

2 BECOMING AN EVERYDAY FOOD: SOY SAUCE IN MODERN CHINA (CA. 1800–1930)

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The banality of soy sauce as a condiment in Chinese and East Asian cuisines and its easy accessibility as a global commodity do not naturally inspire the study of its history. The Chinese tend to assume that it is as old as Chinese civilization itself, even after the seminal study on Chinese fermented foods by H. T. Huang in 2000 and its Chinese translation in 2008.¹ When I give talks on the history of soy sauce, describing its first mention in Song texts, audiences in China often react with skepticism at this “late” dating, claiming archaeological findings and older lexes that could suggest earlier existence of soy sauce, or some version of it. On websites of East Asian soy sauce makers, one sometimes finds the claim of soy sauce having some three thousand years of history.² Such putative assumption reflects how firmly the idea of soy sauce is ingrained in the imagination of an ancient, uninterrupted Chinese or East Asian tradition. Ishige Naomichi’s insightful observation that soy sauce delineates East Asia as a cultural sphere would be strongly backed by this popular perception, while the cultural identifying power of the condiment divests it of its historicity.³ This chapter pieces together the history of Chinese soy sauce precisely to explain its modern cultural power. It traces the product’s trajectory from an obscure traditional condiment for the elite to an everyday food in the late Qing and early Republican period to reveal its fate inextricably linked with that of a Chinese nation striving toward modernity. It was during this relatively recent process of its long history that, I believe, soy sauce acquired the cultural power we are familiar with today.

FROM ELITE FOOD TO POPULAR COMMODITY: A LONG JOURNEY

It is clearly explained in H. T. Huang's thorough study on the history of Chinese fermented foods that the origin of *jiangyou* or *shiyou* (醬油 or 豉油 soy sauce), as we know it today, remains obscure, with the first extant mention of the term *jiangyou* in a thirteenth-century elite recipe text. The earliest extant formula for making soy sauce can be found only in a 1360 dietetic book authored by one of the most influential painters in Chinese history, Ni Zan (1301–1374): "For every official peck of *huangzi* (黃子 fermented yellow bean), have ready ten catties of salt and twenty catties of water. On a *fu* (伏 warm season) day, mix them [in a jar] and incubate."⁴ This short formula succinctly mentions the key ingredients in soy sauce: soybeans and the ferment developed on it, salt, and water, though it is unclear whether fermentation was done purely on the beans or on a mixture of beans and grain flour as was practiced in later times. We also know from the description that brewing should begin in the warm season, as indicated by the summer calendrical *fu* day. Despite its succinctness, this fourteenth-century text was a clear indicator of the circulation of soy sauce knowledge and practice among the elite classes, while the term *jiangyou* was increasingly visible in different genres on refined cuisine and living in the Yuan-Ming periods.⁵

However, we have reasons to believe that even with their growing visibility in printed texts, fermented soy foods, including soy sauce, were not an easily accessible commodity for the populace as late as the sixteenth century, even in the most prosperous region of the empire. Tian Yiheng (1524–1591), son of a prominent Zhejiang scholar-official, himself a famous literatus and bon vivant, wrote in the late sixteenth century that various soy foods, including soy sauce "were rare foods for modest peasant families. Those living in isolated hills and valleys might never taste it in their whole life. Those who bought corrupted [products] infested with worms in the market were pitiable." Briefly describing the recipe for making soy sauce that could be manipulated by the well-off to make sauces with fancy flavors, Tian showed that the procedure was familiar to him and his peers.⁶

The condiment's value as a fine food in the pre-Qing period is best illustrated by its descriptions in two related Ming genres—life-nourishing art and *materia medica*, both produced and consumed by the literati class. The condiment was described, for example, in detail in the most important *Bencao gangmu* (本草綱目 *Compendium of Materia Medica*) by Li Shizhen (1518–1593)

in long passages in a special chapter on fermented foods, which is also the fourth and last one on *gu* (穀 food crops). The chapter began with *shi* (豉 fermented soybeans) and the sauce that came out of it after brewing with sesame oil, salt, Sichuan pepper, ginger, and scallions, producing a juice *xiangmei juesheng* (香美絕勝 exquisitely aromatic and lovely). Li also described soy sauce that he called *douyou* (豆油 liquid of bean) under the section *jiang* (醬 pastes) made from various legumes in the same chapter.⁷ Even though the author discussed the medicinal qualities of some of these fermented foods, the main tone of this section was more about the exquisite taste and aroma of fermented foods made from legumes and grains. As Vivienne Lo and Penelope Barrett have convincingly demonstrated, Li Shizhen was “a gourmet par excellence,” and in this impactful and monumental *materia medica*, one can “distinguish broad—if interpermeable—categories of culinary and medical remedies and discourse,”⁸ reflecting the literatus’s attitude toward food and well-being in this period.

This late Ming literati lifestyle was best illustrated by the *yangsheng* (養生 life-nourishing) genre of the time. In *Zunsheng bajian* (遵生八牋 Eight approaches to nourishing life, 1591) by native of Hangzhou Gao Lian (1537–1642), the most representative of the genre in the Ming, published in the same year as Li Shizhen’s *magnum opus*, soy sauce appeared in seven recipes in chapters on food and clothing: to stir fry thin slices of pork, lamb tripe, to marinate crabs and goose meat, to make mustard paste, sesame sauce, and to mix vegetables.⁹ One can also add to this list a full section on recipes of making *jiang* and soy sauce in an early sixteenth-century life-nourishing text, and a few more mentions in related genres such as literati jottings, family handbooks, and a mid-seventeenth-century record of Ming court condiments. Based on this obvious but not dramatic development, H. T. Huang estimated that soy sauce started to rival *jiang*.¹⁰ I would add that this dietetic change was largely limited to the well-off and cultured classes.

The dramatic increase of the visibility of soy sauce began only in the early Qing of the late seventeenth century. This development was noted by H. T. Huang in a meticulously compiled table of the number of mentions of soy sauce in extant texts from the early period until the early twentieth century. It shows single-digit mentions in periods prior to the Qing but more than three hundred from the late seventeenth century to the early twentieth century.¹¹ One comes to a similar conclusion with digital counting, by doing a keyword search with “*jiangyou*” that gives 275 mentions in the *Guji* (古籍

old texts, from early to Republican periods) collection of the Erudition digital database, of which 208 are in the Qing and early Republican periods, with only sixty-seven in pre-Qing texts. Both counts are, naturally, not exhaustive. Major Qing recipe books consulted by Huang not listed in the digital database include *Shixian hongmi* (食憲鴻秘 Guide to the great mysteries of food, 1680) and *Tiao ding ji* (調鼎集 The harmonious cauldron, 1928), which respectively contain forty-six and 585 mentions. Neither count includes rich information in gazetteers and in records on popular life during the Qing, such as the voluminous *Qing bai lei chao* (清稗類鈔 Records of popular customs in the Qing, 1916) that gives 109 mentions of soy sauce, mostly in recipes.¹²

Such hard data substantially strengthens Huang's observation that "By the early years of the Qing, [soy sauce] had attained the status of the most popular condiment in the Chinese food system."¹³ This development was highly correlated to the rapid commercialization of soy foods, soy sauce in particular, during the Qing, and more precisely since the so-called high Qing of the eighteenth century.

SOY FOOD COMMERCIALIZATION AND QING POLITICAL POWER

The emergence and subsequent strong presence of sizable urban soy food manufacturers (*jiangyuan* 醬園 or *jiangfang* 醬坊 pickle shops) in the urban landscape was a mid-Qing phenomenon. These shops made all kinds of fermented foods and drinks, but mostly with soy sauce as the branding product. A 1933 gazetteer defined the work of pickle shops as follows: "They can make anything that regulates taste, especially soy sauce."¹⁴ If we do keyword searches using "*jiangyuan*" and "*jiangfang*" in the Erudition gazetteer database, we find 233 mentions, of which twenty-eight appear in gazetteers published between 1796 and 1911, and 205 in those published from 1911 to 1949. Most of the records in post-1911 publications were described as of Qing origin. Moreover, the number of shops is not accurately tallied by the gazetteers, as these publications often register pickle shops only as a business genre, without the statistics.

In official documents and literati writings, one can find sporadic mentions of soy manufacturers in North China, the Jiangnan region, and coastal cities beginning in the Yongzheng period (1723–1735) and increasingly throughout the eighteenth and nineteenth centuries.¹⁵ Pickle shops in major maritime and riverine trade ports grew in significant numbers and began to

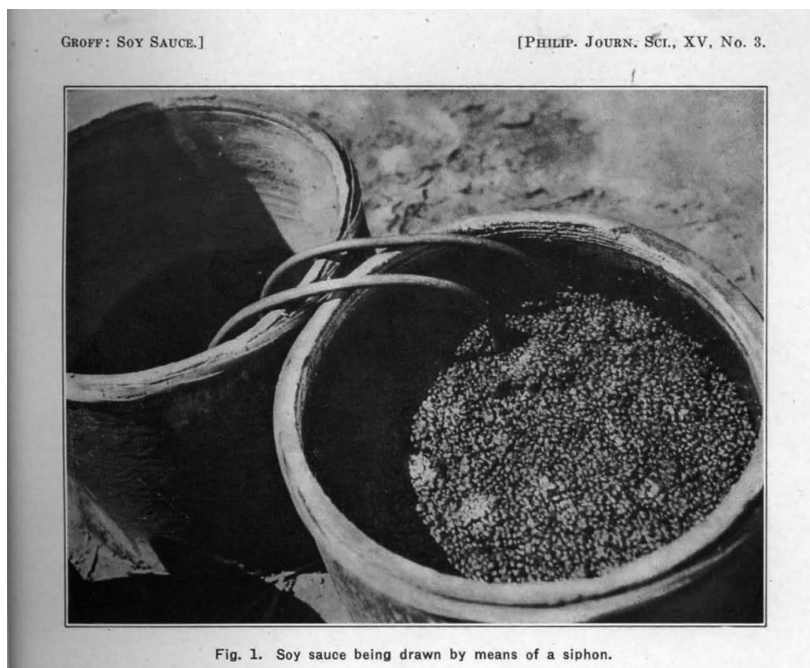


FIGURE 2.1

“Soy sauce being drawn by means of a siphon.” Image from Elizabeth Groff, “Soy-sauce Manufacturing in Kwangtung, China” (1919). *EAST Collection*. 61. <https://digitalrepository.trincoll.edu/eastbooks/61>.

establish *gongsuo* (公所 collective guilds) in the 1870s. The earliest, and one of the biggest, was the one established in 1873 in Suzhou by eighty-six preexisting local shops.¹⁶ By the early twentieth century, most counties had more than one shop, and some of the recorded manufacturers claimed their origin in the earlier Qing period or even in the late Ming.¹⁷ The gazetteers show that these manufacturers were mostly located at city fringes, as they needed big spans of land for brewing their products. Sometimes they were grouped together forming business neighborhoods and alleys bearing the name of *jiangyuan*. Pickle shops, now found in many cities, also drew the attention of curious Western visitors in late Qing and early Republican China (see figure 2.1), who took closer looks at the production of soy sauce to find out what the popular liquid really was, as it had once been rumored in Sichuan Province to be boiled-down cockroaches, as reported by Alexander Hosie in

the 1890s.¹⁸ By the end of the Qing, pickle shops had become a major component of the Chinese urban landscape, some of which were identified with the cities themselves, such as Liubiju (六必居) for Peking; Yutang (玉堂) for Jinan, Shandong; Hu Yumei (胡玉美) for Anqing, Anhui; Dingfeng (鼎豐) for Pinghu, Zhejiang; Feng Wantong (馮萬通) for Shanghai, with emerging brands in southern provinces like Hunan, Fujian, and Guangdong (see figure 2.2).

Republican sources provide more precise information that more accurately depicts the magnitude of the pickle shop phenomenon. A 1926 article on Peking pickle shops gives a count of more than 140 shops of different sizes, and a 1939 article indicates more than forty member shops in the Shanghai pickle shop guild.¹⁹ A 1933 report on the industry in Zhejiang notes 322 pickle shops in the province with larger concentrations of over eighty shops in two counties and anything between a dozen to over fifty shops for the other counties.²⁰ Many of these shops were established in the Qing. Zhao

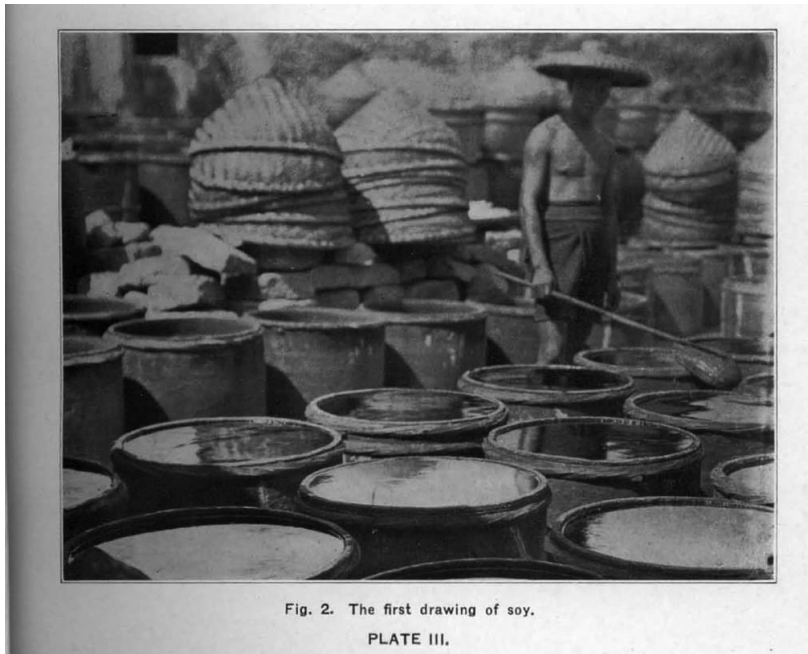


FIGURE 2.2

“The first drawing of soy.” Image from Elizabeth Groff, “Soy-sauce Manufacturing in Kwangtung, China” (1919). *EAST Collection*. 61. <https://digitalrepository.trincoll.edu/eastbooks/61>.

Rongguang, a leading food historian in China, undertook the first systematic study of pickle shops in 2005 based on shops registered in Shanghai in the 1930s–1940s. He identifies the names and addresses of 102 shops of the “traditional” artisanal type with prolonged fermentation, and 251 “modern” shops using technoscientific methods including the use of chloric acid to break down the bean protein quickly instead of allowing time for fermentation.²¹ This counting, which Zhao still considers incomplete, does show that in Shanghai alone, more than one hundred old traditional pickle shops were doing business in the early twentieth century, many of which were probably established in the Qing. Some of the allegedly “modern” shops might also have been established earlier and changed production methods in the Republican period. The data fully reflects a rapid growth of urban pickle shops from the late eighteenth century and a booming industry at the turn of the twentieth century.

THE GOLDEN AGE OF MANCHURIAN SOYBEAN PRODUCTION AND SOY SAUCE BUSINESSES

The explosion of urban pickle shops after the eighteenth century was the direct consequence of the dramatic increase of soybean supply with the full integration of Manchuria, a major producer of the crop in the Qing empire. Manchuria has the largest span of flat, high-quality, fertile land in the Qing empire, and the climate and the seasonal daylight change of this northern region were most suitable for the growth of some of the best breeds of soybeans.²² For almost a hundred years after the Manchu conquest of China, there was a ban on mass soybean exportation by maritime trade from Manchuria. Soybeans were levied as banner land tax to be paid in kind as they were the main fodder for horses and camels of the troops. The ban was necessary to preserve the Manchu's military might; it was lifted only when, with soybean production becoming abundant, the Manchu state felt fully confident and secure about its political control of China.²³ In a sense, soybeans facilitated a process of the integration of Manchuria into the Qing Empire.

The process took place over two phases: first, the gradual immigration of Chinese peasants to Manchuria starting in the late seventeenth century that progressively expanded agriculture, especially soybean cultivation, on originally pastoral or forested land,²⁴ steadily increasing soybean production; and second, the gradual lifting of the bans on soybean exports to China

proper via maritime trade starting in the mid-eighteenth century. Both were important political decisions made by Qing emperors during the prime of the dynasty.

The first Qing emperor Shunzhi saw the need to develop agriculture in Manchuria and in a 1653 edict encouraged the recruitment of peasants to cultivate the vast Manchurian land. After successive waves of legal and illegal Chinese immigration under the banner system, by the end of the nineteenth century, Chinese peasants in southern Manchuria had reached three million.²⁵ Chinese immigration peaked again in the first years of the twentieth century when the Qing state, under great political and financial pressure, officially invited free economic exploitation of the region, opening northern Manchurian pastoral land for agriculture.²⁶ Sustained increase in soybean production and commodification was the result of the successive waves of Chinese peasant immigration. By the early 1930s, Manchuria produced more than four million tons of beans, or 80 percent of world production.²⁷ This increase in soybean production was accompanied by the progressive lifting of the ban on Manchurian maritime soybean trade to China proper since the mid-eighteenth century, triggering a rapid influx and circulation of soybeans in China proper, much of it through Shanghai, making it the leading trading hub.²⁸ The boom further accelerated after 1902 with the end of the “closing off” policy of Mongolian pastures to the north of Manchuria.

Isett provides some figures on the spectacular increase of soybean supply in the nineteenth and early twentieth centuries: annual soybean surplus was under 1.5 million *shi* (around 118,800 tons)²⁹ in the late seventeenth century and increased to 3 million *shi* in the first half of the eighteenth century, topping four million in 1875 and reaching seven million in 1900. Estimated export increased from 1 to 1.5 million *shi* in the late eighteenth century to three million in 1876, and more than five million *shi* (around 400,000 tons) by 1900.³⁰ Alexander Hosie, who visited China and Manchuria in the last decade of the Qing regime, estimated in 1904 that over 600,000 tons of soy were exported annually from Manchuria to China’s southern provinces and Japan.³¹ Another estimate of Manchurian bean export in 1907 put the amount to China to be around 279,000 tons, and 476,150 tons to Japan.³² By the 1920s, Manchuria was producing 60–70 percent of China’s soybean export and 80 percent of the world’s soy output.³³

The sustained growth of the maritime soybean trade between Manchuria and China since the mid-eighteenth century was a key factor in the explosion

of soy food commodification in all parts of China, and, with it, new urban dietary traditions based on the everyday use of soy-based condiments, in particular soy sauce. Part of that story was the spectacular rise of Shanghai, ultimately overshadowing Suzhou as the leading city in Jiangnan. This change was largely a result of Shanghai's central position in the eastern maritime trade in the nineteenth century, a process well studied by Fan Jinmin.³⁴ The Shanghai *douhang* (豆行 soy trade guild) established in 1765 was a landmark, and by the mid-nineteenth century, the guild at Cuixiu Tang (萃秀堂 Cuixiu Hall) in the City God Temple Garden became the biggest and most powerful of the twenty-one merchant guilds in the city by 1843, and a key stakeholder of the city's governance.³⁵ Its site is still a tourist attraction today. Manchurian soybean traders along China's eastern coast formed a tight network and subsequently acquired a dominant position in municipal governance in the most prosperous part of China in the late imperial period.³⁶

The importance of Manchurian beans for the soy food business in the Jiangnan region can be illustrated by the situation in Jiangsu in the 1930s. According to a 1936 provincial report, Jiangsu Province produced 562 million kg of soybeans, while the demand was 629 million kg, resulting in a shortage of 66.8 million kg.³⁷ A significant portion of the shortage could come from the need for soy sauce. A survey in 1938 on urban soy sauce consumption in the province tells us that the average annual per capita consumption was 8.85 kg.³⁸ As soy sauce contains about 40 percent soybeans by content,³⁹ the annual per capita consumption of soy sauce alone would be 3.54 kg. With an urban population in Jiangsu Province of around 5.38 million at the time,⁴⁰ the total amount of soybeans needed to satisfy the urban soy sauce market would be around 19 million kg. If we also include the demand for soy sauce from Jiangsu's non-urban population (approximately twenty-three million), assuming arbitrarily that they needed 50 percent less soy sauce than their urban counterpart, then the total non-urban demand would be 50.3 million kg, totaling 69.3 million kg for the whole province. This figure exceeds the soybean shortage (66.8 million kg) for the whole province in 1936 and represents about 10 percent of the 629 million kg needed by the province. This rough estimate, though inexact, does indicate the importance of Manchurian soybeans in sustaining the growth of the soy food business in Jiangsu Province alone, which had a national reputation for the high quality of its soy sauce.

Manchurian bean exports also spurred the development of soy sauce businesses in southern China where local soybean production was negligible

in the late nineteenth century. Guangdong merchants managed to obtain three-fifths of the soybeans exported through Niuzhuang to Hong Kong, most of which were consumed in the province. By the 1920s, 50–60 percent of exported Manchurian beans went to central China through Shanghai, and 30–50 percent went to the southern provinces of Fujian and Guangdong. An anthropological report on a Guangdong soy sauce manufacturer southwest of Canton in 1919 confirms that the soybeans used in the production were the best yellow beans from Niuzhuang.⁴¹ Manchurian beans reaching all parts of China proper since the late eighteenth century greatly increased and stabilized the soybean supply, thereby enabling the soy food businesses to flourish. As the soy sauce production involved not only soybeans but also a considerable amount of taxable salt, soy sauce as a commodity became an important source of revenue for the provinces and the state, and it would play an important role in modern China's state building.

CULTURAL POWER OF SOY SAUCE AS EVERYDAY FOOD

Like sugar, brilliantly studied by Sidney Mintz, soy sauce steadily infiltrated into multiple aspects of people's everyday life in late imperial and modern China, and it became "symbolically powerful, for its use could be endowed with many subsidiary meanings."⁴² This is revealed in the frequent mentions of soy sauce in recipes and other genres, such as account books, tax registers, popular novels, gazetteers, magazines and newspapers, tax records, personal diaries, letters, and ritual texts. It also became an identity food for the region, the nation, the native place, and the family. Soy sauce became a food that created connections and made distinctions.

The rapid and nationwide commercialization of soy foods paradoxically accentuated the value of traditional homemade sauces as a gift of intimacy. Late Qing diaries and family instructions by scholar-officials often include mention of soy sauce being given as a gift by junior family members to their seniors. The family instructions by Zeng Guofan (1811–1872), the powerful Hunan Confucian scholar-official, are particularly revealing. In an entry on the third day of the eighth month of 1866, he wrote, "Women [in the household] should refine their skills in making *xiaocai* (小菜 accompanying foods) like fermented bean curds, soy sauce, pickled vegetables, fine vinegar, and bamboo shoots, etc. They should make these often and send some to me. The domestic principles of serving one's parents, uncles, and aunts are

emphatic on such tasks. But no need to send foods purchased in shops.”⁴³ Similarly, a 1903 entry in the diary of the influential scholar-official Weng Tonghe (1830–1904) described how he received one pot of soy paste and one pot of soy sauce from his nephew, delivered by the latter’s cook. Li Ciming (1830–1895), a mid-ranked scholar-official, recorded receiving jars of soy sauce sent to him by his niece in the capital where he worked, and by his younger sister in the third month and again in the third leap month of 1886.⁴⁴ Clearly homemade soy sauce symbolized for Zeng, Weng, and their peers the everyday chores and pleasure that sustained the well-being of a respectable Confucian family. It nourished intergenerational and gender relations within the household. Their words also reveal an important aspect of soy sauce making of the time: that commercialization of soy foods did not replace or preclude traditional homemade ones, prepared mainly by women (in contrast to commercial products produced exclusively by male workers to avoid female pollution during fermentation). The wide circulation of recipes of homemade sauce throughout the period until the latter half of the twentieth century shows that, for a long time, homemade traditions went hand in hand with the pickle shop phenomenon.⁴⁵ However, only homemade sauce had the power of fostering intimate family relations; the gifts received by Weng and Li mentioned previously were also likely to be homemade by younger women in the family.

Commercial soy sauce, on the other hand, had become in the nineteenth century a budgeted item for public lineage expenses. In the 1868 account books of the Jue lineage in Shicang, Zhejiang, several expense sheets list purchases of soy sauce by a lineage member who traveled to the nearest urban center to attend the imperial examination.⁴⁶ These show that, first, rural and township households were also consumers of commercial soy foods sold mainly in urban centers; and second, such purchases could be for public events of the lineage, including important rituals. In the 1911 account sheets of a funeral ritual in Shexian in Anhui, soy sauce was listed twice.⁴⁷ Late Qing family instructions on ancestor worship also systematically listed soy sauce as one of the four basic food items put in four little dishes offered to ancestors on the altar, together with tea, liquor, and rice in northern traditions, or with vinegar, oil, and pickled foods in southern ones. The coexistence of homemade and commercial soy sauces in the nineteenth and early twentieth centuries seemed to have broadened and deepened the cultural power base of the condiment.

Soy sauce by this period also seemed to have acquired a defining power through its smell and taste. The mathematician and scientist Zheng Fuguang (1780–1853) philosophized in 1842 about foods' good and bad smells and tastes. Comparing soy sauce with shrimp sauce, both tasty and made by *oufu* (滷腐 decomposition), Zheng wrote, "Soy sauce is rid of all the bad smell when done, which is why everyone loves it, while the bad smell of shrimp sauce remains, so that some hate it and others love it [for the *xian* (鮮 fishy) taste]."⁴⁸ Soy sauce indeed seemed to have reached the status of the most popular condiment in China.

However, there was actually no "standard" Chinese soy sauce but a proliferation of a wide range of regional soy sauces. The complexities of the production methods dependent on the ingredients, environment, climate, ferments, incubation time, and so on had produced regional soy sauces with different tastes and qualities. By the early nineteenth century, even the average consumer had developed a sensitivity to the differences in taste of regional sauces, which defined the distinct tastes of regional cuisines. The diary of Bi Huai, a scholar from Tongxiang, Zhejiang recorded in 1836 a particularly memorable dinner he had with a close friend while on his way to the capital for the imperial exam. The two shared a pork stew eaten with the soy sauce of his native place. Being away from home, he wrote, they were both fully satiated with *guxiang fengwei* (故鄉風味 the taste of home).⁴⁹ The previously mentioned scholar-official Li Ciming, working in the capital at the time, also noted in his diary the pleasure he had in receiving in the third month of 1887 a jar of sauce from his native place, Shaoxing, sent by a friend.⁵⁰ The commercialization of soy sauce by this time revealed, and perhaps reaffirmed, the different regional taste preferences that became an important issue for food experts in the twentieth century,⁵¹ further amplifying the condiment's power as a regional identity food.

Soy sauce also became a major food item listed in Qing diplomatic conventions. Systematically listed as *jiangyou* or *qingjiang* (清醬 light soy sauce), it was a "must" in the standard daily provisions for foreign envoys, ambassadors, and translators visiting China, from Korea to the northeast, to the Indian subcontinent to the southwest of China. The condiment was typically listed with different quantities of meat, fish, or poultry; vegetables; and so on to showcase Chinese hospitality.⁵²

Soy sauce in the early twentieth century also embodied China's desire for a scientific modernity. With the growing economic and cultural importance

of the condiment and its overwhelming popularity, it was under great pressure to modernize and industrialize toward the turn of the twentieth century. The *Jingshi gaodeng shiye xuetang* (京師高等實業學堂 Peking Higher College on Industrial Study), modeled on Meiji industrial colleges, was established in Peking in 1904 and supported research on traditional foods, including soy sauce and fermentation as an aspect of applied chemistry, one of the four disciplines taught at the college by Japanese- or Western-trained teachers.⁵³ One of the missions of the college was indeed to transform China's *gongyi* or *shougongyi* (工藝 or 手工藝 traditional handicrafts) with new science and technology to spearhead China's industrialization.⁵⁴ Early foundational research included investigating and comparing various regional sauces.⁵⁵

For Chen Taosheng (1899–1992), one of the first and most impactful Chinese food scientists, who graduated from the Peking Higher College on Industrial Study in 1922 with a degree in chemical engineering, industrialization of the condiment implied reducing the risks in fermentation and shortening fermentation time with new biochemical techniques, mostly developed by the Japanese.⁵⁶ Chen and his peers assiduously experimented with these techniques in state and university laboratories throughout the 1920s and 1930s until the outbreak of the war with Japan in 1937.⁵⁷ Chen combined his laboratory work with site visits of regional sauce manufacturers and found the award-winning (1934) Guantou (筍頭) sauce of his hometown of Fuzhou, Fujian Province, the most promising model for industrialization, as the fermentation of only soybeans (without wheat flour) took less incubation time yet produced a product of superior quality.⁵⁸ To counter Japanese competition, Chinese researchers focused on the study and application of premade starters, based on the mold *Aspergillus oryzae* developed by the Japanese to trigger a safe, controlled fermentation process. The work of Chen and his peers, however, was largely disrupted by the war with Japan and the civil war that followed.⁵⁹

CONCLUSION

Chinese soy sauce as an everyday food came into being only after the eighteenth century during the height of Qing power. In this respect, the story is reminiscent of the history of sugar, with its entanglement of empire and nation formation as a new food enters the lives of the working classes.⁶⁰ Soy sauce, of course, was not *new* to the Chinese in the eighteenth century as was

sugar to the Europeans in Mintz's story. But it was transformed from a traditionally elite condiment into a commodity for everyday consumption, without significant technological change until the 1920s when new biochemical techniques were introduced in food making.⁶¹ Moreover, soy sauce's transformation of the late-Qing politico-economic landscape owes much to the unprecedented supply of Manchurian soybeans made possible by the massive Chinese migration in Manchuria as well as astute maritime traders.

The process of intensive commercialization since then not only broadened soy sauce's economic impact at the national level but also created or even expanded its cultural power as an identity food, highlighting different tastes and smells made with specific local ingredients and technologies, and as an enhancer of intimate social relations and official diplomatic contacts. As an everyday food, it created identity by making distinctions and strengthened family structure and continuity by being shared as a gift to respected elders and ancestors. Soon, soy sauce making became a test case of China's ability to retain national dignity and to modernize when challenged by imperial powers.

But the story of soy sauce is an open-ended one. Today we are witnessing the incredible post-industrial venture of soy sauce making in every part of East Asia where its values as an identity food, a health food, a heritage food produced by an ethical crop system, and an authentic food are being reimagined and recreated more enthusiastically than ever before. Its magic in molding our post-industrial everyday life is as intriguing as its fermentation process.

NOTES

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1. H. T. Huang, *Fermentations and Food Science*, in *Science and Civilisation in China*, ed. Joseph Needham, vol. 6: Biology and Biological Technology, pt. 5 (Cambridge: Cambridge University Press, 2000), 358–374. See also Hong Guangzhu, "Doujiang he dou jiangyou qi yuan chutan" [A preliminary study on the origin of soy paste and soy sauce], in *Zhongguo shipin kejishi gao* [Preliminary studies on Chinese food history] (Beijing: Zhongguo shangye chubanshe 1985), 90–111. Huang basically agrees with Hong's views.

2. See the two biggest Chinese soy sauce makers: the Hunan soy sauce maker Jiajia (<https://www.163.com/dy/article/FQVS8A520522CR6J.html>) and Haitian in Guangdong (<https://m.sohu.com/n/488147146/>).
3. Ishige Naomichi, *Sekai no tabemono: Shoku no bunka chiri* [The world's foods: the cultural geography of diets] (Tokyo: Asahi Shimbunsha, 1995), 13–14. Ishige argues that soy sauce defines east Asia as a region culturally distinct from Southeast Asia where fish sauce is the main condiment.
4. Huang, *Fermentations and Food Science*, 362, quoting Ni Zan's *Yunlin Tang yinshi zhidu ji* [Dietary system of the Cloud Forest Studio].
5. One can add to this list a recipe recorded by Han Yi of the late fourteenth century in his dietetic book *Yi Ya yiyi* [legacy of Yi Ya]; see also Huang, *Fermentations and Food Science*, 372.
6. Tian Yiheng, *Liuqing ri zha* [Daily jottings] *juan* 26:204 (*Guji* collection of the Erudition digital database; henceforth “*Guji* collection”). Tian's description mentioned the use of wheat flour with beans to make sauces that could have wolfberry or rose flavor.
7. Li Shizhen, *Bencao gangmu*, vol. 2 (1885; Taipei: Wenguang Tushu, 1982), *juan* 25:876–890.
8. Vivienne Lo and Penelope Barrett, “Cooking up Fine Remedies: On the Culinary Aesthetic in a Sixteenth-Century Chinese *Materia Medica*,” *Medical History* 49 (2005): 395–422, esp. 420 and Lo, “Pleasure, Prohibition, and Pain: Food and Medicine in Traditional China,” in *Of Tripod and Palate: Food, Politics and Religion in Traditional China*, ed. Roel Sterckx (New York: Palgrave Macmillan, 2005), 163–185.
9. Gao Lian, *Zunsheng ba jian* [Eight sections on life-nourishing] (Beijing: Renmin weisheng chubanshe 1994), 421, 425, 427–428, 436–437.
10. Huang, *Fermentations and Food Science*, 373.
11. Huang, *Fermentations and Food Science*, 373.
12. Of the three hundred mentions in the Gazetteer collection of the Erudition digital database, only two are pre-Qing, in the last years of the Ming; *Qing bai leichao* in the Database on Chinese Historical Sources of the Institute of History and Philology, Academia Sinica.
13. Huang, *Fermentations and Food Science*, 374.
14. *Guan xianzhi* [Gazetteer of Guan County in Sichuan Province] (1933).
15. *Shanzhi ketan* [Conversations in the Mountain Studio, early eighteenth century], *juan* 5:28 (*Guji* collection) on a Hangzhou pickle shop in the Kangxi period; two pickle shops in Peking were said to be established during the Kangxi period, “Beijing zhi jiangyuan ye” [Pickle shops in Peking], *Xing Hua* 23/35 (1926): 23.

16. “Suzhou fu wei jiangfang ye chuangjian gong suo” [Establishment of the pickle shop guild by the Suzhou prefecture], *Mingqing Suzhou gongshang ye beike ji* (Suzhou: Jiangsu renmin chubanshe, 1981), 260–261.
17. A few manufacturers in big urban centers like Beijing, Tianjin, and Shanghai claimed their origins in the early Qing, and even the Ming, which cannot be verified. Most typical was the case in Beijing, see “Beijing zhi jiangyuan ye” 1926 op. cit.
18. Alexander Hosie, *Three Years in Western China: A Narrative of Three Journeys in Ssu-ch’uan, Kuei-Chow, and Yun-nan* (London: George Philip & Son, 1897), 164.
19. “Beijing zhi jiangyuan ye”; “*Jiangyuan ye*” [Pickle shops], *Shangye yuebao* (Shanghai) 19, no. 5 (1939): 9.
20. Fang Peng, “Pinghu niangzao chang bainian licheng” [The hundred-year journey of the pickle shop in Pinghu] in *Wushi cunqiu hui shi pian—Pinghu wenshi ziliao* (Pinghu town: Zhongguo renmin zhengzhi xieshang huiyi Zhejiang Sheng Pinghu Shi weiyuanhui wenshi ziliao weiyuanhui, 1999), 93–99; *Zhejiang Sheng shiye zhi* [Record of Industries in Zhejiang Province] (1933), quoted in Gui Qiang and Zi Xiawei, *Pinghu Lao-Dingfeng jiangyuan jingyuan yanjiu* [A study of the management of the Old Dingfeng pickle shop in Pinghu] (Shanghai: Shanghai cishu, 2017), 211–212.
21. Zhao Rongguang, “Zhongguo lishi shang de jiangyuan yu jiangyuan wenhua shulun—yi Shanghai shi de chuantong yu xinshi jiangyuan ziliao duibi wei zhu” [A discussion on pickle shops and the culture of pickle shops in history mainly based on the traditional and modern pickle shops in Shanghai], *Yinshi wenhua yanjiu*, 4, no. 16 (2005): 9–19.
22. Lin Hanming, *Yidou yi shijie* [One bean, one world] (Hong Kong: Joint Publishing Co. 2023), 195–207.
23. Katō Shigeshi, “Dongbei dadou doubing shengchan de youlai” [Origins of soybean and soy meals produced in Manchuria], trans. Wu Jie, in *Zhongguo jingji shi kaozheng* [Studies in Chinese economic history] vol. 2 (Beijing: Zhonghua shuju, 2012), 985.
24. The irreversible environmental impact of this history is given in David Bello, *Across Forest, Steppe, and Mountain. Environment, Identity, and Empire in Qing China’s Borderlands* (Cambridge: Cambridge University Press, 2016), esp. chapter 3.
25. Ding Yizhuang et al., *Liaodong yimin zhong de qiren shehui* [Immigration and Eight Banner Society in Liaodong] (Shanghai: Shanghai kexue yuan chubanshe, 2004), 8, 214.
26. Diao Shuren and Yi Xingguo, *Jin sanbai nian Dongbei tudi kaifa shi* [Development of Manchuria in the recent 300 years] (Changchun: Jilin wenshi chubanshe, 1994), 103, 110; Liu Xiaomeng, “Qingdai Dongbei liumin yu Man-Han guanxi” [Migrants in Qing Manchuria and Manchu-Han relations], *Qingshi yanjiu* no. 4 (2015): 1–22.
27. James Kung and Nan Li, “Commercialization as Exogenous Shocks: The Effect of the Soybean Trade and Migration in Manchurian Villages, 1895–1934,” *Explorations in*

Economic History 48 (2011): 580; Sakura Christmas, "Japanese Imperialism and Environmental Disease on a Soy Frontier, 1890–1940," *Journal of Asian Studies* 78 (2019): 822.

28. Fan Jinmin, "Qingdai zhongqi Shanghai chengwei hangyun ye zhongxin zhi yuanyin tantao" [Study on Shanghai becoming a maritime trade center in the mid-Qing], *Anhui shixue* 1 (2013): 29–38.

29. One *shi* is equivalent to 79.2 kilograms.

30. Christopher Isett, *State, Peasant, and Merchant in Qing Manchuria, 1644–1862* (Stanford, CA: Stanford University Press, 2007), 226–228, 231.

31. Alexander Hosie, *Manchuria. Its People, Resources, and Recent History* (London: Methuen & Co., 1904), 244.

32. Lei Hui'er, *Dongbei di douhuo maoyi* (1907–1931) [Manchurian soybean trade 1907–1931] (Taipei: Guoli Taiwan shifan daxue lishi yanjiusuo zhuankan, 1981), 30.

33. Kung and Li, "Commercialization as Exogenous Shocks," 569; *New York Times*, August 19, 1928, Section N, 48.

34. Fan Jinmin, "Qingdai zhongqi Shanghai."

35. Fan Jinmin, *Ming Qing Jiangnan shangye di fazhan* [Commercial development in Jiangnan in the Ming-Qing periods] (Nanjing: Nanjing Daxue Chubanshe, 1998), 153–154; *Shanghai xian xuzhi* [Sequel to Shanghai Gazetteer] (1918), *juan* 3.

36. Xu Tan, "Qianlong-Daoguang nianjian de bei yang maoyi yu Shanghai de jueqi" [North Sea trade in the Qianlong-Daoguang period and the rise of Shanghai], *Xueshu yuekan* 43, no. 11 (2011); Fan Jinmin, "Qingdai qianqi Shanghai de hangye chuan-shang" [Maritime trade and traders in early Qing Shanghai], *Anhui shixue* 2 (2011); Zhang Bo, "Zhidu tiaozheng yu Qingdai Dongbei douhuo maoyi geju de bianqian" [Institutional adjustments and the evolution in Manchurian soybean trade], *Tianjin Daxue Xuebao* 11 (2008).

37. "Jiangsu sheng ge xian er-shi-wu nian xiaji zhuyao zuowu zhongzhi mianji ji chanliang guji biao - dadou" [Cultivation area and production of major summer crops in Jiangsu counties in 1936, the case of soybean], *Jiangsu sheng jianshe yuekan* 4, no. 3 (1937): 9–12.

38. Ma Junya, *Hunhe yu fazhan: Jiangnan diqu chuantong shehui jingji de xiandai yanbian, 1900–1950* [Fusion and development: modern changes in Jiangnan traditional social economy, 1900–1950], (Beijing: Shehui kexue yanjiu suo chubanshe, 2003), 327–328.

39. Alexander Hosie, *Report by Consul-General on the Province of Ssueh'uan* (London: Harrison and Sons, 1904), 19–20. Hosie reported that the Sichuan maker took twenty-eight cattles of soybeans to make seventy cattles of soy sauce.

40. Zhu Kezhen, "Lun Jiang-Zhe liang sheng renko zhi midu" [On population density of the Zhejiang and Jiangsu provinces], *Dongfang zazhi* 23, no. 1 (1926): 91–112.

41. Lei Hui'er, *Dongbei de douhuo maoyi*, 5; Elizabeth Groff, "Soy-Sauce Manufacturing in Kwangtung, China," *Philippines Journal of Science* 3, no. 15 (1919): 310.
42. Sidney Mintz, *Sweetness and Power: The Place of Sugar in Modern History* (New York: Viking 1985), 186.
43. Zeng Guofan, *Zeng Wenzheng gong jiaxun* [Family instructions by Zeng Guofan] (1879), *juan 2:49* (*Guji* collection).
44. Weng Tonghe, *Weng Wengong gong riji* [Diary of Weng Tonghe], manuscript, p. 8744; *Xun xue zhai riji* [Diary of Xunxue studio, 1889–1894], chapter *xin 2:2945* (*Pudie* [Diary and genealogy] collection of the Erudition digital database).
45. This tradition continued in Taiwan and China in the 1970s.
46. *Shicang qiyue* [Contracts and local documents in Shicang township], series 5, volume 4 (Hangzhou: Zhejiang daxue chubanshe 2010), 174, 192, 198.
47. The cost of soy sauce in this case was equivalent to more than that of two eggs. <http://dfwx.datahistory.cn/> (database of Shanghai Jiaotong University).
48. Zheng Fuguang, *Feiyin yuzhi lu* [A record to clarify broad and obscure knowledge], 1842:53 (*Guji* collection).
49. Bi Huai, *Gongche riji* [Diary of my days in officialdom], 1911 edition: 35 (*Pudie* collection).
50. Li Ciming, *Xunxue zhai riji* [Diary of Xunxue studio], chapter *Xin bis*: 3085 (*Pudie* collection).
51. According to Hong Guangzhu, Chinese condiments are geographically distinctive on account of different natural environments and material resources: sweet in the south, salty in the north, sweet and salty in the east, acidic and spicy in the west and southwest, and a complex mixture of different tastes in the center. The differences, for Hong, are due to different natural environments and material resources. See "Zhongguo yinshi wenhua de dili he lishi Beijing [Geographic and historical background of Chinese food culture], *Zhongguo yinshi wenhua*, ed. Nakayama Tokiko (Beijing: Zhongguo shehui kexue chubanshe, 1992), 222–227. Qing consumers often claimed specific tastes within these macro regions.
52. *Qinding Libu celi* [Regulations of the Imperial Ministry of Rites], Daoguang edition (ca. 1844); *Chouban yiwu shimo puyi* [Annex to history of management of barbarian affairs (1821–1874)], Republican edition.
53. See the memorial by Censor Zhao Qilin (1859–1935), "Qing ban Jingshi gaodeng shiye xuetang zhe" [Memorial for the establishment of the Industrial College in the Capital, 1904], in *Dacheng hui conglu* 45 (1934): 25a–27b.
54. James Reardon-Anderson, *The Study of Change: Chemistry in China 1840–1949* (Cambridge: Cambridge University Press, 1991), 159. Handicrafts represented 67.8 percent of the Chinese industrial sector in as late as 1933.

55. Wu Chengluo (1892–1955), a leading chemist and teacher of some leading food experts on fermentation, did a study on soy sauce in 1924 comparing regional products. See “Zhongguo jiangyou zhizaofa” [Methods of making Chinese soy sauce], *Gongda zhoukan* 6 (1924): 2–4.
56. For the history of fermentation science in modern Japan, see Victoria Lee, *The Arts of the Microbial World: Fermentation Science in Twentieth-Century Japan* (Chicago: University of Chicago Press, 2021).
57. Ma Chunhuan, “Zhongguo jindai weishengwu gongye di kaituo zhe he dianji ren Chen Taosheng [The pioneer and founder of modern Chinese microbial industry, Chen Taosheng], *Zhongguo keji shilao* 4 (1983): 1–42.
58. Chen Taosheng, *Gaodeng niangzao xue* [Advanced fermentation science] (Shanghai: Shangwu yinshuguang 1953), 348–352.
59. See my chapter “Soy Sauce in Crisis: China’s First Engagement with Technology (1900–1950),” in *Crafting Everyday Food: Technology, Tradition and Transformation in Modern East Asia*, eds. A. Leung and H. Stevens (Honolulu: University of Hawai’i Press, 2025).
60. Mintz, *Sweetness and Power*, chapter 2.
61. Premade ferment starter was scientifically developed by the Japanese in the late nineteenth century. See Victoria Lee, “Mold Cultures: Traditional Industry and Microbial Studies in Early 20th-Century Japan,” in *New Perspectives on the History of Life Sciences and Agriculture*, ed. Denise Phillips and Sharon Kingsland (New York: Springer, 2015), 231–252; Chinese scientists studied the technique for industrial use only in the 1920s and 1930s.

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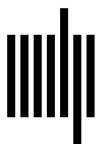
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