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# Silks By Sea: Trade, Technology, And Enterprise In China And Japan

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## Silks by Sea: Trade, Technology, and Enterprise in China and Japan\*

*¶ Although East Asia's silk trade with the West stretched far back into antiquity, the middle and later years of the nineteenth century witnessed a remarkable growth in the European and American demand for silk. This imparted a tremendous impetus to the Chinese and Japanese industries. For some eighty years, from the 1850s through the 1930s, trade flourished until the coming of synthetic fibers and world war curtailed its growth. The rise of so large an international business obviously had a significant impact on these countries, one that was particularly profound in the case of Japan. When the upsurge in trade began, both China and Japan were at roughly comparable stages in their economic development, but when the trade ended with the onset of war, it was Japan, not China, which had emerged as one of the leading industrial nations of the world. While few would contend that silk alone, however important, accounted for this differing course of national development, the dissimilar paths followed by the Chinese and Japanese silk industries not only reflected many themes characteristic of business enterprise in those countries but also typified their divergent national experience during this dramatic era of economic growth.*

During the 1950s and 1960s, East Asian historiography in the United States was largely organized around the notion of the contrasting "responses" of China and Japan to the West and the relatively greater success of the Japanese in achieving rapid "modernization." Although these concepts have justifiably come under attack for reflecting a Western standard of judgment, the amazingly rapid transformation of Japan from an isolated, feudal, agrarian society to an industrial superpower in little more than

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\* The Chinese side of this essay is based on material from my book, *China's Silk Trade: Traditional Industry in the Modern World, 1842-1937* (Cambridge, Mass. Harvard East Asian Monographs, 1981). This essay was originally presented as a paper at the Conference on United States-East Asian Economic Relations, held in June 1976 at Mt. Kisco, New York. I am grateful to Cheng-lung Ch'en for research assistance on the Japanese side of this project during its initial stages, and to Kazuko Yoshida Furuta for assistance in the final stages. Ms. Furuta, formerly a graduate student in the Department of International Relations at Tokyo University, and now a graduate student at Princeton University, has published her undergraduate thesis on the Japanese silk industry (see note 23 below). I am also grateful to Professor Richard J. Smethurst, Department of History, University of Pittsburgh, for his comments on this paper. Swarthmore College and the Fairbank Center for East Asian Research at Harvard University have given me generous institutional support over the years.

a century has maintained—indeed increased—its fascination for Western scholars, particularly in view of the apparently declining competitiveness of the American economy. While it is the Japanese case that seems extraordinary for its speed, and not the Chinese for its slowness, the comparison between China and Japan still seems uniquely appropriate because of the broad similarities in their cultural and economic backgrounds before the nineteenth century, and the clear similarity of their relationship to the West during the early nineteenth century.<sup>1</sup>

Because the silk industry of China and Japan used the same basic technology and sold its products in the same world market, it serves as an excellent case study through which to compare the process of economic change in these two countries. Although interpretations of their different “responses” to the West have tended to seek broad cultural and ideological explanations for the strength of Japanese political leadership and the vitality of Japanese entrepreneurship—the two critical instruments of Japanese economic development—this article will seek a middle level of explanation to stress the methods by which government leadership and entrepreneurship helped to develop the silk export trade. Among Japanese historians of the Meiji restoration there has been considerable debate about the relative emphasis that should be given the leadership from above and initiative from below, but a comparison of the Japanese case with the Chinese highlights the extent to which both types of enterprise were essential. Government-sponsored model factories, enlightened regulations, schools, inspection stations, banks, and other measures formed the principal institutions that facilitated change. Government leadership, however, could not have succeeded without a supporting social and economic infrastructure that included entrepreneurial talent, institutional flexibility, and plentiful capital as its major elements.<sup>2</sup>

<sup>1</sup> A critique of the Western stimulus, Chinese response approach may be found in Paul A. Cohen, “Ch’ing China: Confrontation with the West, 1850–1900,” in James B. Crowley, ed., *Modern East Asia: Essays in Interpretation* (New York, 1970), 29–61. The modernization approach to modern Japanese history finds its fullest expression in a series of conference volumes put out by Princeton University Press. The introductory volume is Marius B. Jansen, ed., *Changing Japanese Attitudes Toward Modernization* (Princeton, 1965). A sharp attack on the modernization approach is made by John W. Dower in his introduction to the *Origins of the Modern Japanese State: Selected Works of E.H. Norman* (New York, 1975), 8–102. Ezra F. Vogel’s *Japan as Number One: Lessons for America* (Cambridge, Mass., 1979) has attracted a great deal of attention for emphasizing the superiority of Japanese management techniques over American techniques.

<sup>2</sup> Perhaps the most notable of the “cultural” explanations is Robert N. Bellah, *Tokugawa Religion: The Values of Pre-industrial Japan* (Glencoe, Ill., 1957), which in effect finds a counterpart to the Protestant ethic in Japanese religion and thought. Economic historians have used the silk industry to ask theoretical questions about the origins of capitalism in Japan. Some stress the leading role of the government and big business in developing the silk trade, while others stress the importance of grass-roots initiatives. The leading proponents of the former view are Ishii Kanji (see below, n. 8), and his professor, Yamaguchi Kazuo, ed., *Nihon sangyō kinyūshi kenkyū: seishi kinyūhen* (Tokyo, 1966). The leading proponent of the latter view is Yagi Haruo. See, for example, his *Nihon kindai seishigyō no seiritsū—Nagano-ken Okaya seishigyōshi* (Tokyo, 1960).

## THE WESTERN MARKET

In ancient times, China conducted its silk trade with the West along the famous Silk Road, which traversed central Asia, bringing precious Chinese silks to the Roman Empire. Mention of Chinese silk usually evokes this memory. But from at least the sixteenth century onward, China's silk exports to the West were carried primarily along maritime routes in Portuguese, Spanish, and other European vessels. From the 1850s until the 1930s, both China and Japan exported silks to the West in quantities unknown in ancient times. Silkworm disease, which struck French sericulture in the 1850s, initiated the modern European demand for Chinese silk; but even when that disease was brought under control, demand for Chinese and, later, Japanese raw silk expanded, since European sericulture simply could not match the quality, quantity, or low cost of East Asian silk. The French silk weaving industry was especially dependent on high-quality white raw silk, known as Tsatlee, from central China.

In the twentieth century, however, it was the new American market, American tastes, and ultimately American technology that shaped the international demand for raw silk. With an increasingly prosperous population, the United States became the most important customer for raw silk in the world, and New York replaced Lyon in France as the leading center of the silk trade. Silk stockings became the standard of dress for both men and women, making a virtual necessity of what had once been a luxury. The American silk weaving industry, moreover, was always alert to opportunities to parlay fads and fashions into profits. The wedding gown of Alice Roosevelt or the inaugural dresses of Mrs. Woodrow Wilson and her three daughters created fashion news that made silk manufacturers ecstatic. The revival of dancing in the United States was hailed as a boon to the silk business. Although rayon entered the American market after World War I, silk remained competitive, particularly for stockings, and it was not really until 1939 with the invention of nylon by Du Pont and the onset of World War II that the silk market really collapsed.<sup>3</sup>

Although limited in duration to about 80 years, this international boom shaped the foreign trade of both China and Japan and played an important role in their domestic economies. During the late nineteenth and early twentieth centuries, silk became

<sup>3</sup> Silk Association of America, *Annual Report*, 1919, p. 706; 1906, p. 69; 1913, p. 36; and 1914, p. 15. Jesse W. Markham, *Competition in the Rayon Industry* (Cambridge, Mass., 1952), 33. In fact, during the 1920s and 1930s, the consumption of silk in the United States increased steadily, even as rayon gained great popularity. See textile consumption figures in *Sen'i kōgyō (Chōki keizai tōkei*, vol. 11), comp. Fujino Shōzaburō et al. (Tokyo, 1979), 144 and 311. See also Table 3.

the most important commodity in the foreign trade of both countries. In China, exports of raw silk increased steadily after the opening of the treaty ports. From 1868 to 1929, the year in which silk exports reached their peak, shipments more than tripled, rising from 3,420,000 kilograms to 11,400,000 kilograms.<sup>4</sup> As Table 1 shows, during the 1880s silk surpassed tea as China's major export, and it continued to hold this position although its relative proportion declined as China's trade became more diversified during the Republican period (1912-1949). In 1880, silk exports represented 38 per cent of Chinese exports by value, while in 1930, they accounted for only 16 per cent. In Japan, the expansion of silk exports was even more dramatic, averaging about 656,000 kilograms per year in the 1868-1872 period, and soaring to 34,275,000 kilograms in 1929.<sup>5</sup> Until the 1930s, raw silk was Japan's leading export commodity, outranking tea, and silk was not surpassed by cotton fabrics until after the Depression. Between 1870 and 1930, raw silk held a steady 28 to 38 per cent of Japan's total exports, as Table 1 indicates. If silk fabric exports are added to each country's figures, total silk exports from China represented 16.6 per cent of total exports by value, while total silk exports from Japan represented 43.3 per cent of total Japanese exports in 1929.<sup>6</sup>

**TABLE 1**  
**RAW SILK AND TEA IN CHINESE AND JAPANESE EXPORTS**  
**(BY VALUE, IN PERCENTAGE)**

	China		Japan	
	Raw Silk	Tea	Raw Silk	Tea
1870	—	—	38	25
1880	38	46	35	22
1890	35	31	36	9
1900	31	16	28	4
1910	26	9	29	3
1920	19	2	28	0.9
1930	16	3	33	0.6

*Sources:* For China, Maritime Customs, *Decennial Reports, 1922-31* (Shanghai, 1933) I, 120, 190. For Japan, Miyohai Shinohara, "Economic Development and Foreign Trade in Pre-war Japan," in C. D. Cowan, ed., *The Economic Development of China and Japan* (London, 1964), 227. The figures given are for 1868-72, 1878-82, 1888-92, 1898-1902, 1908-12, 1918-22, 1928-32.

<sup>4</sup> Tuan-liu Yang, Hou-pei Hou et al., comps., *Statistics of China's Foreign Trade during the Last Sixty-five Years* (Nanking, 1931), 41, and Liang-lin Hsiao, *China's Foreign Trade Statistics, 1864-1949* (Cambridge, Mass., 1974), 109-111. I have deducted Hsiao's "Raw Silk, Miscellaneous" from his totals for "Total Raw Silk" to make the latter consistent with Yang and Hou's figures for the earlier period. I have converted piculs to kilograms. 1 picul = 60 kilograms.

<sup>5</sup> G. C. Allen, *A Short Economic History of Modern Japan, 1867-1937* (London, 1946), 172. 1 kwan or kan = 3.75 kilograms.

<sup>6</sup> Data for China from Lillian M. Li, *China's Silk Trade: Traditional Industry in the Modern World, 1842-1937* (Cambridge, Mass., 1981), Table 9, and Liang-lin Hsiao, *China's Foreign Trade Statistics*, 24, 109-111. For Japan, see Takisawa Hideki, *Nihon shihon shugi to sانشigyō* (Tokyo, 1978), 79.

The most notable aspect of the world silk trade was Japan's stunning success in capturing the expanding world market from China. Starting from a much smaller base, by 1907 Japan had overtaken China as the world's largest silk exporter, and according to one estimate, by the early 1920s, Japan was supplying about 60 per cent of the silk traded internationally, while China was providing only about 23 per cent.<sup>7</sup> Table 2 shows the steep increase in Japanese silk exports and the gradual increase of Chinese exports.

**TABLE 2**  
**CHINESE AND JAPANESE RAW SILK EXPORTS**  
**(5-YEAR AVERAGES IN THOUSAND KILOGRAMS)**

	China	Japan
1871-1875	4,092	672
1876-1880	4,416	984
1881-1885	3,864	1,488
1886-1890	4,872	1,992
1891-1895	6,084	3,084
1896-1900	6,708	3,132
1901-1905	6,900	4,944
1906-1910	7,500	7,152
1911-1915	8,268	10,404
1916-1920	7,716	14,148
1921-1925	8,772	20,160
1926-1930	10,212	30,708
1931-1935	5,052	31,872

*Source:* Adapted from Table 16, Chapter III of Li, *China's Silk Trade*, 86-88.

Japan's success in the world market rested in its ability to provide silk of consistent quality. The best Chinese product was still superior, but the Japanese was more reliable. Standardization was critical for the American silk weaving industry, which used power looms, whereas the French, who still used hand-looms for their high quality luxury silks, continued to buy domestically reeled Tsatlees from China. Thus, the silk industry in Japan developed to satisfy the needs of American manufacturers. The portion of Japanese raw silk exports destined for American markets soared from less than 1 per cent in the mid-1860s to 84.2 per cent in 1920, and to over 95 per cent in 1925-1926.<sup>8</sup>

<sup>7</sup> Based on data provided by Union des Marchands de Soie de Lyon, *Statistique de la production de la soie en France et à l'étranger*, 1880-1928 annual. Actual percentages for China and Japan may have been even higher since this set of data compares Chinese and Japanese trade to European and other output figures.

<sup>8</sup> C.F. Remer, an economist, observed that "Chinese raw silk is either excellent or rather poor in quality. . . . Japanese raw silk is of more uniform quality, but the best Chinese silk is said to be superior

Conversely, as American raw silk imports mounted steadily, increasing more than tenfold from the 1890s to the 1930s, Japan's share expanded until by the early 1930s it was supplying over 90 per cent of American needs, while the Chinese portion had dropped to below 5 per cent (see Table 3). By the same token, the American market never assumed such overwhelming importance for the Chinese silk industry. About 1920, for example, 39.4 per cent of silk exports from Shanghai were destined for France or Great Britain, while only 32.9 per cent were destined for the United States. At Canton, the American market was more important than the French until the late 1920s, when the proportions became about the same as at Shanghai.<sup>9</sup>

**TABLE 3**  
**UNITED STATES' RAW SILK IMPORTS, 1892-1935**  
**(FIVE-YEAR AVERAGES)**

	Total (1,000s kg.)	Japan		China	
		Amount (1,000s kg.)	%age total	Amount (1,000s kg.)	%age total
1892-1895	3,222	1,600	49.6	910	28.2
1896-1900	4,265	2,063	48.4	1,225	28.7
1901-1905	6,473	3,223	49.8	1,414	21.8
1906-1910	8,924	5,228	58.6	1,787	20.0
1911-1915	12,305	8,477	68.9	2,583	21.0
1916-1920	16,329	12,509	76.6	3,265	20.0
1921-1925	24,600	19,063	77.5	4,082	16.6
1926-1930	34,949	28,609	81.9	5,131	14.7
1931-1935	31,200	28,866	92.5	1,468	04.7

Source: Adapted from *Sen'i kōgyō (Chōki keizai tōkei, vol. 11)*, comp. Fujino Shōzaburō et al. (Tokyo, 1979), 309.

The success of Japan's silk export trade had profound significance for its general economic development. In concrete terms, the development of a major export commodity enabled Japan to earn the foreign exchange to purchase the machinery and raw materials necessary for its industrialization. William W. Lockwood, an economist, has estimated that "the raw silk trade fi-

to the Japanese product." *The Foreign Trade of China* (Shanghai, 1926), 140. Ishii Kanji, *Nihon sanshigyōshi bunseki* (Tokyo, 1972), 41; and Charles Joseph Huber, *The Raw Silk Industry of Japan* (New York, 1929), 31, provide these trade statistics.

<sup>9</sup> China, Maritime Customs, *Reports and Returns of Trade*, annual until 1920; after 1920, *Quarterly Trade Returns*. These data are summarized in Table 15, Chapter III of Li, *China's Silk Trade*. Data for Canton can also be found in "Canton Exports of Raw Silk and Silk Waste in 1927," *Chinese Economic Journal* 2:6 (June 1928), 529-532.

nanced no less than 40 per cent of Japan's entire imports of foreign machinery and raw materials used domestically" between 1870 and 1930. Most other economists agree that foreign trade played a critical role in Japan's economic development. Moreover, the silk reeling industry ranked among the earliest modern enterprises in Japan, and in the words of the economist Kenzō Hemmi: "the silk industry was a training school for Japanese industrialization." Silk and other export commodities gave Japanese entrepreneurs important opportunities for profitable investment, and manufacturing for foreign markets imposed a clear need for the standardization of products and more efficient commercial organization.<sup>10</sup>

Although silk was also China's major export commodity, and although modern filatures—factories where silk was reeled—were among the earliest and most important modern industries, the development of the silk industry did not have the same long-term significance in China that it did in Japan. Foreign trade in general did not play a very large role in the Chinese economy, and was barely tolerated by the Ch'ing government. The Chinese silk industry was relatively more oriented toward its still substantial domestic market. Although estimates vary, the domestic market may have consumed about 55–60 per cent of total raw silk output during the early twentieth century. In Japan, however, from 1883 to 1937, between 58 and 78 per cent of the raw silk output was exported, usually well over 65 per cent in any given year.<sup>11</sup>

These differences however, are not sufficient to explain the contrasting reactions of the Chinese and Japanese economies to the same world trade opportunities. To a very large extent, their different experiences with the silk trade typified their different experiences with economic modernization in general.

## CHARACTERISTICS OF SILK TECHNOLOGY

Silk manufacture had deep roots as a traditional handicraft in China and Japan. Sericulture had been known in China since

<sup>10</sup> William W. Lockwood, *The Economic Development of Japan*, expanded edition (Princeton, 1968), 94. For opinions of other economists, see, for example, Miyohei Shinohara, "Economic Development and Foreign Trade in Pre-War Japan," in C.D. Cowan, ed., *The Economic Development of China and Japan* (London, 1964), 227; and Masao Baba and Masahiro Tatemono, "Foreign Trade and Economic Growth in Japan: 1858–1937," in Lawrence Klein and Kazushi Ohkawa, eds., *Economic Growth: The Japanese Experience since the Meiji Era* (Homewood, Illinois, 1968), 162–182. Kenzō Hemmi, "Primary Exports and Economic Development: The Case of Silk," in Kazushi Ohkawa et al., eds., *Agriculture and Economic Growth: Japan's Experience* (Princeton, 1970), 308. The final point is made by Lockwood, 370–378.

<sup>11</sup> Li, *China's Silk Trade*, 100–102; and Shinohara, "Economic Development," 226, compiled from Ministry of Agriculture and Commerce and Ministry of Finance statistics. Domestic consumption of silk in Japan also expanded markedly in these years. See *Sen'i kōgyō*, 142.





Picking Mulberry Leaves, an Early Step in Silk Production.

This and the other woodblock illustrations in this article are from a well-known, Ch'ing dynasty work on agriculture and sericulture, *Yü-chih keng-chih t'u*, comp. Chiao Ping-chen, 1696 ed.

prehistoric times; it also had ancient origins in Japan although sericulture did not become widespread there until after 1600 during the early Tokugawa period. The manufacture of silk fabric involved four basic steps: the cultivation of mulberry trees, the raising of silkworms (sericulture), the reeling of silk from the cocoons, and the weaving of raw silk into fabric. Between the third and fourth steps occurred several intermediate processes such as dyeing, twisting to form warp or woof, and in modern times, rereeling to produce a more even strand of silk. Although China's ancient silk export trade had consisted primarily of silk fabrics, in the modern period European and American silk weaving companies demanded raw silk.

Many aspects of silk technology facilitated the industry's growth in response to the world market during the nineteenth century. First, mulberry trees were not soil-specific and were often grown along the edges of fields or by the banks of ponds, utilizing space that might otherwise have been wasted. Second,

sericulture was an ideal rural side-occupation because it was well-suited to small-scale domestic production. Traditionally, the sericultural season was completed in the early spring before rice was sown. Until relatively modern times, both Chinese and Japanese peasants raised only a spring crop of silkworms and were free to deal with other farming tasks later. Sericulture thus took advantage of seasonally underemployed labor. Moreover, although seasonal, sericulture required an intensive concentration of labor; women and children engaged in round-the-clock feeding of the silkworms with mulberry leaves. A plentiful supply of rural female labor in both China and Japan thus favored the expansion of silk production. For a household to produce a few baskets of cocoons and then reel off the silk usually meant a good supplementary income for a relatively small investment of capital.<sup>12</sup>

Other aspects of sericulture, however, limited the extent and rapidity with which silk production could expand. Above all, sericulture involved a high degree of natural risk, and a whole folklore grew up in China about the likes and dislikes of silkworms. It was true that slight changes in the weather or other natural conditions could bring disaster. Indeed, the vulnerability of silkworms became apparent during the mid-nineteenth century in France and Italy, and later in China, when the problem of disease became acute. According to contemporary estimates, by the 1920s, 75 to 95 per cent of the silkworm egg-sheets sold in China were diseased.<sup>13</sup>

Sericulture also involved a high degree of commercial risk. The peasant household faced an extremely volatile local market that in turn reflected an even more unstable international market governed by the whims of fashion, the constantly fluctuating exchange rate, and the uncertain supply each season. The concentration of sericulture into one brief season further exacerbated the risks of the market since most domestically reeled silk was sold at the same time each spring. Peasant producers were at the mercy of the prevailing market price. After steam filatures were established in China, peasant households that sold their cocoons rather than reeling them at home were even more vulnerable, for the cocoon business was even more speculative than the raw silk market. As a result, in the absence of institutional safeguards, the peasant household could not afford to commit very much of its financial resources to sericulture; in other words, it would not

<sup>12</sup> The following discussion is summarized from Chapter I of Li, *China's Silk Trade*.

<sup>13</sup> The Silk Association of America and the Shanghai International Testing House, comp., *A Survey of the Silk Industry of Central China* (Shanghai, 1925), 8-9.

risk hiring outside help, or devoting all of its land to growing mulberry trees. The volume of cocoon or silk production was thus constrained by the amount of labor readily available in the household. In short, sericulture was an ideal secondary occupation for the peasant household, but it was often too risky to undertake as a primary occupation.

“Modernization” of the silk industry, as narrowly conceived, involved the introduction of steam-powered reeling machines and factory organization. In many instances in both China and Japan, however, these technological and organizational steps alone did not ensure commercial success. “Modernization,” as more broadly conceived, meant the introduction of a variety of technological and institutional changes that substantially reduced the natural and commercial risks inherent in the manufacture of silk, and so permitted the industry to expand. In Japan, silkworm disease was brought under control through mandatory inspection of silkworm eggs, standardized production, and eventually the licensing of egg producers. With the gradual introduction of summer and autumn crops of worms, sericulture became almost a year-round enterprise, and this helped to reduce its speculative character. Constant scientific experimentation led to the development of better silkworm strains and higher yields for mulberry trees and cocoons, as well as eggs. On the commercial side, organization of rural cooperatives helped cushion the risk to individual peasants. At a later stage, better organization and vertical integration of production by steam filature companies helped to reduce the risk to entrepreneurs. In China, by contrast, even after steam filatures were introduced, commercial risks for entrepreneurs and peasants alike remained high in the absence of basic reform of financing. Sericultural schools and experimental stations were not widely established until the 1920s and 1930s, too late to be effective. In the meantime not only had silkworm disease become rampant, but yields of mulberry and cocoons remained, at very best, stagnant.<sup>14</sup>

## THE CHINESE PATTERN OF DEVELOPMENT

The deteriorating technological standards in Chinese silk manufacture, as well as the government's failure to assume greater

<sup>14</sup> Kenzō Hemmi stresses the importance of constant technological improvement in maintaining the relative profitability of mulberry as opposed to other crops in Japan, “Primary Product Export,” 318–321. Since the Meiji era, the yields of silk from cocoons have more than doubled in Japan. Li, *China's Silk Trade*, Chapter I. In fact, the data in Ch'en Heng-li, *Pu Nung-shu yen-chiu* (Peking, 1958), strongly suggest a steady decline in yields from the late Ming to the 1950s.

responsibility in promoting the industry, seem remarkable in view of China's historical pre-eminence in silk products and the government's traditional vested interest in providing silks for its own needs. From ancient times, demand generated by the imperial court, both for tribute purposes and for its own consumption, had provided the main stimulus for the growth of the silk industry. Since the Southern Sung period (1127–1278), China's main silk-producing region had been the lower Yangtze valley, particularly the northern prefectures of Chekiang province bordering Lake T'ai. This was the most prosperous region of the country, and the concentration of imperial silk weaving factories there during the Ming (1368–1644) and the Ch'ing (1644–1911) dynasties further stimulated production in the countryside. During the late Ming and early Ch'ing, sericultural technology reached unprecedented heights, and the silks from this area were highly prized.<sup>15</sup>

By the time treaty ports were opened to trade with the West in the mid-nineteenth century, however, continued technological improvement had largely come to an end although the silk trade in the lower Yangtze, or Kiangnan, area was still flourishing. The sericultural manuals of this period were essentially based on those of the sixteenth and seventeenth centuries. Since the imperial factories were in a serious decline, raw silk was diverted to the export trade without causing serious domestic dislocation. After 1842, the locus of the export trade shifted quickly from Canton, where it had previously been relatively small in volume, to Shanghai, where it was closer to the main sericultural districts. The steady expansion of silk exports from Shanghai, however, was interrupted by the Taiping rebellion, which devastated many silk-growing localities.

After the rebellion, there was rapid recovery in Kiangnan. Sericulture was introduced into many new localities in this region, particularly in the southern prefectures of Kiangsu province north of Lake T'ai. The period from about 1870 to 1895 in the Kiangnan area could be described as a period of economic growth without technological change. Although attempts to establish steam filatures at Shanghai began as early as 1862, they were, with one or two exceptions, unsuccessful. Virtually all silk produced and exported continued to be reeled in simple hand or treadle machines in peasant homes. Not until the 1890s did mechanized reeling begin to play an important role at Shanghai. Thereafter,

<sup>15</sup> These developments are more extensively discussed in Li, *China's Silk Trade*, Chapter IV.



Sorting Worms, an Intermediate Step in Silk Production.

steam filature silk quickly assumed a leading role in the silk export picture. In 1895 steam filature silk represented only about 12 per cent of total silk exports from Shanghai, but in 1925 it represented about 99 per cent.<sup>16</sup>

A kind of commercial dualism emerged in Kiangnan whereby the silk produced by the modernized sector of the industry supplied the export trade, while the silk produced by the traditional sector continued to supply the domestic market, which remained substantial. The domestic silk weaving industry in Soochow, Nanking, and Hangchow recovered from the Taiping rebellion, and even experienced a small boom during and after World War I. The economic dualism also expressed itself geographically. Since the modern sector was concentrated at Shanghai, and later Wusih, it was isolated from its rural base and its source of cocoons. In Kiangnan, the old sericultural districts in northern Chekiang continued to produce domestically reeled silk, while the new

<sup>16</sup> Based on figures from H.D. Fong, "China's Silk Reeling Industry," *Monthly Bulletin on Economic China* (Nankai Institute of Economics), VII:12 (December 1934), 491, Table V.

districts in southern Kiangsu produced cocoons for the filatures to reel.<sup>17</sup>

In the Canton delta, the second silk region to assume major importance in the export trade, a different pattern of growth emerged. The Kwangtung region had not been as large a producer of silks for the domestic market before 1842 as Kiangnan had been. With the expanded opportunities for foreign trade after 1842, sericulture spread rapidly in the delta region. Because it was largely oriented toward the foreign market, the silk industry in Kwangtung adopted steam filatures earlier than in Kiangnan. Although the first few pioneering efforts met with local opposition, machine-reeled silk came to dominate the export picture during the 1880s. In 1882, filature silk was only 13.1 per cent of all silk exports, but by 1895 it had grown to 90 per cent. Thereafter, virtually all silk exports were filature products.<sup>18</sup>

The warmer climate of Kwangtung permitted the raising of seven crops of silkworms each year, thus eliminating the seasonal problems that existed in Kiangnan. Because the domestic market was less significant, the problem of economic dualism was avoided. Moreover, since filatures were located in the countryside, close to the source of cocoons, Kwangtung also escaped the problem of geographical dualism. Nevertheless, despite all the advantages of Kwangtung over the Kiangnan region, the Cantonese silk industry could hardly be termed a success. Foreigners described the filatures as being dirty and inefficient, using backward machinery and defective cocoons. Thus, while modernization in the narrow technological sense occurred earlier and more completely in the Canton delta, modernization in the larger sense did not take place.<sup>19</sup>

## THE JAPANESE PATTERN OF DEVELOPMENT

The Japanese pattern of development differed from the Chinese in several respects. First, in Japan the opening of trade with the West coincided with a period of rapid growth and innovation in sericulture, whereas in China it coincided with a period of technological stagnation and decline of official demand. The expan-

<sup>17</sup> In 1925, 81 per cent of the cocoon output of Kiangsu was sold to filatures, whereas only 18 per cent of the Chekiang output was. See The Silk Association of America, *A Survey of the Silk Industry*, 5-6, 93.

<sup>18</sup> Suzuki Tomoo, "Shinmatsu Minsho ni okeru minzoku shihon no tenkai katei: Kanton no seishigyō ni tsuite," *Tōyō shigaku ronshū* VI (1960), 47-49; Imperial Maritime Customs, *Decennial Reports, 1882-1891, and 1892-1901*, as reproduced in Shih Min-hsiung, *The Silk Industry in Ch'ing China*, tr. by E-tu Zen Sun (Center for Chinese Studies, Ann Arbor, Michigan, 1976), 17.

<sup>19</sup> Leo Duran, *Raw Silk: A Practical Handbook for the Buyer*, 2nd ed. (New York, 1921), 147; and Charles Walter Howard and K.P. Buswell, *A Survey of the Silk Industry of South China* (Hong Kong, 1925), 144.

sion of sericulture in Japan during the Tokugawa period (1600–1867) was directly related to political circumstances. During the seventeenth century, imports of raw silk from China had mounted, creating an imbalance of trade that greatly alarmed the Tokugawa Bakufu, which in 1685 imposed a quota reducing imports to about one-third of the current level. Despite the official sumptuary regulations against the indiscriminate wearing of silks, the domestic demand for silk continued to grow, and the weaving industry, centered at Nishijin in Kyoto, needed new sources of raw materials. Consequently, the Bakufu encouraged the promotion of sericulture by various *han* governments, and employed such inducements as financial incentives, the distribution of mulberry seeds and silkworm eggs, and the publication of sericultural manuals. By the late Tokugawa period, sericulture had been introduced to most parts of Japan, except in the North.<sup>20</sup>

These efforts produced striking results. By the mid-nineteenth century, the Japanese had not only caught up with the Chinese in silk technology, but had begun to experiment with some techniques yet unknown in China. The *zaguri*, or “sitting,” type of reeling machine, already widespread in China, was introduced in Gumma and Fukushima, and marked a distinct advance over the hand-operated machines previously used in Japan. Other technological improvements included the cold storage of eggs and the development of summer and fall crops of worms. Although Chinese techniques were still on the whole more advanced, there is no evidence of such a high level of innovative activity in China in the period just before the opening of the treaty ports. Moreover, in Japan these technological changes were accompanied by changes in the organization of production. As early as the mid-eighteenth century, for example, reeling was separated from sericulture in Gumma prefecture where workshops were established outside the household. In China such separation of functions did not occur until the advent of steam filatures.<sup>21</sup>

In the 1850s and 1860s, with the opening of the treaty ports, several new centers of sericulture emerged. Fukushima and

<sup>20</sup> *Taikei Nihonshi sōsho*, comp. Yamakawa shuppansha (Tokyo, 1965), XI, 91, 278; also Yagi Haruo, “Seishigyō,” in *Nihon sangyōshi taikai: Sōron hen* (Tokyo, 1961), I, 223; and also Fujimoto Jitsuya, *Nihon sanshigyōshi* (Tokyo, 1933), I, 147–179 *passim*. *Taikei Nihonshi sōsho*, XI, 50–51.

<sup>21</sup> The sericultural manuals in the early Tokugawa period were largely based on Chinese works, but those of the mid-Tokugawa period were often based on Japanese technological innovations. Uchida Hoshimi, *Nihon bōshoku gijitsu no rekishi* (Tokyo, 1960), 54–55. The names used here are those of current prefectures. Traditionally, Ōshu corresponded roughly to Fukushima, Joshu to Gumma, and Shinshu to Nagano. A summer crop was developed in Nagano in the 1830s. *Nihon sanshigyō taikai*, comp. Tōdai shuppansha (Tokyo, 1961), V, 186. For discussion of other Tokugawa technological advances, see Yagi Haruo, “Seishigyō,” 240; and Uchida Hoshimi, *Nihon bōshoku gijitsu no rekishi*, 57–66. *Nihon sanshigyō taikai*, IV, 260–261, and Yagi Haruo, “Seishigyō,” 227.

Gumma prefectures, the traditional sources of the best raw silk, were now joined by Nagano, Gifu, and Yamanashi. The manufacture of egg-cards for export to Europe flourished in this period. Local entrepreneurs disseminated knowledge of sericultural techniques. Fukushima and Gumma, among other places, further adopted the workshop form of production. In this period innovations took place within the framework of traditional technology, but after the Meiji Restoration in 1868, a mixed pattern of traditional and modern production began to emerge. In the 1870s several pioneering attempts at establishing steam filatures were made, the most important of which was the government model factory, the Tomioka, built in Gumma prefecture in 1872. This project was directed by a French expert working with eighteen European assistants and the latest foreign machinery. Although ultimately a business failure, the Tomioka set an important example, and its staff members were dispatched to give instruction in other localities wanting modern technology.<sup>22</sup>

The actual spread of steam filatures was, however, rather slow. Many enterprises classified as “factories” were in fact workshops having only ten to thirty workers. The form of energy used in these early workshops was water-power, not steam, which characterized the large-scale European-style filatures. The adoption of Western technology was a complex process, with various regions responding differently. In Gumma and Fukushima, for example, Western technology was accepted later and with greater difficulty than in the newer silk districts such as Nagano. In Gumma, especially, traditional technology was improved to produce *kairyōzaguri ito*, domestically reeled silk that was reeled to produce a more even thread. This type of silk was used in France and Italy as woof. The high-quality silk produced by modern steam filatures, and necessary for warp-threads, did not have a large foreign demand until the American market became important in the 1890s.<sup>23</sup>

Not until the turn of the century did modern machine-reeling assume the dominant role in the production of silk. These modern

<sup>22</sup> For a description in English of entrepreneurial activity in Saitama-ken, see William Jones Chambliss, *Chiarajima Village: Land Tenure, Taxation, and Local Trade, 1818–1884* (Tucson, Arizona, 1965), 17–22. Regarding workshop production, see, *Taikei Nihonshi sōsho*, XII, 60. On the Tomioka factory, see Ohara Keishi, *Japanese Trade and Industry in the Meiji-Taisho Era* (Tokyo, 1957), 229–233; and Thomas C. Smith, *Political Change and Industrial Development in Japan: Government Enterprise, 1868–1880* (Stanford, Calif., 1955), 58–61.

<sup>23</sup> *Taikei Nihonshi sōsho*, XII, 226–229. Yoshida Kazuko, “Meiji shoko no seishi gijutsu ni okeru dochaku to gairai,” *Kagakushi kenkyū*, II:16 (Spring, 1977), 19, and Ebato Akira, *Sanshigyō no keizai chirigakuteki kenkyū* (Tokyo, 1969). Ohara Keishi, *Japanese Trade and Industry*, 243–249. Yagi Haruo, “Seishigyō,” 240, notes that the Japanese technique was yet unknown in Europe or China. In Kiangnan, reeled silk did not become an important export item until the 1910s. Ishii Kanji, *Nihon sanshigyōshi bunsēki*, 57–83. His analysis of the financing of the silk industry is based on the difference between these two types of silk, which he terms Type I and Type II. See note 42 below.



filatures were larger in scale than the previous workshops or factories, and they increasingly used steam power. After the 1910s, two giant companies, the Katakura and the Gunze, dominated the machine-reeling industry, spreading out from their respective bases in Nagano and the Kansai region to establish branch factories elsewhere. In 1900, only 52 per cent of Japan's total output of raw silk was machine-reeled, but by 1925 this figure had increased to over 87 per cent, including virtually all exported silk. Though largely mechanized and factory-organized, the Japanese silk industry nevertheless retained its small-scale character. In 1926, for example, 36 per cent of all filatures had fewer than 50 basins; 66 per cent had fewer than 100 basins.<sup>24</sup>

In comparison with the Chinese pattern, the development of the Japanese silk industry was smoother and more successful, but also more complex and diverse. Although some differences between old and new areas did exist in the early Meiji years, on the whole there was not the stark dualism between old and new, traditional and modern, rural and urban that tended to characterize the Chinese experience. The Japanese silk industry was geographically more extensive than the Chinese, with some silk being produced by almost all the prefectures by the Taishō period, and only Nagano and Aichi producing more than 10 per cent of the total. In China, by contrast, the impact of the silk export trade was limited to a few regions, primarily the lower Yangtze valley and the Canton delta. Furthermore, in Japan technological modernization was incremental and small-scale; the dramatic changes associated with big-factory production did not take place for several decades.<sup>25</sup>

### URBAN-RURAL INTEGRATION

In order to develop successfully, the modern silk-reeling industry had to be well-integrated with its rural base. In Japan, sericulture not only became quite extensive across regions, but also became a crucial source of income for many peasant families.

<sup>24</sup> *Taikei Nihonshi sōsho*, XII, 399–401. Some Japanese filatures also used electric power. See *Sen'i kōgyō*, 179–180. Ishii Kanji, *Nihon sanshigyōshi bunseki*, 88; Ohara Keishi, *Japanese Trade and Industry*, 275–276. Japanese figures for 1900 and 1925 based on output data in *Sen'i kōgyō*, 294–295, which does not include waste silk. According to *Nihon sen'i sangyōshi*, comp. Nihon sen'i kyōgikai (Osaka, 1958), I, 942, only 75 per cent of total output in 1925 was machine-reeled if waste silk is included. For export data, see *Nihon boeki seiran*, comp. Tōyō keizai shimposha (reprint, Tokyo, 1975), 53–55; and also *Sen'i kōgyō*, 308. Regarding the small-scale character of the Japanese industry, see, Huber, *Raw Silk Industry*, 42.

<sup>25</sup> For Japan, see pp. 41–42, and map (end fold-out) in Huber, *Raw Silk Industry*, and also *Sen'i kōgyō* 139. For China, see Li, *China's Silk Trade*, Chapter IV. In the Republican period, wild silk, known as Tussah, from Shantung and Manchuria, became extremely popular for export. The provinces of Szechwan and Hupei also produced a substantial amount of raw silk, but mostly inferior yellow silk for the domestic market.

Although it is estimated that at the height of its development in the 1920s, 32–40 per cent or more of all Japanese farm families were engaged in sericulture, in the more specialized areas such as Yamanashi, close to 90 per cent of farm families engaged in sericulture, and as much as 56 per cent of the total value of their crops came from sericulture, as opposed to rice or cash crops. In China, by contrast, only in one exceptionally specialized sericultural district in the Canton delta did silk income form as much as 80 per cent of farm income. In the relatively specialized areas of Kiangnan, surveys show no more than 20–40 per cent of farm income derived from sericulture, and in the average non-specialized area, income from sericulture could be considered only supplementary.<sup>26</sup>

Another distinctive characteristic of the Japanese silk industry was the extent to which it retained its rural character.<sup>27</sup> Rural entrepreneurs and laborers, as well as rural capital, played important roles in the development of the industry. In some areas, ex-samurai were the leading entrepreneurs.<sup>28</sup> In many areas, landlords ordered their tenants to plant mulberry and raise silkworms.<sup>29</sup> Moreover, filatures in the countryside drew on an abundant and cheap supply of labor: the daughters of peasant families. These women provided extra income for their families; yet they remained part of the rural scene and could return to other pursuits during the slack season.<sup>30</sup> In the older areas, silk-raising families were not really hurt by the loss of income from domestic reeling, for they could make it up through their daughters' wages.

Even with the increase in steam filatures, the rural and urban sectors of the silk industry remained well-integrated. Filatures were relatively small and they were well-distributed through the rural silk districts and towns, giving them more opportunity to

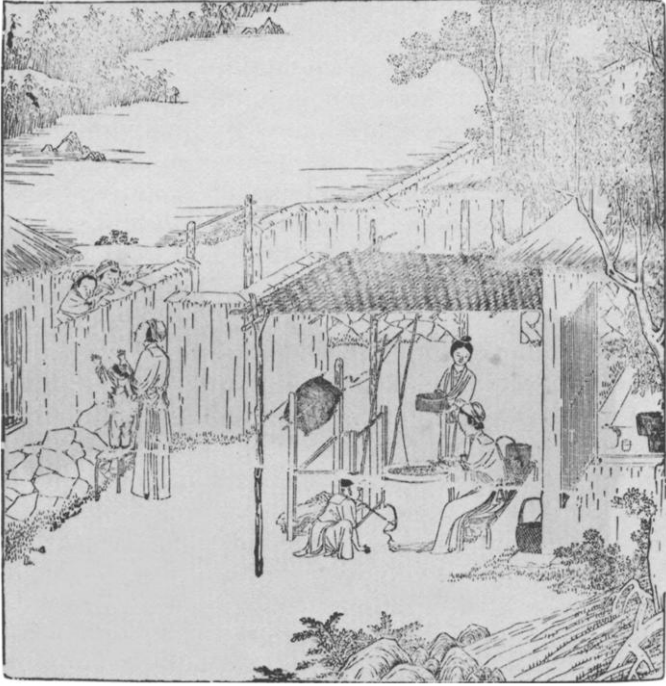
<sup>26</sup> *Sen'i kōgyō*, 306; and Lockwood, *Economic Development of Japan*, 45, for Japan in general. Data for Yamanashi prefecture is from *Yamanashi-ken tōkeisho* and has been generously shared with me by Professor Richard J. Smethurst, who is preparing a manuscript on tenancy disputes in that area. For data on the value of sericultural products in total agricultural production, see Umemura Mataji et al., comps., *Noringyō (Chōki keizai tōkei*, vol. 9) (Tokyo, 1966), 146–149. For data on mulberry acreage, see *Sen'i kōgyō*, 306–307. Data on China from Chapter V, Table 25 of Li, *China's Silk Trade*.

<sup>27</sup> Johannes Hirschmeier, *The Origins of Entrepreneurship in Meiji Japan* (Cambridge, Mass., 1964), 95, makes this point, as do others. The continuing strength of the rural sector in the Japanese silk industry, even into the twentieth century, is at least one reason to be cautious about adopting the commonly held view that Japan had evolved a "dual economy" in the late nineteenth and early twentieth centuries, in which the traditional-rural sector of the economy experienced a declining rate of growth, while the modern-urban sector advanced quickly. This idea is best expressed by Kazushi Ohkawa and Henry Rosovsky, in "A Century of Japanese Economic Growth," in William W. Lockwood, ed., *The State and Economic Enterprise in Japan* (Princeton, 1965), 47–92, where they characterize the period 1906–1930 as one in which a differential structure was created.

<sup>28</sup> For example, in Gumma. *Nihon sanshigyō taikai*, IV, 277–278.

<sup>29</sup> For example, in Yamanashi. See Nakamura Masanori, "Seishigyō no tenkai to jinushisei." *Shakai keizai shigaku*, 32 (1967), 46–71.

<sup>30</sup> Allen, *Short Economic History*, 110. On the low wages of filature employees in Yamanashi, see Arlon Tussing, "The Labor Force in Meiji Economic Growth: A Quantitative Study of Yamanashi Prefecture," *Journal of Economic History*, XXVI:1 (March 1966), 70–96.



Reeling Silk, the Third Step in the  
Production of Silk Fabric.

secure an adequate supply of cocoons. Cocoons represented about 80 per cent of the operating costs of a filature, and their quality was the single most important factor in determining the success of an enterprise. For example, a key reason for the failure of the model filature established in 1871 in Tsukiji, a district of Tokyo, was its inability to secure good cocoons. With the advent of the large-scale filature companies, it became increasingly common for filatures to distribute silkworm eggs to peasants—an even more effective way of insuring the quality of the cocoon supply.<sup>31</sup>

The strength of the rural sector was an inheritance from the Tokugawa period. The rural-centered commercial growth of the early modern period—which had no distinct parallel in Ch'ing China—reflected the waning control of the Bakufu over the countryside and the decline of the economic leadership of the cities. In the view of the historian Thomas C. Smith, the modern textile industry was derived from this formative pre-modern experience.

<sup>31</sup> The Silk Association of America, *A Survey of the Silk Industry*, 2; Ohara Keishi, *Japanese Trade and Industry*, 276. Yoshida Kazuko, "Meiji shoko no seihō gijitsu ni okeru dochaku to gairai," 17–18. Ishii Kanji, *Nihon sanshigyōshi bunseki*, 422ff.

“The modern textile industry,” he wrote, “grew mainly in districts of traditional manufacture; much of the growth occurred in villages and former ‘country-places’; entrepreneurs, plant managers, buyers, shippers and labour contractors came from these same districts; and labour came overwhelmingly from farm families.”<sup>32</sup>

The formation of various types of rural cooperatives helped silk producers overcome the disadvantages of small-scale and atomized production. As early as the 1870s and 1880s, silk reelers’ cooperatives undertook the weighing, packing, and shipping of silk to Yokohama. Although the Gumma prefecture’s “improved” silk reelers’ attempt at forming a federation of such cooperatives in 1880 was unsuccessful, later attempts did succeed. By the end of the Meiji period, small filatures with relatively little leverage in negotiating loans for the purchase of cocoons joined together in *kumi*, or unions, to obtain financing from Yokohama wholesalers. By the Taishō period, peasant producers of cocoons organized themselves into village-wide unions in order to deal with the filatures more effectively. With government support, the cocoon unions formed federations within each prefecture, and a nationwide federation appeared in the early Shōwa period.<sup>33</sup>

Cooperatives were an especially effective form of organization for silk production because they provided some economic centralization of a technologically decentralized productive process and gave the vulnerable peasant producers some leverage. As G. C. Allen and Audrey Donnithorne observed in their study of Western enterprise in East Asia, the silk trade for its successful organization “needed a high degree of centralization at some points and wide dispersion at others.” It was in most branches “necessarily a small scale industry [dependent] for its success on central supervision and government intervention at a few key points.” The marketing of cocoons was one such point. In China cooperatives were not even the subject of experiments until the 1930s—when the world silk trade was already in decline.<sup>34</sup>

In the Kiangnan region of China, the problem of rural-urban integration was particularly pronounced. Steam filatures, being

<sup>32</sup> Thomas C. Smith, “Pre-Modern Economic Growth: Japan and the West,” *Past and Present*, 60 (August 1973), 158. The shift from urban-centered marketing to town and village-centered commerce in the cotton industry is described in William B. Hauser, *Economic Institutional Change in Tokugawa Japan: Osaka and the Kinai Cotton Trade* (Cambridge, England, 1974), Chaps. VI and VII.

<sup>33</sup> Yagi Haruo, *Nihon keizaiishi gaisetsu* (Tokyo, 1974), 217; also Yamaguchi Kazuo, *Nihon sangyō kinyūshi kenkyū*, 10–11. *Nihon sanshigyō taikai*, IV, 280–283; and Ohara Keishi, *Japanese Trade and Industry*, 244–249 and 292–294. Also, Huber, *Raw Silk Industry*, 17.

<sup>34</sup> G.C. Allen and Audrey G. Donnithorne, *Western Enterprise in Far Eastern Economic Development* (London, 1954), 68. The most famous silk cooperative in China is well-described by Fei Hsiao-t’ung, in his *Peasant Life in China* (London, 1939).

concentrated at Shanghai, and later at Wusih, were institutionally as well as geographically remote from the rural sector. Moreover, the urban filatures tended to be large-scale enterprises, which made them greater risks to operate. Without any base in the rural areas, the filatures depended on rural cocoon hongs to provide their cocoon supply. The hongs bought cocoons from local peasants, dried them, and shipped them to warehouses or filatures at Shanghai. They were usually financed by local businessmen and contracted to a filature or cocoon broker. Although the price of cocoons soared when filatures were established, their quality deteriorated since the peasants no longer had a stake in the reeling process. The peasant households could not defend themselves against commercial fluctuations by withholding their cocoons from the annual spring market since the moths would break through the cocoons within ten days unless the cocoons were dried. In addition, the location of the filatures in the cities meant that peasants were denied the potential income their daughters might have earned if the factories were nearby.<sup>35</sup>

There were two major reasons for the rural-urban split in the Kiangnan area. First, the silk weaving industry strongly opposed the growth of the raw silk export trade and particularly the modern filatures associated with the trade. Fearing a further rise in the price of raw silk, the weaving interests prevailed upon the Chekiang and Kiangsu provincial governments to limit the number of cocoon hongs in each locality. Such legislation, although sometimes ignored, was not repealed until the late 1920s. In Japan, the traditional weaving centers at Nishijin in Kyoto, and Kiryū in Gumma, also experienced great difficulty, but they did not have the political strength to resist the momentum toward foreign trade. Second, the weakness of the Ch'ing government permitted Shanghai and the other treaty ports to dominate the development of modern enterprises. Shanghai, in particular, had all the advantages of extraterritorial protection, access to financing and shipping, and immunity from arbitrary taxation. Wusih's emergence as a subsidiary center of steam filatures in the Kiangnan area did not begin until after World War I, when political unrest at Shanghai caused concern, and the advantages of Wusih's location in a major sericultural district became apparent.<sup>36</sup>

In the Canton delta, urban-rural integration was not such a problem since the filatures were located in the countryside, and

<sup>35</sup> Sanshigyō dōgyōkumiai chūōkai, comp., *Shina sanshigyō taikan* (Tokyo, 1929), 235–236, shows that the average size of filatures in the Kiangnan area was 261 basins. The ones in Canton tended to be larger. The institution of the cocoon hong is discussed in Li, *China's Silk Trade*, Chapter VI.

<sup>36</sup> Li, *China's Silk Trade*, Chapter VI. *Taimei Nihonshi sōsho*, XII, 56–57.

factory workers were local peasant girls and women. The potential advantages of Canton as a treaty port were out-weighted by the convenience of a rural location. "Native," as opposed to foreign, capital also played a larger role in the early Canton filatures, although in fact the silk industry at Shanghai too was largely a Chinese business except in the early years. Nevertheless, the Canton filatures also did not have direct control over their cocoon supply and depended on cocoon markets and cocoon merchants. This suggests that while they were not geographically separated from rural sericulture, Canton filatures were almost as institutionally separated as their Shanghai counterparts. Better urban-rural integration was not enough to compensate for another critical weakness.<sup>37</sup>

### COMMERCIAL INSTITUTIONS AND PRACTICES

A pervasive scarcity of capital was a weakness that was felt by all segments of the Chinese silk industry and that was reflected in the way the silk trade was organized. The export trade operated within the framework of pre-existing commercial practices. The traditional organization of internal silk commerce was highly specialized in function, but very decentralized. Each stage in silk manufacturing—from the marketing of mulberry saplings to the embroidering of brocades—was controlled by a series of middlemen or brokers whose function was exchange, not production. With the opening of trade with the West, this chain of middlemen was simply lengthened by one or two links. Peasants in the silk districts sold their reeled product to the local silk hong, which in turn sold the silk to a Shanghai broker with whom it generally had some long-term working relationship. The Shanghai brokers then sold the silk to Western export firms.<sup>38</sup>

The export trade itself was entirely in the hands of Western firms, but they did not, indeed could not, interfere with the internal commercial network that remained firmly under Chinese control. The Shanghai silk brokers formed the crucial link between Western merchants and Chinese producers. Numbering about fifty during the 1920s, these brokers were extremely pow-

<sup>37</sup> Suzuki Tomoo, "Shinmatsu Minsho," 62. Also, Marianne Bastid, "Le Développement des filatures de soie modernes dans la province du Guangdong avant 1894," *The Polity and Economy of China: The Late Professor Yuji Muramatsu Commemoration Volume* (Tokyo, 1975), 175–188, discusses the issue of native capital.

<sup>38</sup> There is debate among scholars about whether the scarcity of capital invested in modern enterprises was due to an absolute scarcity, or to the unwillingness of individuals to risk investment of their wealth in new enterprises. On middlemen, see, Li, *China's Silk Trade*, Chapter V. Horie Eiichi, *Shina sanshigyō ni okeru torihiki kankō* (Tokyo, 1941), 129–131. *Shina shōbetsu zensho*, comp. by Tōa dōbunkai (Tokyo, 1917–1920), XIII, 600–601; XV, 735–736.

erful, often serving in dual roles as compradores to Western firms, and as independent businessmen. They were the masters of the silk trade. Each brokerage had its own "chop" and reputation to maintain.<sup>39</sup>

This system worked satisfactorily until the advent of filatures, when traditional business procedures were extended to the new institutions, though not successfully. The Shanghai filatures were frequently undercapitalized, and numerous ventures failed. The shortage of capital accentuated the decentralized organization of the silk business. The filature companies did not own their own physical plants. Instead, they rented plants from real estate owners when the season looked promising. Some filatures did not operate in bad seasons. Thus, the companies had no fixed capital and little long-term risk. The cocoon hong in Kiangnan also operated on a seasonal basis and did not have their own fixed plants. At Canton, clans or families frequently built filatures to rent out. The cocoon markets were owned by one set of local landlords or merchants and operated by another. The effect of these practices on the quality of the equipment and the final product was hardly beneficial, and it exacerbated the speculative aspects of the silk business.<sup>40</sup>

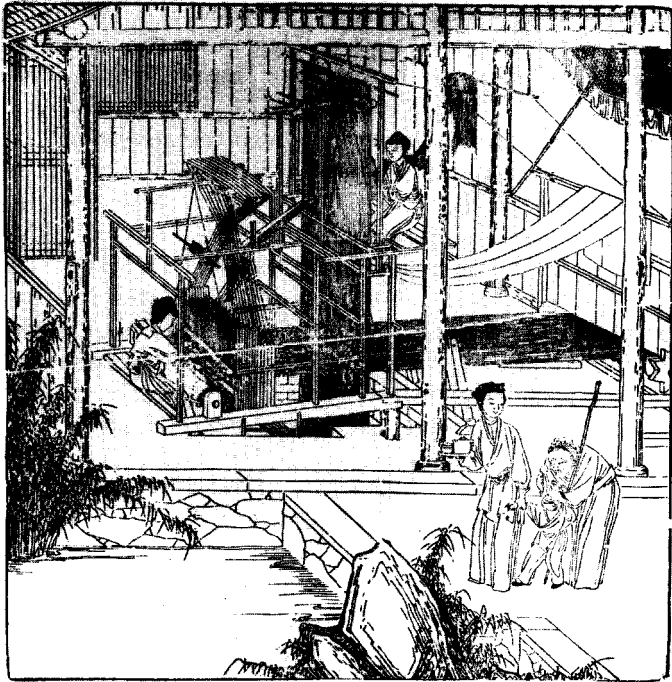
While the need for fixed capital was thus minimized, a substantial amount of operating capital was needed each spring to purchase cocoons—an estimated \$75,000,000 per season at Shanghai. The *ch'ien-chuang*, or "native" banks, became the chief financial backers of the cocoon hong, as well as of the filatures. After making a contract with a cocoon hong, a *ch'ien-chuang* would send a man to the silk district to pay the money and supervise the shipment of cocoons to Shanghai where they were stored in a designated warehouse. Foreign exporters were also directly and indirectly involved in the financing of cocoon purchases and filatures, but for the most part the silk industry remained in Chinese hands.<sup>41</sup>

In Japan, by contrast, silk export development coincided with a period of transformation of economic institutions. Some changes—such as the gradual abolition of the *kabu-nakama*, or trade associations—had been initiated during the Tokugawa period. In the silk trade, this cleared the way for different social groups to emerge as rural entrepreneurs. Recent studies claim

<sup>39</sup> Tseng T'ung-ch'un, *Chung-kuo ssu-yeh* (Shanghai, 1933), 96–97; and Ralph E. Buchanan, *The Shanghai Raw Silk Market* (New York, 1929), 24–28.

<sup>40</sup> *Shina shōbetsu zensho*, XV, 685–688. Howard and Buswell, *A Survey of the Silk Industry*, 121; Li, *China's Silk Trade*, Chapter VI. Suzuki Tomoo, "Shinmatsu Minsho," 62.

<sup>41</sup> Buchanan, *The Shanghai Raw Silk Market*, 7. Yueh Ssu-ping, *Chung-kuo ts'an-ssu* (Shanghai, 1935), 110–111, 201–202.



Weaving Silk on a Draw-Loom.

that social structure was an important factor in determining the receptivity of a locality to innovations. Nagano, for example, was quicker to accept foreign technology than Gumma, in part because merchants and peasants were more influential in the former, while officials exercised stronger influence in the latter. Like the Wusih area of Kiangnan, Nagano possessed the advantages of newness with respect to silk production. By contrast, Fukushima, which had been the major supplier of raw silk to Nishijin in the Tokugawa period, did not flourish in the export trade precisely because of the presence of old commercial groups with vested interests. Later, the large-scale filatures tended to cluster in new sericultural areas, such as Yamagata, Aichi, Mie, and Kyoto. Unlike the comparable areas in China, the old sericultural areas in Japan did not pose an obstacle to the general development and spread of sericulture to the rest of the country.<sup>42</sup>

<sup>42</sup> See Hauser, *Economic Institutional Change*, 47–48, on the abolition of the *kabu-nakama* during the Kansei reforms; and *Taikei Nihon sōsho*, XII, 55, 240. On peasants, see *Taikei*, XI, 91, and XII, 55, 240; on ex-samurai, see *Ibid.*, XII, 191–194, and Hirschmeier, *Origins*, 93–94. On differences between Nagano and Gumma, see, Yoshida Kazuko, “Meiji,” 19. Regional differences are also explored in Ebato Akira, *Sanshigyō no keizai chirigakuteki kenkyū*. On vested interests, see Yagi Haruo, *Nihon kindai seishigyō no seiritsu—Nagano-ken Okaya seishigyōshi*, 10–11. According to Ishii Kanji’s analysis, the new districts produced what he calls Type I silk, factory-reeled silk of high quality. See *Nihon sanshigyōshi bunseki*, 62.



The most important new institution associated with the silk industry was that of the Yokohama wholesaler, or *urikomitonuya*. During the Meiji period there were twenty to thirty of these *tonya*, four of whom together accounted for about 75 per cent of the business transacted by the brokerages. The basic function of the Yokohama wholesaler was to mediate between the rural silk producers and the silk exporters at Yokohama. Beginning in the late 1880s, the wholesalers also began to finance the operations of small filatures, mostly of the semi-modernized variety. They extended to these filatures working capital to purchase cocoons. They also worked with these enterprises to organize group purchases of cocoons and other cooperative ventures designed to lower costs. The Yokohama brokers were extremely powerful, and they became extremely wealthy through profits earned by their consignment fees and from financing loans.<sup>43</sup>

Unlike the compradores of Shanghai, whose strongest ties were to the treaty port itself, the Yokohama wholesalers often came from the rural areas. Maebashi and other Gumma merchants became Yokohama dealers. Although there were superficial similarities between the Shanghai brokers and Yokohama wholesalers, the Japanese silk merchants played a more dynamic—some would say more oppressive—role in developing the silk trade. They were much more active agents of change than the Shanghai brokers. For example, the Yokohama dealers themselves spearheaded the movement toward standardized inspection of silk exports.<sup>44</sup>

In the long run, however, the movement toward direct export led to the decline of the influence of the Yokohama brokers. Japanese companies eventually began to take the lead over foreign firms in the export trade. In 1888, for example, Japanese firms handled only about 8 per cent of silk exports, but by 1912, this had increased to over 53 per cent. The large filature companies also engaged in direct exporting to their Western customers, and their financial resources exceeded those of the wholesalers. Katakura, for example, owned nine egg manufacturing stations, fifty-four filatures, testing laboratories in Yokohama and the rural districts, and had a branch office in New York after World War I. Thus these large firms engaged in the vertical integration of the silk industry, while rural cooperatives, where they existed, provided a form of horizontal integration.<sup>45</sup>

<sup>43</sup> Yamaguchi Kazuo, *Nihon sangyō kinyūshi kenkyū*, 8–9 and 25–34. Ishii Kanji, *Nihon sanshigyōshi bunseki*, 373, 413. Ohara Keishi, *Japanese Trade and Industry*, 276–281.

<sup>44</sup> Yagi Haruo, "Seishigyō," 233. Yamaguchi Kazuo, *Nihon sangyō*, 10.

<sup>45</sup> *Yokohama shishi* (Tokyo, 1961), IIIA, 633. Maeda Masana and Kawaze Hideharu both were active in

The growing role of local and city banks in financing silk transactions also contributed to the decline of the Yokohama wholesalers. Since the establishment of the Yokohama Specie Bank in 1880 and the Bank of Japan in 1882, commercial banks were able to assist the wholesalers in extending credit to silk reelers. Local banks generally lent money only when the Yokohama wholesalers did so. By the first decade of the twentieth century, bank loans represented about 75 per cent of silk financing, and wholesalers' loans about 25 per cent. The growth of the banking system was a critical factor in encouraging the flow of capital into the silk business, but the silk trade also contributed to the development of Japanese banking. Certainly, the development of a modern banking system at an early date distinguished the Japanese modern experience from the Chinese. Behind the banking system stood the Japanese government, which was directly responsible for a substantial portion of the financing of the silk trade.<sup>46</sup>

## CONCLUSION

Why the Japanese government promoted the development of banking far earlier than the Chinese; why Japanese companies took direct control of exporting, while Chinese companies left the exporting side to foreign firms; and why Japanese firms directly controlled shipping, while Chinese companies permitted foreign firms to dominate shipping along the China coast, are all basic questions that must be addressed in the larger context of Chinese and Japanese economic history, but that lie beyond the scope of this inquiry. The experience of the silk industry, however, highlights certain aspects of economic development that have received relatively little attention. The growth of the Japanese silk industry, and its pre-eminence in the international market by the early twentieth century, while dramatic in appearance, was also based on factors that are less than dramatic. It was not merely a story of strong government, big business, and

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the direct export movement after serving in France as diplomats. Hoshino Chōtarō of Gumma and Hasegawa Hanshichi were important rural leaders. On exports, see, Ishii Kanji, *Nihon sanshigyōshi bunseki*, 64; Yagi Haruo, *Nihon keizaiishi gaisetsu*, 282-283; Yamaguchi Kazuo, *Nihon sangyō*, 10-11; Nakamura Masanori, "Seishigyō no tenkai," 56; Ishii Kanji *Nihon sanshigyōshi*, 424-425. On Katakura, see Allen and Donnitmore, *Western Enterprise*, 227.

<sup>46</sup> Ohara Keishi, *Japanese Trade and Industry*, 262-63; Kenzō Hemmi, "Primary Product Exports," 316; and Yamaguchi Kazuo, *Nihon sangyō*, 514-623 *passim*. Ishii Kanji, *Nihon sanshigyōshi*, 413. Yagi Haruo, *Nihon keizaiishi gaisetsu*, 260; Kenzō Hemmi, "Primary Product Exports," 316. Hugh T. Patrick, "Japan, 1868-1914," in Rondo E. Cameron, ed., *Banking in the Early Stages of Industrialization* (New York, 1967), 279. Hemmi, "Primary Product Exports," 316, estimates on the basis of Yamaguchi's data, that bank loans amounted to 25-30,000,000 yen in 1907, a year when sericultural production amounted to 192,000,000 yen. Patrick, "Japan," 249, feels that government leadership in developing the banking system has been exaggerated. He prefers to stress the importance of private initiative.

rapid technological change, but also a story of significant early modern momentum, steady incremental growth on a small scale, and the continued strength of the rural sector and its integration with the industrialized sector. From an historian's point of view, the degree to which fundamental changes in technology and economic organization had already been set into motion in Japan before the opening of the treaty ports, and the degree to which "modernization" rested on traditional forces and institutions, are most impressive.

Although this essay has focused on the more successful performance of the Japanese silk industry in the world market, and in so doing has emphasized the differences between Chinese and Japanese economic performances, it must be said that the Chinese industry did not perform poorly. It was not unresponsive to market opportunities. The industry did expand and change. It is simply that the extent of the change was not sufficient to have a structural impact. From a longer historical perspective, however, as the nineteenth century recedes further into the past, the similarities between Chinese and Japanese institutions and practices will indeed appear more striking than their differences, and their common strengths more important than their weaknesses. Shorter-term historical and economic factors will play a larger role in explaining short-term phenomena. It is only when we view the Chinese experience in juxtaposition with the Japanese, and in the context of the international market during this relatively limited period of time, that the Chinese industry seems backward or unsuccessful.