy-Milk), WSB (Wheat-Soy-Blend), other (bulgur, oat, sorghum grits).

Refined soy oil: Solvent extracted, physically extracted, uses, lecithin. Soy protein: Soy flour (full fat, defatted),

concentrates, isolates, textured, uses. Hulls. Soy fiber. Soy milk: Liquid, powder, uses (plain, flavored, fortified, blends, instant formula, nutritional beverages, tofu, soy cheese, frozen desserts, yogurt, soymilk film (yuba)). Soy sauce. Soy paste (miso). Soy pulp (okara). Address: Reliv, Inc., Chesterfield, Missouri.

658. Ito, H.; Tong, J.; Li, Y.; Li, Y. 1996. [Chinese douchi. I. From itohiki-natto to particle miso]. *Miso no Kagaku to Gijutsu (Miso Science and Technology)* 44:216-21. [Jap]\*

• **Summary:** Tamang (2010, p. 264) gives title in English as: “Chinese dauchi, from itohiki natto to nonmashed miso.” And he gives the pages as 224-50.

659. Li, Y.; Chun, M.; Zhou, W.; Gang, S.; Ito, H. 1996. [Chinese douche. II. From itohiki-natto to particle miso]. *Miso no Kagaku to Gijutsu (Miso Science and Technology)* 44:244-50. [Jap]\*

660. Mai, Pham. 1996. The best of Vietnamese and Thai cooking: Favorite recipes from the Lemon Grass Restaurant and Cafes. Rocklin, California: Prima Publishing. xii + 274 p. Illust. (Some color photos). Index. 24 cm.

• **Summary:** The author’s family name is “Mai” and her given name is “Pham.” She prefers to write and say her name, Asian style (and as in American phone books), with her family name first.

The book is dedicated with a free-verse poem to her father, Xuan Pham, and her mother Thom Vo. Born in Vietnam and raised for ten years in Bangkok, Thailand (where her father was the Vietnamese military attaché to Thailand) Mai Pham (like her sister Denise, and her two brothers) was brought up with food as the center of her family and universe. She came to the U.S. with her family in 1975. “One minute we were in the comfort of our home in Saigon, and the next we were fleeing our country with just the clothes on our backs. After graduating from the University of Maryland with a degree in Journalism in three years, she pursued a career in broadcast journalism. At age 16 she hosted a radio show for American GIs. At age 18 she managed to talk ABC News into giving her her first break as a television reporter. In 1983 she “landed a reporting job as the first Vietnamese-born television journalist in the United States.” Just a few years earlier she had been living in a refugee’s quagmire. After several years of reporting, she went to work in public relations and then as a speech writer for the governor of California.

When she met her husband-to-be, Trong, her life again changed dramatically. He was a scientist turned entrepreneur who had founded the successful La Bou bakery / cafe chain in Sacramento, California. Trong convinced her to open a restaurant with him. “He talked about the incredible excitement and satisfaction of taking a simple idea and turning it into a successful business. Inspired by his success

and encouraged by his infectious enthusiasm, she decided to go for it. So in 1998, with practically no experience in the food industry, a do-or-die kind of commitment, and a strong belief in their unique concept, the two young people opened the Lemon Grass Restaurant. Mai Pham had found a way to express her passion for cooking. Vowing to share with Sacramento the best of Vietnams and Tahi Foods, she worked day and night to adapt to a restaurant setting the recipes handed down from her mother and grandmother (p. x-xiii).

Today, in addition to being chef and owner of the award-winning Lemon Grass Restaurants and Lemon Grass Cafes in Sacramento, California, Mai teaches Southeast Asian cooking. She is married to Trong Nguyen, founder of the Northern California-based La Bou Bakery / Cafe chain and “the biggest cheerleader behind this and almost every major project I have encountered.”

As she got deep into her research and reflected on her own experiences, she “became convinced that Vietnamese- and Thai-style cooking could be a healthful alternative to a modern Western diet. The typical Asian diet consists mainly of carbohydrates, vegetables, fish, and very little red meat. To stay full, we eat large portions of inexpensive foods such as rice and noodles and lots of greens, many of which grow in the wild. Meat is served only in garnish-size portions.

Often they enjoyed a typical meal-in-one dish. Vietnamese cooking is influenced by Chinese, Indian, French, and Thai cookery, but is more delicate in its execution. For example, a Vietnamese stir-fry is less greasy than its Chinese counterpart. Instead of salt or soy sauce, Vietnamese cooks season almost every dish with *nuoc mam*, or fish sauce [its Thai counterpart is *nam pla*] (p. 4-5). Almost all meals are planned around rice.

Basic ingredients related to soy: (1) Bean sauce: Made of fermented soy beans, water, and salt, it comes in a chunky form with whole soybeans or as a purée. The author prefers the chunky variety sold in jars by Koon Chun. (2) Hoisin sauce: Made from soybean purée, sugar and caramel sauce. Never serve it strait. Try Koon Chun. (3) Soy sauce: Each brand is different and she uses them all. Kikkoman all-purpose Japanese. Golden Mountain light Thai-style. Sweet soy sauce made from dark soy and caramel, to give a rich, dark color. Chinese-style dark soy sauce containing molasses. Flavored soy sauces such a mushroom or onion, sold in small glass bottles. “Make sure the mouth of the bottle is wiped clean after each use.”

Sauce recipes include: Hoisin-peanut sauce (p. 35). Cilantro-lime soy sauce (p. 36).

Chapter 7, titled “Those four days: vegetables” (p. 155-77) begins: “Walk into the Lemongrass kitchen and if it happens to be the 1st 14th, 15th, or 30th day of the lunar month, chances are you will find many of our staff eating vegetarian. By abstaining from meat on those sacred days, they are reaffirming their belief in the teachings of Buddha and rededicating their commitment to a life free of

indulgence, greed, and conflict.” As a child Mai Pham looked forward to those four days because if her grandmother, a devout Buddhist, happened to be visiting, her mother would prepare a sumptuous vegetarian meal for all to enjoy together. One favorite was vegetarian spring rolls, which were no less tasty than their meat counterpart. The family’s favorite sweet and sour soup, usually served with shrimp or fresh catfish, was prepared with fresh pineapple, tofu, cabbage, bean sprouts, and chopped saw-leaf herb. Actually, Mai Pham has always preferred the vegetarian version.

When Lemon Grass Restaurant first opened there was only one vegetarian dish on the menu. Now the menu features an entire vegetarian section, with entrees, salad rolls, spring rolls, etc. “To enhance flavor and texture, sometimes a simple ingredient such as tofu is first fried then simmered before being added to the finished dish. Because of the skill required for this specialized cooking, temples—where the monks and nuns eat a strict meatless diet year-round—are known to have the best vegetarian food.” In Vietnam, vegetarianism is observed for religious rather than for health or other reasons.

Recipes: Vegetarian fisherman’s soup (with “¼ pound extra firm tofu, cubed (fried or plain)”). Vegetarian spring rolls (with “½ pound extra firm tofu, drained and mashed with the back of a fork”). Su Co’s delight (with “¼ pound extra firm tofu, drained and cut into 1-inch cubes”). Water spinach and cabbage in garlic-bean sauce (with 1½ tablespoons bean sauce”).

Flat noodles with chicken and Chinese broccoli (with 1 tablespoon fermented whole yellow soybeans, p. 180-81. Called *rad na*, this dish “gets its distinctive flavor from the fermented yellow beans. In Bangkok, you can find this dish on practically every street corner and even in hotels”). Steamed striped bass with black beans, ginger, and green onions (with “1 tablespoon drained Chinese-style fermented whole black [soy] beans, chopped,” p. 219). Address: Chef and owner, Lemon Grass Restaurant and Cafe, Sacramento, California.

661. Steinkraus, Keith H. ed. 1996. Handbook of indigenous fermented foods. 2nd ed., revised and expanded. New York, Basel, and Hong Kong: Marcel Dekker, Inc. xii + 776 p. Illust. Index. 26 cm. Food Science and Technology Series, Vol. 73. Index. 26 cm. [350 + soy ref]

• **Summary:** This 2nd edition is about 108 pages longer than the original 1983 edition. Contents: Introduction to indigenous fermented foods. (1) Indonesian tempe and related fermentations: Protein-rich vegetarian meat substitutes. (2) Indigenous fermented foods involving an acid fermentation: Preserving and enhancing organoleptic and nutritional qualities of fresh foods. (3) Indigenous fermented foods involving an alkaline fermentation. (4) Indigenous fermented foods in which ethanol is a major product: Type and nutritional significance of primitive wines

and beers and related alcoholic foods (incl. Chinese koji (big *qu* {bricklike in shape and made from barley or wheat and soybeans, inoculated with *Aspergillus*} molds), and small *qu* ({spherical, plate-circular or rectangular in shape and made from rice or rice bran with various herbs, inoculated with *Mucor* and/or *Rhizopus* molds}), p. 449), Japanese amazake (p. 480-81).

(5) Indigenous amino acid / peptide sauces and pastes with meatlike flavors (p. 509-654): Introduction.

(A) Soy sauces: Japanese shoyu: Koikuchi, usukuchi, and tamari; Chinese chiang-yu, by Tamotsu Yokotsuka (p. 511-17). Biochemistry of *Saccharomyces* (*Zygosaccharomyces*) *rouxii*, by Steinkraus, Franta, and Ayres (p. 517-24). Umami flavor, by Kawamura and Kare (p. 524-28). Chinese fermented product related to soy sauce (big *qu*, small *qu*, and jiang, by Chen & Ho, p. 528). Taiwanese soy sauce, by Liu (p. 528-33). Malaysian soy sauce: Kicap, by Ong, Mercian, Poesponegoro and Tanuwidja (p. 531-39). Indonesian soy sauce: Kecap, by Saono, Poesponegoro and Tanuwidja (p. 539-43). Korean soy sauce, by Chang (incl. homemade kanjang and meju, p. 543-44). Taiwanese black bean sauce: Inyu, by Jan et al. (p. 544). Philippine taosi, by Steinkraus (p. 544-45).

(B) Fermented soybean pastes: Japanese miso, by Ebine, Shurtleff and Aoyagi (p. 545-56). Indonesian tauco, by Saono et al. and Winarno (p. 556-59). Korean Doenjang and kochujang, by Chang, Shurtleff and Aoyagi (p. 559-64).

(C) Fermented fish-shrimp sauces and pastes (p. 565-606).

(D) Fish-soy sauce and fish-soy paste, by Ismail, p. 607-11).

(E) Miscellaneous Oriental fermentations. Japanese natto (itohiki natto), by Hayashi and Ota (p. 611-24). Japanese Hama-natto (hamanatto) and related products (incl. yukiwari natto, p. 624-26). Chinese red rice: Anka (Angkah), by Lin, Su and Wang, Sooksan and Gongsakdi, and Pichyangkura (p. 626-33). Chinese sufu, by Su and L.-P. Lin (p. 633-41). Preserved duck eggs / Century eggs, Chinese pidan (p. 641-42). Pidan are made by a chemical process, not by fermentation. Note: Chapter 5 contains about 240 references. Much of the text in this chapter is similar to that in the original 1983 edition, although this chapter is 7 pages longer and contains 3-4 new sections.

(6) Mushrooms: Producing single-cell (microbial) protein on lignocellulosic or other food and agricultural wastes.

(7) General papers related to indigenous fermented foods. Address: Inst. of Food Science, Cornell Univ., Geneva, New York.

662. 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.

663. Hunter, Jean B. 1997. Research on foods for lunar and planetary stations (Interview). *SoyaScan Notes*. May 6. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** In late 1996 Jean received a \$500,000 grant from NASA (North American Space Administration) to study foods for lunar and planetary stations. They are going to hire a dietitian; they already have a chef and a link with an institutional food manager. They are going to develop vegan and near-vegan recipes, food processing equipment, and menus suitable for use in the future of space exploration in bioregenerative life-support systems.

The basic assumptions are that crews rotate in and out every 6 months—as on the Russian space station *Mir*; 85 to 90% of the food must be produced in outer space, but 10-15% may be supplied by re-supply operations. These latter foods include fats and oils (incl. as butter), sweeteners, hard cheeses, egg whites, etc. Anchovies and bacon bits will be used as condiments. There will be no live food animals (such as chickens or fish) on board. She will continue her research on fermented food. Foods in which both she and Soyfoods Center are interested include Amazake (sweetener), tempeh—made from whole soybeans or okara (meatlike texture), dawadawa/natto (meaty flavor), soy yogurt (sogurt; dairylike) and other soy dairy replacers, and fermented black soybeans (salt-cured black beans). She is also studying tofu.

Jean has recently become a vegetarian (but not a vegan).

This type of research traces its roots back to the 1960s when food uses of algae were studied. Address: Cornell Univ., Dep. of Agricultural & Biological Engrg., Room 218 Riley Robb Hall, Ithaca, New York 14853. Phone: 607-255-2297.

664. Liu, KeShun. 1997. Fermented Oriental soyfoods. In: KeShun Liu. 1997. Soybeans: Chemistry, Technology, and Utilization. Florence, Kentucky: Chapman & Hall. xxvi + 532 p. See p. 218-96. Chap. 5. Index. [127 ref]

• **Summary:** Contents: Introduction. Fermented soy paste (*jiang* and miso): Varieties of miso and *jiang*, koji and microorganisms involved, koji starter and its preparation, Chinese *jiang* preparation (traditional household method, pure culture method, enzymatic method), Japanese miso preparation (rice koji preparation, treatment of soybeans, mixing and mashing, fermentation, pasteurization and packaging), principles of *jiang* and miso preparation, major factors in *jiang* and miso making (raw materials, cooking temperature and time, conditions during koji preparation, proportions of ingredients, fermentation conditions, novel processing for special products). Soy sauce (*jiangyou* or shoyu): Varieties of soy sauce, soy sauce processing (traditional Chinese household method, modern Chinese method, processing of Japanese shoyu, comparison of soy sauce and *jiang* or miso preparations), principles of making soy sauce (action of koji enzymes, fermentation by lactic bacteria and yeasts, color and flavor formation, glutaminase and glutamic acid), chemical soy sauce, progress in soy sauce preparation (use of defatted soy grits or flakes, improvements in treating soybeans, development of an automatic koji-making system, application of microorganisms with specific activities, techniques to shorten production time, improvements in soy sauce clarification), chemical composition, quality attributes and standardization, mycotoxins. Tempeh: Varieties of tempeh, preparation (traditional method, pilot plant method, petri dish method), microorganisms involved, factors affecting tempeh fermentation (starter, dehulling and aeration, moisture, temperatures, acidity, losses of solids), changes during fermentation (general changes, protein, lipid, carbohydrates and other constituents), production of vitamins, storage, nutritional value. Natto: Preparation, microorganisms involved, factors affecting natto quality (raw material, soybean cooking conditions, storage), changes during fermentation, trends in research on natto and *B. natto* (development of novel strains of *B. subtilis*, purification and characterization of key enzymes, studies into genes encoding key enzymes of *B. subtilis*, studies of possible physiological roles of natto). Fermented black soybeans (douchi or hamanatto). Sufu: Preparation, types of sufu, microorganisms involved, effect of mold growth, effect of brine aging.

Figures show: (1) Photo of Chinese *chiang*, and

Japanese red and white miso, each on one of three spoons in a shallow white bowl. (2) Flow chart of a Chinese method for making koji starter from whole soybeans and wheat bran. Adapted from Shi and Ren (1993). (3) Flow chart of a pure-culture method for making Chinese *jiang* from whole soybeans (65%) and wheat flour (35%). Adapted from Shi and Ren (1993). (4) Flow chart of an enzymatic method for making Chinese *jiang* from whole soybeans (65%) and wheat flour (35%). Adapted from Shi and Ren (1993). (5) Flow chart of the manufacturing process for Japanese rice miso [red miso]. Adapted from Fukushima (1981). (6) Diagram of the interactions of basic miso components during miso fermentation. From Shurtleff and Aoyagi (1983) who adapted it from Shibasaki and Hesseltine (1962). (7) Graph of trichloroacetic acid (TCA)-soluble nitrogen (N) contents of miso samples prepared with soybeans cooked at different temperatures for 10 minutes, followed by 0 days or 25 days of fermentation. Adapted from Nikkuni et al. (1988). (8) Graph of temperature and time control curves for different types of Japanese miso during fermentation. Adapted from Shurtleff and Aoyagi (1983). (9) Photo of soy sauce in three different containers: dispenser, small Yamasa bottle, and large Chinese can (Soy, Superior Sauce). (10) Flow chart of a typical manufacturing process for *koikuchi* shoyu, the most widely used type of Japanese soy sauce. Adapted from Fukushima (1981). (11) Graph (salt content % vs. temperature) Of safety zone for enzymatic digestion of shoyu koji. Protein digestibility and amino acid content in Zone A are better than those in Zone B. From Yokotsuka (1986). (12) Graph of lactic acid fermentation of shoyu mash as a function of time. Adapted from Jose et al. (1976). (13) Flow chart of role of the proteolytic enzymes of koji mold in liberation of amino acids from proteins. Adapted from Fukushima (1985). (14) Chromatogram of organic acids in fermented and chemical [HVP] soy sauce manufactured in the United States. Optical densities vs. retention time. From Fukushima (1979a). (15) Flow chart of traditional Indonesian method for making tempeh from whole soybeans. Adapted from Winarno (1989). (16) Four superimposed graphs of change in pH and organic acids as a function of incubation time during accelerated acidification of soybeans at 30°C. Shows acetic acid, lactic acid, citric acid, and pH. Adapted from de Reu et al (1995a). (17) Graph of water soluble nitrogen content in the fermentation of soybeans with *Rhizopus oligosporus* during the traditional tempeh process at 25, 30, and 37°C, and with the rotating drum reactor at 36°C. (18) Photo of two chopsticks lifting some Japanese natto from a bowl full of natto; the thin strings connecting the natto above and below are clearly visible. (19) Flow chart of typical method for making Japanese natto from whole soybeans. (20) Photo of Chinese fermented black soybeans (*douchi*) on a white plate. (21) Flow chart of typical method for making Chinese fermented black soybeans from whole soybeans. (22) Photo of cubes of sufu (Chinese cheese) in

a shallow white bowl. (23) Flow chart for making Chinese sufu from firm tofu.

Tables: (1) Proximate composition of some traditional soyfoods (both fermented and nonfermented). (2) Classification of major types of Japanese miso and their chemical composition. Adapted from Fukushima (1979a). (3) Types of soy sauce recognized by the Japanese government and their chemical composition. (4) Comparison between fermented soy sauce and protein chemical hydrolysate [HVP soy sauce]. Source: Yokotsuka (1986). (5) Relationship between cooking soybeans and nitrogen composition and yield of resultant soy sauce. Source: Fukushima (1979b). (6) Detailed composition of fermented Japanese soy sauce (Koikuchi shoyu). Source: Yokotsuka (1986). Includes inorganic components (minerals), organic components, amino acids, organic acids, sugars, solids, etc. (7) Selected enzymatic activities, soluble nitrogen content, and stringiness of natto samples prepared with soybeans cooked under a pressure of 1.5 kg per square cm for various periods. Adapted from Matsumoto et al. 1995. (8) Major responsible microorganisms isolated from sufu made in different parts of China. Column 1 is the genus and species. Column 2 is areas where the sufu is made, including Taiwan and Hong Kong. Adapted from Shi and Ren (1993). Address: PhD, Soyfood Lab., Hartz Seed, a Unit of Monsanto, P.O. Box 946, Stuttgart, Arkansas 72160-0946. Phone: 870-673-8565.

665. Madison, Deborah. 1997. *Vegetarian cooking for everyone*. New York, NY: Broadway Books. x + 742 p. Oct. Illust. Plus 24 full-page color plates. Index. 26 x 21 cm. A tenth anniversary edition was published by Broadway Books in 2007, featuring a new introduction by the author.

• **Summary:** One of the most comprehensive vegetarian cookbooks ever published; Contains 1,400 recipes. One chapter, titled “The Soy Pantry” (p. 593-609) has the following contents (with many recipes): Introduction (The soybean is the cow of the Orient). Soy milk. Tofu. Tempeh. A sidebar (p. 594) lists more recipes that include soyfoods, by chapter.

Soy-related recipes (not including those on p. 593-609) include: Soy oil (p. 43). Bechamel sauce (p. 53; dairy-free variation uses soy milk). Tofu “mayonnaise” (p. 60). Tofu garlic “mayonnaise” (p. 60). Sesame sauce with tofu (p. 67). Peanut-tofu sauce (p. 69). Spring rolls with napa cabbage and tofu (p. 107). Tofu salad spread (p. 129). Marinated tofu sandwich (p. 130). Tempeh on rye sandwich (p. 130). TLT–Tempeh, lettuce, and tomato sandwich (p. 130). Buckwheat noodle salad with grilled tofu and roasted peppers (p. 178). Green goddess dressing (p. 190; dairy-free variation with silken tofu). Miso soups (about, plus 5 recipes; p. 231-33). Mushrooms with paprika and sour cream–variation with tofu (p. 255). Thai tofu and winter squash stew (p. 257). Winter vegetable pot pie (p. 259; dairy-free variation can use soy milk).

In the section on “Stir-fries” and stir-frying is a subsection titled “Some essential Chinese ingredients.” The last entry (p. 262) is: “Salted and fermented black beans: Black soybeans partially fermented and preserved with salt add a rich flavor to vegetables, especially asparagus, green beans, and broccoli. Crush them with the flat of a knife before adding them to release their flavor. The best come in a plastic bag with ginger and orange peel.”

Vegetable stir-fry with fermented black beans (with “2 tablespoons fermented black beans, chopped,” p. 263). Mushrooms and tofu in Hoisin sauce (p. 269). Stir-fried broccoli, mushrooms, and peppers with caramelized tofu (p. 270). Dried mushroom, leek, and tofu stir-fry with Chinese barbecue sauce (p. 270). Goat cheese enchiladas with corn and red mole (p. 292; silken tofu can replace a portion of the goat cheese to give a less rich version). Soybeans (about; p. 314). Somen in broth with silken tofu and spinach (p. 482-83). Soba in broth with spinach, purple dulse, and silken tofu (p. 483). Udon with stir-fry and five-spice tofu (p. 484). Smoothies (p. 594). Protein drink for breakfast (p. 617, with soy milk). Breakfast burritos with tofu (p. 625). Scrambled tofu (p. 627). Scrambled tofu with herbs and cheese (p. 627). Scrambled tofu with tomatoes and salsa (p. 627). Multigrain waffles (with soy flour, p. 633).

Also used in the recipes are: Quinoa. Sea vegetables. A color photo on the cover shows Deborah Madison.

The dust jacket (and *Jessica's Biscuit Cookbook Catalog*, spring 1998) says: “What Julia Child is to French cooking and Marcella Hazan is to Italian cooking, Deborah Madison is to contemporary vegetarian cooking. At the Greens restaurant in San Francisco [California], where she was the founding chef, and in her two acclaimed vegetarian cookbooks, Madison elevated vegetarian cooking to new heights of sophistication... Madison received the M.F.K. Fisher Mid-Career Award in 1994... She has been a board member of the Santa Fe Area Farmers' Market for the past six years in Santa Fe, where she lives with her husband, Patrick McFarlin.”

Marion Cunningham, author of Beard Award winners *The Fannie Farmer Cookbook* and *The Fannie Farmer Baking Book*—“If I could have only one book on the subject of vegetables, *Vegetarian Cooking for Everyone* would be it.”

Letter (fax) from Dana Jacobi. 1998. April 26. This cookbook just won the IACP/Julia Child award as the “cookbook of the year” for 1998—the highest honor given, out of 432 books nominated—and a tremendous honor for vegetarianism as well as for Deborah Madison. Note: IACP is the International Association of Culinary Professionals. This book also won the IACP/Julia Child award as the best general cookbook of the year (out of 54 cookbooks nominated, and beating out the new 1997 edition of *The Joy of Cooking*). Two major sets of cookbook awards are given each year: The IACP/Julia Child awards (given in April at

a different location each year) and the James Beard awards (given in May in New York City). Each set offers awards in something like 10 different categories. There is surprisingly little overlap among the nominations for both in each category. Address: Santa Fe, New Mexico.

666. Gonzalez-Watanabe, Yvonne; Watanabe, Joji. 1997. Introducing tofu to Hispanics. Visit to the House Foods America Corp. tofu factory in Garden Grove near Los Angeles (Interview). *SoyaScan Notes*. Nov. 9. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** Yvonne and her husband Joji (who first contacted Soyfoods Center on 12 Sept. 1997) are interested in translating *The Book of Tofu* into Spanish and introducing tofu to the Hispanic community, starting in Los Angeles. Yvonne, age 24 was born in the USA, where her parents (who are both from Costa Rica) lived for 30-35 years; her father was a pharmacist. She learned to speak some Spanish at home. Her parents have returned to Costa Rica. Yvonne (who was raised a Catholic) now works in a real estate office and teaches vegan cooking classes at the Kanzeonji Non-Sectarian Buddhist Temple and Shiva Ashram Yoga Center at Mt. Washington in Los Angeles; there both she and Joji practice Zen meditation and yoga. Rev. Ryugen Watanabe, Joji's uncle, is a Soto Zen master, yoga teacher, and the head of this temple. Both Yvonne and Joji are vegetarians, and she is a vegan. Her sister is an editor for *El International*, a big Spanish language magazine located in Miami, Florida.

Yvonne got interested in vegetarianism and soyfoods through Rev. Watanabe. She had had severe migraine chronic headaches for many years. After trying every possible remedy to no avail, she told her uncle, Rev. Watanabe, about her problem. He said simply but forcefully, "It's your diet." She thought: "He's crazy. I have a great diet." In 1994, although she had been eating meat for 30 years, she tried the vegetarian diet he recommended and got quick relief. Following his advice, she began by giving up red meat and pork, then phased out chicken and fish until after 8-9 months she was consuming a vegan diet. As Yvonne began educating herself about vegetarian nutrition, she was looking for alternatives to meats as a source of protein. Rev. Watanabe told her about tofu, and even taught her how to make it at home from whole soybeans. Now Yvonne teaches other people how to make tofu at home.

Yvonne has great admiration for Rev. Watanabe. "He's really great. He's been teaching Zen and Yoga for more than 20 years and he still charges the same, low prices—\$2.00 for a Yoga class. If you can pay, you pay. If you can't, how about rolling some incense. It's wonderful. I've never seen someone so committed to people."

Yvonne has been a vegan ever since and has not had a headache in almost five years. A friend of Yvonne's had migraine headaches that were so bad, she had to give herself shots. Yvonne suggested that she try switching to a

vegetarian diet. She hasn't had a headache in a year. Over the years many of Yvonne's female relatives (her mother, sister, cousin, etc.) have become vegan—largely because they want to lose weight.

Joji, age 36, was born in Tokyo but has lived in the USA since age 6. He speaks Japanese and English and is a financial consultant. Joji graduated from USC, and now works in a corporate environment in real estate financing. His grandmother, Masa Miyai, lives with them. Four years ago they shut down their business selling medical supplies to Latin America. Now they are developing a project to introduce tofu to Hispanics.

On Oct. 18-19 Yvonne and Joji visited Soyfoods Center, where they talked with Bill Shurtleff about their project and book publishing. They photocopied many Spanish-language documents and recipes related to tofu. Upon returning to Los Angeles, they developed a one-page Spanish language brochure on tofu, visited with Margaret Endo in order to arrange for a booth in next summer's Tofu Festival, and began to do research.

Their first research project was a visit to the House Foods America Corp. tofu plant in Garden Grove, Southern California. After a brief meeting with employee Miyuki Nagano, she took them on a walking tour of the plant, so they were able to observe the entire tofu-making process. It is completely automated, except when a worker smooths the curds in the pressing trays before they are pressed. The company employs about 120 people at this facility. Of the 78 workers in the factory (including shipping and receiving), 98% are Hispanic men, but the office workers are all Japanese. The company has its own delivery trucks; its marketing is focused on California, in part because of increased competition from companies outside the state—as in Massachusetts [Nasoya Foods]. The company invites the Hispanic workers to take home tofu, but they don't—probably because they don't know what to do with it. The company has a full test kitchen and laboratory, and Miyuki is interested in developing tofu recipes that Hispanics will like. The company also makes natto at this plant.

Update: Talk with Yvonne. 1997. Nov. 23. Her cousin, Alejandra Jimenez, from Costa Rica has just arrived in Los Angeles to work with her on the tofu project. Alejandra's native language is Spanish but she also speaks perfect English and has a master's degree in English. Another cousin from Costa Rica is part of an all-male rock band, whose members are ages 30-37; all were born and raised in Costa Rica. She served them 3 tofu recipes—which they liked very much: (1) Tofu cubed in miso soup; (2) Chilled tofu, cubed with sesame oil, rice vinegar, and soy sauce; and (3) Crisp freshly deep-fried tofu cubes, with soy sauce. They are interested in using tofu as part of a weight-loss program.

They all went to a Chinese vegetarian restaurant in nearby San Gabriel named Vegetarian Delights. Run by a Chinese-American lady, it served a delicious dish named

Roasted Black Bean Fish, that tasted remarkably like fish—but used tofu instead of fish. Yvonne made friends with the owner. Address: 6029 LaPrada St., Los Angeles, California 90042. Phone: 213-254-1712.

667. Kamego, Marco. 1997. Re: History and present status of Kikko Corporation S.A., manufacturer of soy sauce and miso in Peru. Letter to William Shurtleff at Soyfoods Center, Dec. 29. 3 p. [Eng]

• **Summary:** Mr. Kamego filled out a 3-page company history form sent by Soyfoods Center. This company was founded in April 1957 in Peru by Mr. Manuel Toshihiko Kamego (Marco's father) and Mr. Alejandro Kioyasu Kamego (Manuel's brother). In 1957 the company, named *Fabrica de Siyau Kikko Sociedad de Responsabilidad Limitada*, was located at Av. Colombia 171, Pueblo Libre, Lima, Peru. Phone: 32-3754. The company's first two products, Kikko Siyau ("soy" sauce—but made with Peruvian common beans, *Phaseolus vulgaris*, instead of soybeans because the latter were not available) and Miso Kikko (both *shiro miso* {sweet white miso made with rice} and *aka miso* {red miso made with barley}) were both introduced in 1957. These products may have been the world's first shoyu and miso made with common beans instead of soybeans. In 1960 the company first began to use soybeans in its products; they were grown in Tumbes, on the northern coast of Peru.

From the beginning, the company was dedicated to the traditional, nearly hand-made production of sauces and foods to supply the restaurants and homes of Peruvians of Asian origin through the home delivery system. Marco writes: "We are the pioneers of soy sauce manufacturing in Peru. It is through our product that the Peruvian native people have come to know soy sauce, its use and quality. Our company has succeeded because of tenaciousness, as well as adaptation to the requirements of the Peruvian market." The Kamego family originated in Japan. The two Chinese characters (*kanji*) with which the family name are written, can also be pronounced "Kikko" and mean "turtle's shell." This explains the origin of the Kikko brand and emblem/logo. Note: The name and logo is very similar to that of Kikkoman, the world's leading manufacturer of soy sauce.

In 1964 the company introduced its third soy product, Mensei Kikko (in Chinese *mien shih* = sweet wheat-flour fermented black soybeans), obtained from fermentation of whole soybeans; it is known as *mianchi* (*mien shih*) in China and *doenjang* in Korea. In 1979 Ajinomoto, the world's leading manufacturer of seasonings and of MSG, began to produce soy sauce in Peru in competition with *Fabrica de Siyau Kikko*, but as of 1997 Kikko is still the leader in the Peruvian market, ahead of Ajinomoto.

In July 1994 the company moved its factory and offices to a new location, which is the present address: Jr. Alexander Fleming 432, Ate, Lima 03, Peru.

In 1995 the company was reorganized as Kikko

Corporation Sociedad Anonima (S.A.). This new company was formed from the merger of the original company with *Sazonadores S.R.L.* Note: *Sazonadores* means "seasonings" in Spanish. At this time the company launched three new products: Kikko Shoyu: Salsa de Soya, Salsa Mensei (*mensei / mien shih* seasoned with spices), and Ajoikion (soy sauce seasoned with ginger and garlic; in Peruvian, *ki6n* means ginger—the Spanish word is *jengibre*; in Spanish, *ajo* means garlic).

Present status: The company now makes each week: 25,000 liters of soy sauce, 2,000 liters of Salsa Mensei, and 2,000 liters of Ajoikion. Their second best-selling product is sweet and sour sauce, but it contains no soy. They still make *shiro miso* (sweet white miso) fermented for 5 months, but have discontinued red miso. The company employs 51 people, including 5 in management, 36 production workers, and 10 office and others. The current owners are Manuel Kamego, Marco Kamego, and Alejandro Kamego's heirs. Net sales last year were \$1,500,000. The net worth of the business is about \$115,000. The company's sales have grown, on average, at about 2% each year over the past 2-3 years. The building is 2,000 square meters in size: 1,800 for production and 200 for office space. As of late 1997 the factory is located at Robert Fulton 115, Lima 3, Peru. Most of the soybeans now used by the company come from Bolivia

Marco encloses attractive full-color labels for four products: Kikko Shoyu, Salsa Mensei, Ajoikion, and Kikko Siyau. Address: Jr. Alexander Fleming 432, Ate, Lima 03, Peru. Phone: +511 326-0870 or 1200.

668. **Product Name:** [Gold Label Sweet Wheat-Flour Fermented Black Soybeans].

**Foreign Name:** Jinpai Mianchi.

**Manufacturer's Name:** Mei Wei Hsien Shihp'in.

**Manufacturer's Address:** National Chungshan City (Zhongshan), Southern Kwangtung (Guangdong) province.

**Date of Introduction:** 1997.

**Ingredients:** Yellow soybeans, wheat flour, salt, and sodium benzoate (as a preservative).

**Wt/Vol., Packaging, Price:** 500 gm.

**How Stored:** Shelf stable, 6 month shelf life.

**New Product-Documentation:** Label sent by Marco Kamego of Kikko Corporation S.A., Peru. 1998. March 8. Label is 3 inches in diameter. Red, yellow, black, and gold on white. Registered number: ZBX66019-87. Permit statement. Shelf life: 6 months. Date of production: Not filled in. Note: The word "Mianchi" does not appear in the SoyaScan database.

Talk with H.T. Huang, PhD, expert on the history of Chinese food and agriculture, about letter from William Shurtleff asking many questions about this product. This soy-based seasoning is very well known and popular in southern China, especially in the cooking of Canton

(Kwangtung / Guangdong) province, but also in Fukien / Fujian province. Its equivalent in northern China is *Tou-pan Chiang*. Its characteristics are in between those of fermented black soybeans (*shih*) and Chinese-style soybean miso (*tou-jiang*). It is much more chunky than soybean miso, and a little sweeter than fermented black soybeans because of the wheat flour—though still salty. The color is brown. *Jinpai* means “gold label” or “gold brand.” In Mandarin *Mianchi* is called *Mianshih*, where *mien* (written here in simplified characters) means “wheat flour” and *shih* means “fermented black soybeans.” Fermented black soybeans can be looked on as an intermediate in the making of *jiang*. Sometimes the fermented black soybeans are made by coating cooked soybeans with wheat flour. If you use a lot of flour, you will end up with *chiang*, but if you use only a small amount, the nuggets will keep their shape. This product is made using a two-step fermentation: (1) Cook soybeans, dehull, coat with a little wheat flour, inoculate, and allow to ferment to make fermented black soybeans. This first fermentation takes about 10 days in summer, or 15 days in winter. (2) Mix the fermented black soybeans (soybean koji) with salt and water (not too much water), place in an earthenware vat, and allow to ferment for about 4 weeks until it forms a paste that is thicker than *chiang*. This seasoning is made in Chungshan (pinyin: Zhongshan), located between Canton and Macao; the characters mean “inside/middle + mountain.” Dr. Sun Yatsen, the famous Chinese statesman (1866-1925) comes from Chungshan; his name was originally Sun Chungshan.

669. Grogan, Bryanna Clark. 1997. *Twenty minutes to dinner: Quick, low-fat, low-calorie vegetarian meals*. Summertown, Tennessee: The Book Publishing Co. 192 p. Illust. Index. 21 cm.

• **Summary:** This vegan cookbook contains a wealth of soy-related recipes. The glossary mentions tofu, soymilk, soymilk powder, tempeh, miso, soy sauce (shoyu, tamari) textured vegetable protein, Chinese condiments (hoisin sauce, Chinese black bean sauce, Chinese brown bean sauce, Szechuan hot bean paste), seitan, soy bacon bits or chips.

In the section titled “Ingredient substitutions,” under “Yeasted products” we read (p. 15): “I can think of no practical substitutes for light miso or certain fermented Chinese products like doufu-ru (Chinese fermented bean curd, which has a strong ‘blue cheese’ type of flavor).”

The recipe for “Buffalo potato wedgies” (an alternative to “Hot wings”) advises: “Dip the crusty wedges into Vegetable Dip (p. 48)—you can add a bit of crumbled, white Chinese fermented tofu (doufu-ru) to make it more like traditional blue cheese dressing or dip.”

Also includes soy-free options for recipes with tofu and soymilk. Address: Denman Island, east of Vancouver, British Columbia, Canada.

670. Kittler, Pamela Goyan; Sucher, Kathryn P. 1997. *Food*

and culture in America: a nutrition handbook. Belmont, California: West/Wadsworth. xiv + 535 p. Illust. (photos). Index. 26 cm. [100+\* ref]

• **Summary:** What is American food anyway? Does it include sushi, soy sauce, miso soup, or tofu? How about Peking duck or pot stickers? How about enchiladas, chile rellenos, or tacos?

This excellent and original work is arranged in chapters like by cultural groups or subcultures living in the USA.

The chapter on “Latinos” states under “Foreign influence” (p. 286) that the “demand for Asian ingredients by later immigrants resulted in the introduction of soybean products,...” Under “Regional variations” (p. 290) that Cubans like a chicken dish marinated in lime juice and soy sauce. Under “Meal composition and cycle” (p. 290) that West-African fritters are made from the meal of soybeans...”

The chapter on “Asians,” under “Chinese,” notes (p. 328-30) that “Soybeans are transformed into an amazing array of food products that are indispensable to Chinese cooking,” including soy sauce, soy milk, bean curd or tofu, black beans (“made with cooked fermented soybeans preserved with salt and ginger. Black beans are usually added as a flavoring in dishes”), hoisin sauce, and oyster sauce. Soy oil is also used in Chinese cooking. The Hakkas enjoy tofu stuffed with meat (p. 332). Every Chinese meal aims for a good balance of *fan* (grain foods, such as rice or wheat) and *tsai* (side dishes). “The Chinese believe that a good diet is critical for physical and emotional harmony and necessary to strengthen the body against disease” (p. 334). During pregnancy, soy sauce may be avoided to prevent dark skin (p. 335). Chinese who avoid fresh dairy products because of lactose intolerance, may consume soybean curd and soy milk (if fortified with calcium) as alternatives.

Under “Japanese,” soy sauce is a traditional food of Japan (photo, p. 341). Soybean products (p. 350) are an important part of the Japanese diet; they include tofu, shoyu (soy sauce), miso, and teriyaki sauce—to name just a few. Second-generation Japanese use more soy sauce than non-Asians (p. 354) but as their diet becomes Americanized, they fall prey to more diseases of affluence. The response to dairy products and lactose intolerance is similar to that of Chinese, with the use of tofu and soy milk.

Under “Koreans” (p. 363, 366) Soybean products are an important part of the diet; they include soy sauce, soy paste, and soybean curd or tobu [sic, *tubu*] (tofu).

Under “Southeast Asians and Pacific islanders.” Adobo is a popular Filipino stew, seasoned with soy sauce (p. 389). Soy products include soy milk and tempeh (p. 399, 402, 404, 421-22).

The “Glossary of ethnic ingredients” mentions many soy products including (p. 490): “Black beans, fermented: Black soybeans salted and fermented to produce a piquant condiment. Used in Chinese cooking as a seasoning or combined with garlic, ginger, rice wine, and other



ingredients to make black bean sauce.” Address: 1. M.S., Food and nutrition education consultant; 2. Dep. of Food and Nutrition, San Jose State Univ., California.

671. 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, sauteed 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 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. Cockaign, Cincinnati, Ohio.

672. Srisawat, Pinyo; Jonglertjesdawong, Yingsak. 1997. *The vegetarian taste of Thailand: Vegetable, tofu & seafood dishes from Cha Am restaurant*. Berkeley, California: SLG Books. 224 p. Illust. Index. 28 cm.

• **Summary:** Cha Am is a popular Thai restaurant which opened in Berkeley, California in 1985. This is a very beautiful and strange book. Beautiful because on every other page is a spectacular full-page color photo, showing the prepared recipes, ingredients, and many lovely scenes from Thailand. Strange because the word “vegetarian” is in the title, yet a large number of recipes call for fish or seafoods (which have never been eaten by vegetarians) as the main ingredient.

Soy-related recipes include: Tau hoo neng: Steamed bean curd (p. 21). Tao hoo nam daeng: Bean curd stew (p. 27). Tao hoo op moor din: Clay pot bean curd (p. 33). Hoi jor name jim boi: “Seafood” rolls with plum sauce (p. 43; the filling is rolled in “bean curd sheets” [probably pressed tofu sheets, but possibly yuba], each 8 inches square). Tom som Tauhoo: Spicy bean curd soup (p. 63). Tao jiao lon: Spicy fermented soy bean dip (p. 185). On pages 212-13 are full-page color photos of various Thai soybeans and soyfoods.

The section titled “Gluten” (p. 214-17) describes this product and shows how to make it at home. Gluten is also used in recipes throughout the book.

The interesting glossary (p. 221-24) includes descriptions of: Bean curd (*tau hoo* is soft tofu; *tao kwa* is firm tofu, used for stir-frying, deep-frying, and braising). Bean curd, fermented (*tau hoo yee*; the two most common types are red and white. The red variety is cured in a brine with fermented red rice flavored with annatto seeds and rice wine). Bean curd, spongy (deep-frying gives tofu a spongy texture, so it can absorb the flavors of any sauce in which it is cooked a second time). Bean sauce (a seasoning made from fermented soybeans, flour, and salt. There are four popular types: yellow bean sauce, brown bean sauce, black bean sauce, and hot bean sauce. The preferred sauce is made from whole soybeans. The ground varieties are often quite

salty). Beans, black fermented (also known as salted black beans, these are small black soybeans fermented with salt and spices. They are delicious when combined with garlic, fresh ginger, or chilies. Note: Fermented white soybeans are called *tao jiao*). Soy sauce (*si iu*; These recipes call for the Chinese rather than the Japanese type. The three most widely used soy sauces are light soy sauce *{si iu khao}*, dark soy sauce *{si iu dam}*, and mushroom soy sauce).

Note: This is the earliest English-language document seen (Feb. 2004) that uses the word “tauhoo” to refer to tofu. Address: Bangkok, Thailand.

673. Huang, Hsing-Tsung. 1998. The Chinese character for fermented black soybeans: Two ways of pronouncing it and four ways of romanizing it (Interview). *SoyaScan Notes*. March 13. Conducted by William Shurtleff of Soyfoods Center.

• **Summary:** The Chinese character meaning soy “nuggets” is fairly uncommon, and is not found in some dictionaries. It can be pronounced either as “shuh” (like the first syllable in Chicago) or as “chuh” (like the first syllable in Chiquita). After extensive research on this subject, Dr. Huang believes that the former pronunciation (“shuh”) is the more common, although the character appears one way in some dictionaries and the other way in others. In the modern pinyin system of romanization, the two pronunciations would be written as *shi* or *chi* respectively. In the somewhat outdated Wade-Giles system of romanization, the two pronunciations would be written as *shih* or *ch'ih* respectively.

The character for fermented black soybeans is often preceded by the character meaning “bean” (*dou* in pinyin or *tou* in Wade-Giles) for the sake of clarity. Thus in pinyin: *doushi* or *douchi*, and in Wade-Giles: *tou-shih* or *tou ch'ih*. Dr. Huang prefers *doushi* (pinyin) or *tou-shih* (W-G.).

Note: This is the earliest English-language document seen (Nov. 2011) that uses the term “doushi” to refer to fermented black soybeans. Address: 309 Yoakum Parkway #403, Alexandria, Virginia 22304.

674. *New York Times*. 1998. Queens welcomes big eaters: Good eating. May 3. p. CY32.

• **Summary:** Contains summaries of previous reviews of the Penang Cuisine Malaysia and the Taipei Wall Sea Street Taiwanese Restaurant, described in detail by Ruth Reichl in the 24 Feb. 1995 issue of this newspaper (p. C24). Mentions “fermented bean curd,” tofu, and “fermented black beans.”

675. 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.

676. 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 a paste 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, which is “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.”

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. 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, taugh. Japan: daizu no moyashi. Korea: Kong namul. Malaysia: kacang soja, taugh. 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.”

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.

677. Hodgson, Moira. 1999. Spices perk up sea scallops, shrimps or sausages. *New York Times*. Jan. 24. p. CT12.

• **Summary:** Includes a recipe for “Spicy shrimps with black beans.” The ingredients include “4 tablespoons Chinese preserved black beans,... 2 tablespoons hoisin sauce,... 1 tablespoon soy sauce.” Then: “Rinse the black beans thoroughly under cold running water and chop them fine.”

678. Liu, KeShun. 1999. Oriental soyfoods. In: C.Y.W. Ang, K. Liu, and Y-W. Huang, eds. 1999. *Asian Foods: Science & Technology*. Lancaster, Pennsylvania: Technomic Publishing

Co., Inc. 546 p. See p. 139-99. Chap. 6. March. [60 ref]  
 • **Summary:** Contents: Introduction: Soybeans as a crop, composition and nutritional quality of soybeans, soyfoods—from the east to the west, soyfood classification.

Soymilk: Introduction, traditional soymilk, modern soymilk (techniques for reducing beany flavors, commercial methods, formulation and fortification, homogenization, thermal processing, and packaging), concentrated and powdered soymilk, fermented soymilk (with lactic acid bacteria), soymilk composition and standardization.

Tofu: Introduction, methods of tofu preparation, factors involved in tofu making (soybean varieties, concentration of soymilk, heat process of soymilk, types of coagulants, concentration of coagulants, coagulation temperature, coagulation time, process automation, packaging), varieties of tofu (silken tofu, regular and firm tofu, Chinese semidry tofu {*doufu gan*}, Chinese tofu sheets and tofu noodles, lactone tofu), varieties of tofu products (deep-fried tofu, Japanese grilled tofu, frozen tofu, Japanese dried-frozen tofu, Chinese savory tofu, fermented tofu {Sufu or Chinese cheese, varieties of sufu, preparation methods, preparation principle}).

Soymilk film (yuba). Soybean sprouts. Green vegetable soybeans. Other non-fermented soyfoods: Okara, roasted soy powder.

Fermented soy paste (Jiang and miso): Koji, koji starter, and inoculum (koji, koji starter, inoculum), Chinese jiang (traditional household method, pure culture method, enzymatic method), Japanese miso (preparing rice koji, treating soybeans, mixing and mashing, fermenting, pasteurizing and packaging), principles of making jiang or miso.

Soy sauce (Jiangyou or shoyu): Chinese jiangyou (traditional household method, modern methods), Japanese shoyu (treatment of raw materials, koji making, brine fermentation, pressing, refining), principles of making soy sauce, chemical soy sauce (made by acid hydrolysis; heat with 18% hydrochloric acid for 8-12 hours, then neutralize with sodium carbonate and filter to remove insoluble materials), proximate composition of soy sauce, quality attributes and grades.

Japanese natto: Methods of preparation, principles of preparation.

Indonesian tempeh: Traditional method, pilot plant method, principles of tempeh preparation. Fermented black soybeans (Douchi or Hamanatto): Chinese douchi, Japanese Hamanatto.

Tables: (1) Names (English, Chinese, Japanese, Korean, Indonesian, Malay, Filipino) general description, and utilization of nonfermented Oriental soyfoods. (2) Names (English, Chinese, Japanese, Korean, Indonesian, Malay, Filipino) general description, and utilization of fermented Oriental soyfoods. (3) Proximate composition (gm per 100 gm fresh weight) of some fermented soyfoods.

Figures show: (1) Flowchart: Traditional Chinese method for making soymilk and tofu (from whole soybeans). (2) A commercial processing method (Alfa Laval) for making soybase and a subsequent product—soymilk. (3) Photo of homemade firm tofu. (4) Photo of a dish of tofu and mushrooms. (5) Photo of cubes of sufu (Chinese cheese) on a white plate. (6) Flowchart for making sufu from firm tofu. (7) Photo of two packages of dried yuba sticks (Chinese). (8) Photo of a bowl of soy sprouts. (9) Photo of Chinese chiang, and Japanese red and white miso, each on one of three spoons in a shallow white bowl. (10) Flowchart of a common method for making Japanese rice miso [red miso]. (11) Photo of soy sauce in three different containers: dispenser, small bottle, and large Chinese can. (12) Flowchart of a common method for making Japanese koikuchi shoyu (soy sauce). (13) Photo of two chopsticks lifting some Japanese natto from a bowl full of natto; the thin strings connecting the natto above and below are clearly visible. (14) Flowchart of a common method for making Japanese natto from whole soybeans. (15) Photo of tempeh made in the USA in perforated plastic bags (Courtesy of Mr. Seth Tibbott, Turtle Island Foods, Inc., Hood River, Oregon). (16) Flowchart of traditional Indonesian method for making tempeh from whole soybeans. (17) Photo of Chinese *douchi* (fermented black soybeans) on a white plate.

Note: For a biography of KeShun Liu PhD see p. 544. Address: PhD, Soyfoods Lab., Hartz Seed, A Unit of Monsanto, Stuttgart, Arkansas.

679. Simonds, Nina. 1999. A spoonful of ginger: Irresistible, health-giving recipes from Asian kitchens. New York, NY: Alfred A. Knopf. xii + 322 p. April. Illust. Index. 24 x 21 cm. [53 ref]

• **Summary:** This beautiful hardcover book and cookbook, printed on glossy paper with many color and black-and-white photos, looks at food in two ways: As medicine, and as the source of delicious recipes. The Asian holistic approach is relaxed and non-rigid; it emphasizes balance. Soyfoods appear throughout. Tofu is used to “increase body energy, produce fluids, and lubricate the system. It is said to have yin, or cooling, properties” (p. 23). Miso chicken soup with snow peas and tofu (p. 34). Grilled miso fish fillets (p. 66). Pan-seared halibut with garlicky black bean sauce (“Seasonings: 3 tablespoons fermented or salted black beans, rinsed, drained, and minced, 2 tablespoons minced garlic, 2 tablespoons minced fresh ginger,... p. 71; “Black soybeans have been used by the Chinese for medicinal purposes for over 2,000 years”). Baked black bean shrimp (with “Seasonings: 2 tablespoons fermented black beans, rinsed and drained; 2 tablespoons minced scallions, white part only; 1 tablespoon minced fresh ginger; 1 tablespoon minced garlic; and 1 teaspoon dried chile [chili] flakes.” When the oil in a wok is very hot: “Add the Seasonings and stir-fry for about 10 seconds with a slotted spoon or spatula

until fragrant.” A side note on this page: *The Chinese System of Food Cures*, by Dr. Henry Lu, says that “a regular diet of fermented black beans can relieve depression and stress and counteract any toxins,” p. 75). Stir-fried saucy shrimp (with sweet bean sauce or *jiang*, one of the earliest Chinese seasonings; if unavailable, substitute hoisin sauce, p. 81). Grilled hoisin scallops (with ½ cup hoisin sauce, p. 83). Spicy grilled squid with warm greens (with ½ cup hoisin sauce, p. 86-87). Broccoli or cauliflower with a soy-lemon dressing (p. 173). Grilled leeks in a garlic-soy dressing (p. 174). Grilled wild mushrooms with a teriyaki dressing (p. 178). Black bean acorn squash (with “2 tablespoons fermented black beans, rinsed, drained, and minced.” Describes how to make “black bean sauce,” p. 179).

One chapter, titled “Soybeans and tofu” (p. 192-215), begins with a discussion of the work of Dr. Albert Leung, author of various books on Chinese herbs and food, and creator of a computerized database on Chinese herbal medicine for the National Cancer Institute. “Like a growing number of doctors, Dr. Leung feels strongly that an integrated approach should be taken in the treatment of many diseases, one that draws from the strengths of both conventional and alternative therapies. He also concurs with Henry Lu that fortifying the immune system is critical to good health. ‘Our immune system is the key to health and longevity and there are many factors that throw off our yin/yang balance,’ Dr. Leung says. ‘When this happens, Traditional Chinese Medicine often uses herbal tonics and food to help restore the balance.’

“Tofu is such a food. Chinese doctors classify its nature as cool and sweet. It is credited with clearing heat from the body, detoxifying the system, and strengthening the spleen and stomach.”

A full-page color photo (p. 192) shows tempeh being fried. Simonds notes that the earliest known recorded use of black soybeans dates back to the middle of the eighth century.

A table titled “Soybeans and their byproducts” (p. 196) lists ten products, how each is used, and how long they will stay fresh in a refrigerator. The foods are: Fresh soybeans [as a green vegetable appetizer], soybean sprouts, miso, soybean milk, silken tofu, soft tofu, firm tofu, extra-firm tofu, 5-spice pressed tofu, and tempeh.

Recipes are from many Asian countries”: Japanese-style silken tofu. Soybean sprouts and leeks in hot chile sauce. Rainbow salad with spicy peanut dressing (and tofu). Spicy garlic bean curd noodles. Vegetarian roll-ups (with tofu). Fragrant steamed pearl balls (with tofu and glutinous rice). Spicy ma po tofu. Cantonese style tofu in black bean sauce (incl. fermented black beans, garlic, ginger and hot chile paste). Vegetarian kung pao with broccoli and peanuts (with tofu. Note: Kung pao is a style of food preparation associated with Szechuan and Hunan). Curried tofu. Braised cinnamon tofu. Simmered tofu with black mushrooms. Fried tempeh

with sweet and sour sauce. Spicy stir-fried tempeh with basil. Ginger teriyaki tempeh.

Also: Chicken-black bean brown rice (with fermented black [soy] beans, garlic, and fresh ginger, p. 231; Dr. Albert Leung says that making fermented black beans is a complicated process, in which small black soybeans are first soaked in water with mulberry leaves and wormwood herb, then they are fermented with salt). Vegetarian pad thai (with tofu, p. 245). Almond soy jelly with litchees and melon (with soy milk, p. 266). Two-spice vanilla tapioca pudding (with soy milk, p. 269; Soy milk lubricates the body, clears the lungs, and is often prescribed for urinary disorders and constipation). Coconut rice pudding with berries (with soy milk, p. 272). Address: Salem, Massachusetts.

680. Shurtleff, William; Aoyagi, Akiko. 1999. *The book of tofu*. 2nd ed. Revised. Berkeley, California: Ten Speed Press. 336 p. May. Illust. by Akiko Aoyagi Shurtleff. Index. 28 cm. [321 ref]

• **Summary:** This edition contains a completely new “Appendix B—Directory of Tofu Makers” (p. 313-316, updated to 1 Aug. 1998). The page “About the Authors” (autobiographical) has been updated, and the original photograph has been replaced with two more recent ones—reflecting the fact that Bill and Akiko separated in Nov. 1993 and their marriage ended in May 1995.

After the first printing in Oct. 1998, the Preface was quite extensively revised (but not updated) to include more about how this book came into being (early dates and names), including the important contributions on Jeffrey and Gretchen Broadbent, and of Nahum and Beverly Stiskin. These Preface changes first appeared in the second printing of May 1999.

On page 336 is “The Best of Vegetarian Cooking from Ten Speed Press” (descriptions of eight cookbooks, with price and ISBN). The inside rear cover has been updated, and now includes current information about SoyaScan, the unique computerized database produced by Soyfoods Center. This database now contains more than 55,000 records from 1100 B.C. to the present, and more than 73% of all records have a summary / abstract averaging 128 words in length. A description of the four different types of records (published documents, commercial soy products, original interviews and overviews, and unpublished archival documents), and the number of each type, is given.

The front and rear covers, title page, table of contents, and the first page of each section have been redesigned to give the book a much more contemporary look. Still contains 500 vegetarian recipes—both western and eastern style.

Ten Speed Press gave this book a new ISBN: 1-58009-013-8. Yet despite the many changes described above, the authors preferred not to have this called a “new edition” or “revised edition.” Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549. Phone: 925-283-2991.

681. Bittman, Mark. 1999. Authentic Asian fare in L.A. [Los Angeles], with or without Formica. *New York Times*. Aug. 15. p. TR6.

• **Summary:** At Takao, a Japanese restaurant, he was served “dreamy tofu made with sesame paste” [often called “sesame tofu,” or in Japanese, *goma-dofu*]. For a higher price, the sesame tofu was served with a sauce of sea urchin roe. Also: A raw spring roll of noodles, miso, shiso, crab, and vegetables. A dark miso soup that put the standard dish to shame.

At the Thai restaurant Talésai he enjoyed a plate of eggplant with black bean sauce, and fried tofu with a peanut dipping sauce.

The Chinese Islamic Restaurant served a tofu dish.

At the Empress Pavilion, a Chinese restaurant, he enjoyed “braised bean curd.”

682. 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). 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, ruffled, cream-colored sticks of bean curd skin, bent in two”}), fermented beans (preserved black beans {fermented black beans, tau see}, bean sauce, toen-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 “toen-jang” (or “toen 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). Address: Writer, designer, illustrator and photographer, Miami Beach, Florida.

683. 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.”

Discusses tomato ketchup, mushroom ketchup, and ketchup made from oysters, mussels, walnuts, etc., 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, *doufugan*), *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, doufu 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 doufu-ru. The most popular type is white doufu-ru, and there is red doufu-ru, tsao-dofu, ch'ou doufu [chou doufu], chiang doufu. 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 a 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.

684. Mowe, Rosalind. ed. 1999. Southeast Asian specialties: A culinary journey through Singapore, Malaysia, and Indonesia. Cologne, Germany: Culinaria Koennemann. 319 p. Illust. (color photos by Günter Beer). Index. 26 x 22 cm. • **Summary:** Translated from the German. Includes headings in Chinese. This book is a feast for the eyes, printed on glossy paper with informative color photos on almost every page. The structure and content are also creative and very interesting; it has caught the heart and spirit and nuances of the culture. On some pages, however, the type is too small to read. The name of most recipes and ingredients is given in their native language. A 2-page map of Southeast Asia appears near the front. The basic structure: Singapore (p. 12-109). Malaysia (p. 110-215). Indonesia (p. 216-301). Glossary (p. 302-04). Introduction to Chinese nutritional theory, by Andrea Fülling (p. 305-06): Introduction, yin and yang, the three warmers, the warming effect of foods (the five energy states are hot, warm, neutral, refreshing, and cold), the five elements. Acknowledgements. Photo credits. Index.

The contents includes: Healing herbs (p. 26-29). Soup as medicine (p. 30-33). Soybean (in Singapore, p. 40-47): Introduction (familiar forms are sprouts, soy sauce, beancurd, tempeh; new disguises are "vegetable protein," emulsifier, "lecithin," "vegetable oil" which are found in dairy products, canned fish, candies, desserts, and much more), in the West soybeans are "often grown as monocultures, with the disadvantages that this entails, such as the use of chemical fertilizers and pesticides," and genetically engineered soybeans, great nutritional value yet rarely used as whole dry soybeans, most of the harvest in SE Asia is processed into beancurd and tempeh, importance of fermentation, soy milk resembles cow's milk and is an excellent substitute, soy sauce is used throughout this cuisine. Photo of green soybean plants with green pods.

Soybean sprouts: "Black soybeans are imported from Thailand and Myanmar (Burma)." After washing, the beans are spread out in deep baskets and kept in the dark for 6 days. "Before the baskets of sprouts can be sold, the top layer if green leaves is trimmed off. They are used as feed for chickens and ducks. One basket yields 154 lb (70 kg) and the output of a medium-sized business is 60 baskets a day." Soybean "sprouts should never be eaten raw, nor should they be cooked for too long." Mung bean sprouts are better known than soy sprouts, but both can be bought fresh.

Dou ban jiang ("Salted soya bean sauce." Photo of jar and Sinsin label). Dou chi ("Black bean sauce." Photo of jar and Sinsin label). Note: Typically Dou chi are named "Salted black beans." Photo of five glasses showing how dry soybeans are transformed into soymilk, then curds.

Tofu: Meat from the fields (p. 42-44). The best tofu is made from special types of soybeans that are different from those that are crushed to make oil and meal. Most of the tofu in Singapore is made from soybeans imported from Canada. Describes the basic process for making commercial pressed tofu or soft tofu, with 7 photos showing the steps. Implies that making yuba is part of the process for making tofu; it “is eventually sold as dried beancurd sticks (*fu chok*).

Soy milk products: Fu pei—dried tofu skin [yuba]. Fu chok—dried tofu sticks [dried yuba sticks]. Tim chok—sweet tofu pieces [sic, sweet dried yuba / ama-yuba]. Tofu fa—soft tofu as a dessert [tofu curds]; a little tapioca flour may be added. “Served warm or cold with a syrup flavored with almond extract.” Color photo shows yellow yuba atop hot soymilk, and a woman removing a slab pressed tofu from its mold.

Tofu recipes for every taste (p. 44-45): “Tofu on its own is rather bland in taste, but this is precisely its strength, since when it is combined with different ingredients and condiments it tastes new and different every time. Recipes: Niang dou fu (Fried beancurd pockets). Xia ren dou fu (Stir-fried beancurd with jumbo shrimp). Hong shao dou fu (Braised beancurd). Sui rou zheng dou fu (Steamed soft beancurd with ground pork). Dou hua (Sweet beancurd dessert). Zha fu pi juan (fried beancurd skin [yuba] roll). Color photos show the 2nd and last recipes.

Soy sauce (p. 46-47): A naturally fermented product made with mold cultures of *Aspergillus oryzae*. Describes the process for both light and dark soy sauce; the koji is made in shallow round trays, ready after 4 days. It is “then transferred into fiberglass tanks [or earthenware jars], covered with brine, and left to ferment for 3 months,” after which the 1st extraction of crude soy sauce takes place [but not through pressure]. More brine is added and a second extraction takes place 1 month later; this process is repeated for the third extraction. “At this point, the paths of the different soy sauces diverge.” The saltier, light-colored soy sauce is mixed with a preservative, pasteurized, “and stored in tanks to clarify before bottling.” The dark soy sauce is mixed with both a preservative and caramel coloring, is allowed to mature for an additional 4 weeks, then is pasteurized and bottled. Note: What happens to the 2nd and third extractions? Color photos show five steps in the process, but a traditional earthenware vat is shown instead of the fiberglass tanks. Dark soy sauce is thicker than light. Recipes: Jiang you ji (Chicken in soy sauce, with marinade). Hong shao niu nan (Braised shoulder of beef).

Oyster sauce (contains no soy). Sesame oil (p. 49, with 7 photos).

Condiments (p. 50-51): Color photos show the front and label of 15 separate jars and bottles with a substantial description under each. Those containing soy are: Hoisin sauce. Dou chi (Fermented bean dried). Dou ban jiang (Tou cheong). Fu ru (Beancurd preserved). Jang qing (light soy

sauce). Hei jiang you (Dark soy sauce). Tian jiang (Sweet sauce).

Peking duck (p. 62-65; soybean paste {no Chinese name is given} and Hoisin sauce are ingredients in the sauce). One key is the crisp skin. It is served in thin Mandarin pancakes.

Suckling pig (p. 86-87): Piglets are bred in Hunan province. Slaughtered at the age of 3-4 months. After a dead piglet has been patted dry, it is brushed with soy sauce, then coated with a marinade that includes fermented red bean curd and light soy sauce. As with Peking Duck, suckling pig is prized for its crisp, tasty skin. Six photos show the skewered baby pig.

Symbolic foods (p. 98-101): One of these is Moon Cakes from the mid-autumn festival (15th day of the 8th lunar month). “Traditional fillings include sweet black bean or lotus paste.” Is the sweet black bean filling made from soy beans?

Instant cup noodles [instant ramen] (p. 48): Note: Wikipedia says at Momofuku Ando: ORS [Order of the Rising Sun], (lived March 5, 1910–Jan. 5, 2007) was the Taiwanese-Japanese businessman who founded Nissin Food Products Co., Ltd. He is famed as the inventor of instant noodles and cup noodles, which he launched on 25 Aug. 1958 (at age 48) under the name Chikin Ramen—after months of trial and error experimentation to perfect his flash-frying method. On 18 Sept. 1981 he launched his most famous product, Cup Noodle.

Beansprouts (p. 154-57): With a long introduction, a description of the process, beautiful photos, and recipes: Taugeh goreng kucai (Fried beansprouts with chives). Taugeh masak kerang (Fried beansprouts with baby clams). Tahu goreng (Fried tofu with beansprouts). Bihun goreng (Fried rice noodles). Urap taugeh (Fried beansprouts with grated coconut).

Nasi tumpeng (rice cone) (p. 220). Served with sambal goreng tempe (crisp-fried marinated strips of tempeh). Gudeg (rice with green jackfruit cooked in a sweet sauce, p. 221) is served with a side dish of tahu goreng bacem (tofu coked with spices, then fried).

Tempeh (p. 228-29), soybeans fermented with *Rhizopus oligosporus* mold. Indonesians consume more tempeh than tofu. The process is described, with 4 color photos: Recipe: Tempe goreng (fried tempeh).

Glossary (p. 302-04) includes: Fermentation. Soy sauce (“Probably the best-known Asian seasoning agent,...”). Sticky rice (also known as glutinous rice). Tahu (Indonesian; tofu). Tempeh. Tofu (beancurd, incl. hard, soft, and smoked).

685. Ratner, Jay. 2000. Chinese whispers: The Orient in London’s Piccadilly features two items on its menu which are often missing from Chinatown restaurants—excellent service and superb food. *Guardian (England)*. March 12. p. G69.

• **Summary:** This is a review of the Chinese restaurant The



Orient at China House (160 Piccadilly, London, W1). And “crisp green beans were dressed in a light black bean and ginger sauce.”

686. Chen, Ingfei. 2000. Diet wisdom from the East: New research confirms it. The simple, mouthwatering meals that Asians have eaten for centuries hold disease-fighting secrets that we should all take to heart. *Health*. April. p. 126-31, 177-78.

• **Summary:** With recipes by Nina Simonds. Photos by Brooke Slezak. Nina, age 47, lives in a cozy brick home in Salem, Massachusetts. An author and expert on Asian cuisine, she has just prepared a small feast for her husband and a few guests. Walter Willett, head of the nutrition department at the Harvard School of Public Health, is “nibbling on boiled *edamame*, or soybeans. Nina’s passion is the health benefits of Asian cuisines, which use less meat, more veggies, and less artery-clogging fat—with meals that are quick, simple, and delicious. These health benefits of an “almost-vegetarian” diet are being proven by the Cornell-Oxford-China study, directed by T. Colin Campbell, with vital assistance from Chen Junshi, a nutritionist from Beijing. They conducted huge studies in 1983 and 1989. The first study showed that the Chinese get only 15% of their calories from fat, compared with 34% in America. Moreover, the Chinese consume three times as much fiber and a third less protein. But 89% of their protein is from plant sources, whereas 70% of U.S. protein is from animal sources other than fish—such as meat, poultry, eggs, and dairy products. The conclusion: Americans out to be eating more plant foods.

In 1994 Willett and his colleagues at Harvard teamed up with the Oldways Preservation and exchange trust in Boston to introduce the traditional Mediterranean diet pyramid. A year later, in 1995, a rival Asian diet pyramid based largely on Campbell’s work, made its debut. They agree on several key points. Eat plenty of grains (ideally whole grains) and veggies, and cut way back on red meat.

Nina Simonds, hoping to ease her passage through perimenopause, has been adding “extra tofu and soy” to her meals. Soy-related recipes include: Wild mushrooms with ginger-soy dressing [with soy sauce]. Photos show: (1) Nina Simonds smiling. (2) Walter Willett nibbling on edamame. (3) A close-up of edamame in the pods.

A sidebar titled “Foods for lifelong health: From the Asian pantry” (p. 129) discusses the importance of balancing the body’s yin and yang. One part states: “Soy—Ancient wisdom: Fermented black soybeans are used to treat lung and digestive problems. Tofu is said to boost energy, lubricate the intestines, detoxify the body,” and prevent vomiting, intoxication, and high blood pressure. Modern research shows that soy protein can lower high blood cholesterol levels. Generous servings of isoflavone-rich soy may partly explain why prostate and breast cancer rates are so low in

Asia. These isoflavones also appear to bolster bone density and may ease menopausal symptoms.

687. Lear, Jane Daniels. 2000. Kitchen notebook: Behind the scenes with *Gourmet’s* cooks. *Gourmet* 60(5):255-58, 261. May.

• **Summary:** The title page announces that in this article you will learn “How to work soy into your everyday culinary repertoire.” The full-page section titled “Toying with soy” (p. 256) observes that there has recently been an “explosion of soy.” It’s no longer limited to natural foods stores and Asian markets. In a typical grocery store or supermarket, you’ll find tubs of tofu in the produce section, soy milk next to the cow’s milk in the dairy case, and *edamame* soybeans in the frozen foods section.

“Well, the stuff is good for you.” So Americans are learning how to cook with it and make it delicious—as many people in East Asia have long known how to do. Focuses on four foods: Edamame (“better than beer nuts”), miso, tofu, and Chinese fermented black beans (actually fermented black soybeans, sold in Asian markets and sometimes labeled “Preserved beans”). A large photo shows these four foods; the edamame are in a metal Japanese-style strainer.

“Perhaps the most irresistible, and nutritious, cocktail nibble going these days is edamame—young, tender soybeans usually eaten straight from the pod. (Gently suck the beans into your mouth, and when serving them, don’t forget to provide a bowl for the pods.)”

One recipe is given: Kemp Minifie’s panfried tofu with Chinese black bean sauce (with “2 tablespoons Chinese fermented black beans”—which is standard fare at her Sunday night suppers. “Her ten-year-old daughter loves it so much that she’s requested it as her birthday meal for several years”).

688. Adie, M. Muchlish; Widowati, S.; Soedarjo, M. 2000. The characteristics of Indonesian soybean varieties, and its importance to the soybean processing. In: Kyoko Saio, ed. 2000. Proceedings—Third International Soybean Processing and Utilization Conference. Tokyo, Japan: Korin Publishing Co., Ltd. [xxiv] + 728 + 8 p. See p. 79-80. [6 ref]

• **Summary:** A survey by Indrasari (1991) showed that consumption of tempeh and tofu in Indonesia were 1,065 gm per capita per month, and 866 gm per capita per month, respectively. Address: 1,3. Research Inst. for Legume and Tuber Crops, PO Box 66 Malang, Indonesia; 2. Research Inst. for Food Crops Biotechnology, Jalan Tentara Pelajar 3A Bogor, Indonesia.

689. Li, Lite; Li, Shujun. 2000. Reviews on Chinese fermented soybean foods. In: Kyoko Saio, ed. 2000. Proceedings—Third International Soybean Processing and Utilization Conference. Tokyo, Japan: Korin Publishing Co., Ltd. [xxiv] + 728 + 8 p. See p. 701-06. [8 ref]

• **Summary:** Contains excellent, original and detailed information about fermented tofu (sufu) and fermented black soybeans (*douchi*).

Contents: Introduction. Developing history of soybean and soybean foods in China: History of soybean cultivation in China (it began about 4-5,000 years ago), distribution and yield of soybean in China, important role of soybean in Chinese food culture and diet, fermented soybean foods. Present situation of fermented soybean foods in China: Kinds and distribution of Chinese fermented soybean foods (sufu, *douchi*, *doujiang*, soy sauce, etc.), processing technology and applied microorganisms for Chinese traditional fermented soybean foods (Sufu—classification of sufu, processing technology of sufu, microorganisms used in mold cultivation, microorganisms used in fermentation; *Douchi*—same categories). Developing tendency and countermeasure of fermented soybean foods.

Classification of sufu: (1) According to the color and flavor of product: red sufu, white sufu, green sufu, sauce sufu, colored sufu. According to the morphology of the product: biggest rectangle sufu, big sufu, middle rectangle sufu, chess sufu. Based on the type of microorganism applied in the process: bacterium sufu, mould sufu, halophilic pediococcus sufu.

Figures show: (1) The main soybean producing provinces in China (1996): Heilongjiang 31%. Shandong 9%. Henan 7%. Hebei 6%. Inner Mongolia 6%. Jilin 5%. Other 36%.

Tables show: (1) Steps in two types of sufu production: Mould sufu, and halophilic pediococcus production. (2) Species of microorganisms (16) isolated from sufu and the area of sufu production. (3) Characteristics of main kinds of *Mucor* applied in Sufu-making (for main kinds; for each kind is given: mycelium, sporangiophore, sporangiospore, spore axis, thick spore suitable temperature). (4) Brief introduction to six famous *douchi*: Four of the six are made using black soybeans (a) Sichuan province, Santai county. History goes back more than 300 years. Made with *Mucor racemosus* mold (naturally fermenting). (b) Sichuan: Yong Chuan *Douchi*, a famous brand. Made with *Mucor* mold. History goes back more than 300 years. (c) Hong chang fa *douchi*. About 60 year history. (d) Yang jiang *douchi* (Yangjiang *douchi*), made with *Aspergillus* mold and black soybeans. Note: Yangjiang is a city in Guangdong province, China. (e) Liu yang *douchi* (Liuyang *douchi*), made with *Aspergillus* mold and black soybeans. (f) Lin yi shui *douchi*, fermented with a bacterium. History goes back more than 130 years. Address: China Agriculture University, Beijing 100083.

690. Yoshida, Shuji. 2000. The origins of fermented soybeans and their distribution. In: Kyoko Saio, ed. 2000. Proceedings—Third International Soybean Processing and Utilization Conference. Tokyo, Japan: Korin Publishing Co., Ltd. [xxiv] + 728 + 8 p. See p. 697-700. [8 ref]

• **Summary:** The origins of two types of fermented soybeans will be discussed: (1) *Jiang* is used in preserving meat. (2) *Dou-chi* is used in brewing.

*Jiang* existed in the lower Huang-He [Yellow River] area before the Yin dynasty, ca. 1500 BC. *Doujiang*, *jiang* made of soybean, seems to have been invented much later, during the Han dynasty, around 300 B.C.

However *dou-chi* was already known in the middle and lower reaches of the Chang Jiang River [Yangtze River, which enters the ocean {East China Sea} near Shanghai, in southern China] before the Han dynasty. *Dou-chi* [fermented black soybeans] spread northward to the northeastern part of China, westward to Nepal, southward to Indonesia, and eastward to Japan.

1. *Dou-chi* and *dou-jiang*. *Dou-chi* is the oldest type of fermented soybean made by fermenting soybeans with species of *Aspergillus* mold. “‘*Dou-chi* with ginger’ was found in the ancient Ma Wang Dui Tomb no. 1 which was probably built in BC 186. Thus, *dou-chi* appeared in the Han Dynasty and was supposedly invented before the Qin dynasty (Bo 1984).”

The idea of culturing a “*koji*” mold on cooked soybeans was probably derived from the brewing process. Thus, instead of fermenting a cereal grain (such as rice for saké) they attempted to ferment soybeans. But as often happens, the final product was different from what had been expected. The result was a soybean covered with a mycelium of yellowish mold (*dou-huang*, where *dou* = soybean + *huang* = yellow). “‘*Dou-chi* is a sophisticated form of *dou-huang*; *douchi* is soaked in a little water and fermented for more than one month.”

“*Jiang*, on the other hand, is probably derived from meat preservation. In the early days, meat was preserved simply by adding salt. Later, *koji* mold was employed for preservation and *koji* was produced. *Jiang* existed in the northern part of China during the Yin dynasty, about 1500 BC. Soybean *jiang* (*dou-jiang*), however was a relatively new product. It never existed before about the 3rd century B.C., during the early Han dynasty (Ishige & Raddle 1990).”

*Dou-chi* and *dou-jiang* each are connected with brewing. “I am not concerned here with the history of brewing in China but I will briefly introduce the hypothesis on *koji* mold development. There are two types of *koji*, the grain type and the cake type.” The grain type was first introduced in the Chang Jiang [Yangtze] River area of southern China; from there it migrated to northern China. The cake type of *koji*, however, was invented in northern China (Yoshida 1993a).

Following this hypothesis, *dou-chi* was derived from the grain-type of *koji*, not from the cake type. “Therefore I assume that *dou-chi* originated in the Chang Jiang [Yangtze] River area of southern China, where the grain type was invented and is still popular. In practice, *dou-chi* is preferred in southern China.” The *dou-chi* method of culturing mold on cooked soybeans was practiced before *dou-jiang* was

invented. When the molded soybean method was introduced to northeastern China via northern China, it became common to produce dou-chi using the local soybeans produced in that area I assume that northeast China is the second center of dou-chi production; from there it spread to Korea and Japan. In Japan, dou-chi is known as “miso” [sic]. Address: National Museum of Ethnology, Osaka (Kokuritsu Minzokugaku Hakubutsukan), Japan.

691. Huang, H.T. 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.

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.

Note: This is the earliest English-language document seen (Feb. 2004) that uses the term “hsün tou fu” [pinyin: *xun doufu*] to refer to smoked tofu. Soy is also discussed in other parts of the book. Address: Alexandria, Virginia.

692. Evans, K. Lee; Rankin, Chris. 2000. Giant book of tofu cooking. New York, NY: Sterling Publishing Co., Inc. 256 p. Illust. (color photos). Index. 28 cm.

• **Summary:** A beautiful vegetarian cookbook, with many color photos on glossy paper, excellent use of standard terminology (except for “freeze-dried tofu”), and 350 healthful, delicious recipes. Contents: Introduction. Tofu basics and techniques: Getting started (buying tofu {soft tofu, firm tofu, extra-firm tofu, silken tofu, marinated tofu, smoked tofu, freeze-dried tofu, fermented tofu}, storing tofu, preparing tofu for your recipes {draining and blotting, pressing, freezing and thawing, blending, cubing and dicing, crumbling, shredding / grating, marinating, boiling

slightly sour tofu, frying, deep-frying}), other soy products (edamame, meat alternatives, miso, soy cheese, soy flour, soy ice cream, soy milk, soy sauce, soy sprouts, soy “yogurt,” soynut butter, soynuts, tempeh, textured soy protein, whole dry soybeans), tofu and a healthier you (introduction, protein, heart disease, cancer, menopause, osteoporosis, our planet), simple ingredient substitutions (eggs, milk, cheese, butter, salt, sugar {honey, molasses, maple syrup, rice syrup, barley malt syrup}). Ingredient glossary: Incl. arrowroot, balsamic vinegar, bamboo shoots, barley malt syrup, fermented Chinese black beans, filé powder, galangal, garam masala, garbanzo beans, Hoisin sauce, liquid smoke, mirin, miso, nutritional yeast, phylo or filo, pickled ginger, quinoa, rice noodles, rice papers, rice syrup, sake, shoyu, tahini, toasted sesame oil, vegetarian gelatin, vegetarian Worcestershire sauce (“Just like the original, it is made of soy, vinegar, and spices, but without the anchovies”), wakame, wheat germ. Breakfast. Appetizers. Soups. Salads. Lunch and dinner. Dressings, sauces, and spreads. Desserts. Metric conversion chart. Acknowledgments.

693. Kulp, Karel; Ponte, Joseph G., Jr. eds. 2000. Handbook of cereal science and technology. 2nd ed., revised and expanded. New York, NY: Marcel Dekker. ix + 790 p. Illust. Index. 29 cm. Series: Food Science and Technology, No. 99.

• **Summary:** Chapter 26, “Fermentation and microbiological processes in cereal foods,” by Pierre Gélinas and Carole McKinnon (of Food Research and Development Centre, Agriculture and Agri-Food Canada, St. Hyacinthe, Quebec, Canada) (39 refs) (p. 741-54) contains a long table (p. 742-46) titled “List of foods prepared from fermented cereals.” The four columns are: (1) Food name (synonym or related food). (2) Food type (characteristics). (3) Area (country or continent). (4) Main microorganisms.

Under “Soybeans” the following foods are listed: Chee-fan. Chinese yeast. Hama-natto. Kenima. Ketjap. Meitauza. Meju. Miso (chiang, doenjang, kochujang, tauco). Natto. Soy sauce (kanjang, kecap, kicap, shoyu, taosi [sic]). Sufu (tahuri, taokoan tao-hu-yi). Tairu (taire—fermented soybean milk, like yogurt, from Malaysia). Taotjo. Tempe (tempeh).

“Chee-fan” is described as “Curd-like” [fermented tofu] from China. Main microorganisms: *Mucor* spp., *Aspergillus glaucus*.

Note 1. Taokoan (listed under Sufu, above) is not a fermented food. It is the Filipino equivalent of Chinese *doufu-gan* or “pressed tofu.” Filipino fermented tofu is *tahuri* (also spelled *tahuli*).

Table 2, “List of representative microorganisms associated with fermented cereal foods” (p. 74-48) contains two columns: (1) Type of microorganism (and within type, genus and species, listed alphabetically by genus). (2) Food produced.

Under “Bacteria” are: *Bacillus natto*—Hama-natto [sic], natto. *Lactobacillus delbrueckii*—Miso, soy sauce.

*Pediococcus* spp.–Hamanatto. *Pediococcus halophilus*–Soy sauce. *Streptococcus* spp.–Hama-natto.

Under “Bacteria” are: *Actinomucor elegans*–Meitauza, sufu. *Aspergillus glaucus*–Chee-fan. *Aspergillus oryzae*–Hama-natto, ketjap, meju, miso, saké, soy sauce. *Monascus purpureus*–Anka (ang-kak, beni-koji, red rice), hong-ru (lao-hong). *Mucor* spp.–Chee-fan, ruhi, sufu. *Mucor hiemalis*–Sufu. *Rhizopus oligosporus*–Tempe.

Under “Yeasts” are: *Candida* spp.–Soy sauce. *Zygosaccharomyces rouxii*–Miso, soy sauce.

The section on “Major commercial fermentation processes” includes (p. 752-53) soy sauce (from wheat and soybeans) and miso (from rice and soybeans)

Note 2. Koji, the basis of soy sauce, miso, and saké fermentations, is not mentioned in either of the first two tables. However it is mentioned by name on p. 753. Address: 1. American Inst. of Baking; 2. Prof. Emeritus, Kansas State Univ. Both: Manhattan, Kansas.

694. Wilkinson, Endymion Porter. comp. 2000. Chinese history: A manual. Revised and enlarged. Cambridge, Massachusetts: Harvard University Press / Harvard Yenching Institute. xxiv + 1181 p. Index. 23 cm. Harvard Yenching Institute Monograph Series, 52. 1st ed. 1998. [500+\* ref]  
 • **Summary:** A remarkable and extremely valuable book. Partial contents: Introduction: Recent historiographical trends, center and periphery, periodization, the dynasties. I: Basics. 1. Language. 2. Dictionaries. 3. People. 4. Geography. 5. Chronology. 6. Telling the time. 7. Statistics: Numbers and order of magnitude, population, weights and measures, money, prices. 8. Guides and encyclopedias. 9. Locating books. 10. Locating secondary sources. 11. Libraries.

II: Pre-Qin sources. 12. Archaeology. 13. Pre-Qin archaeology. 14. Prehistoric signs and symbols. 15. Oracle bone inscriptions. 16. The characters: Evolution and structure. 17. Epigraphy. 18. From bamboo strips to printed books. 19. Excavated and transmitted texts.

III: Historical genres. 20. Primary and secondary sources. 21. Annals. 22. Standard histories. 23. Topically arranged histories. 24. Miscellaneous histories. 25. Government institutions. 26. Official communications. 27. Law. 28. War.

IV: Other primary sources... 35. Agriculture, food and the environment. 36. Medicine. 37. Technology and science... 42. Foreign accounts of China.

V: Primary sources by period.

In the chapter titled “Agriculture, food and the environment,” section 35.2.2 on “Pre-Qin foodstuffs and cooking” (the Qin dynasty, 221-206 B.C., came just before the Han) states that the staple dishes, cooked mainly by boiling or steaming, were typically “accompanied by a savory paste (*jiang*, *misô* in Japanese) made from hydrolyzed (fermented) meat, fish, crustaceans, or, most important of

all, soybeans” (Footnote 8). “The soybean is indigenous to northeast China. Its cultivation began in the Zhou period. It was a major source of protein, especially for peasants and laborers. Starting in the Yangzi valley, it was brined and hydrolyzed into the characteristic Chinese flavoring, soy sauce (*jiangyou*) (9). By the Han, a new process had been discovered; if the production was interrupted half way and the beans dried, they became blackened and delicious. Along with savory pastes (*jiang*) and pickles (*zu*), these fermented soybeans (*chi*) were immensely popular (10).”

Footnote 8: See *Zhongguo shiqian yinshishi* (A history of Chinese prehistoric food and drink), Wang Renxiang, ed. in chief, Qingdao, 1997.

Footnote 9 (p. 638): “The origin of ‘soya’ in European and other languages is from either *xiyao* [fermented black soybean sauce] or *shôyu* (the Cantonese and Japanese for *jiangyou* [soy sauce] respectively). The early generic word was *shu* (*Glycine max*), later *dou*, and later still *dadou* to distinguish it from post-Han imported pulses.”

Footnote 10: “*Chi* used to be pronounced *shi*. Other names for *chi* were *douchi*, *daku*, and *nadou* (*nattô* in Japanese).”

Section 35.2.3 on “New foodstuffs and cooking” covers the period from the beginning of the Han dynasty in 202 B.C. Noodles (*bing*) were introduced. Soybeans (in the forms of *jiang* and fermented black soybeans {*chi*}) remained an important source of protein. Alfalfa (*musu* or *mushu*), peas (*hudou*, modern *wandou*), and sesame (*huma*, modern *zhima* or *mazi*) are said to have been introduced by Zhang Qian, the emissary from the Former / Western Han dynasty. By the Tang “bitter fermented blackened soy beans” (*huchi*) had been introduced; *hu* means “barbarian.” Tofu (*doufu*) is first mentioned in the early Song dynasty. It was imported into Japan and first appeared there in a document dated 1183. “It was used as a substitute for meat and fish in Buddhist vegetarian cooking.” New World crops which made their way into China from the 16th century include peanuts (*fandou*, modern *huasheng*), chili, corn, sweet potatoes, and tomato (p. 643).

Note: The author was educated in England. Address: Head of Delegation and Ambassador to China for the European Commission.

695. Shurtleff, William; Aoyagi, Akiko. 2001. The book of tofu. 2nd ed. Revised. Berkeley, California: Ten Speed Press. 336 p. May. Illust. by Akiko Aoyagi Shurtleff. Index. 28 cm. [321 ref]

• **Summary:** This edition contains an updated “Appendix B–Directory of Tofu Makers” (p. 313-316, updated to 22 Feb. 2001). The copyright page and inside rear cover have also been updated. The preface has been expanded. Numerous other small changes have been made throughout the book. Address: Soyfoods Center, P.O. Box 234, Lafayette, California 94549. Phone: 925-283-2991.

696. Fujita, Hiroyuki; Yamagami, T.; Oshima, K. 2001. Long-term ingestion of a fermented soybean derived Touchi-extract with  $\alpha$ -glucosidase inhibitory activity is safe and effective in humans with borderline and mild type-2 diabetes. *J. of Nutrition* 131(8):2105-08. Aug. [31 ref]

• **Summary:** How interesting that the word “touchi” should be considered the modern scientific name of fermented black soybeans (pinyin: *douchi, doushi*).

“Touchi extract (TE) is a fermented soybean product prepared by first steaming and then fermenting soybeans with koji (*Aspergillus* sp.)” molds. It has been found to counteract hyperglycemia in rats and humans. “It may be a useful tool for improving glycemic control in people with borderline type-2 diabetes mellitus.” Address: Research and Development Dep., Nippon Supplement Inc., Kita-ku, Osaka, Japan.

697. Gai, Junyi; Guo, Wentao. 2001. History of *maodou* production in China. In: T. Lumpkin, ed. 2001. Second International Vegetable Soybean Conference. Pullman, Washington: Washington State University. 202 p. See p. 41-47. [5 ref]

• **Summary:** Two books review the ancient Chinese literature on the history of soybean production: (1) *Dou Lei (Legumes)*, by Li Chang-Nian, published in 1958; (2) *History of Soybean Cultivation in China*, by Guo Wen-Tao, published in 1993. Both authors are from the Chinese Agricultural Heritage Institute (Nanjing Agricultural University, Nanjing, Jiangsu 210095, China).

The author then cites ten early mentions of soybeans in Chinese literature: The first three are from three different sections of the *Shi Jing [Shijing]* (6th century BC); the others are from the *Zhou Shu* (5th to 3rd century BC), *Zhou Li* (3rd century BC), *Meng Zi* (3rd century BC), *Mo Zi* (5th to 4th century BC), *Xun Zi* (3rd century BC), *Li Ji* (1st century BC), and *Zhan Guo Ce* (1st century BC).

Noting that the *Shi Jing [Shijing]* contains the oldest Chinese literature, he adds that it “is a collection of poems circulated among the people from the Western Zhou Dynasty to the Spring and Autumn Period. Some of them might be works from the Shang Dynasty [ca 1600-1045 BC]. The book was edited and finished in the middle Spring and Autumn Period (6th century BC). Mao Hēng (Western Han Dynasty, 2nd century BC), Zheng Xuan (Eastern Han Dynasty, 2nd century AD), Lu De-Ming (Tang Dynasty, early 7th century AD), and Kong Ying-Da (Tang Dynasty, 642 AD)” each wrote commentaries on the *Shi Jing* to explain its meaning. From the literature listed above, the following points about soybeans can be derived: (1) Soybeans and millet played a significant role among the five or nine major Chinese crops during the period from the Western Zhou Dynasty (6th century BC on) through the Spring and Autumn Period and Warring States, even to the Qin [221-206 BC]

and Han [202 BC to 220 AD] dynasties. “This is indicated by statements about gentlemen using stewed soybeans as their major meal and even the emperor [in the *Zhou Shu*, 5th to 3rd centuries BC] taking soybeans taking soybeans and chicken as his major daily food.

“(2) The way to eat soybeans during that time was to stew the seeds as meal and to cook young green leaves as soup. These ways of preparation had a significant influence on the later adoption of eating immature green soybeans (*maodou*).

“(3) In ancient China, proverbs about soybeans existed before relevant Chinese characters were invented. Texts related to soybeans were recorded as soon as relevant characters were created from about 2700-3000 years ago. Oral works from the Shang Dynasty recorded in the *Shi Jing* date to 3600 years ago. From these records it can be inferred that soybeans existed during the Yan-Huang and Hou-Ji period, 5000 years ago” (p. 41-42). Note 1. The last three sentences are pure speculation and unsupported by any known evidence. The earliest solid evidence for soybean domestication in China dates from about the 11th century BC (Hymowitz 1970, p. 415-17).

The soybean is called “soy, soja, or soya” in Western countries, “which originates from the pronunciation of the Chinese character ‘Shu.’” Note 2. Most etymologies of the words “soy,” “soybean” and “soya” state (correctly, we believe) that they are derived from the Japanese word *shōyu* meaning “soy sauce.”

Soybeans were used and processed in 4 different ways in ancient China (for each he gives a citation): (1) The dried seeds were stewed for daily meals and the young leaves were used as a vegetable to make soup. (2) The seeds, stems, leaves, and pods were used as animal feed. (3) The soybean was used for medicinal purposes. (4) Technology was developed for making various kinds of soyfoods, such as fermented black soybeans, tofu, doujiang, soybean oil, soybean sprouts, etc.

The section titled “Historical textual research on *maodou* in ancient China” cites 6 early documents which are said to mention immature green soybeans. Each of these six are cited elsewhere. A 7th was the *Jie-An Man-Bi* (Ming dynasty, by Li Xu, 16th century) which states: There are some varieties [of *maodou*] with fragrant flavor and glutinous taste, and some with flavor like ginkgo seeds. Those are new varieties.

“The exact record and time of the initial utilization of green pods and beans has not been discovered in the literature.” The practice of picking green pods, shelling them for immature seeds, and even putting them on the market for sale, existed by the 12th century (Song dynasty). The term *maodou* first appeared in the literature during the 17th century (Ming dynasty).

Since then the term *maodou* has appeared extensively in the literature, for example: (1) *Nong-Pu Bian-Lan* (1755). (2)

*Qi-Ming Si-Shu* (1846). (3) *Jin-Si Tu-Can Biao-Lue* (1898). (4) *Yong-Chen Tu-Can-Biao* (1899). (5) *Zhi-Wu Ming-She Tu-Kao* (19th century). These texts include statements such as: Green immature soybeans are especially delicious; the fried ones can be served as vegetable dishes. And: Yellow soybeans (*huang-dou*) are now also called *maodou*. There are different varieties. They can be used as a vegetable at an early stage, then as a major food after maturity. They are necessary for the daily life of the people.

From ancient times to the present, green vegetable soybeans (*maodou*) have been most widely cultivated and consumed in the southern half of China, especially in two areas: (1) The lower and middle Yangtze valleys and drainage systems, in the provinces of Jiangsu, Shanghai, Zhejiang, and Anhui. The total area grown here today is about 100,000 ha. (2) Southeast China along the seacoast, including Taiwan, Fujian, and Guangdong provinces. The total area grown here today is about 30,000 ha. Address: 1. Director and Professor, National Center of Soybean Improvement, Ministry of Agriculture; Soybean Research Inst., Nanjing Agricultural Univ., Nanjing, Jiangsu 210095, China. E-mail: sri@mail.njau.edu and nausri@public1.ptt.js.cn.

698. Mai, Pham. 2001. Pleasures of the Vietnamese table: Recipes and reminiscences from Vietnam's best market kitchens, street cafés, and home cooks. New York, NY: HarperCollins Publishers. xii + 242 p. Aug. Illust. (Photos by Martin Jacobs, some color). Index. 24 cm.

• **Summary:** This is a marvelous, very original book, with real passion for food and cookery and a deep curiosity on this subject and desire to learn. It overflows with warmth, devotion, and kindness, and is full of insights about Vietnam, its food, and most of its best cooks—street food cooks. Here we see the origin of the modern restaurant and its chefs. Contains more than 100 authentic recipes and many black-and-white photos.

The Vietnamese eat fresh herbs like vegetables. The Hmong are one of Vietnam's ethnic groups.

The ancestors of today's Vietnamese migrated south from southern China in about 1500 BC. By the 2nd century BC they had annexed the country and introduced their system of government, Confucianism, and Buddhism. Over the centuries they introduced their food traditions—stir-frying, eating with chopsticks, steaming, and such ingredients as soy sauce, tofu, noodles, and ginger.

Vietnam is often divided into three culinary regions: the fertile south, the cooler central region, and the harsh, mountainous north—which suffered most from recent American war.

Important ingredients include: Bean sauce (*tuong hot*). Hoisin sauce (*sot tuong*). Soy sauce (*nuoc tuong* {liquid}); Brands—Pearl River Bridge, Kikkoman. Although not used as widely as fish sauce, soy sauce is a common seasoning in

vegetarian and stir-fried dishes).

Soy related recipes: Vietnamese bean dipping sauce (*tuong goi cuon*, with ¼ cup fermented whole soybeans {*tuong hot*}, p. 28). Soy-lime dipping sauce (*nuoc tuong pha*, with 1/3 cup soy sauce, preferably light Chinese style sold under the brands Kim Lan, Bo De, or Pearl River Bridge, p. 29). Sweet soy sauce with chilies and ginger (*nuoc tuong den ot*, with 3 tablespoons sweet soy sauce, p. 30, 37). About soy sauces (light, dark, and sweet, p. 37. Kikkoman is considered light. There are two types of dark soy: One, also called “black soy,” contains molasses and is thick. The other, called sweet soy sauce, is even thicker and sweeter).

Tofu, tomato and chive soup (*canh dau hu he*, with 6 ounces soft or medium tofu, p. 74). About fermented black beans [fermented black soybeans] (*tau xi*, an ancient Chinese seasoning, also called salted black beans, are sold in 1-pound plastic bags, paper cartons, or earthenware jars. The author prefers Yang Jiang Preserved Beans with Ginger by Pearl River Bridge).

Chapter 7 is “Return to the grandmotherland: Vegetarian favorites and meatless recipes.” Of her beloved grandmother (now age 102) she writes: “When my grandfather died years ago at an early age, my grandmother was forced to raise seven kids by herself while running the family plantation. That twist of fate turned her into a vegetarian, in part because vegetarianism is a form of merit-making” (gaining merit, *duoc phuoc*). “In doing so, one's wishes would be granted. In my grandmother's case she prayed for the well-being of her children.” “Many Vietnamese are vegetarians who practice vegetarianism on one level or another... With the shortage of animal protein and the pervasiveness of the Buddhist influence in the culture, it is not uncommon to find many Vietnamese dishes eaten in two ways—*man* (with meat) and *lat* (without meat). Indeed almost every meat dish in this book can be made vegetarian.”

Vegetarian recipes (p. 185-99, with tofu unless stated): Salad rolls with jicama, peanuts and basil (*bo bia chay*, with 1 {6 ounce} piece tofu and 1 tablespoon soy sauce). Salad rolls with tofu and mushrooms. About tofu and *tau hu ky* [yuba or dried yuba sticks]. Cucumber and tofu salad (*goi chay*). Vegetarian pho noodle soup (*pho chay*). Vegetable curry (*ca ri chay*, with 2 pieces dried bean curd skin [yuba]). Spicy lemongrass tofu (*dau hu xa ot*). Rice noodles with stir-fried vegetables (*bun chay*). Vegetarian claypot rice with ginger (*com tay cam chay*). Black mushrooms with bean threads in claypot (*nam kho*). Water spinach with tofu (*rau muong xao*). Twice-cooked eggplant with garlic and basil (*ca tim xao rau que*).

Warm soymilk with pandanus leaf (*sua dau nanh*, with 1 pound dried soybeans made into fresh soymilk, p. 220-21). The headnote to this interesting recipe begins: “I grew up on soy milk, but never thought of making it fresh until I started until I started going back to Vietnam. There, fresh soy milk is sold at markets and on street corners early in the morning

and late at night. Sometimes I can walk into a market and just sniff my way to a soy milk vendor. I definitely have a nose for *sua dau nanh*, especially if its been flavored with pandanus leaf.”

Glossary (p. 223-32) includes: Bean sauce (*tuong*). Fermented black beans (*tau xi*). Fermented soybeans (*tuong hot*). Hoisin sauce (*sot hoisin*, incl. soybean purée). Peanuts (*dau phong*). Tofu (*dau hu*).

About the author (with portrait photo on inside rear dust jacket): She was born in Vietnam and raised in both Vietnam and Thailand. She fled Vietnam “just days before Saigon fell to Communist rule on April 30, 1975. We left with the clothes on our backs, fighting our way through the pandemonium at the airport before climbing aboard a plane that would fly us to safety.” Six years ago she ventured back to Vietnam for the first time—to be with her grandmother (and give her a modern wheelchair) and to eat *pho*. Her inaugural tour to Vietnam in 2000 was televised internationally by CNN, and was frequently rebroadcast on United and Delta airlines. She has returned about once a year since then, for the same reasons but also to learn about the food and cookery from the best cooks in the country—at market stalls, not fancy restaurants. She is now chef and owner of the acclaimed Lemongrass Restaurant in Sacramento, California. She also writes and teaches. Her first book, *The Best of Vietnamese and Thai Cooking* was published in 1996. Address: Chef and owner, Lemon Grass Restaurant, Sacramento, California.

699. Carter, Rachel; Kistner, Stephanie. eds. 2001. *The soy alternative*. Vancouver, BC, Canada: Whitecap Books Ltd. 240 p. Illust. (color). Index. 26 cm.

• **Summary:** This is an attractive book, with a full-color photo on almost every other page. However it is edited by a team of people who apparently don’t know much about the subject, since it contains many factual errors. It has no real author and many publishers, the main one being Murdoch Books, a division of Murdoch Magazines Pty. Ltd. (Sydney, Australia).

Contents: The soy story. Glossary of ingredients. Soy for breakfast. Breakfast in a glass. Soy for lunch. Soy for Sunday lunch. Soy for vegetarians. Note: The rest of the book is not vegetarian, containing recipes for beef, lamb, chicken, pork, etc. Soy for dinner. Soy for parties. Soy for dessert. Soy at teatime. Cookery terms. Address: 351 Lynn Ave., North Vancouver, BC, Canada V7J 2C4.

700. Wilkinson, Endymion. 2001. Chinese culinary history. *China Review International (Hawaii)* 8(2):285-302. Fall. [49 ref]

• **Summary:** This article consists of reviews of three books. The first book (p. 285-91) is: H.T. Huang (Huang Hsing-Tsung). *Fermentations and Food Science*. Part 5 of *Biology and Biological Technology*, volume 6 of *Science and Civilization in China*, edited by Joseph Needham.

Cambridge: Cambridge University Press, 2000. xxviii, 741 pp. Hardcover. £90. ISBN 521-65270-0. This is an excellent, positive review by a man who is deeply knowledgeable and interested in both Chinese history and Chinese food history. He was European Union Ambassador to China from 1994 to 2001 and author of one of the best books on Chinese history. He begins by noting that this book “goes to the very heart of what makes Chinese food Chinese by tracing the historical development of the chemical basis of the fermentations used in Chinese food processing. Dr. Huang is deeply qualified to write such a study...” He discusses each chapter in order. Concerning chapter (d) on soybean processing and fermentation, he observes: “From the Han to the Tang soybeans were normally cooked into granules (*doufan*) or congees (*douzhou*) and eaten as a staple (*zhushi*). By the Tang, wheat was replacing soybeans, which were increasingly used as a supplemental food (*fushi*).” Because soybeans had an unpleasant beany flavor and required a long time to cook by boiling, the Chinese experimented with other ways of processing them. Sprouting beans (*dadou huangjuan*) had been used as a medicine since at least the Han; soybean sprouts emerged as a foodstuff in the Song. “A form of soybean curd (*doufu* in Chinese, pronounced *tofu* in Japanese) may have been discovered in the Han but it only became a popular foodstuff in the Song (at which time it was imported to Japan by Buddhist monks, who at first called it Chinese curd, *Tôfu*).” Note: The first character, when pronounced *Tô* in Japanese means “China,” but when pronounced Tang refers to that Chinese dynasty (618-907) shortly before the Song (960-1279).

“By the Former Han, salted or semi-fermented black beans (*shi*; modern pronunciation, *chi*, *douchi*) were produced by stopping the fermentation process halfway...” Huang believes that soy sauce made from *jiang* began to emerge during the Han dynasty but did not acquire its modern name of *jiangyou* (soy sauce) until the Song “(it is only from the Qing [1644-1912] that it became the main condiment and seasoning in Chinese cooking).”

Wilkinson is critical of the series editor for the continued use of Needham’s obsolete system of romanization.

The second work is: Xu Hairong, editor in chief. *Zhongguo yinshi shi* (The history of Chinese food and drink). 6 volumes. Beijing: Huaxia Chubanshe, 1999, 4,067 pp. Hardcover. ISBN: 7-5080-1958-X. Since the 1980s, much excellent research has been done on Chinese culinary history, and this 6-volume Chinese-language work sums up much of this scholarship. More than 4,000 pages long (with plenty of illustrations), it is by far the largest history of Chinese food and drink available. Most of the authors are professional historians and several have already made important contributions in this field. A brief analysis of each volume is given. Unfortunately, the absence of an index makes this large work difficult to use as a reference. It is followed by an overview of other valuable works (mostly in Chinese) in the

field.

The third book is *The Cambridge World History of Food*, 2 vols. (2000). Wilkinson is sharply critical of this work, both because so little material on Chinese culinary history is presented, and because that material contains so many errors and inconsistencies—examples of which he presents one by one for 4 pages! Address: Harvard Univ. [Cambridge, Massachusetts].

701. Kiuchi, Kan. 2001. Miso and natto. *Food Culture (Kikkoman Inst. for International Food Culture, Noda, Japan)* No. 3. p. 7-10. <http://kiifc.kikkoman.co.jp>. [6 ref. Eng]

• **Summary:** This article makes several statements that, to us, seem very surprising: (1) “Both *miso* (soybean paste) and *natto* (fermented soybeans) are said to have originated in China, but once introduced into Japan they inspired the development of a variety of unique local soybean based products” (p. 7).

Note 1. We believe that *itohiki-natto*, whose main fermentation organism is *Bacillus subtilis* and which is unsalted, originated in Japan, and that *douchi* (fermented black soybeans), whose main fermentation organism is a mold and which is salted, originated in China, long before *itohiki-natto* is thought to have originated in Japan.

(2) “Whole soybeans are used to make *natto*, and because only a single variety of *natto* mold is used in the fermentation process, the beans retain the original shape” (p. 7).

Note 2. Natto (i.e., *itohiki-natto*) is not made with a mold; it is made with a bacterium.

(3) *Natto* is thought to have originated in China’s Yunnan province, although legend has it that *itohiki-natto* (hereinafter simply called “natto”) was invented by accident in Japan’s Tohoku region in the eleventh century when boiled beans that were going bad were eaten and found to be rather tasty.

“The two main varieties of *natto* are *itohiki-natto* and *shiokara-natto*, which is also known as *tera-natto* and includes *daitokuji-natto* from Kyoto and *hama-natto* from Hamamatsu. A bean koji is made using koji mold (p. 9).

Note 3. We believe that the statement “*Natto* is thought to have originated in China’s Yunnan province,…” is very confusing, and that confusion is based on the fact that in Japanese, two completely different and unrelated fermented soyfoods are both referred to as “natto.” We would say instead: Natto (i.e., *itohiki-natto*) originated in Japan and *douchi* (called *shiokara-natto* in Japan) originated in China. Address: Ph.D., Prof., Dep. of Food Science and Nutrition, Kyoritsu Women’s Univ., Japan.

702. Bittman, Mark. 2001. *The minimalist cooks dinner: More than 100 recipes for fast weeknight meals and casual entertaining*. New York, NY: Broadway Books. 211 p. Plus

12 unnumbered pages of color plates. Index. 24 cm.

• **Summary:** This book collects two years of recipes from Bittman’s popular *New York Times* column “The Minimalist,” which cleverly caters to the modern gourmet whose expectations are high but whose time is limited. Includes a recipe for miso soup.

Soy-related recipes: Nearly instant miso soup with tofu (p. 4-5). Curried tofu with soy sauce (with “1 block tofu (about 1 pound) cut into 3/4-inch cubes, p. 18-19). Fish simmered in spicy soy sauce (with “1/3 to 1/2 cup good soy sauce,” p. 102-03). Roast salmon with spicy soy oil (p. 106-07). Salmon with soy and black beans (with “1 tablespoon preserved (Chinese) black beans,” p. 107). Soy poached chicken (p. 140-41). Horseradish (or wasabi) and ginger butter with soy [sauce] (p. 157). Pork cutlet with miso-red wine sauce (with “2 tablespoons red miso,” p. 178-79). Green salad with soy vinaigrette (p. 197). Rice salad with peas and soy [sauce] (“Substitute shelled *edamame* {fresh or frozen soybeans} for the peas if you like, p. 200). Address: New York Times food writer.

703. 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 spare ribs 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 jiang* 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 should ever be eaten raw. Recipes: Soybean sprouts salad {with parboiled soybeans}. Assorted vegetable soup).

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 combatting 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.

704. Ishige, Naomichi. 2001. The spread of soy sauce [and miso]. In: N. Ishige. 2001. The History and Culture of Japanese Food. London, New York, Bahrain: Kegan Paul. x + 273 p. See p. 113-17. [59 ref. Eng]

• **Summary:** Soy sauce and miso are both made by mixing soybeans and miso with a fermenting agent named koji (see Section 2.4, p. 32-35). Prototypes of these fermented soyfoods were probably developed in China during the

Han dynasty (c. 200 BCE to CE 200). The earliest record of their use in Japan appears in the Taihō Code of 701. The fermented soyfoods mentioned in those laws are: (1) Miso. (2) *Kuki*, which was similar to today’s Daitokuji Natto and Hamanatto, in which the beans retain their shape and solidity in the final product. (3) *Hishio*, “a semi-liquid paste or gruel fermented from a mixture of soybean, grains, and sake.”

At least 90% of the miso consumed in Japanese households today is used in miso soup, which most people consume once a day. Miso soup is known to have existed as early as the 10th century, when it was mentioned in the *Engi Shiki*. However “during medieval times it was not part of the meals of the common people. This may have been because miso was considered a luxury and hence not made in quantities sufficient for daily cooking. Instead small amounts were typically consumed by eating a side dish of miso or of vegetables pickled with miso.” Small amounts were also used as a flavoring. Regional varieties began to develop. In order to improve the appearance of food or to impart a lighter flavor, “miso and water (or a cooked mixture of miso and water) would be placed in a cloth bag and the liquid that trickled out would be collected. This refined miso solution was used in preparing elegant meals for the upper class, and later was replaced by soy sauce.”

As noted above, the prototype of soy sauce was *hishio*, a semi-liquid flavoring, which was probably used in Japan as early as the 8th century (Fukuo 1979). Yet it “was probably too expensive to come into general use, for it is harder to make than miso and has a more refined flavour.”

Soy sauce (shoyu) is mentioned in several 16th century documents. By the 2nd half of this century shoyu factories had been established in the Osaka-Kyoto (Kansai) area, “and some trading ships were used exclusively to distribute the product to other regions. It was as a factory-made product that soy sauce became popular, initially coming into use at daily meals among the townspeople whose lives depended upon the commodity economy.” As Edo (today’s Tokyo) grew into a major city, its residents consumed large quantities of soy sauce made in the Osaka-Kyoto (Kansai) area.

Then in the late 1600s, “soy sauce aimed at the Edo market began to be made locally, in the districts that are now called Chōshi and Noda in Chiba Prefecture.” In contrast to the lighter-colored and saltier Kansai product (*usukuchi*), the plants around Edo / Tokyo used a larger proportion of wheat to make a rich, fragrant soy sauce called *koikuchi*. This suited the townspeople of Edo well and by the late 1700s, it had taken over the metropolitan market.

In the cities, by the 1700s, “soy sauce had become the principal seasoning for food and miso had come to be used almost exclusively for soup. But in remote rural districts, miso remained in use as a seasoning for daily meals until the early 20th century, while soy sauce, purchased in small quantities from local factories, was eaten [consumed] only

at festival meals or when serving special guests. Many farm families made their own miso until the 1950s, whereas those families that made only soy sauce were always a rarity.

“Nothing is wasted in making miso, because all of the ingredients are turned into the paste which is eaten. Making soy sauce not only involves more work but also leaves a substantial amount of inedible lees after the liquid is strained [and the lees pressed]. The lower rate of yield from the raw materials made soy sauce a luxury item which the peasantry could not easily produce at home, and so miso remained the everyday seasoning among the rural population. What soy sauce was used was factory made. Besides the local sake brewery, every area had a small soy sauce brewery until the early 20th century, when major firms with large factories and national distribution networks created an oligopoly market for soy sauce and it came into regular use even in poor rural households. Thus the main flavouring of Japanese cooking shifted from miso to soy sauce over a period of more than two centuries, as urban taste gradually diffused through the countryside.”

“Direct use of salt is much less common in Japan than in the West, for much salt is ingested indirectly from soy sauce and miso. A 1980 survey by the Ministry of Health and Welfare determined that soy sauce and miso supplied 27% and 16% respectively of the average daily salt intake, while salt sprinkled on food in the kitchen or at the table accounted for only 13%. In addition to saltiness, of course, soy sauce and miso add other flavour and fragrance to food. Their tastiness results notably from their high content of glutamic acid (discussed in Chapter 2) and their complex flavour structures contain tart and sweet elements as well as alcohol.”

“Soy sauce, being a liquid, is easier to use than miso.” Its greater convenience and wider range of use are key factors in its growth in popularity, which was “also connected with a change in the style of eating raw fish” (*namasu* or *sashimi*). “Sashimi now means fish that has been sliced and arranged on a plate and served with a smaller plate of soy sauce,... With this style, skill at cutting and arranging the slices in a pleasing becomes a point of pride with the chef. Besides *sashimi*, such popular and internationally known dishes as sushi (*nigiri-zushi*), tempura and teriyaki, which all developed during the Edo period [1600-1867], are also meant to be eaten with soy sauce.”

The “cooks of the Edo period were not very eager to develop new tastes. Their culinary ideal was... rather to present the natural taste of the food itself in as pure a way as possible.” Soy sauce helped them fulfill this ideal. “Cooking which concentrates on avoiding creativity and complexity in taste, and which seeks to select the finest ingredients and to slice and serve them with the most beautiful technique, is what developed among the chefs of the high-class restaurants during the Edo period.” Address: National Museum of Ethnology, Osaka, Japan.

705. Namkoong, Joan. 2001. Go home, cook rice: A guide to buying and cooking the fresh foods of Hawaii. Bess Press. 104 p. \*

• **Summary:** “A collection of food stories that appeared in the *Honolulu Advertiser* from 1994 to 2001 and information about food products” (from the publisher).

The section titled “Soy” (p. 67-71) begins with brief definitions of tofu, fresh soybeans [edamame], soy sprouts, miso, natto, and “fermented black beans.” Then recipes: Basic miso sauce. Spicy soy beans (with “1 pound soybeans”). Soy bean sprouts (*kong na mul* in Korean). On page 69, more soyfoods are described: Aburage. Fermented bean curd. Fu jook [Dried yuba sticks]. Tempeh. Tofu. Then a recipe for Lemon grass tofu (Vietnamese). Page 71 discusses “Soy bean sauces” such as hoisin, bean sauce, and shoyu (made with koji). Page 72: “The flavors of soy sauces.” Chinese soy sauces (tend to me saltier than Japanese shoyu). Tamari. Kecap manis. Light or sodium reduced soy sauces. Dashi soys. How to use soy sauces.

706. Kurlansky, Mark. 2002. Salt: A world history. New York, NY: Walker and Co. xii + 484 p. Illust. Maps. Port. Index. 21 cm. [240\* ref]

• **Summary:** Soy sauce is mentioned on 14 pages: 20, 38, 71, 73, 189, 279, 373, 377, 380, 390, 395-97, and 439.

Soybeans on pages 20 and 21. Jiang, jiangyou and shoyu on p. 20.

Miso on p. 373. Dousi [doushi or douchi; fermented black soybeans] on pages 393 (in two places), 394 and 395. Douban on p. 394 and 395.

This book contains quite a few questionable statements. For example, speaking of the soybean (which he often calls “soy,” p. 21): “The bean is so nutritious that a person could be sustained for a considerable period on nothing but water, soy, and salt.” Moreover, the word *douchi* is almost never spelled *dousi*. This is the *only* example of this spelling in our entire book! Address: Author, New York City.

707. Lee, Cherl-Ho; Lee, Sang Sun. 2002. Cereal fermentation by fungi. In: George G. Khachatourians and Dilip K. Arora, eds. 2002. Applied Mycology and Biotechnology. Vol. 2. Agriculture and Food Production. Amsterdam, New York: Elsevier. 428 p. See p. 151-70. [50 ref]

• **Summary:** Contents: Summary. Introduction. Fermentation starters: History of solid state fermentation starters in northeast Asia, cereal alcoholic fermentation starters, soybean fermentation starters. Fungal fermented foods: Cereal alcoholic products (rice wine, rice beer, alcoholic rice paste, alcoholic rice seasoning), fermented soybean products (Korean *kanjang* and *doenjang*, Japanese *shoyu* and *miso*, *tempe*, Chinese *sufu*), other fermented products (Chinese red rice {Anka}, enzyme foods). Hygienic aspects of fungal

fermented foods: Mycotoxins in fermentation raw materials, mycotoxin formed during fermentation. Conclusion.

Page 162: "... soybean sauce, *kanjang*, and soybean paste, *doenjang*, have been used in Korea for more than 2000 years and formed the characteristic flavor of Korean cuisine. The term "Shi" [fermented black soybeans], the Chinese letter indicating *meju*, first appears in *Jijiupian* written in the Han period (206 B.C. to 208 A.D.) of China. *Bowuzhi* of Jin (265-420 A.D.) of China describes that *Shi* [fermented black soybeans] originated in a foreign country, and the letter is a dialect. *Xintangshu* of the Tang period (618-807 A.D.) in China names Shi as a special product of Balhai or Bohai (688-826 A.D.), a nation founded by the refugees from defeated Kokuryo (37 B.C. to 668 A.D.).

"It is generally recognized that Koreans were the first to experiment with soybean fermentation, sparking the beginning of the soy sauce culture of the Orient (Lee 2001). Their traditional fermentation technology was so advanced that they taught their techniques to neighboring countries."

Page 162-63: "*Meju* [soybean koji], the fermentation starter for Korean soysauce, *kanjang*, is made from soybean... The ripening of *kanjang* mash in the brine is ended in 1-2 months."

Figures: (12) A combination diagram and flowsheet showing the process of making Korean *kanjang* and *doenjang*. Address: 1. Graduate School of Biotechnology, CAFST, Korea Univ., Seoul, 136-701, Korea; 2. Dep. of Biology, Korea National Univ. of Education, Chungbuk, 363-791.

708. 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).

709. Sass, Lorna J. 2002. Lorna Sass' complete vegetarian kitchen: Where good flavors and good health meet. New York, NY: William Morrow. xiv + 494 p. Index. \*

• **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.

710. Peng, Y.; Huang, Q.; Zhang, RH.; Zhang, YZ. 2003. Purification and characterization of a fibrinolytic enzyme produced by *Bacillus amyloliquefaciens* DC-4 screened from douchi, a traditional Chinese soybean food. *Comparative Biochemistry and Physiology. Part B, Biochemistry & Molecular Biology* 134(1):45-52. Jan. [Chi]\*

• **Summary:** Douchi is a traditional Chinese fermented and salted soybean food (also called "fermented black soybeans") in the West. *Bacillus amyloliquefaciens* DC-4, which produces a strongly fibrinolytic enzyme, was isolated from douchi. A fibrinolytic enzyme (subtilisin DFE) was purified from the supernatant of *B. amyloliquefaciens* DC-4 culture broth and displayed thermophilic, hydrophilic and strong fibrinolytic activity. The characteristics of subtilisin DFE are described. The first 24 amino acid residues of the N-terminal sequence of subtilisin DFE were identical to those of subtilisin K-54, and different from that of NK and CK. Results from subtilisin DFE gene sequence analysis showed that subtilisin DFE is a novel fibrinolytic enzyme. Address: College of Life Sciences, Sichuan University, Sichuan Key Laboratory of Molecular Biology and Biotechnology, Chengdu 610064, China.

711. Cook, Carla. 2003. Dining out: An Asian trek. A menu large enough to get lost in lets diners chart their own courses. *New York Times*. Oct. 19. p. NJ14.

• **Summary:** This is a review of a unique Chinese restaurant Sunny Garden (15 Farber Road, Princeton, New Jersey)—which also serves quite a few Japanese dishes. Recommended dishes include “Duck with black bean and ginger sauce.”

This Chinese restaurant also (amazingly) as its own sushi bar. And it serves salmon “surrounded by a shallow pool of sweet-and-sour sauce flavored with miso, mirin, and vinegar.” Also Teriyaki shrimp.

712. 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.

713. Hosoi, Tomohiro; Kiuchi, Kan. 2003. Natto—A food made by fermenting cooked soybeans with *Bacillus subtilis* (*natto*). In: Edward R. Farnworth. 2003. *Handbook of Fermented Functional Foods*. Boca Raton, Florida: CRC Press. 390 p. See p. 227-50. [111 ref]

• **Summary:** Contents: Fermented soybean foods in Asia. Ingredients of natto: *Bacillus subtilis* (*natto*) spores, soybeans (color, size, protein content, sugar content, washing and storage methods). Natto processing: Washing and

soaking of soybeans, steaming of soybeans, inoculation with *Bacillus subtilis* (*natto*) spores, packaging, fermentation, packing for shipment, changes in packages. Assessment of quality: Chemical composition, sensory tests (8 criteria), changes in consumers’ preferences (growing preference for larger soybeans and natto with markedly weaker odors and strings). Health benefits: *Bacillus subtilis* (*natto*) cells (effects on intestinal microflora and feed efficiency, effects on the immune system, anti-allergy effect of subtilisin, fibrinolytic activity of subtilisin, role of vitamin K-2 (menaquinone-7) in the prevention of osteoporosis), phytoestrogens—effects on cancer and osteoporosis. Conclusions.

Natto and related foods are all made by fermentation with the bacterium *Bacillus subtilis* (*natto*). These include sweet dou chi (*xian doushi*) in China (where it is used as a seasoning for Beijing duck [Peking duck]), kinema in Nepal and Myanmar, tua nao in Thailand, and chungkuk-jang in Korea.

In the year 2000 a total of 10.1 million metric tons of soybeans in Japan were converted directly into foods; more than 80% of these soybeans were imported. Between 1991 and 2000 there was a 13% increase in soybean consumption for natto products.

Natto makers prefer to use certain soybean varieties such as Suzuhime and Suzumaru which are grown in Hokkaido, Kosuzu in Iwate, Miyagi, and Akita Prefectures, and Natto-Shoryo in Ibaraki Prefecture.

Natto makers generally desire the following qualities in soybeans: 1. Extra small or small size (for consumers from Tokyo northward). 2. Easily washable. 3. Yellow surfaces and hila. 4. A suitable degree of stickiness when made into natto. 5. Relatively sweet taste. 5. Minimal changes in constituents and appearance during storage.

Japan’s leading natto trade association is called the “Federation of Japan Natto Manufacturers Cooperative Society.” A soybean allergen has been identified as *Gly m d 28K*. This allergen is found in high concentrations in various nonfermented soybean products such as soy protein isolate, tofu, dried frozen tofu, and yuba. However fermented soybean products such as natto, soy sauce and miso do not contain this allergen. Address: 1. PhD, Tokyo Metropolitan Food Research Centre; 2. PhD, Dep. of Food Science and Nutrition, Kyoritsu Women’s University. Both: Tokyo, Japan.

714. 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.

715. Cui, Zhanglin; James, A.T.; Miyazaki, Shoji; Wilson, Richard F.; Carter, Thomas E., Jr. 2004. Breeding specialty soybeans for traditional and new soyfoods. In: KeShun Liu, ed. 2004. Soybeans as Functional Foods and Ingredients. Champaign, Illinois: AOCS Press. xii + 331 p. See p. 264-322. [217 ref]

• **Summary:** Contents: Introduction. Soybean and soyfoods in China: Domestication of soybean, ancient utilization and processing, traditional soyfoods cultivars, current soyfoods markets, modern soyfoods cultivars (cultivars for bean curd {tofu} and soymilk, cultivars for small-seeded soybeans {sprouts, natto}, cultivars for vegetable soybeans {*maodou*}, cultivars for soy sauce, *doujiang*, *douchi*, and medicine, cultivars with improved seed composition).

Soybean and soyfoods in North America: Introduction of soybean, current soyfoods markets, modern soyfoods cultivars, genetic base and diversity of soyfoods cultivars. Soybean and soyfoods in Japan: Introduction of soybean to Japan, traditional soyfoods in Japan, current soyfoods markets, modern soyfoods cultivars (cultivars for tofu {bean curd} and soymilk, cultivars for *miso* {soybean paste}, cultivars for natto {fermented soybean}, cultivars for *nimame* {boiled soybean}, cultivars with low allergenic properties).

Soybean and soyfoods in Australia: Current soyfoods markets, modern soyfoods cultivars. Breeding for the soyfoods market: Tofu (environmental influences on tofu yield and solubility of seed dry matter, genotypic effects on tofu yield, seed protein and gelling properties of tofu, seed color, sugar content, undesirable flavors in tofu), natto, *edamame* or *maodou*, soymilk. Designing future soyfoods cultivars: Increasing protein and oil concentration, soybean protein composition (potential for altering protein

composition, mutations in 7S storage-protein genes, mutations in 11S storage protein genes, influence of nutrition on storage protein gene expression, association with protein functionality), soybean carbohydrate composition (genetic regulation of oligosaccharide content), soybean fatty acid composition (genetic modification to reduce saturated fatty acid composition, genetic modification to alter unsaturated fatty acid composition, influence of multiple gene combinations on oil composition), Tocopherols and isoflavones in soybean seed (tocopherols, isoflavones). Summary. Acknowledgments.

Figures: (1) Diagram of two-dimensional representation of genetic relationships among 89 soyfood cultivars derived from a two-dimensional multidimensional scaling (MDS) analysis based on coefficient of parentage. (2) Bar chart of distribution of protein concentration among accessions of the USDA soybean germplasm collection. (3) Bar chart of distribution of oil concentration among accessions of the USDA soybean germplasm collection. (4) Diagram of the stachyose and phytic acid synthetic pathways in soybean. (5) Graph of relation of tocopherol concentrations to C18:3 concentration in mature seed of soybean germplasm with altered linolenic acid concentration, based on germplasm from the population N93-194 x N85-2176. (6) Graph of relation of total isoflavone and protein concentration among soybean cultivars.

Tables: (1) Distribution of releases of 193 public soyfood cultivars developed in China from 1923 to 1995. (2) Origin and description of 193 soyfood cultivars released in China from 1923 to 1995. (3) Distribution of releases of 123 public soyfood cultivars developed in North America from 1956 to 2000. (4) Origin and description of 123 public soyfood cultivars released in North America from 1956 to 2000. (5) Ancestors of North American soybean that contribute to soyfood cultivars but do not contribute significantly to commodity cultivars. (6) Distribution of release of 97 specialty-use public soyfoods cultivars developed in Japan from 1950 to 1995. (7) Origin and description of 97 public soyfood cultivars developed and released in Japan from 1950 to 1995. (8) Cultivars used for soyfood purposes in Australia. (9) Cultivars of Asian origin currently being employed in soyfood breeding in Australia. (10) Desired breeding traits for traditional soyfood cultivars. (11) Ratio of 11S to 7S proteins in seeds of soybean cultivars. (12) Genetic manipulation of soluble carbohydrate concentration in soybeans. Address: 1. North Carolina State Univ., Crop Science Dep., 3127 Ligon St., Raleigh, North Carolina, 27607, USA.

716. Liu, KeShun. 2004. Edible soybean products in the current market. In: KeShun Liu, ed. 2004. Soybeans as Functional Foods and Ingredients. Champaign, Illinois: AOCS Press. xii + 331 p. See p. 23-51. [76 ref]

• **Summary:** Contents: Introduction. Soybean oil. Traditional

soyfoods: Nonfermented soyfoods (soymilk, tofu, variety and current market, nutritional value and health benefits, general processing, soymilk film {yuba}, okara, soybean sprouts, vegetable soybeans, roasted {soynuts} or cooked whole soybeans), fermented soyfoods (fermented soy paste {jiang and miso}, soy sauce, Japanese natto, tempeh, sufu or Chinese cheese, fermented black soybeans {douchi or Hamanatto}). Soy protein products: Soy flour, soy protein concentrated, soy protein isolate, textured soy proteins. Modern soyfoods. Soy-enriched products. Functional soy ingredients / dietary supplements: Soy lecithin, oligosaccharides, isoflavones, tocopherols, phytosterols, trypsin inhibitors.

Figures: (1) Photo of traditional soyfoods. (2) Photo of soy flour and defatted meal after crushing. (3) Bar chart of U.S. soyfood sales since 1992. (4) General flow chart of processing soybeans into various edible products. (5) Flow chart of a traditional Chinese method for making soymilk and tofu. (6) Bar chart of U.S. tofu sales since 1980.

(7) Photo of natto, a fermented Japanese soyfood. (8) Flow chart of natto production outline. (9) Photo of soy protein products. (10) Photo of meat analog made by high-moisture extrusion of soybean protein. (11) Photo of new generation of soyfoods in the market. (12) Photo of soy-enriched bakery products. (13) Photo of concentrated soy isoflavone product.

Tables: (1) Classification of various edible soy products in the current market. Address: Univ. of Missouri, Columbia, Missouri.

717. Ebine, Hideo. 2004. Industrialization of Japanese miso fermentation. In: Keith H. Steinkraus, ed. 2004. *Industrialization of Indigenous Fermented Foods*. 2nd ed. Revised and Expanded. New York, NY & Basel, Switzerland: Marcel Dekker. xix + 796 p. See p. 99-147. Chap. 2. [87 ref]

• **Summary:** Contents: Introduction. History and earliest known references to miso. Indigenous process: Raw materials used in ancient times. Industrial / Commercial production today. Contrast between indigenous and modern processing. Critical steps in manufacture / fermentation. Major problems in industrialization. Optimal environmental conditions for microorganisms. Essential microorganisms for fermentation. Possible spoilage microorganisms. Chemical / Biochemical changes in miso during fermentation. Changes in physiological functions during fermentation. Forecast of the role of miso in the future.

Foods similar to miso are made in other parts of East- and Southeast Asia. They are referred to as “jiang” in China, “doenjang” in Korea, “taucho” in Indonesia, and “tao-si” in the Philippines.

Note: In the Philippines, the word “tao-si” (also spelled “tausi” or “taosi”) refers to fermented black soybeans, not to a kind of miso. Address: Professional Engineer, Shishitsuka,

Tsuchiura, Ibaraki-ken, Japan.

718. Fu, Peimei. 2004. *Peimei shi dan: Yong yuan da shi dian shi shi pu*. 1 [Pei Mei's T.V. program cook book. Vol. I]. Taipei, Taiwan: Ju zi wen hua shi ye you xian gong si. 119 p. Illust. (color). 22 cm. [Chi]

• **Summary:** On the title page, the title of this book is given in both Chinese and English. The rest of the book is entirely in Chinese. At the beginning is a glossary, with 3 large numbered color photos of ingredients and the numbered name of each ingredient below the photo. On the right hand page of every 2-page spread are (typically) 5 recipes. On the left hand page is a color photo of showing the 5 finished dishes, each served on a plate, bowl etc.

Recipes call for the various soy related ingredients, including soy sauce, deep-fried tofu, fermented black soybeans, tofu, etc. Address: Cooking teacher, Taipei, Taiwan.

719. Fukushima, Danji. 2004. Industrialization of fermented soy sauce production centering around Japanese shoyu. In: Keith H. Steinkraus, ed. 2004. *Industrialization of Indigenous Fermented Foods*. 2nd ed. Revised and Expanded. New York, NY & Basel, Switzerland: Marcel Dekker. xix + 796 p. See p. 1-98. Chap. 1. [179 ref]

• **Summary:** Contents: Introduction. History: Historical development of soy sauce in China (Chiang, shih), introduction of soy sauce in Japan, origin of fermented soy sauce in the United States. Present soy sauce situation: Japan (types of soy sauce, manufacturing, flavor components and quality evaluation), China, Southeast Asia, United States. Change of soy sauce manufacturing methods from indigenous to modern processing: Treatment of soybeans and wheat as materials, koji fermentation, brine fermentation, pressing, pasteurization, refining and bottling. Microbiology and biochemistry: Role of koji as an enzyme source (unique source of enzymes, peptidases in koji, role of proteinases in koji during protein digestion, role of glutaminase in koji in formation of glutamic acid during protein digestion) effect of heat treatment of soybean proteins on their digestibility and nutritive value (enzyme digestibility and yield of soy sauce, enzyme digestibility and nutritive value of protein), microorganisms during brine fermentation in soy sauce (change of microflora during brine fermentation, properties of *Tetragenococcus halophilus*, properties of *Zygosaccharomyces rouxii*, properties of *Candida species*), safety of soy sauce and physiological functional properties (Studies of mycotoxins and safety of soy sauce, studies of mutagens and safety of soy sauce, long-term animal tests and anticarcinogenicity of soy sauce, other physiologically functional properties of soy sauce). Application of new technology for soy sauce manufacture: Manufacture of soy sauce through fermentation by bioreactor with immobilized whole cells, enzymatically hydrolyzed vegetable protein,

breeding of koji mold through protoplast fusion. Forecast.

Contains 68 figures and 23 tables.

The section titled "Origin of fermented soy sauce in the United States" states (p. 10) that in 1907 a plant manufacturing fermented soy sauce was opened in the United States by Shinzaburo Mogi—a relative of the Mogi family of Kikkoman fame. Note: The author does not say where this plant was, nor does he cite any evidence to support his claim. As of Jan. 2005, Soyfoods Center has been unable to find any firm evidence that such a plant was opened.

"After that, another soy sauce company named Oriental Show-You Company was promoted in 1917 in Columbia City, Indiana." Shinzaburo Mogi was one of the stockholders in this company. Shinzo Ohki, a Japanese man living in the USA, began to make regular (koikuchi) shoyu in the traditional Japanese way, and at one time was making 30,000 gallons/year. In 1961 the Oriental Show-You Co. was sold to Beatrice Foods, Inc. and subsequently became part of La Choy Food Products which was also owned by Beatrice.

Figure 12 (p. 28) shows imports of soy sauce to the USA from 1947 to 1981. This graph was taken, without citing the source, from: Shurtleff & Aoyagi. 1985. *Soyfoods Industry and Market*, 5th ed. p. 103.

Concerning the soy sauce market in the United States (p. 28-31): In 1973 Kikkoman opened its first plant to make fermented soy sauce at Walworth, Wisconsin. In 1998 Kikkoman opened a 2nd such plant in California. In 2001 these two Kikkoman plants made 85,000 kiloliters and 20,000 kiloliters (kL) of soy sauce respectively, for a total of 105,000 kL. To take advantage of the rapidly growing American market for soy sauce, several other foreign manufacturers also opened plants making fermented soy sauce. In about 1980, Wan Ja Shan (Taiwan) opened a plant making regular Japanese-style soy sauce (koikuchi). In 1991 San-J (San Jirushi, Japan) opened a plant making tamari soy sauce. In 1994 Yamasa (Japan) opened a plant in Salem, Oregon. In 2001 the total annual production of these 3 plants was estimated at about 20,000 kL. In addition, HVP soy sauce (unfermented) is made and sold in the USA under brands such as La Choy, Chun King, and Aloha—with total production in 2001 estimated at 15,000 kL. Thus in 2001 total soy sauce production in the USA was estimated at 140,000 kL with the following market shares: Kikkoman 75%, 3 other makers of fermented soy sauce 14.2%, and HVP 10.7%. Figure 14 shows total U.S. consumption of soy sauce from 1950 to 2001, including total domestic production, total Kikkoman U.S. production, and total imports. Address: Noda Inst. for Scientific Research, Nodashi, Japan.

720. Kiuchi, Kan; Watanabe, Sugio. 2004. Industrialization of Japanese natto. In: Keith H. Steinkraus, ed. 2004. *Industrialization of Indigenous Fermented Foods*. 2nd

ed. Revised and Expanded. New York, NY & Basel, Switzerland: Marcel Dekker. xix + 796 p. See p. 193-246. Chap. 4. [142 ref]

• **Summary:** Contents: Introduction—Description and history of natto: Raw materials, natto in East Asia (History of natto, natto in China {*douche*} [*doushi* / *douchi*], natto in Japan {itohiki-natto, cracked natto, yukiwari-natto is one of the trade names of barrel natto and a special product of Yamagata prefecture, barley natto, salted natto, dried natto, soboro-natto, how natto is used in foods}, tua'nao [thua-nao, tua nao] {incl. pe-pok in Myanmar and tau'si in Laos}, kinema, chongkuk-jung, dawadawa [the starters for these products are *Bacillus subtilis*], making of natto in the home).

Production and consumption. The fermentation process. Materials used for traditional and modern natto production. Modern manufacturing methods: Storage of raw soybeans and purification process, processes of washing and soaking, steaming and inoculation processes, natto-filling process, fermentation process, refrigeration and aging process, second packaging and shipping processes.

Change from traditional process to modern manufacturing process: Cultivation and storage of raw soybeans (traditional, modern), selection. washing and soaking, steaming and inoculation, filling, fermentation, first refrigeration, packaging, second refrigeration. Critical steps in the manufacture and fermentation of natto. Important problems in the industrialization of natto: Soaking, steaming, filling, fermentation Optimum conditions for fermentation: Initial stage of fermentation (lag phase), middle stage of fermentation (log to stationary phases), latter stage of fermentation (death phase). Microbiology and biotechnology: Determinative or systematic characteristics of natto bacilli, difference between natto bacilli and other *B. subtilis* as natto starters, enzymes and other materials produced by natto bacilli. Other aspects of the microbiology of natto: Phages of natto bacilli, plasmids of natto bacilli. Chemical and biochemical changes during fermentation: Soybean characteristics on steaming, relationship between the components of natto and those of soybeans, changes in soybean constituents during fermentation (carbohydrates, fatty acids, organic acids and other volatile components), size of soybeans, steaming condition. Starter cultures: Marketed starters, development of new starters. Contains 26 figures.

In 1999 in Japan, about 130,000 metric tons per year of soybeans are used to make about 260,000 tons of natto or 5.20 billion 50-gm packages worth 160.5 billion yen. Approximately 500 companies make natto in Japan, but the 10 largest companies account for 85% of total production. Address: 1. Kyoritsu Women's Univ.; 2. Biotechnology Inst. of Natto, Suzuyo Kogyo Co. Ltd. Both: Tokyo, Japan.

721. Steinkraus, Keith H. ed. 2004. *Industrialization of indigenous fermented foods*. 2nd ed. Revised and expanded.



New York, NY & Basel, Switzerland: Marcel Dekker. xix + 796 p. Illust. Pseudo-Index. 24 cm. Series: Food Science and Technology No. 136. [508 soy ref]

• **Summary:** This book contains the following chapters on soyfoods: 1. Industrialization of fermented soy sauce production centering around Japanese shoyu, by Danji Fukushima. 2. Industrialization of Japanese miso fermentation, by Hideo Ebine. 4. Industrialization of Japanese natto, by Kan Kiuchi and Sugio Watanabe (incl. yukiwari-natto, a special product of Yamagata prefecture, p. 196). 11. Industrialization of tempeh fermentation, by Kapti Rahayu Kuswanto. 12. Tempe production in Japan, by Michio Kozaki. It also contains chapters on the industrialization of the production of sake, tapai, African beers, magehu, ogi, gari, Mexican pulque, Thai fish sauce (nam pla), Thai fermented fish and related products, and Myanmar fish paste and sauce.

The final chapter is titled “Industrialization of indigenous fermented food processes: Biotechnological aspects.”

Soy-related chapters are also cited separately.

Note: Cornell Prof. Emeritus Keith H. Steinkraus died on 13 Nov. 2007 at age 89. He was a specialist in indigenous fermented foods and food microbiology. Address: Inst. of Food Science, Cornell Univ., Geneva, New York.

722. Nippon Supplement, Inc. 2005. Touchi extract: A functional food with anti-diabetic activity (Website printout-part). [www.nippon-sapuri.com/english/touchi.html](http://www.nippon-sapuri.com/english/touchi.html). 10 p. Printed April 14.

• **Summary:** Contents: 1. Screening natural foods for an ingredient gentle to human body. What is Touchi. 2. Touchi extract inhibits the digestion of carbohydrates, thereby lowering the blood glucose level (Fig. 1. A diagram shows the mechanism; it inhibits of the activity of the enzyme alpha-glucosidase. In a clinical trial, Touchi extract was found to keep the blood sugar level of diabetic patients low). Fig. 2. A graph—Touchi extract showed anti-glycemic effect in rats. Touchi extract showed anti-glycemic effect in a clinical trial on borderline diabetic subjects. Fig. 3. Graph of anti-glycemic effect of touchi extract in humans. Fasting blood pressure of over 60% of diabetic patients decreases. Fig. 4. Anti-glycemic effect of Touchi-extract. Fig. 5. Anti-lipidemic effect of Touchi extract. Address: Japan. Phone: 1-800-VITASOY.

723. Jacobi, Dana. 2005. 12 best foods cookbook: Over 200 delicious recipes featuring the 12 healthiest foods. Emmaus, Pennsylvania: Rodale Press. xv + 336 p. April. Illust. (color photos). Index. 23 cm. [2 soy ref]

• **Summary:** Among these 12 foods rich in nutrients and phytonutrients, the author considers soy the best of all. 28 of the 200 recipes include soyfoods.

In Chapter 1 is a section on Soy (p. 17-24) which

includes: Introduction. Everyday ways (“Soy is the easiest Best Food to enjoy every day...”). Benefits at a glance. Soy protein in selected foods (Tofu, miso, edamame, soybeans, soynuts, tempeh, soymilk, cultured soy yogurt, soynut butter, soy flour, soy pasta, soy protein powder, soy drink mixes). Guide to soy products: Soymilk, soymilk cooking secrets, more soy dairy (soy cream cheese, soy sour cream, soy cheese, frozen dessert), terrific tofu (regular tofu, silken tofu, baked or smoked tofu), tofu cooking secrets, other soyfoods (black and yellow soybeans, edamame, meat analogs, miso, soy flour, soynuts, soynut butter, soy protein powder and soy drink mixes, soy sauce and tamari, tempeh), baking with soy, cooking with soy.

Chapter 8, titled “Eggs, beans, and soy,” contains recipes (p. 196-203). for: Black soybean and butternut squash stew. Black soybeans. Braised black beans with red wine. Braised tofu with kohlrabi and pears. Broccoli, black mushrooms, and edamame with black bean sauce. Asparagus, red pepper, and curried tofu.

Other soy-related recipes: Finger lickin’ edamame (p. 50-51). Black bean hummus (with tofu, p. 57). Mushroom crostini (with tempeh, p. 61). Black bean soup (with dried black soybeans, p. 79). Mushroom consommé with sake (and tofu, p. 88). Double miso soup (p. 89). Nine a day salad (with soynuts, p. 100). Southwestern three bean salad (with canned black soybeans, p. 107). Curry dressing (with silken tofu, p. 115-16). Pepper ranch dressing (with soft silken or regular tofu, p. 116-17). Creamy herb dressing (with tofu, p. 118-19). Blue cheese dressing (with tofu, p. 118). Cracked mustard dressing (with tofu, p. 119). Citrus miso splash (p. 119). Soy and honey drizzle (with reduced-sodium soy sauce, p. 151). Whole wheat linguine with arugula and edamame (p. 164-65). Dirty rice (with tempeh, p. 194). Tempeh, lettuce, and tomato sandwich on rye (p. 207). Honey soynut butter sandwich (p. 208). Grilled pizza (with tofu, p. 210). Soycotash (with shelled edamame, p. 238-39). BBQ collard greens with edamame (p. 240). Miso mashed potatoes (p. 241). Key lime tartlets (with tofu, p. 250-51). Blueberry-lemon trifle (with lemon soy yogurt and soy cream cheese, p. 252-53). Brown rice crisp treats (with salted, roasted soynuts, p. 282). Wild blueberry trail mix (with salted soynuts, p. 283).

On the rear cover is a photo of the author and a brief bio. “After apprenticing at three-star restaurants in France, Dana Jacobi opened a catering business and marketed her own line of gourmet sauces. She has since authored five cookbooks...” Address: Food writer, New York, NY.

724. Huang, H.T. (Hsing-Tsung). 2005. Re: Comparing Chinese ch’u / qü and Japanese koji. Letter (e-mail) to William Shurtleff at Soyinfo Center, Aug. 18. 1 p.

• **Summary:** William Shurtleff writes: This morning I was reading the section on ferments (pages 166-67) in your book in the Needham series. Could I please ask you:

What is the difference between the meaning of the words ch'u (Chinese) and koji (Japanese)? They are written with the same Chinese character. As you know, this usually means cooked rice covered with a mycelium of *Aspergillus* mold. One also speaks of "barley koji," "soybean koji," "brown rice koji," etc. As is China, it also comes in granular and cake forms, but I am unaware of Japanese words for "granular koji" or "cake koji." Does the word "ch'u" have a broader meaning than the word "koji"?

Answer: Both Chinese ch'u and Japanese koji denote molded grains (mainly rice or wheat). Chinese ch'u usually applies to molded grains intended for making wines.

Question: In English, just as the word "tofu" has come to be widely used to refer to soybean curd, so also the word koji has come to be widely used for cooked rice covered with a mycelium of *Aspergillus* mold. Would it be correct to translate ch'u as koji?—in all cases?

Answer: It depends on whether one wishes to emphasize the similarities or differences between them. One can say ch'u is Chinese koji or koji is Chinese ch'u.

Question: In Chinese, how does one speak of barley ch'u or soybean ch'u?

Answer: Although the Chinese do make molded soybeans, they are called *dou huang* [bean + yellow] and are used for making *shih* [fermented black soybeans].

Question: At the top of page 167, Table 19 is titled "Types of ferments made in Han China." In this sentence, what would be the Chinese word for "ferments"?

Answer: The Chinese word would be ch'u. Address: PhD, Alexandria, Virginia.

725. Shurtleff, William; Aoyagi, Akiko. 2005. *Doufu zhi shu* [The book of tofu]. Taipei, Taiwan: Persimmon Cultural Enterprise Co., Ltd. viii + 270 p. Sept. 1. Illust. by Akiko Aoyagi. No index. 26 cm. [Chi]

• **Summary:** A very attractive, complex character, Chinese-language edition of *The Book of Tofu* (2nd ed. Ten Speed Press). Address: 1. Soyfoods Center, P.O. Box 234, Lafayette, California 94549.

726. Brackett, Sylvan; Moore, Sue; Downing, Wendy. eds. 2005. *The slow food guide to San Francisco and the Bay Area: Restaurants, markets, and bars*. White River Junction, Vermont: Chelsea Green Publishing. x + 335 p. Illust. Maps. Index. 22 cm.

• **Summary:** Tainan Restaurant, 218 Barber Court, Milpitas (p. 61) is a Taiwanese street-food cafe that offers "deep-fried 'stinky' tofu."

At Sunset Super (p. 254-55), located in Outer Sunset (2425 Irving Street, between 25th and 26th Avenues in San Francisco. Phone: {415} 682-3738) the aisles are packed with preserved foods of every variety, some identified only by Chinese characters. Among these you will find "jars of preserved tofu [probably fermented tofu] in a whole range of

treatments."

The word "tofu" appears on 15 pages in this book: 52 ("cold tofu salads." "Spicy Bean Curd Beef"), 57 ("classic Preserved Egg with Tofu plate"), 58 ("a variety of lamb, beef, seafood, and tofu selections"), 105 ("fried tofu {*aburage*}), 110 ("a delicious tofu soup"), 111 ("bean sprouts, tofu,...". Pyung Chang Tofu House, 4701 Telegraph Ave., at 47th St., Oakland... "silky tofu"), 112 ("Yoo devotes great care and attention to everything that arrives at your table, from the house-made kimchee to the locally produced tofu in the *soon doo boo*"), 113 ("*kimchee jigae* {spicy tofu soup}"), 262 ("freshly made tofu" at San Jose Tofu Co., 175 Jackson St., San Jose. Phone: {408} 292-7026), 291 ("Amidst the smoked tofu dip").

Clams with black bean sauce (p. 51). Address: San Francisco Bay Area, California.

727. 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.

728. Hu, Shiu-ying. 2005. Food plants of China (Continued—Document part). Hong Kong: Chinese University Press. xvi

+ 844 p. Illust. Index. 26 cm.

• **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 (Adzuki), 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 University; Honorary Professor of Chinese Medicine, The Chinese University of Hong Kong.

729. Hu, Shiu-ying. 2005. Fermented soybean foods: Fermented black soybean (Document part). In: Shiu-ying Hu. 2005. Food Plants of China. Hong Kong: Chinese University Press. xvi + 844 p. See p. 35. Illust. Index. 26 cm.

• **Summary:** This is a truly remarkable, original and comprehensive book. The section on “The use of microbes in Chinese plant food” (p. 32+) contains a subsection, titled “Fermented leguminous products” (p. 33+), where we read (p. 35): “To my knowledge, three types of Chinese black soybeans are available in American Chinese stores. The very large and medium-sized beans are used as special health food, primarily for medicinal purposes and sold in one-pound packages.”

Note 1. Do black soybeans contain substances that give them medicinal properties? If so, what are these substances and in what amounts are they found?

The small, oblong black soybeans appear only in the form of *dou-chi* (*tou-ch'ih*) (2 Cc = Chinese characters given) (“fermented black bean”); “they are used as a condiment and/or in prescriptions.

“The large and intermediate black soybeans are the seeds of erect plants. The small black soybean is the seed of a semiclimber, which matures one or two weeks later than the erect varieties.

“*Dou-chi* (2 Cc) (‘fermented black soybean’) is very popular in the warmer regions of China, used as a seasoning for steamed fish” and many vegetable dishes. In Chinese cookbooks published in America, it is called for as an ingredient in many regional cuisines—Mandarin, Cantonese, Sichuan, etc. In southern China, it is sold in open containers in market-places or grocery stores. *Dou-chi* is imported to the United States in plastic bags or cans. It looks like a small, oval, shriveled, charcoal black bean with a [salty] spicy piquant flavor.

To make *dou-chi* obtain the black seeds of the proper semiclimbing soybean. Clean, then soak the seeds “in a decoction prepared with various herbs, including green mugwort (*Artemisia apiacea* Hance), licorice, mulberry leaves, perilla shoots, and water smartweed.” Steam the soaked beans, allow to cool, then place in a container covered with the residue of the boiled herbs and allow to ferment until a layer of yellow mold appears. Mix the beans with salt and dry in the sun. *Dou-chi* keeps well at room temperature.

Note 2. This is one of many different ways used to make *douchi*.

A recipe for “Bitter melon pork” calls for “1½ Tbsp dou-

chi” (2 Cc) “People in Guangzhou [Canton] and Hong Kong like bitter melon for its cooling effect and cook it with meat or bean curd, with or without fish” (p. 82.)

A recipe for “Bitter melon bean curd fish” calls for “1 pkg bean curd (cut into 4 by 3 by 1 cm sections)” add “2 Tbsp *dou-chi* (washed, drained, and minced)” (p. 83).

Fungi—Ascomycetes (pronunciation as-ko-my-SEE-teez)—*Aspergillus oryzae* (Ahlburg) Cohn and *A. soyae* (Sakaguchi & Yamada et Yamada). This is a blue mold. Grows on cooked cracked wheat, rice, and soybeans, such as: (1) *Jiang-you* (W.-G. *Chiang-yu*) (2 Cc, soy sauce). Made with yellow soybean and cracked wheat. (2) *Dou-chi* (W.-G. *Tou-ch'ih*) (2 Cc, spiced soybean preserve). Made with black soybean and various herbs. (3) *Dou-ban-jiang* (W.-G. *Tou-pan-chiang*) (3 Cc, fermented soybean). (p. 262).

*Dou-chi* (W.-G.: *Tou-chi*). (3 Cc) (‘fermented and seasoned black soybean’). “A dry and soft product used as spice” (p. 474).

Note 3. This is the earliest English-language document seen (Nov. 2011) that clearly uses the term “fermented black soybean” or the term “spiced soybean preserve” or the term “fermented and seasoned black soybean” to refer to *dou-chi* / *douchi* (fermented black soybeans). Address: Botanist, Arnold Arboretum, Harvard University; Honorary Professor of Chinese Medicine, The Chinese University of Hong Kong.

730. Hu, Shiu-ying. 2005. Fermented soybean foods: Fermented soybean pastes (Document part). In: Shiu-ying Hu. 2005. Food Plants of China. Hong Kong: Chinese University Press. xvi + 844 p. See p. 35-36. Illust. Index. 26 cm.

• **Summary:** This is a truly remarkable, original and comprehensive book. The section on “The use of microbes in Chinese plant food” (p. 32+) contains a subsection, titled “Fermented leguminous products” (p. 33+), where we read (p. 35-36): “Several kinds of fermented soybean products look like pastes.” The two main types are *dou-ban-jiang* (3 Cc = Chinese characters given) meaning “sauce with cracked soybeans” and *la-dou-ban-jiang* (4 Cc, meaning “hot, cracked soybean sauce”).

They are made in much the same way as soy sauce, in *jiang-yuans* (jiang gardens) throughout the country. Most make both the mild and hot types, according to consumer demand, “by adding water and a little or lot of hot, red pepper flakes to the fermented mass before the mixture is exposed to the sunshine and dew.” When the jiang has matured, no liquid is removed. The entire contents of each urn is collected for marketing.

Note: According to this account, jiang is not the residue remaining after several extractions of soy sauce.

Broad bean sauce, made in Sichuan, is an extremely hot sauce. Called *hu-dou-ban*, it uses broad beans in place of soybeans when making *la-dou-ban-jiang*.

The section titled “Cultural and historical background”

(p. 148+) notes that “a majority of the Chinese population, particularly the peasants, live on simple, plain food of plant origin. Little spice is used. The basic flavoring materials in the kitchen of a Chinese farmer are salt, sesame oil, and sometimes soy sauce and vinegar, or home-made fermented grain or bean products.” Hot red peppers were first introduced to China in the 17th century; today they are used more as relishes than as spices for cooking.

The use of spices as important items in Chinese cooking has been developed by the relative small percentage of the population that could include animal products in their diets. Spices are used to disguise the rank taste of sheep and goat meat, to reduce the rich, oily texture of pork and some poultry, and to cover up the fishy smell of seafood.

The earliest native seasonings include fermented grain and bean sauces from temperate China, used as condiments. Their use “was recorded in the Annals of the Zhou Dynasty (1122-255 B.C.), when the duty of the Manager of the Royal Kitchen was to ready 1,200 earthenware jars of fermented products for palace consumption. From those early days to the present the simple words for flavoring materials, *jiao*, *jiang*, and *zao* (1 Cc each) have become generic terms in the Chinese language for the compound names of later inventions and introductions.” Examples include *tian mian jiang* (3 Cc) for a sauce prepared from wheat flour, *dou ban jiang* (3 Cc) for another sauce prepared from fermented, cooked soybean, and *hong zao* (2 Cc) for a fungal product of red-colored rice [ang-kak] (p. 148-49).

The section titled “Common spices used in Chinese food” (p. 150+) includes (A) “Sauces and condiments from fermented grains and beans,” which (in turn) includes: (1) *Zao* (1 Cc)–Fermented rice, red or white. (2) *Jiang* (1 Cc)–Fermented beans and/or wheat; Liquid: Soy sauce. Paste: *tian mian jiang* (3 Cc, wheat flour), *dou ban jiang* (3 Cc, soybean dominant with some wheat flour). (3) *Dou-chi* (2 Cc)–Fermented black soybeans.

*Triticum aestivum* L.–Wheat. (1) *Tian-mian-jiang* (W.-G. *Tien-mien-chiang*) (3 Cc, ‘sweet flour sauce’). “A fermented product, the sauce served in North China with Beijing Duck. (2) *Mian-jin* (W.-G. *Mien-chin*) (2 Cc, ‘wheat gluten’). “Gluten extracted from wheat flour” (p. 297).

*Dou-ban-jiang* (W.-G.: *Tou-pan-chiang*). (3 Cc) (‘fermented soybean sauce’). “Paste, prepared from fermented cooked soybean and whole wheat flour, available in Boston in cans only” (p. 474). Address: Botanist, Arnold Arboretum, Harvard University; Honorary Professor of Chinese Medicine, The Chinese University of Hong Kong.

731. Hu, Shiu-ying. 2005. Nonfermented foods: Bean curd and whole soybeans (Document part). In: Shiu-ying Hu. 2005. Food Plants of China. Hong Kong: Chinese University Press. xvi + 844 p. Illust. Index. 26 cm.

• **Summary:** This is a truly remarkable, original and comprehensive book. Basic bean curd (dou-fu [tofu]) is

mentioned on 21 different pages.

A recipe for “Bean curd with Swatow mustard” calls for “1 pkg (supermarket style) bean curd” (p. 55).

A recipe for “Farmers’ mustard salad” calls for “½ cup soybean (cleaned, soaked overnight)” (p. 56).

A recipe for “Huo-guo (Fire pot)” calls for “3 squares bean curd (sliced 5 x 3 by 1 cm...),” “9 Tbsp soy sauce” and “3 Tbsp hot soybean sauce, *la-dou-ban-jiang* (Sichuan style)” (optional) (p. 64-65).

“A recipe for “Buddha disciples’ delight (*Luo-han-zai*)” calls for “3 pieces of bean curd (sliced into 4 cm square...),” 1 can wheat gluten (cut into 3 cm square by 1 cm pieces), “2 oz Laminaria [kombu] (revived [reconstituted], cut into 4 by 3 cm pieces, washed),” and “1 lb fried bean curd squares (cut lengthwise once),” and “4 oz bean curd bamboo (soaked in cold water to revive it, cut into 4 cm sections.” This is a vegetarian dish, often served in Buddhist temples. In the Chinese tradition, it is often said that Buddha had 18 close disciples called *Shi-ba-luo-han*, p. 69).

A recipe for “Hot and sour soup” calls for “1 piece bean curd (sliced into 3 cm x 5 mm x 5 mm shreds)” and “1 Tbsp soy sauce” (p. 71).

A recipe for “Vegetarians’ delight (*Su-shi-jin*)” calls for “6-8 pieces fried bean curd cubes (diagonally quartered, available in Chinese groceries)” and “four young fruits of luffa” (p. 90).

A recipe for “Bean curd fish (*Dou-fu yu*)” (p. 120) calls for “1 box of bean curd” and “3 Tbsp *dou-chi* (fermented black soybean).” This recipe is a modification of a dish called “Earthenware fish-head bean curd (*Sha-guo you-tou dou-fu*)” popular at sidewalk cafes and food stalls of Guangzhou [Canton] and Hong Kong. Most Chinese recipes for cooking fish call for frying the fish first, which gives a fish smell throughout the house, more so in an apartment” (p. 120-21).

“Bean curd is solidified protein with hardly any taste of its own. One of the important principles of cooking a good bean curd dish is to cook it for a long time with meat, fish, or poultry. Recently, with the introduction of the Sichuan food, *Ma-po dou-fu* (4 Cc = Chinese characters given) (‘pockmarked wife’s bean curd’), cooked with very hot pepper and powdered zanthoxylum [Sichuan peppercorns; fagara pepper] (much of both), has become increasingly popular among graduate students, for example, Harvard Biology doctoral candidates. Not all people can tolerate hot dishes” (p. 121).

There follows a recipe for “Soybean sprout soup (*Dou-ya-tang*)” which calls for “2 lbs fresh soybean sprouts” (p. 121-22).

“soybean sprouts and bean curd are the salvation of the Chinese people, as they are the most common and widespread foods for all, particularly for farmers, working people, and young students of boarding schools. In a boarding school at Xuzhou (Map 16) in the 1920s, soybean

sprouts alternating with bean curd were the daily main dish during the school year.”

There follows a recipe for “Soybean sprouts with bacon (*Dou-ya shao-rou*)” which calls for 5 lbs soybean sprouts (p. 122).

Following that is a recipe for “Bean curd hors d’oeuvre (*dou-fu-gan jiu-yao*)” which calls for “10 pieces of *dou-fu-gan* (firm bean curd squares, available in Chinese stores” and “1 cup soy sauce,” p. 122-23).

Note: This is the earliest English-language document seen (Aug. 2011) that contains the term “firm bean curd squares” or the term “spiced bean curd squares (see below), or that uses those terms to refer to Chinese-style pressed tofu.

“Bean curd squares are a more refined product made in small molds and drained under heavy pressure, as compared with bean curd in supermarkets which is prepared in large molds and drained under little pressure. The squares of the former are much firmer. This recipe is a modification is a modification of hors d’oeuvres served in Chinese bars or taverns. In taverns, large numbers of spiced bean curd squares are prepared ready for people with tight purse-strings, who may enjoy their drinks with *dou-fu-gan* (spicy bean curd) and peanuts,” while the more affluent customers may savor spicy pork liver and chicken or duck gizzards as hors d’oeuvre.

There follows a recipe for “Bean curd sheet pork (*Qian-zang-pi chao-ru*)” which calls for “3 pieces of *Qian-zang-pi* (3 Cc, ‘thousand sheets skin’ = bean curd in the form of sheets [pressed tofu sheets]; cut into 5 cm strips and then slice into 3 mm shreds; or use one can of the material, available at American Chinese stores) (p. 123-24).

The next recipe is for “Black soybean oxtail soup” (*Hei dou hui Niu wei*) which calls for “1½ cups black soybeans (the larger the bean, the better).” “This is a special Cantonese dish. Like yellow soybean, the black soybean is rich in protein, CHO [carbohydrates], fats, carotene, vitamins... flavones which become daizin [daidzin] and genisten [genistein] on hydrolyzation, soyasapogenol A, B, C, D, E, choline, and organic acids... The broth is especially good for senior citizens who suffer from dizziness and swollen ankles” (p. 123).

A recipe for “Vegetarians’ three treasures” (*Su-san-xian*)” calls for “1 lb firm bean curd (1 box, available in supermarkets).” “Luo-bo [giant white radish; daikon], celery cabbage [Chinese cabbage], and bean curd [tofu] are the most common vegetables of the Chinese people. They have been praised by a leading Chinese Buddhist monk, Tai-xu Fa-shi (4 Cc) as the three treasures that keep the Chinese people alive” (p. 135).

Chapter 4, “Spices and flavoring materials” (p. 147+) begins: “All good food depends on the proper use of spices and flavoring materials... ‘Plants and Human Affairs’ has always been a popular course in the department of Biology at

Harvard University. In the late 1940s, while Professor Paul C. Mangelsdorf was teaching the subject, a classmate asked for my help to complete her required term paper. Her project was on the Chinese invention of using pure plant protein precipitated from the soybean. At the time relatively few Americans knew the term *dou-fu* (2 Cc) (‘bean curd’)... For the project we went together to Chinatown [in Boston] where I showed her the only production center of dou-fu available at the time. It was a dim one-room area of a basement. There we watched the simple procedure of precipitating solid protein from soaked soybean. She recorded her observations and brought some samples, both *dou-fu* and *dou-fu-zha* (3 Cc) (‘bean curd residue’). Returning to the laboratory, I cooked a few dishes with the product and the by-product” (p. 147).

A recipe for “Fire pot with broomrape stock” calls for “2 oz dried laminaria (2 Cc) (*hai-dai*),” “2 boxes bean curd (doufu, 2 Cc); cut lengthwise once, then slice into 1 cm thick pieces of ca. 3-5-cm square,” “2 tsp fermented soybean hot sauce (*la-dou ban-jiang*, optional) with ¼ of the sesame oil placed in a separate dish, for people who like spicy taste” (p. 203-04). *Huang-dou-ya* (W.-G. *Huang-tou-ya*). (3 Cc) (‘soybean sprout’). “Soaked, sprouted under cover with daily wash, prepared at home in villages or as a simple industry in cities; available in American Chinese groceries, used as a vegetable or for making soup with bone and onion” (p. 474).

*Dou-fu* (W.-G. *Tou-fu*). (2 Cc) (‘bean curd’). *Dou-jiang* (W.-G. *Tou-chiang*). (2 Cc) (‘soybean milk’). *Dou-fu-nao* (W.-G. *Tou-fu-nao*). (3 Cc) (‘soft soybean curd’ [curds made from soymilk]). *Dou-fu-gan* (W.-G. *Tou-fu-gan*). (3 Cc) (‘dry bean curd,’ 5 cm firm squares). *Qian-zhang-pi* (W.-G. *Ch’ien-chang-p’i*). (3 Cc) (‘thousand sheet’ thin sheets of firm bean curd). (p. 474).

*Gardenia angusta* (L.) Merrill. Common gardenia. *Huang-zhi* (W.-G. *Huang-chih*) (2 Cc) (‘yellow gardenia’). “Fruit, from which an orange dye is obtained for coloring bean curd in Guangzhou [Canton]; animal assay indicating that the dyed yellow bean curd enhances the life span of mice; tea for people suffering from hepatitis” (p. 680-81). Address: Botanist, Arnold Arboretum, Harvard University; Honorary Professor of Chinese Medicine, The Chinese University of Hong Kong.

732. Park, Kun-Young; Jung, Keun-Ok. 2005. Fermented soybean products as functional foods: Functional properties of doenjang (fermented soybean paste). In: John Shi, C.-T. Ho, and F. Shahidi. 2005. Asian Functional Foods. Boca Raton, Florida: CRC Press. xxi + 647 p. See p. 555-96. Chap. 20. [121 ref]

• **Summary:** Contents: Introduction. History of Korean soybean fermented foods. Manufacturing methods and characteristics of doenjang fermentation. Functional properties of doenjang: Nutritional and functional components in soybean and doenjang, safety of doenjang,

antimutagenic activity of doenjang. Anticancer effect of doenjang. Increased chemopreventive effect of doenjang: Antioxidant effects, reduced cardiovascular diseases (fibrinolytic effect {as in chungkookjang and natto which secrete strong fibrinolytic enzymes}, antihypertensive effects, reduced serum cholesterol level), other possible functions of doenjang. Conclusion.

Doenjang is “Korean fermented soy paste” and kanjang is Korean-style fermented soy sauce that is obtained by filtering off the liquid from doenjang. “Historically soybeans and processed soybean foods have been the main protein sources in the Korean diet” (p. 555). “The medicinal functions of doenjang were first described in the *Dongeuibogam* [*Dongui Bogam (RR), Tongui Pogam (MR)*] (1613 A.D.), which was a popular traditional Korean medical text” [no citation given].

The section titled “History of Korean soybean fermented foods” contains what promise to be a number references to early and possibly very interesting documents that mention soybeans and soyfoods in Korea. Yet the authors fail to cite any of them properly, so for the time being, we must accept their account of what the documents say. The problems are: (1) None of these documents (except one, Ref. #46) is cited in the long list of references at the end of the chapter. (2) The title of all these documents is given only in Korean, even though at least two should have Chinese titles; one of those two (described as “The Chinese agricultural technology book, *Jeminyosul* {A.D. 530 to 550} written by a governor, Maeunsa,...”) is actually the famous *Qimin Yaoshu*, by Jia Sixie. (3) We are never told in what language the original document referred to is written. (4) The page number(s) on which the ancient, important information appears is not given for any of these documents. (5) For some documents no date is given, whereas for others no author is given. (6) It is not clear what names were used to refer to each of the various soyfoods in the original documents. (7) The authors never tell us whether they examined the original document, or read a contemporary version, or simply got the information from a secondary source.

For example (all dates are A.D.): 99–It has been reported [by what document?] that soybeans were cultivated–Where were they cultivated?

530-550–The *Jeminyosul* [*Qimin Yaoshu*] states (in Chinese) that shi [fermented black soybeans], soybeans fermented with bacteria, in Korea were disseminated to China and Japan.

683 Feb.–An article [no title given] by King Sinmoon, that appeared in the 3rd year of his reign (during the Silla dynasty), mentioned the words *jang* (mold-fermented soybeans) and *shi* (bacteria-fermented soybeans).

701–*Daeboyulryong* mentioned the words *jang*, *shi*, and *maljang*, which referred to soybean products.

739–*Jungchang Wonmooseu* also mentioned the word *maljang*.

*Donga* (no date given), which was written by Shinjungbaesuk (is that the writer’s real name?) in Japan, “indicated that *maljang* was imported from Korye (the old name of Korea);” it was renamed “miso” (Source: Ref. #46–35th Chronicle of Korea Soy Sauce Industrial Cooperative. 1997. Seoul. p. 27-32). Korean *jang* is said to have developed into traditional Japanese miso using *meju* made of soybeans and rice instead of *maljang*, which was made from soybeans only.

918-1392–During the Korye [Goryeo] dynasty, [in Korea] the name “*maljang*” changed to “*maejyo*” and then to “*meju*” [meaning soybean koji in the shape of balls or cones]; it was soaked in brine in a clay pot and ripened [then filtered]. The liquid was called *kanjang* (soy sauce) and the solid sediment was called *doenjang* (soy paste).

1613–*Donguebogam* [see above], written by Hurjun, described how to make medicinal doenjang using soybeans and how to fix soured doenjang.

1760–*Jungbosan Limkyunge*, written by Yojungim, “introduced 45 different processing methods for soybean foods, describing how many days fermentation for *jang*, selection of water, salt quality, how to handle the pottery, fixing *jang* with an off-taste, etc.”

1790 ca.–*Kyuhap Chongseo*, written by Madam Lee (lived 1759-1824) described the proper methods for making the various types of *jang* in great detail.

1930 ca.–Commercial production of fermented soybean products (“*jang*” in Korean) started in Japanese-built *jang* factories in Korea during the occupation (1909-1945) to supply soybean products for the Japanese in Japan.

1945–After gaining independence from Japan, Koreans took over the factories. Since the Korean war (1950-1953) military personnel and people living in large cities have mostly consumed commercial fermented soybean products, whereas families living in rural areas still prepare their own. Address: Pusan National University, Busan, Korea.

733. 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.

734. Feng, Xin-Mei. 2006. Microbial dynamics during barley tempeh fermentation. PhD thesis, Swedish University of Agricultural Sciences, Uppsala. 52 p. Illust. (some color). 24 cm. [194 ref. Eng]

• **Summary:** The writer has successfully made barley tempeh from pearled barley, without the use of soybeans (see p. 15). "Introduction of food-grade lactic acid bacteria (LAB) and yeasts to tempeh fermentation may enhance tempeh nutritional and hygienic quality.

"The abilities of LAB and yeasts to grow together with *R. oligosporus* during barley tempeh fermentation and their possible effects on tempeh quality were studied. The LAB *Lactobacillus plantarum* and *L. fermentum* and the yeasts *Saccharomyces cerevisiae*, *Pichia anomala* and *Kluyveromyces lactis* could grow during tempeh fermentation and the yeasts even during cold storage. LAB and yeasts did not negatively affect growth of *R. oligosporus* at an inoculation level of 10,000 cfu/g [colony forming units per gram], respectively, but did so at higher inoculation levels.

On pages 9-10 is a very interesting but brief discussion of *Mei Dou Za* (okara tempeh, called Meitauza in several early English-language documents). It is still made by "spontaneous fermentation" in about 3 days in several places in China. On page 10 are 6 photos taken by the writer in 2006 showing how the product is made, and then sliced and dried in Qian Jiang, Hubei Province, China Address: Dep. of Microbiology, Swedish University of Agricultural Sciences, Box 7025, SE-75007 Uppsala, Sweden.

735. Monden, Eiji. 2007. What is natto? Natto to save the earth! Presented Sept. 16 at 2007 Midwest Specialty Grains Conference & Trade Show. 29 p. Held Sept. 16-18 in Fargo, North Dakota.

• **Summary:** A PowerPoint presentation with 29 slides containing color photos and graphics. (2) Table of contents. (3) About Federation of Japan Natto Manufacturers' Cooperative Society. Phone: 03-3832-0709. President: Takashi Sasanuma. Established: April 1954. Members: 251 natto manufacturers. Objective: To work cooperatively among members to conduct natto promotion activities and improve natto makers' economic status. Qualifications: Must be a natto manufacturer that owns an office in Japan. History: 1939-Prefectural natto cooperatives were organized, 1941-Established Japan Natto Industry Cooperative Association. 1953 [after World War II]-Re-organized to Federation of Japan Natto Manufacturers' Cooperative Society.

(4-5) Activities: National natto contest. Natto symposium. Natto queen ceremony. (6) What is natto? With

photos of soybeans, container of natto, natto mixed with rice being lifted out of a bowl with chopsticks. (7) Natto making: The 3-day process. (8-10) Health benefits of natto. Medical uses: Reduces likelihood of blood clotting. Contains large amounts of vitamin K. Contains large amounts of enzyme called nattokinase which may also reduce blood clotting. (11-12) Types of Natto. Sticky natto and Dried Natto. Whole soybean natto, hikiwari natto (from cracked soybeans) and goto natto (hikiwari natto and malted rice [rice koji]) are all types of sticky natto, while Tera Natto (Temple Natto) is the only dried natto. It is black and salty, and was introduced to Japan by priests who studied in China. Photos show Itohiki Natto (Sticky natto), Goto Natto, Tera Natto, and Cracked Bean Natto. (13) How to eat Natto. Photos show a package of natto, the package open to show its contents, with the natto, a packet of sauce, and a packet of mustard, and the natto served in a bowl on top of rice. (14) History of Natto. *Bacillus natto* are naturally found on straw; in the Taisho period (1912-1926), researchers found a way to cultivate the bacillus without straw. This made the natto easier to produce and more reliable. (15-16) Natto Market. Graph shows Natto Consumption per household per year and volume of natto market. 130,000 MT [metric tons] of soybean are used annually to produce 4.7 billion packages (50 g natto/package) of natto. (17) Reasons for purchasing Natto. (18) How did you learn the health benefits? Graph shows how people learned about the benefits of natto. (19-21) Natto Variety. Graph shows soybean use for Natto by country of origin, 2007 Food soybean use by usage. In 2007, 956,000 MT of soybeans were used for food; 135,000 of which went to produce Natto. Graph shows price trends for a bushel of soybeans. (23) World Average Life Span Rankings. Table shows that Japan ranks first, with an age of 82 years. The United States is 26th at age 78. (24) Future Market: Further research on new natto health benefits, new menu development of natto, further natto market expansion domestically and globally. (25) Expectations of the U.S. IP [identity preserved] soy industry: To strengthen more direct communication for new variety development with natto manufacturers at an early stage, to continue growing food soybeans, continuing demands and market potential for U.S. Non-GMO soybeans exist in Japan, the possibility of launching a natto market similar to the soysauce market in the United States. Address: Federation of Japan Natto Manufacturers' Cooperative Society (Zenkoku Natto Kyodo Kumiai Rengokai), 4th Floor, Natto Kaikan 2-7-10 Moto-Asakusa, Taito-ku, Tokyo 111-0441 JAPAN.

736. 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 [soy nuggets]), 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 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.

737. Bittman, Mark. 2007. Mark Bittman's quick and easy recipes from the New York Times. New York, NY: Broadway Books... An imprint of Random House. x + 340 p. Index. 23 x 20 cm.

• **Summary:** This book collects 350 recipes from Bittman's popular *New York Times* column "The Minimalist," which cleverly caters to the modern gourmet whose expectations are high but whose time is limited.

Soy related recipes: Nearly instant miso soup with tofu (p. 7). Soy vinaigrette (with soy sauce, p. 44). Rice salad with peas and soy (with soy sauce, p. 58). Steamed clams with soy (sauce, p. 65). Soy-dipped shrimp (p. 78-79). Miso-broiled scallops (p. 80). Simplest steamed fish with soy (p. 95). Salmon with soy and black beans (with "1 tablespoon preserved (Chinese) black beans," p. 110-11). Soy duck (p. 142). Soy poached chicken (p. 154-55). Grilled soy-and-ginger boneless lamb leg (p. 193). Pork chops with miso-red wine sauce ("Miso is a superb thickener, adding a rich, creamy consistency," p. 201). Roast asparagus with soy and sesame (p. 217). Grilled asparagus with soy-ginger dressing (p. 218). Curried tofu with soy sauce (p. 243). Simmered tofu with ground pork (Ma-Po tofu, p. 244). Address: New York Times food writer.

738. Compestine, Ying Chang. 2007. Revolution is not a dinner party: A novel. New York, NY: Henry Holt and Co. 248 p. Illust. Map. 21 cm.

• **Summary:** An outstanding, extremely well written and interesting book. "Although this is a work of fiction, many of the scenes and characters in the book are based on or inspired by real places, actual events, and people from my childhood" (p. 245).

This first-hand account of the Cultural Revolution in

China, starting in 1972 when the author was a girl, age 9, in Wuhan, gives an excellent sense of what it was like to be there in the midst of the conflict. In 1966 Mao Zedong launched the Cultural Revolution for several reasons: First, he hoped to use it to ensure his victory in a power struggle among China's new Communist leaders. Second, he hoped to "re-educate" the anti-Communists who existed in China before the revolution. Third, he hoped it would draw attention away from the economic hardships in China at this time."

On Oct. 1966 Chairman Mao's *Little Red Book* was published. The title of this novel comes from the following quotation by Mao:

"A revolution is not a dinner party, or writing an essay, or painting a picture, or doing embroidery; it cannot be so refined, so leisurely and gentle, so temperate, kind, courteous, restrained and magnanimous. A revolution is an insurrection, an act of violence by which one class overthrows another."

"Mao's power reached its peak during the middle of the Cultural Revolution." "Although it officially ended in 1969 and the worst abuses stopped, the politically charged atmosphere continued until Mao's death on September 9, 1976" (p. 247-48, "Historical Background").

The author, whose name in the novel is "Ling," did not like tofu. "Mother set a small blue bowl and matching soup-spoon in front of me. 'Ling, your hair is as dry as dead grass. Eat your soup.' It was filled with tofu, spinach, and seaweed. I didn't want it but I knew better than to say so. I picked up a bit of tofu, hoping that would be enough. I had already stuffed myself on my favorites: pan-fried dumplings, egg-fried rice, and steamed fish with mother's tasty black bean sauce" (p. 6).

"To celebrate Christmas Eve, Mother made dumplings stuffed with onions and soybeans" (p. 137).

Buying from old women in a village at the edge of the city: "The first time I eagerly filled by basket with rice cakes, tofu, and carrots" (p. 175).

A photo on the cover and facing the title page shows the author as a girl in China.

Note: Modern historians agree with the author's dates; they give the dates of China's Cultural Revolution as 1966-1976, but say that it was in decline from 1969 to 1976 (the year of Mao's death). Address: Author (California).

739. Shurtleff, William; Aoyagi, Akiko. 2008. Le livre du tofu: La source de protéines de l'avenir—dès maintenant! [The book of tofu: Protein source of the future—now! Translated from the English by Nathalie Tremblay]. Varennes, Quebec, Canada: Éditions AdA Inc. 430 p. Illust. by Akiko Aoyagi. Index. Feb. 28 cm. [53 ref. Fre]

• **Summary:** Contents: Preface. Acknowledgements. Part I. Tofu: Food for mankind. 1. Protein East and West. 2. Tofu as a food. 3. Getting started. Our favorite tofu recipes (lists

about 80 recipe names for each of the different types of tofu, plus soymilk, yuba, whole soybeans, gô, okara, and curds; very favorites that are also quick and easy to prepare are preceded by an asterisk).

Part II. Cooking with tofu: Recipes from East and West (500 recipes). 4. Soybeans: History, cooking with whole dry soybeans, roasted soybeans (*iri-mame*), fresh green soybeans (*edamame*), kinako (roasted full-fat soy flour), soybean sprouts (*daizu no moyashi*), natto (sticky fermented whole soybeans, with “gossamer threads”), tempeh (fermented soybean cakes), Hamanatto and Daitokuji natto (raisin-like natto), modern western soybean foods (natural soy flour [full-fat], soy granules, defatted soy flour and grits, soy protein concentrates, soy protein isolates, spun protein fibers, textured vegetable protein (TVP), soy oil products). 5. Gô (a thick white puree of well-soaked uncooked soybeans). 6. Okara or Unohana. 7. Curds and whey. 8. Tofu (includes history, and preparatory techniques: Parboiling, draining, pressing {towel and fridge method, slanting press method, sliced tofu method}, squeezing, scrambling, reshaping, crumbling, grinding).

9. Deep-fried tofu: Thick agé or nama agé, ganmo or ganmodoki (incl. *hiryozu / hirosu*), agé or aburagé (incl. “Smoked tofu,” p. 197). 10. Soymilk. 11. Kinugoshi (“*Kinu* means ‘silk’; *kosu* means ‘to strain’; well named, kinugoshi tofu has a texture so smooth that it seems to have been strained through silk”). 12. Grilled tofu. 13. Frozen and dried-frozen tofu. 14. Yuba (incl. many meat alternatives such as Yuba mock broiled eels, Buddha’s chicken, Buddha’s ham, sausage). 15. Tofu and yuba in China, Taiwan, and Korea (incl. Savory tofu {*wu-hsiang kan*}; see p. 258 for illustrations of many meat alternatives, incl. Buddha’s fish, chicken, drumsticks, and duck, plus vegetarian liver and tripe, molded pig’s head, and molded ham). 16. Special tofu.

Part III–Japanese farmhouse tofu: Making tofu for more and more people. 17. The quest. 18. Making community tofu. 19. The traditional craftsman. 20. Making tofu in the traditional way. Appendices: A. Tofu restaurants in Japan (many are vegetarian). B. Tofu shops in the West (Directory of 43 shops in the USA, 3 in Europe {Germany, Austria, Belgium, Denmark, Finland, France, Ireland, Italy, Netherlands, Portugal, Spain, Switzerland, UK, Wales}, and 3 in Latin America {Brazil, Colombia, El Salvador, Guatemala, Mexico}). C. People and institutions connected with tofu. D. Table of equivalents. Bibliography. Glossary. Index. About the authors (autobiographical sketches; a photo shows Shurtleff and Aoyagi, and gives their address as New-Age Foods Study Center, 278-28 Higashi Oizumi, Nerima-ku, Tokyo, Japan 177). Sending tofu in the four directions.

Pudding recipes include: Rice pudding with gô and apple (p. 76, incl. 2 cups soymilk). Tofu chawan-mushi (p. 147; Steamed egg-vegetable custard with tofu). Tofu fruit whips (p. 148). Tofu rice pudding (p. 150, incl. 1 cup soymilk). Tofu custard pudding (p. 152). Soymilk custard

pudding (p. 208). Brown rice pudding (p. 208, with 2 cups soymilk). Soymilk chawan-mushi (p. 209). Chawan-mushi with yuba (p. 249).

Dessert recipes include: Tofu whipped cream or yogurt (p. 148; resembles a pudding or parfait). Tofu ice cream (p. 149, with chilled tofu, honey, vanilla extract and salt). Banana-tofu milkshake (p. 149). Tofu cream cheese dessert balls (p. 149). Tofu icing (for cake, p. 149). Tofu cheesecake (p. 150). Tofu-pineapple sherbet (p. 151). Also: Soymilk yogurt (cultured, p. 205). Healthy banana milkshake (p. 206). On p. 160 is a recipe for “Mock tuna salad with deep fried tofu.” Address: Soyinfo Center, P.O. Box 234, Lafayette, California 94549 USA. Phone: 925-283-2991.

740. Winchester, Simon. 2008. *The man who loved China: The fantastic story of the eccentric scientist who unlocked the mysteries of the Middle Kingdom*. New York, NY: HarperCollins. xii + 316 p. May 6. Illust. Maps. Index. 24 cm. [150 ref]

• **Summary:** This biography of Joseph Needham (1900-1995) focuses on his early years, his long-term relationship with his Chinese biochemistry student, Lu Gwei-djen (1904-1991), and his years in China during World War II, from 1943 to 1946, and his work there with his secretary H.T. Huang. A British biochemist best known for his magnum opus, *Science and Civilisation in China*, he was elected a fellow of both the Royal Society and the British Academy. In China, he is known mainly by his Chinese name Li Yuese (Pinyin: Li Yuese; Wade-Giles: Li Yüeh-Sê).

Page 159: In late 1945, when Lu returned with Needham to China, she wished that China could import “the right kind of soybean,” not the low-fat variety that some foreign companies were trying to sell China.

Appendix I is titled “Chinese inventions and discoveries with dates of first mention (p. 267-77). There are about 260 entries, almost all predating a similar discovery in the Western world. The list includes many important subjects, such as: “Antimalaria drugs” (3rd century BC), “Ball bearings” (2nd century BC), “Beriberi, recognition of” (AD 1330), “Book, printed, first to be dated (AD 868), “Book, scientific, printed (AD 847), “Coal as a fuel” (1st century AD), “Compass, magnetic needle” (AD 1088), etc. The entry for “Bean curd” gives the earliest date as “100 AD.” Dr. H.T. Huang (expert on the early history of food in China; personal communication 2008 Feb. 13) says this date is much too early; the earliest reliable evidence comes from the early Song dynasty (AD 960-1279), and specifically from the *Qing Yilu* (AD 965). Of course, tofu was probably made for some time before it was mentioned in the literature.

The entry for “Soybean, fermented” is given as “200 BC.” This date seems reliable, based on the archaeological finding of fermented black soybeans in Han dynasty tombs, which were sealed in 165 BC.

Contents: Prologue. The barbarian and the celestial.

Bringing fuel in snowy weather. The discovering of China. The rewards of restlessness. The making of his masterpiece. Persona non grata: the certain fall from grace. The passage to the gate.

From the publisher's description: "The extraordinary story of Joseph Needham, the brilliant Cambridge scientist who unlocked the most closely held secrets of China—long the world's most technologically advanced country. This married Englishman, a freethinking intellectual, while working at Cambridge University in 1937, fell in love with a visiting Chinese student, with whom he began a lifelong affair. He became fascinated with China, and embarked on a series of extraordinary expeditions to the farthest frontiers of this ancient empire. He searched everywhere for evidence to bolster his conviction that the Chinese were responsible for hundreds of mankind's most familiar innovations—including printing, the compass, explosives, suspension bridges, even toilet paper—often centuries before the rest of the world (see Appendix 1). His dangerous journeys took him across war-torn China to far-flung outposts, consolidating his deep admiration for the Chinese people. After the war, Needham began writing what became a seventeen-volume encyclopedia, *Science and Civilisation in China*."

A map (the frontispiece) shows the line of the Japanese westward advance in China; Needham stayed far to the west of this advancing line. Address: Author, western Massachusetts.

741. Liu, KeShun. 2008. Food use of whole soybeans. In: Lawrence A. Johnson et al. eds. 2008. *Soybeans: Chemistry, Production, Processing, and Utilization*. Urbana, Illinois: AOCS Press. viii + 842 p. See p. 441-481. Chap. 14. [85 ref]

• **Summary:** Contents: Introduction. Non-fermented soyfoods: Soymilk (traditional soymilk, modern soymilk {techniques to reduce beany flavors, formulation and fortification, homogenization, thermal processing, and packaging}), tofu (preparation methods, factors involved in tofu-making {soybean varieties, storage and pretreatment, solids concentration, heating, type of coagulants, coagulant concentration, coagulation temperature, coagulation time, process automation, packaging}), varieties of tofu {silken tofu, regular and firm tofus, varieties of tofu products}), green vegetable soybeans, soybean sprouts, yuba, okara, roasted or cooked soybeans. Fermented soyfoods: Terms (Koji {fermentation, koji starter, inoculum}), fermented soy paste (preparation method {preparing rice koji, treating soybeans, mixing and mashing, fermenting, pasteurizing and packaging}), processing principles), soy sauce (preparation method {treating raw materials, koji making, brine fermentation, pressing, refining}), processing principles, chemical soy sauce), Japanese natto (preparation method, processing principles), Indonesia tempeh (processing method, processing principles), fermented soymilk, fermented tofu (preparation method, processing principles),

fermented black soybeans (Chinese douchi, Japanese hamanatto). Conclusion.

Figures show: (1) Flowchart of a traditional Chinese method for making soymilk and tofu. (2) Photo of savory tofu dices. (3) Photo of soy sprouts. (4) Photo of yuba (soymilk film). (5) Photo of Chinese jiang and Japanese white and red miso. (6) Flow chart of a common method for making Japanese rice miso. (7) Photo of Japanese natto. (8) Flow chart of a traditional Indonesian method for making tempeh. (9) Photo of Chinese douchi (fermented black soybeans or fermented whole soybeans). Address: Research Chemist, U.S. Dep. of Agriculture, Agricultural Research Service, Grain Chemistry and Utilization Lab., Aberdeen, Idaho 83210.

742. Chie no Kai. ed. 2008. *Kyô no rekishi, bungaku o aruku*. [Walking through the history and literature of Kyoto]. Tokyo Japan: Bensei Shuppan. See p. 61. [Jap]\*

• **Summary:** Page 61: Early books about natto are *Shinsaru gakuki*, written by Fujiwara no Akihira in the middle of Heian period, *Oojorôu onna no koto*, written in the end of Muromachi period, and *Oyudono no ue no Nikki*.

Note: The Heian period in Japan lasted from AD 794 to 1185. The Muromachi period lasted from 1336 to 1573. The capital was Kyoto and the ruler was a shogun Address: Japan.

743. Mintz, Sidney W. 2008. Fermented beans and western taste. In: Christine M. Du Bois, C.-B. Tan, and S.W. Mintz, eds. 2008. *Urbana, Illinois: University of Illinois Press*. viii + 337 p. See p. 56-73. [37 ref]

• **Summary:** Contents: Introduction. The distribution of fermented legumes in local food systems. The absence of fermented legumes from western food history. The future of fermented legumes in the West. Address: Johns Hopkins Univ., USA, emeritus professor of anthropology..

744. Huang, H.T. (Hsing-Tsung). 2008. Re: Various types of black bean sauce and soy sauce in China. Letter (e-mail) to William Shurtleff at Soyinfo Center, Oct. 30. 2 p.

• **Summary:** William Shurtleff writes: "I have been reading quite a few Chinese cookbooks and articles about Chinese foods during the period 1960 to the present. I am confused about the meaning of several widely-used terms in Chinese cookery. In all of the following the 'black beans' are actually black soybeans.

A common term is "Black Bean Sauce." This sauce is usually made in the kitchen by crushing (for example) 4 tablespoons of salty, fermented black beans with 3 tablespoons dry sherry or shao hsing wine. The two key points for me are: (1) It is not an extract like Kikkoman soy sauce; the whole salted black beans end up in the final sauce. (2) It can be made in the kitchen as part of a recipe, quickly and easily; just combine and mash. It is most widely used to

add a delicious flavor to recipes for chicken, shrimps, clams, fish, etc.

Question 1. What is THIS “Black bean sauce” called in Mandarin, pinyin, and Cantonese?

“Answer 1. It seems to me this sauce is not the invention of a particular chef; it is not a commercial product.

“Then there is a canned product that is sometimes sold as “Black Bean Paste.” I have seen the Chinese names *hei chiang* (pinyin: *heijiang*) or *hei touban chiang* (pinyin: *hei douban jiang*).

“Question 2. Is this canned product basically the same as product #1, which can be made so easily in the kitchen—but in convenient canned form? Or are there some differences?

“Answer 2: This is simply *jiang* (pinyin) or *chiang* (W.-G.). *Hei chiang* is simply black chiang.

Question 3. What is the canned product called in Cantonese? Answer 3: “If I remember right, “jiang” is pronounced “jiong” in Cantonese.

“Question 4. How is *Tou chiang* (pinyin: *doujiang*) related to product No. 2? Answer 4. They are the same product.

“Then there are two extracts—like our typical “soy sauce,” where the residue is separated and either discarded or used as a low-value product. *Shizhi* (pinyin) / *Shi Chih* (W.-G.) is an ancient extract of *chih* = fermented, salted black soybeans. *Shiyou* (pinyin) / *Shih-yu* (W.-G.), *Shiyau*, (Cantonese), or (Japanese) *Kuki-jiru* is an extract of fermented black beans.

Note: This is the earliest English-language document seen (Nov. 2011) that contains the term “*Shizhi*” in connection with this type of soy sauce.

“Question 5. Am I basically correct in saying that products 1 and 2 are closely related and that products 3 and 4 are also closely related but are very different from products 1 and 2.

“Answer 5. Product 1 is a chef’s concoction. 2. is a commercial product. When you extract *shi* with water you get *Shih Chih*. When you ferment *shi* further, the run-off juice is *shiyou*.

“Question 6. Am I basically correct that product 3 is now extinct and that product 4 is no longer very widely made or used? Or is it still made in certain regions of China?

Answer 6: Check my book in the Needham series (2000, pages 365-66). Both *shiyou* and *jiangyou* are translated as soy sauce. Both are made in China. The term “*shiyou*” is more popular in south China. In Fujian it is preferred. In Guangdong the product is called “*shiyu*” but it is often made from *jiang*.

Basically, *shiyou* is “*tamari*” and *chiangyou* / *jiangyou* is *shoyu*. Address: PhD, Alexandria, Virginia.

745. 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.

746. Chiang, Cecilia; Weiss, Lisa. 2008. *Seventh daughter: My culinary journey from Beijing to San Francisco*. Berkeley, California: Ten Speed Press. x + 246 p. Foreword by Alice Waters. Introduction by Lisa Weiss. Illust. (mostly color photos). Index. 24 x 20 cm. [1 ref]

• **Summary:** Cecilia (Sun Yun) was born on 18 September 1920 in Wuxi, near Shanghai, China—when her mother was age 38 and 17 years after the birth of her oldest sister. Cecilia was the 7th daughter in a family of ten children. In China, everyone considers themselves a year older on New Year’s day. Her mother, Sun Shueh Yun Hui, gave birth to twelve children—nine girls and three boys—over the course of 24

years, but two did not survive. Her father, Sun Long Guang (“unofficial” or familiar name Yung Xiao), born in 1878, was a gentle, progressive, scholarly man who had been schooled in France in the early 20th century, after the overthrow of the Qing Dynasty in 1911. Like many intellectuals in his generation, he worked to bring Western liberal ideas and modernization to China. He retired from his engineering job with the railway at age 50 so he could tend the gardens he loved, listen to music, and read. He was unusual in having no concubines, and all in his family were proud of him for that.

Her mother (whom she called “Um-ma”) had tiny, four-inch-long bound feet, which were very painful to her. Between ages 5 and 7, when her foot bones were still fairly soft and malleable, they were broken. “The toes were folded down under the ball of the foot and the arch folded in half, then the whole foot was wrapped tightly in gauze bandages so that it would essentially stop growing. The smaller the foot, the more desirable the woman, and thus the more marriageable she would be. It was an unbelievably lengthy and painful process, and often girls died from the resulting infection” (p. 49). Cecilia’s father absolutely forbade the binding of his daughters’ feet. So they grew up being able to run, dance, play tennis and ice skate. Cecilia rode her bicycle daily to the Fu-Jen Catholic University. Cecilia’s mother tottered around the family home, overseeing the servants, nannies, and cooks. By the late 1930s in China, “in all but the most rural areas, the custom of foot binding became a thing of the past” (p. 50).

When Cecilia was age 4, the whole family moved from Wuxi to Beijing, the capital of China. In those days it was very unusual for a family to move such a long distance, from one province to another. However, her parents were “drawn to the capital because of its intellectual and cultural offerings.” They moved into a huge walled compound with enormous red gates. It was “an actual palace that took up an entire city block and had been built in the 16th century for a minister to one of the last emperors of the Ming dynasty. It had 52 rooms and six bathrooms in seven parallel buildings” (p. 50). The dining room was the most important room in their home that was where their family life took place. Her “mother was so short, she needed to stand on a stool to see into the pots on the stove.” Yet she ran the kitchen with absolute authority. “Like all upper-class Chinese women of her time, she did not actually cook.” “She instructed her chefs as to how she wanted things done.” This included “making her own soy sauce, a few bottles of which contained shrimp roe—though those are the ones she brought out only for special occasions” (p. 51). Her mother was a perfectionist.

They were served breakfast, typically rice congee—a kind of rice porridge—with assorted condiments including sausage, dried fish, thousand-year eggs, vegetables pickled in jiang, and fermented bean curd [stinky tofu; *chou doufu*].

In 1937 the Japanese finally arrived at Beijing; the city

had been bracing for their arrival since 1931 when they had invaded Manchuria. Almost overnight, food (including soy sauce and fresh dofu / tofu) became scarce and life became difficult. In 1940 the Japanese moved in and occupied their home, but let them stay in a small part of the building. Soon Cecilia and Teresa (sister #5, Qin) began to think about leaving Beijing for Chongqing (in Sichuan province), where Chiang Kai-shek had moved the nationalist government headquarters after the fall of Nanjing, his previous capital. In Jan. 1942 they fled in disguise for Free China, calling their adventure “The Long Walk.” After many amazing adventures, they arrived in Chongqing in June 1942. Soon she was seriously dating two men. She decided to marry the businessman, Chiang Liang. They were married in May 1945 in Chongqing. China was still divided by war. In China, the groom’s family pays for the wedding. A few days after the Japanese surrender to the Allies on 15 Aug. 1945, her husband announced that he wanted them to move to Shanghai, so they took the scenic 1,500 mile trip up the Yangtze from Chongqing to Shanghai; it took them 2 weeks.

1946 June—Their first child, a daughter named May, was born in Shanghai. At about this time, Chiang Kai-shek moved the Nationalist capital back to Nanjing, which is close to Shanghai. The civil war with the Communists resumed.

1949 Jan.—Communist forces capture Beijing.

1949 May 25—Communist forces capture Shanghai, shortly after Cecilia, her husband, and the eldest of their two children have flown to Tokyo (April 29), where they stayed at the Chinese Mission. But Cecilia was soon homesick for Chinese food.

1951 fall—She (with a small group of Chinese friends) opens a large (400-seat) Chinese restaurant in Tokyo named The Forbidden City; it was a huge success from the very beginning.

1960—Cecilia moves to San Francisco from Tokyo and opens The Mandarin (for details see Chapter 1). 1961—Her husband comes to check out her restaurant, then dismisses The Mandarin as insignificant; he had expected something much grander. She realized right then their marriage was over.

1962—Her two children, Philip and May, come to live with her in San Francisco. The restaurant prospers and grows.

1968—She moves The Mandarin to larger quarters at Ghirardelli Square; to do so she takes out a \$750,000 personal loan. It opens in June 1968 with “special little round cruets for soy sauce that looked like perfume bottles” (p. 22).

1974—Cecilia opens The Mandarin in Beverly Hills.

1975 July—Cecilia travels to Beijing to visit her ailing father; it is their last visit.

Cecilia’s Pantry (p. 5-7); soy-related items. “Bean sauce—Made from ground, salted, and fermented yellow soybeans mixed with seasonings.” “Black bean sauce: A prepared sauce sold in a jar and made from salted black [soy]

beans mixed with soy [sauce], salt, sugar,...” “Hoisin sauce—This thick, sweet-spicy sauce, made from ground soybeans mixed with sugar, flour, and vinegar,...” Soy sauce: Cecilia likes the Lee Kum Kee brand, but also uses Pear River Bridge mushroom soy sauce. “which has a nice, rich, earthy flavor.” Tofu—Also called dofu or bean curd. Of the various kinds, pressed tofu is often called “seasoned.” If you are unable to buy seasoned tofu [also called five-spice pressed tofu, *wu-xiang doufu-gan*], it’s easy to make your own at home; a recipe is given (p. 7).

Soy-related recipes: Hot and sour soup (with firm tofu, *suan la tang*, p. 43). Tofu and spinach soup (*bo cai dou fu tang*, p. 58-59). Mapo dofu (p. 142). California congee with condiments (inc. fermented tofu; *xi fan he xiao cai*, p. 160-61). Clams in black bean sauce (*dou chi chao xian*, p. 210-11). Shrimp with edamame (*mao dou chao xia ren*, p. 235). Spinach with bean curd (*bo cai ban dou fu*, p. 237).

Photos show: (A) Cecilia at The Mandarin at Ghirardelli Square (San Francisco, 1972, p. 8). (B) Cecilia and Number Six sister, Sophie, (Shanghai, China, 1947, p. 10). (C) Cecilia and husband, Chiang Liang (1945, p. 13). (D) Cecilia at The Mandarin on Polk Street, (San Francisco, 1964, p. 14). (1) Cecilia, age 12 (Beijing, 1932, p. 46). (2) A family photo [in 1942], with her mother, father, and all their children at their home in Beijing (p. 48). (3) Cecilia’s parents in 1928 in the courtyard of their home in Beijing (p. 68). This photo was found after Mao’s Red Guards destroyed the house. (4) Cecilia at The Mandarin at Ghirardelli Square, San Francisco, 1972. (4a) Cecelia [front row center] with two sisters and one brother (Beijing, 1928 [actually 1926]. p. 92. In back row left is sister no. 1; in back row right is a cousin). (5) Six sisters (numbers 3-8) at home in Beijing, 1940. (6) Cecilia and her sister, Teresa, 1940. (7) Cecilia and friend in 1944. (8) Wedding photo, Cecilia and Chiang Liang, Chongqing, China, 1945. (9) Cecilia and her husband at Nara National Park, Kyoto, Japan, 1952. (10) Cecilia’s father standing at doorway of Beijing home, late 1930s. (11) Cecilia with her father during her last visit with him in Beijing, 1975. (12) Cecilia and Alice Waters, Oct. 1981. (13) Cecilia and Julia Child, Italy, 1994. Address: San Francisco, California.

747. Centraalbureau voor Schimmelcultures. 2009. CBS Fungal Biodiversity Centre (Website printout—part). www.cbs.knaw.nl. Printed April 6.

• **Summary:** This culture collection organization is similar to the National Center for Agricultural Research Utilization (NCAUR) in Peoria, Illinois. Contents: Home (incl. current news, biodiversity). About CBS. Research. Collections. Databases (18). Publications. Service. Links.

When we searched the 1st database, the “Filamentous fungi database,” it was very slow to load and to search. It “contains data on more than 38,000 strains in the CBS collection,” we got interesting results searching for: (1)

Tempeh—14 hits = records found. In each record, tempeh appears in the field “Substrate.” The “Taxon name” (scientific name) of *Rhizopus oligosporus* has been changed to *Rhizopus microsporus var. oligosporus* (Saito) Schipper & Stalpers. In some records the name of the collector and date collected are given. Country and locality (where collected): Indonesia.

Other organisms used to make tempeh are: *Rhizopus oryzae* Went & Prinsen Geerligs. *Rhizopus stolonifer var. stolonifer*. *Cladosporium oxysporum* Berkeley & M.A. Curtis. *Rhizopus azygosporus* G.F. Yuan & S.C. Jong. One culture typically costs “150 Euro (65.0 Euro for Academies, Universities, Education).”

(2) *Rhizopus oligosporus*: 5 hits.

(3) Miso: 3 hits. One substrate was soy sauce and another was koji starter culture. The fungi were: *Aspergillus oryzae var. oryzae*. *Aspergillus sojae* Sakaguchi & K. Yamada ex Murakami.

(4) Soy sauce: 13 hits. In addition to the two molds used to make miso, there was also: *Aspergillus oryzae var. effusus* (Tiraboschi) Y. Ohara.

(5) Chinese cheese: No hits.

(6) Fermented tofu: No hits.

(7) Sufu: 9 hits. The molds used are: *Mucor racemosus f. racemosus*. *Mucor indicus* Lendner. *Mucor hiemalis* Wehmer. *Actinomucor elegans* (Eidam) C.R. Benjamin & Hesseltine. *Mucor circinelloides f. circinelloides*. *Rhizopus microsporus var. microsporus* Tieghem.

(8) Douchi or doushi or doushih or dowsee or dowsi or toudou or tou-shih or fermented black beans or preserved black beans: No hits.

(9) *Aspergillus*: 1,213 hits.

(10) Soybeans: 1 hit. Substrate: Soybeans. Taxon name: *Aspergillus wentii* Wehmer. Country and locality: Indonesia, Java.

(11) Soybean: 18 hits. Substrate is usually “soil from soybean field.” Molds are *Penicillium* and *Aspergillus* species.

(12) Koji: 36 hits. Molds: *Aspergillus oryzae var. oryzae*. *Aspergillus oryzae var. brunneus* Murakami. *Aspergillus tamarii* Kita. *Rhizopus microsporus var. tuberosus* R.Y. Zheng & G.Q. Chen (koji from China). Address: Utrecht, Netherlands. Phone: +31 (0)30 212-2600.

748. 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.

749. Tom, Lawrence; Tom, Brian. 2010. Sacramento’s Chinatown. Charleston, South Carolina; Chicago, Illinois; Portsmouth, New Hampshire; San Francisco, California: Arcadia Publishing. 128 p. Illust. Map. No index. 24 cm.  
 • **Summary:** This is mostly a book of beautiful old photographs with captions. There is an insightful introduction and each of the 8 chapters has a good introduction; one especially interesting section (p. 8-9) is “Chinese-American history—myths.

On page 33 is an “English version of the menu for the Sun Sun Café [at 307 J St., Sacramento] in the 1950s. Since Sacramento had a relatively large Chinese-speaking community, there was also a Chinese version of the menu available.”

Under “Special suggestions,” the menu includes “Fried spare ribs with black bean sauce.” “Fried spare ribs with Chinese cheese” [probably fermented tofu]. “Bean cake [probably tofu] with pork.” Address: American Museum of Northern California Chinese.

750. Kageura, Makiko. 2011. Re: Color photos of Daitokuji natto. Letter (e-mail) to William Shurtleff at Soyinfo Center, Oct. 28. 1 p. [Eng]

• **Summary:** “I went to Daitoku-ji [a large and famous Rinzai Zen Buddhist temple in northern Kyoto] to take some photos of Daitokuji natto. I saw various shops around the temple but finally decided on the Daitokuji Nattoku Ikkyu shop, which is officially named from the temple. I took some photos for you. I got two labels from Mr. Tsuda. I can send them to you if you want.”

Photos show (see next pages): (1) White and red labels. (2) Packages of souvenirs of Daitokuji natto. (3) A bag of Daitokuji natto. (4) One front view of the Daitokuji Nattoku Ikkyu shop. (5) Another front view of the Daitokuji Nattoku Ikkyu shop. (6) A close-up of Ikkyu’s Daitokuji natto itself. It has a chunky texture and a flavor resembling that of any dark miso, especially Hatcho miso. (7) The main gate of the entire Daitokuji Zen temple.

Note 1. Makiko asked the head priest at the Ikkyu subtemple if he had any early dated documents from which we could learn something about the history of Daitokuji natto. He said “no.”

Note 2. As of 5 Dec. 2011 we are not sure that Ikkyu still makes Daitokuji natto; the products they sell may be made by nearby Isoda at 41 Shimomonzencho, Murasakino, in Kita-ku, Kyoto. Or there may be other makers. Address: 608 Honyakushi, Nara City 630, Japan.

751. Kageura, Makiko. 2011. Re: Color photos of Hamanatto. Letter (e-mail) to William Shurtleff at Soyinfo Center, Nov. 4. 1 p. [Eng]

• **Summary:** She ordered a package of hamanatto from Daifuku-ji. The photos show: (1) The front of the package, with white letters on a green background. Four vertical lines from left to right read: (1a) Nippon ganso (the founder in Japan). (1b) Daifukuji natto. (1c) Enshuu (A far-away province). (1d) Mikkabi Daifukuji (Made at Daifukuji).

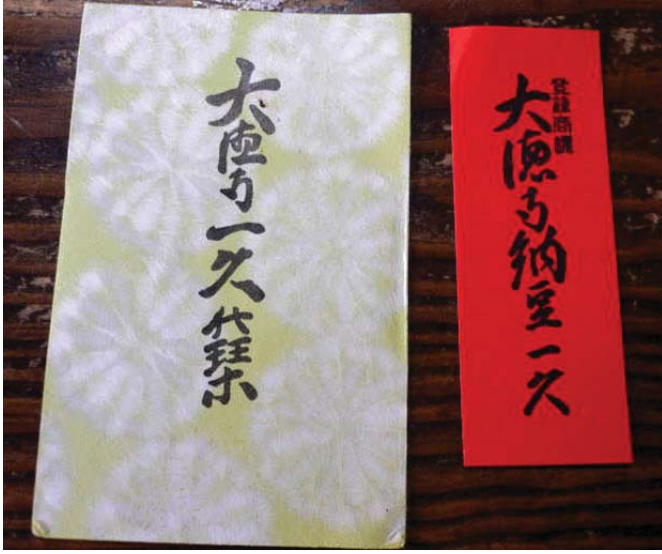
(2) The back of the package. 7 lines from top to bottom read: (2a) Meishô: daifukuji natto. (2b) Genzairyô: daizu, hadaka-mugi, shio, sanshō (ingredients: soybeans, naked barley, salt, sansho {Japanese pepper}). (2c) naiyôryô: 180 guramu (weight: 180 gm). (2d) Hozon houhou: youreizou. (2e) Shoumi kigen (address in Hamamatsu): Heisei 24, 2 gatsu 29 nichi, 431-1411 Kôyasan Shingonshû, Daifukuji, Hamamatsu-shi, Kita-ku, Mikkabi chō, Fukunaga, 220-3, Japan.

(3) The contents of this package of Daifukuji Natto on a white plate. (4) Illustration of the gate in front of Daifukuji, a Buddhist temple. (5) The two inside panels of a small brochure that came with these fermented black soybeans. The left panel tells the history of Daifukuji natto. The right panel is two tanka poems by two old Japanese poets: Oota Shokuzanjin and Fujino Shizuteru. Each poem mentions hamanatto. Address: 608 Honyakushi, Nara City 630, Japan.

752. 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.

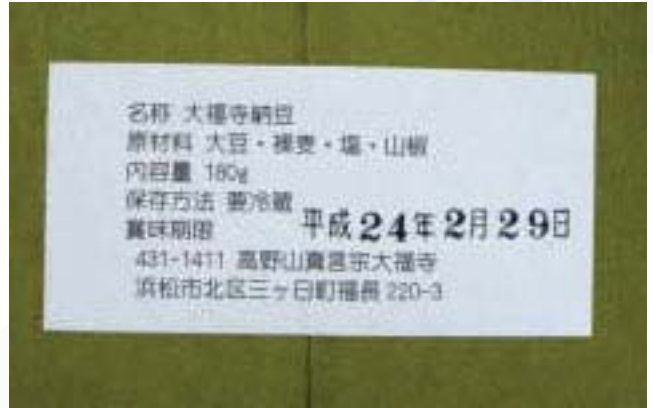
• **Summary:** Best-selling author Heidemarie Vos recounts a fascinating story and her journey of putting together the world’s first cross-referenced book regarding food-using more than five languages. This cookbook will become an invaluable resource for your kitchen (from the publisher).

The Introduction states: “There are 7922 entries, 300,017 words... based on my own travels to 6 continents and over 40 countries.” Note: This 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” [doufu-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). 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.

753. Spots: Fermented black soybeans, Daitokuji natto, Hamanatto 3000.

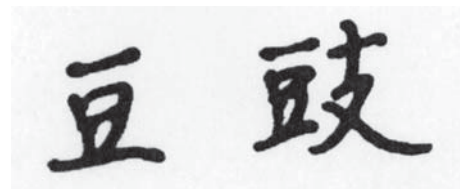
• **Summary:** The first four photos (see front of book) all show Daitokuji natto. The photo showing three packages of Daitokuji natto, each with a bowl of the contents below are (from left to right): (1) Daitokuji Zuihon. (2) Honke Isoda. (3) Daitokuji Ikkyu. Each product has a somewhat different taste and appearance. (4) Another closer view of a different brand of Daitokuji natto made in Kyoto by another maker. (5) View using the “Google Ngram Viewer” of the relative frequency of appearance in books digitized by Google, from 1800 to 2000 of the three case-sensitive terms “black bean sauce” (by far the most frequent), “fermented black beans,” and “hamanatto.” (6) Fermented black soybeans on a mat. (7-8) Chinese characters for douchi / doushi.

754. Spots: Tempeh, fermented tofu, and other fermented foods. 3000.

An asterisk (\*) at the end of the record means that SOYFOODS CENTER does not own that document.

A plus after eng (eng+) means that SOYFOODS 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 & H. Ohashi. Also called Adzuki, Aduki, Adsuki, Adzinki, Red Bean, Chinese Red Bean, Red Mung Bean, Small Red Bean. Japanese–Kintoki, Komame, Shōzu. 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. 4, 12, 15, 17, 18, 19, 20, 41, 44, 46, 47, 57, 58, 59, 62, 65, 68, 72, 80, 101, 107, 108, 117, 143, 149, 150, 153, 162, 180, 191, 218, 247, 268, 272, 273, 298, 306, 327, 329, 403, 410, 488, 498, 505, 529, 550, 562, 564, 606, 624, 636, 650, 652, 653, 656, 671, 682, 683, 703, 733

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