TRADE ON THE HAN RIVER AND ITS IMPACT ON ECONOMIC DEVELOPMENT C. 1800-1911

Ts'ui-jung Liu*

This monograph was originally a Ph.D. dissertation completed at Harvard University in May 1974. Later, it was published by the Institute of Economics, Academia Sinica, in the Institute's Monograph Series, Number 16 (March 1980), 293 pages. (In the following text, notes of each chapter are rearranged under each page and Chinese characters are inserted in the text.)

To the memory of late Professor Li Tsung-tung 李宗侗 (1895-1974)
who first guided me on the way of historical research.

*The author was an Associate Research Fellow of the Institute of Economics, Academia Sinica, when this monograph was published.

Acknowledgements

This monograph is my doctoral dissertation submitted to the Committee on the degree of Ph.D. in History and East Asian Languages at Harvard University in May 1974. It has not been revised since then mainly because I was occupied with other works during these years. Now that Dr. Tzong-shian Yu, Director of the Institute of Economics, Academia Sinica, has offered me this opportunity of publishing it as a monograph in the Institute's Monograph Series, I first hesitated about whether it should be published without revision. Considering the time needed for a thorough rewrite, however, I finally decided to let it be printed as it was except for correcting some typing mistakes and adding a Chinese abstract. This is just like leave a footprint on a long way that a student of economic history has committed to stagger along.

On this occasion, I wish to express my gratitude to all persons whose kindness and generosity have benefited me a great deal. Especially, my deep gratitude is due to Professor Line-sheng Yang, who supervised my work, provided resourceful advice and warm-hearted encouragement every time when I sought for his instruction. My deep gratitude is also due to Professor John K. Fairbank, Dwight H. Perkins, and Kwang-ching Liu for their criticisms on chapters of my manuscript. To my friends, Miss Beatrice Spade and Mr. Richard Jung, I owe their assistance in improving my English.

My thanks also go to the Harvard-Yenching Institute and Harvard Graduate School of Arts and Sciences for generous awards of fellowships which supported me through six years of study at Harvard. To the staff of Harvard-Yenching Library, I wish to express my thanks and remembrance.

I wish to dedicate this monograph to the memory of late Professor Li Tsung-tung since I was not able to express my sorrow in words when I learned of his death in the early spring of 1974.

Ts'ui-jung Liu
November 1978

CONTENTS

LIST OF TABLES, MAPS, AND PLATES

Tables

MEASUREMENT UNITS

Capacity

1 *sheng* 升 = 1.0355 liters
10 *sheng* = 1 *tou* 斗
10 *tou* = 1 *shih* 石

Weight

1 *liang* 兩 = 37.3 grams
16 *liang* = 1 catty
100 catties = 1 picul
120 catties = I *shih* 石

Length

1 *ch'ih* 尺 = 32 centimeters
10 *ch'ih* = 1 *chang* 丈
180 *chang* = 1 *li* 里
1 *li* = 0.5 kilometer

Area

1 *mou* 畝 = 0.16 acre
100 *mou* = 1 *ch'ing* 頃

These are the Ch'ing standard units. See Wu Ch'eng-lo, *Chung-kuo tu-liang-heng shih* (Shanghai, 1957), pp. 122, 234-235.

CHAPTER 1
INTRODUCTION:
GEOGRAPHICAL AND HISTORICAL BACKGROUND

The Han 漢 River rises from the Po-chung 嶓冢 Mountain in southwestern Shensi and empties into the Yangtze River, draining an area comprising modern southern Shensi, southwestern Honan, and all of Hupeh lies north of the Yangtze. Conventionally, the area through which the Han River flows is called Han-chiang liu-yü 漢江流域 (the Han River basin).

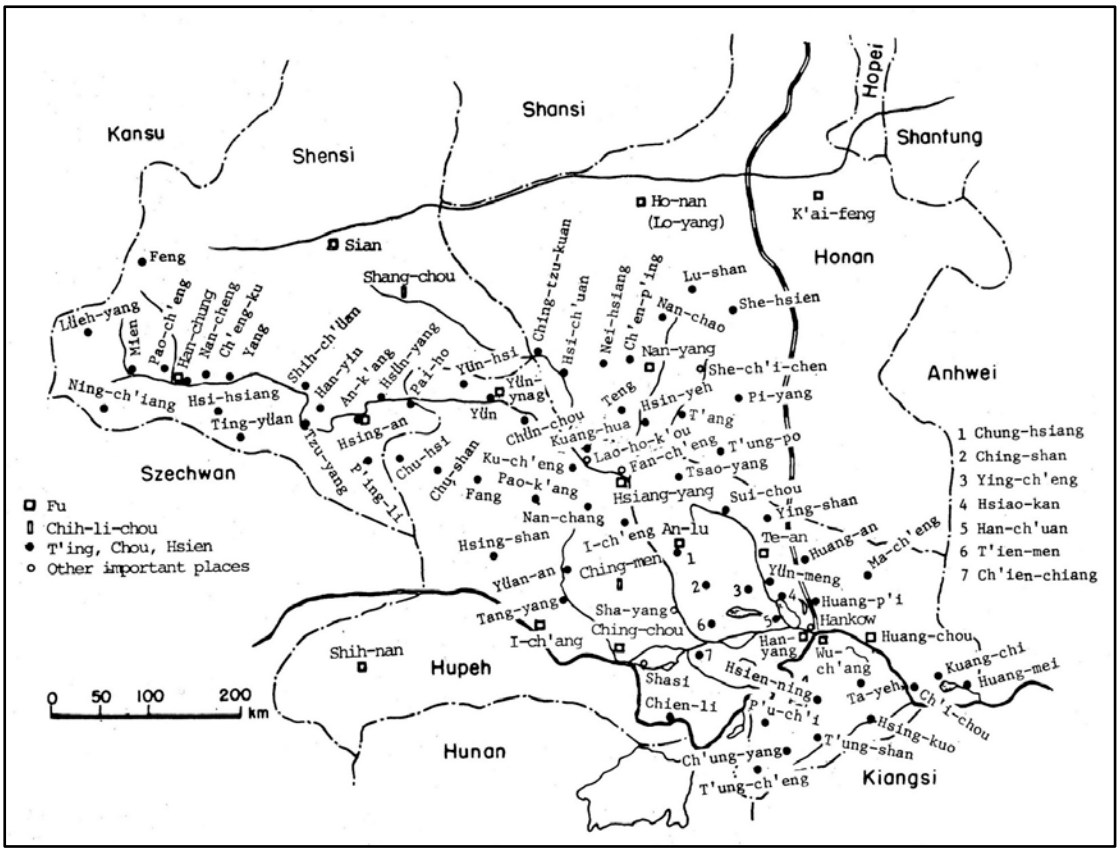
For this study, the Han River will be taken as the axis about which cities, towns, and villages revolved playing their roles in production and trade. To define the Han River basin area by prefectures during the nineteenth century, it was composed of Han-chung 漢中 and Hsing-an 興安 in Shensi; Yün-yang 鄖陽, Hsiang-yang 襄陽, An-lu 安陸, and Han-yang 漢陽 in Hupeh, situated along the main course of the Han River; Nan-yang 南陽 in Honan, Shang-chou chih-li-chou 商州直隸州 in Shensi, and Te-an 德安 in Hupeh along the major tributaries of the Han River. Moreover, other prefectures in Hupeh, such as Wu-ch'ang 武昌, Huang-chou 黃州, and Ching-chou 荊州, situated along the Yangtze, and Ching-men chih-li-chou 荊門直隸州 located between the Han and the Yangtze, were in the periphery of the Han River basin economic and trade area (see Map 1).

To be sure, it is impossible to give equal emphasis to each place in the area. But this study will not present an economic history of any particular locality. Instead, the focus will be on the dynamic function of the Han River in creating economic units along its trade route. The easier a place could communicate with the trading centers along the Han River, the easier it could send out its products and receive those from outside. In other words, the magnitude of importance of a locality depended on the specialties that it produced or trade and the distance from it to the Han River.

Provincial boundaries divided the Han River region into three separate areas, but culturally the Han River basin had much in common. Although administratively, the upper Han River area belonged to Shensi, geographically, this part was different from northern Shensi. The climate and soil along the upper Han River were more similar to those of the Yangtze valley than to the loess plains to the north.[1]

[1] G. B. Cressey compares the upper Han River valley with the basin of Szechwan, see *China's Geographical Foundations* (New York, 1934). Earlier Chinese observers tend to compare the Han-chung valley with the lower Yangtze valley, see Wang Shih-chen, *Shu-tao i-ch'eng-chi* (in *Yü-yang san-shih-liu-chung*, 1703-1704), A: 23; Wang Chih-yin, *Han-nan yu-ts'ao* (in *Shan-hsi-chih chi-yao*, 1827), p. 11.

Map 1: Administrative Centers in the Han River Area



Source: L. Richard, *Map of China* (Shanghai, 1908).

More significantly, the influx of immigrants into the upper Han River highlands in the late eighteenth century made this part of Shensi all the more closely related to Hupeh.[2] One local official, Yeh Shih-cho 葉世倬 (1751-1823), remarked in the early nineteenth century, "Now I come to Ch'in 秦 (i.e., Shensi) as if I were still in Ch'u 楚 (i.e., Hupeh). The mountains of Ch'in are mostly tilled by people from Ch'u."[3] It is also notable that the emigrants from Wu-ch'ang and Huang-chou had their own guild halls (*hui-kuang* 會館) set up in Shih-ch'üan 石泉.[4] This indicates that people from these prefectures were in such a large number that they no longer had to rely on the provincial guild hall. Both the population composition and pattern of production were remolded by these immigrants coming from Hupeh. This historical development brought the upper and lower Han River areas closer together in spite of their being administratively separated into two provinces.

The Han River area was chosen as the focus of this study for the following considerations:

[2] Ping-ti Ho, *Studies on the Population of China, 1368-1953* (Cambridge, Mass., 1959), pp. 149-158.

[3] *Hsü Hsing-an fu-chih* (1812), 7: 39. The official was the prefect of Hsing-an.

[4] *Shih-ch'üan hsien-chih* (1849), 1: 18b-19.

(1) The navigability of the Han River and some of its tributaries brought the

whole area together. Before the coming of the railroad, cheap transportation was water-borne, and the Han River provided a natural highway network between the south, the north, and the northwest China. This function of the Han River was important both to the long-distance trade to Mongolia, Siberia, and Central Asia. In response to the stimulus of such trade, agriculture and handicraft industry in the region made definite advances. Therefore, a study of this region must be more than a study of local economic conditions in a vacuum. On the contrary, the study must explore the local developments in light of the complex and intricate interactions between trade and commerce on local, regional, national and international levels.

(2) At the mouth of the Han River stood a great distributing center, Hankow. To be sure, in the seventeenth century, Hankow was already ranked as one of the four largest commercial centers in China and it controlled a vast sphere of domestic trade.[5] The opening of the port to foreign trade in 1861, however, brought in goods from modern industrial countries and modified the economic life in the hinterland to a certain extent. Steamship navigation on the Yangtze River speeded up movements of goods;[6] this development had the effect of sending in and drawing out a larger amount of commodities to and from the hinterland. The Han River was one of major trade routes connecting with the Yangtze, and the two interacted supplementally and competitively to each other. Obviously, the conditions of trade in Hankow affected those along the Han River and consequently, a study of the Han River basin area must explore the relationships of a dominant commercial center with its major trade and commercial arteries.

From the year 1683 onward, an era of peace and prosperity lasting about one hundred years occurred during the Ch'ing dynasty. During that era, the common people enjoyed frequent exemption from the land tax and they were freed from compulsory labor services.[7] The population doubled and more persons reached honorable old age.[8] Arable lands were reclaimed and extended, new seeds and new crops were introduced, and productivity was great enough to keep pace with the population growth.[9] Moreover, merchants were active and various commodities were

---

[5] Liu Hsein-t'ing, *Kuang-yang tsa-chi*, in *Ts'ung-shu chi-ch'eng ch'u-pien* (Changsha, 1937), ts'e 2959: 177. The other three centers are Peking, Soochow, and Fo-shan.

[6] For an early history of steamship navigation on the Yangtze River, see Kwang-ching Liu, *Anglo-American Steamship Rivalry in China, 1862-1874* (Cambridge, Mass., 1962).

[7] Ping-ti Ho, *Studies on the Population of China*, pp. 210-212; cf. Liu Ts'ui-jung, "Ch'ing-ch'u Shen-chih K'ang-hsi nien-chien chien-mien fu-shui te kuo-ch'eng," *The Bulletin of the Institute of History and Philology, Academia Sinica*, (hereafter *CYYY*), 32.2 (1967): 760-769.

[8] Ping-ti Ho, *Studies on the Population of China*, pp. 270, 214-215.

[9] Ping-ti Ho, *Studies on the Population of China*, chap. 8; Dwight Perkins, A*gricultural Development in China, 1368-1968* (Chicago, 1969), chapters. 2, 3. 4.

circulated all over the empire.[10] The balance of trade was favorable to the Ch'ing

court in the field of foreign trade.[11] Owing to the influx of silver, prices rose but they went up only moderately because there was great demand for money in business transactions.[12] The living standard seemed to be improving and the attitude toward spending seemed to be justified under the conditions of prosperity. As pointed out by Professor Yang, a sixteenth-century scholar Lu Chi 陸楫 (1515-1552) advocated a concept comparable to the modern policy of "spending for prosperity."[13] This sixteenth-century advocate of spending has successors in the eighteenth century. For instance, Ku Kung-hsieh 顧公燮 (c. 1780) said, "If there are thousands of people who spend lavishly, there will be other thousands whose livelihood is provided. If one wishes to change the lavishness of thousands of people making them become austere, he will thus deprive the other thousands of their livelihood."[14] While Lu Chi was a native of Shanghai, Ku Kung-hsieh was a native of Soochow. Both of them were familiar with the riches that were brought forth by the economic development in that area from the sixteenth century on. With this background, it is perhaps not surprising that they had such an unconventional attitude that did not conform to the traditional ethic of frugality.

If the living standards of the most developed area in the lower Yangtze area are compared with those in other less developed areas, differences naturally emerge.[15] Nevertheless, it seems likely that the living standards in the Han River area also improved in the eighteenth century. For Instance, the *T'ien-men hsien-chih* 天門縣志 (Gazetteer of T'ien-men county, 1765) remarked,

---

[10] For Shansi merchants, see Lien-sheng Yang, *Money and Credit in China* (Cambridge, Mass., 1971), pp. 81-84; Terada Takanobu, *Sansei Shōnin no kenkyū* (Kyoto, 1972); this book deals mainly with Shansi and Shensi merchants in Ming times, cf. review by Yang Lien-sheng in S*hih-huo yüh-k'an*, new series, 3.2 (May, 1973): 88-95. The *Han-k'ou Shan-shan-hsi hui-kuan chih* (1896) provides information about active Shansi and Shensi merchant groups in Hankow, cf. Niida Noboru, "Shindai no Kankō San-Sen kaikan to San-Sen hō (girudo)," *Shankai keizai shigaku*, 13.6 (Sept. 1943): 1-23. For Hui-chou merchants, see Fujii Hiroshi, "Shinan shōnin no kenkyū," *Tōyō gakuhō*, 36.2 (Sept., 1953): 32-60. For salt merchants, see Ping-ti Ho, "The Salt Merchants of Yang-chou: A Study of Commercial Capitalism in Eighteenth Century China," *Harvard Journal of Asiatic Studies*, 17 (1954): 130-168. For other merchant groups, see Fu I-ling, *Ming-Ch'ing shih-tai shang-jen chi shang-yeh tsu-pen* (Peking, 1956).

[11] Ch'üan Han-sheng, "Mei-chou pai-yin yü shih-pa shih-chi Chung-kuo wu-chia ke-ming te kuan-hsi," *CYYY*, 28 (1957): 517-550.

[12] Yeh-chien Wang, "The Secular Trend of Prices during the Ch'ing Period," *Journal of the Institute of Chinese Studies of the Chinese University of Hong Kong*, 5.2 (Dec. 1972): 361.

[13] Lien-sheng Yang, "Economic Justification for Spending: An Uncommon Idea in Traditional China," in the author's *Studies in Chinese Institutional History* (Cambridge, Mass., 1961), pp. 70, 72-74.

[14] Ku Kung-hsieh, *Hsiao-hsia hsien-chi chai ch'ao* (in *Han-fen-lou mi-chi*, Shanghai, 1917), chüan A: 27.

[15] Wang Yeh-chien, "Ch'ing-tai ching-chi ch'u-lun," *Shih-huo yüh-k'an*, new series, 2.11 (Feb. 1973): 1-20. In this essay Wang divided China into three major regions based on the different levels of economic development that they achieved in the Ch'ing period.

> In recent years, people are industrious and harvests are good… Previously, the

> houses and clothing of people were simple and austere; now there are more and more great mansions and people clothe themselves in silk. Regardless of their social classes, men and women all try to rival each other with luxuries and ornaments. Previously, it was the custom to entertain guests with only five dishes; but now even a normal dinner must be prepared by exhausting all the delicacies of the waters and lands.[16]

Similar comments on the tendency towards a luxurious style of living among the common people are also found in other local gazetteers of districts in the Han River area.[17] Although the tone of these comments are not all in favor of conspicuous consumption, these at least reveal that under the traditional economic framework most people were better-off during the eighteenth century than before.

Meanwhile, the traditional economy underwent changes as the tendency of specialization and commercialization developed. Two key documents provide basic information about the area and its trade.[18] One is "Shih-huo-k'ao 食貨考" (Treatise on economy) in *Hu-pei t'ung-chih kao* 湖北通志稿 (Draft gazetteer of Hupeh) by Chang Hsüeh-ch'eng 章學誠 (1738-1801). The other is *Shan-ching Han-ching liu-yü mao-i-piao* 陝境漢江流域貿易表 (Tables of trade on the Han River in Shensi) by Ch'iu Chi-heng 仇繼恆 (1855-1935). The first document consists of four sections: (a) major market towns in Hupeh, (b) commodities gathered at the Hankow market, (c) various production activities that inhabitants of each district were engaged in and (d) taxation on commerce and changes in prices (unfortunately, the price data for the year 1795 are no longer available).[19] This document presents the economic conditions in Hupeh at the end of the eighteenth century when the Ch'ing empire still enjoyed her last moments of prosperity. The second document consists of two parts: one on commodities imported into southern Shensi and the other on exports from southern Shensi via the Han River. The data in this document were based on the 1904-1906 *likin* records gathered in Pai-ho 白河, an entrepot between southern Shensi and Hupeh. In addition, Ch'iu Chi-heng, who was superintendent of the *likin* bureau, made revealing comments on the current situation of the trade and proposals for economic improvements.[20] This document clarifies the economic conditions that existed in

---

[16] *T'ien-men hsien-chih* (1765 ed., 1922 reprint), 1: 43.

[17] *Hsiang-yang fu-chih* (1760), 6:3; *Chu-shan hsien-chih* (1807), 1:26b; *Chu-hsi hsien-chih* (1867), 14:2b-3; *Shih-ch'üan hsien-chih* (1849), proclamations at the end of last ts'e: 2b-3.

[18] Professor Lien-sheng Yang pointed out these two documents to me in a conversation about my thesis topic.

[19] Chang Hsüeh-ch'eng, *Chang shih-chai hsien-sheng i-shu* (1910), 1: 15b-19b.

[20] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, in *Kuan-chung ts'ung-shu* (1934-1935), ts'e 47-48.

southern Shensi at the end of the Ch'ing dynasty. Together these two documents serve

as a starting point and a guideline for combing out useful information from local gazetteers and other source materials.

Chang Hsüeh-cheng described in some detail the phenomenon of specialization and commercialization taking place in Hupeh in the late eighteenth century. Chang had the following remarks on the economic situation in prefectures along the lower Han River.[21]

In Han-yang-fu 漢陽府, which was in a swampy area, fishing was a flourishing activity, especially in Han-ch'uan 漢川 and Mien-yang 沔陽 districts. Moreover, some inhabitants were engaged in transport services. The Han-ch'uan people steered their boats, known as *man-kan* 滿幹 (literally, "full of energy"), up to Shensi and Szechwan. The people of Huang-p'i 黃陂 and Hsiao-kan 孝感 pulled wheel-barrows during slack seasons of farming. Those who pulled the wheel-barrows were called *erh-pa-shou* 二把手 (the substitutive hands)[22] in the sense that they used their own hands for work normally done by mules and horses. In addition, many of the Hsiao-kan people were tailors.

In Te-an-fu 德安府, the livelihood of people in An-lu 安陸 and Ying-shan 應山 depends on the abundance of jujubes and pears, and in Ying-ch'eng 應城, on profits from gypsum. In Sui-chou 隨州, which was more hilly than normal for farming, farm products were nevertheless sufficient and mountain products were also adequate for subsistence (*wen-pao* 溫飽, or warm and well-fed). On top of this, cotton and cloth were produced for sale. In Yün-meng 雲夢, which was near Hsiao-kan, the conditions were about the same.

In An-lu-fu 安陸府, most of the people in Chung-hsiang 鍾祥 earned their living as boatmen. T'ien-men 天門, a swampy area, produced an abundance of fish and clams. Profits there were also obtained from growing rushes, reeds, water chestnuts, and water lilies.[23] The inhabitants of Ching-shan 京山 were usually distinguished between those living in villages located in hilly regions and those located near lakes. The hill people were industrious in farming; the lake people were skillful in catching the fry of fishes. In Ch'ien-chiang 潛江, people used water to make bark paper, which in turn was used for making umbrellas.

The geographic location of Hsiang-yang-fu 襄陽府 made the prefecture into a

[21] Chang Hsüeh-ch'eng, 1: 18-19.

[22] Joseph Needham, *Science and Civilization in China* (Cambridge, 1965), vol. 4, pt. 2, p. 273 note (e) says that *erh-pa-shou-che* is a modern northern colloquial expression. The mention of this term by Chang Hsüeh-ch'eng suggests that it was already in use during the eighteenth century.

[23] Water-lilies were also grown widely in Huang-chou-fu and they were very profitable, see Chang Hsüeh-ch'eng, 1: 18. Evariste Huc noted the utility of water-lilies when he traveled in Hupeh in the late 1840's, see *L'empier Chinois*, English translation (London, 1855), II, p. 310.

highway connecting the north and the south. In Fan-ch'eng 樊城, most inhabitants

engaged in commerce. Hsiang-yang produced peaches, gages, rinkins (*lin-ch'in* 林檎),[24] walnuts, pears, chestnuts, and jujubes. Its cabbages and watermelons were especially good. A great amount of cotton was produced in Tsao-yang 棗陽 along with rice and geese. Nan-chang 南漳 produced abundant firewood, millet, fruits, and vegetables. There were no extremely rich or poor people. Ku-ch'eng 穀城 was known as a gathering center of mountain goods, but it declined gradually because the Hou-ho 後河 river suffered from a build-up of silt. In Lao-ho-k'ou 老河口, the biggest town in Kuang-hua 光化 district, even scholars could not avoid being engaged in trade. The people of I-ch'eng 宜城 were skillful boatmen; they steered the *wu-ts'ang-ch'iu-tze* 五艙秋子 (five-chambered ell-shaped boats) up to Han-chung and Hsing-an, and down to Hankow. In Chün-chou 均州, tiles and porcelain jars were sometimes produced in local kilns. As the T'ai-ho 太和 Mountain was within the boundary of Chün-chou, people there gathered profits by offering their services to pilgrims who came to visit temples on the mountain.

In Yün-yang-fu 鄖陽府, there were many mountains. The population had remained small until the eighteenth century when immigrants into the area became numerous. The people who cultivated paddy-fields in Yün-yang were mostly immigrants. They were self-sufficient in food and cloth. Special products produced by Yün-his 鄖西 included lichens (*shih-erh* 石耳), mushrooms, deer's sinews, and bear's paws. These all helped provide the people a living. In Chu-hsi 竹谿, where various kinds of grain were grown, there were also turquois mines (*lü-sung-shih* 綠松石).[25] But the mines were closed down by the government because excavation was difficult. From mountainous Chu-shan 竹山, the furs of badgers and foxes were collected for trade. In Fang-hsien 房縣, where paddy-fields were quite fertile and commodities quite cheap, there were also salt-peter mines. But the mines were officially closed down. In addition, every district in Yün-yang-fu produced fungus, maize, and charcoal.

Such was the situation of commerce and specialization in prefectures along the lower Han River by the end of the eighteenth century. As for the upper Han River area, commercialization in the agrarian sector of the economy also grew during the late eighteenth and early nineteenth centuries. According to Yen Ju-i 嚴如熤 (1759-1826),

> Each household in the mountains usually keeps a dozen pigs. The pigs are either sold to travelling merchants or driven to market by peasants themselves.

---

[24] The term "rinkins" is adopted from Shih Sheng-han, *A Preliminary Survey of the Book Ch'i-Min Yao-shu* (Peking, 1962), p. 54.

[25] According to Chang Hung-chao, the term *lü-sung-shih* appeared only in the Ch'ing dynasty, see *Shih-ya* (Peking, 1927), p. 68.

> The money made from selling pigs provides the mountain households with salt, cotton cloth, and financial means for the expense of funerals, weddings, and festivals. The pigs gathered at markets are then shipped down the river to Hsiang-yang and Hankow. This is one of the major trades of the mountain households. Just as growing tobacco, turmeric, and medicinal herbs are a supplement to the livelihood of households in the plains, so raising pigs is a supplement to the livelihood of households in the mountains.[26]

Raising pigs was a by-product of growing maize, for people did not know how to preserve maize over a period of years, so they used it to brew liquor and used the dregs to feed the pigs. In addition to growing various products on farms, opportunities for working in fungus plantations, iron factories, paper mills, timber operations and charcoal plants were available in the mountains.[27]

This, then, illustrated the multiple activities in the traditional agrarian economy. The study would seem more concrete, if the percentages of population engaging in various production activities could be estimated. But available records do not allow such a calculation. Furthermore, it should be noted that the normal economic life might be disturbed during war times, as when the Han River area was overrun during the White Lotus Rebellion (1795-1804) and the Taiping Rebellion (1850-1864).

With this background, this study will discuss the trade on the Han River and its impact on economic changes in the Han river area during the period roughly from 1800 to 1911, when the Ch'ing empire was no longer at her peak. In the following chapter, I shall first survey the conditions of navigation on the Han River and the organization of water transport system that governed the operations of this trade route. Subsequently, I shall discuss the developments in production and trade of cash crops and handicraft industries. Moreover, I shall describe and analyze the structure and operation of the rural marketing system and its effect on economic changes. Finally, the concluding chapter will be devoted to weaving together themes that have been put forward during the course of this study. Data on grain trade will be included in an appendix.

[26] Yen Ju-i, *San-sheng pien-fang pei-lan* (1822), 8: 13b-14.
[27] Yen Ju-i, *San-sheng pien-fang pei-lan* (1822), 9: 2b.

CHAPTER 2
NAVIGATION ON THE HAN RIVER AND ORGANIZATION OF WATER TRANSPORT SYSTEM

The first part of this chapter will present a survey of the conditions of navigation on different stretches of the Han River and the types of boats used on them. It is hoped that such a survey may help us understand the capacity and limitations of this waterway and hence its function in the circulation of goods. The second part of this chapter will discuss the organization of the water transport system that governed the working of this trade route.

Navigation on the Han River

While much of the Han River is navigable, conditions along the waterway differ greatly. From its central source waters in the Po-chung Mountain to Hsin-p'u-wan 新鋪灣 in Mien-hsien, a distance of 23 km., the Han River is not navigable. From Mien-hsien to Han-chung, a distance of 55 km., the river is narrow allowing only rafts and small boats engaged in local transport to ply up and down its waters. From Han-chung to Hankow, the Han River is navigable for a distance of 1,171 km. (see Map 2).[1]

According to Chang Hsüeh-ch'eng, boats belonging to the people of Han-ch'uan were known as *man-kan* and they could be employed upriver as far as Shensi. Chang also said that the I-ch'eng boatmen steered their five-chambered *ch'iu-tzu* boats up to Hsiang-an and Han-chung and down to Hankow.[2] Yen Ju-i noted that from Han-chung downstream, boats carrying up to a capacity load of 100 piculs could navigate the river freely.[3] In August 1868, James A. Wylie (1808-1890), a British missionary, traveled on the Han River. He was on board a local boat from Ch'a-chen 茶鎮 to Shih-ch'üan, but at the latter spot he engaged another boat for going to Hankow.[4] This evidence seems to suggest that there was no particular point

[1] The mileages are those given in the *Han-chiang shui-tao ch'a-k'an pao-kao* included in the *Shui-tao ch'a-k'an pao-kao* (the Ministry of Economic Affairs, 1939), I, pp. 1-5. In Nishikawa Niichi, *Chōkō kōun to ryūiki no fugen* (Shanghai, 1925), chap. 2, mileages are given in terms of li. See also Yen Ju-i, *San-sheng pien-fang pei-lan* (1822), 5: 4-6. The mileage in li given in this source is longer than those by Nishikawa.

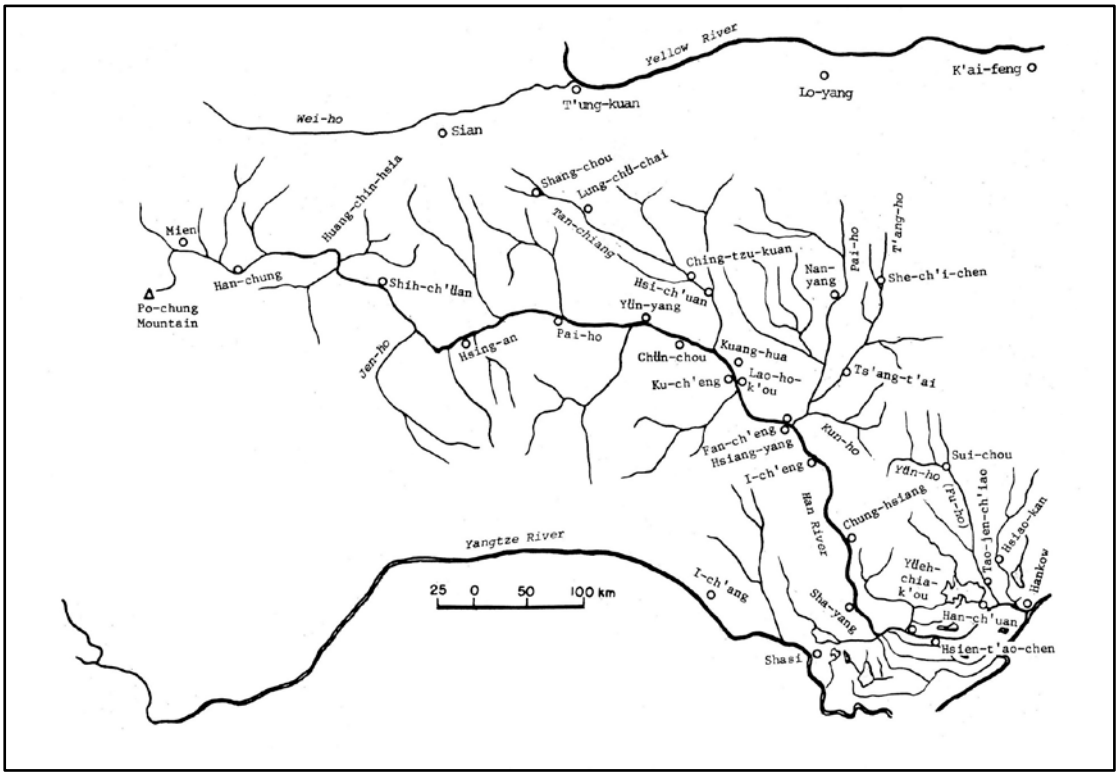
[2] Chang Hsüeh-ch'eng, *Chang shih-chai hsien-sheng i-shu* (1910), 1: 18a; 18b.

[3] Yen Ju-i, *San-sheng pien-fang pei-lan*, 5:4.

[4] A. Wylie, "Notes of a Journey from Ching-too to Hankow," *Proceedings of Royal Geographical Society*, 14.2 (June 1987): 181.

for changing boats along the route between Han-chung and Hankow. However, records of the 1920's and 1930's indicated that Lao-ho-k'ou, which was located about midway on the Han River, was used as a point for transfer. From this point up, the Han River flowed over a stony bed and there were over a hundred dangerous rapids which only boatmen of the upper river knew how to avoid. From Lao-ho-k'ou, a boat from downstream going up had much more difficulty than one from upstream going down.[5]

Map 2: The Han River and its Tributaries



Source: *Shui-t'ao ch'a-k'an pao-kao hui-pien* (The Ministry of Economic Affairs, 1939), I.

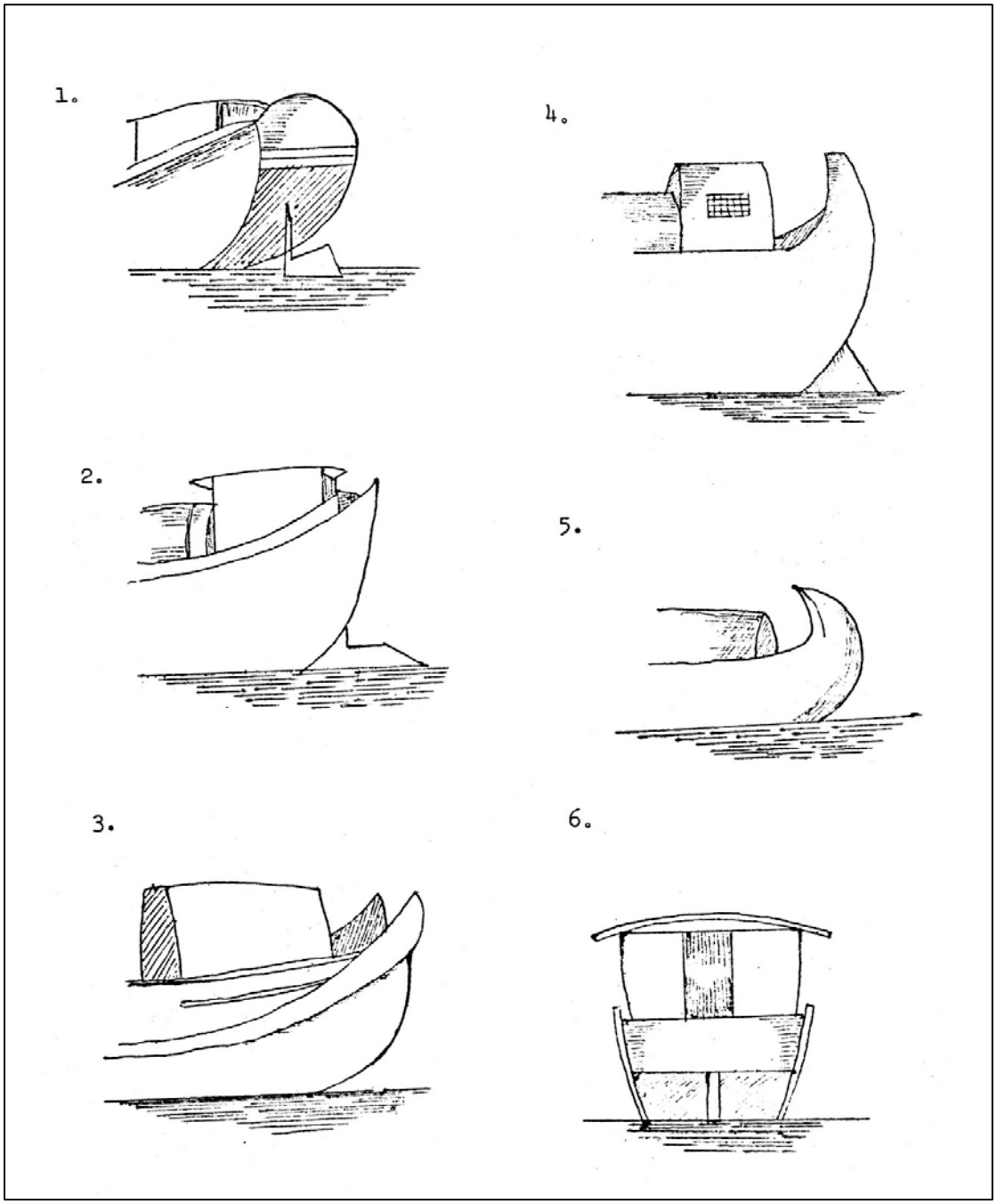
There were various types of boats plying on the Han River (see Plate 1). In the late nineteenth and early twentieth centuries, the Shensi boats which traveled to Hankow directly were known as *huo-liu-tzu* 火溜子, or "fire clippers". They were small with a carrying capacity of only 50 to 60 piculs. During the high water level period, the *huo-liu-tzu* boats plied between Han-chung and Hankow, conveying oak bark, straw rope, and paper downstream and cotton yarn, ironware, and sundries upstream.[6]

[5] Nishikawa Niichi, p. 65. Also see, Chüeh-tzu (pseudonym), "Han-shui san-ch'ien-li yu-chi," in *Hsin-yu-chi hui-k'an hsü-pien* (Shanghai, 1923), 21: 6.

[6] Imperial Maritime Customs, *Decennial Report, 1882-1891* (Shanghai, 1893), p. 185; Mizuno Kōkichi, *Kankō* (Tokyo, 1907), p. 207; Tōa dōbunkai, *Shina shōbetsu zenshi* (Tokyo, 1916), IX, pp. 330-331.

Plate 1: Types of Boats

1. and 2. Pien-tzu
3. Ya-shao
4. and 5. Ch’iu-tzu
6. K’ua-tzu



Source: Tōa Dōbunkai, *Shina shoōbetsu zenshi* (Tokyo, 1918), IX, pp. 321, 327, 328.

Other boats belonging to boatmen of Shensi might take Hsing-an or Lao-ho-k'ou as their terminal point. In the 1930's, when navigation on the upper Han River had become almost impossible due to disorders, the recollections of old boatmen revealed that at the times when river transport had prospered the number of boats at anchor in Hsing-an usually reached 2,000.[7] Investigations done by Li Yi-chih 李儀祉 (1881-1938) and others during the 1930's revealed that five main types of boats were used on the upper Han River. (1) The *p'ing-t'ou lao-kua* 平頭老頡, or "flat-headed wild-goose", had a carrying capacity of 100 piculs and was suitable for carrying both passengers and cargoes. (2) The *ch'iu-tzu* 秋子, or "ell-shaped" boats, had an average carrying capacity of 100 to 300 piculs although the largest ones could carry up to 1,000 piculs. (3) The *o-erh* 鵝耳, or "goose-ear," normally had a carrying capacity of 300 to 400 piculs, although the largest ones could carry 800 piculs. (4) The *ya-shao* 鴨艄, or "duck-shaped stern," had an average carrying capacity of 400 piculs with the largest ones of this type being able to carry 600 piculs. (5) The *so-tzu* 梭子 or "shuttle-shaped" boats, had a carrying capacity of 200 to 800 piculs. Other small boats were known as *hua-tzu* 划子, or "rowers," and their carrying capacity also varied.[8] Generally, construction of boats plying on the upper Han River was slightly different from those on the lower part of the river. The bottoms of these boats were flat and thick.

Normally it took seven days to go from Han-chung to Hsing-an, and one month to go the same distance in the opposite direction. From Han-chung to Lao-ho-k'ou, it took half a month and for the opposite direction two months.

Very little is known about boating along the upper Han. Few Chinese records were kept on this subject, but foreign travelers attracted by the unusualness of Chinese junk described them in some detail. Boat travel along the upper Han River was described by a famous American geologist, Bailey Willis (1857-1949), who sailed from Shih-ch'üan to Hsing-an in May, 1904. He said:

> A houseboat on the Han is a large bateau with the broad, flat bow which experience dictates for boats to stem swift currents, alike among all races of rivermen. Occasionally here the bow is ornamented by a canoe-like upturn, and the stern is distinguished by two great curves wings, which give the model lines of grace that it otherwise lacks. Two-thirds are covered by bamboo matting, enclosing the dwelling places of the captain and his family and the compartment for cargo. The foredeck is open for poling, sculling, and steering with the bow oar; the poop is high and from it the helmsman overlooks the boat and river, but he does not command the course. The responsibility rests on the bow pilot who swings a big oar to turn the boat this

[7] Li Yi-chih, "Han-chiang hang-yün ch'ing-hsing chi cheng-li i-chien," in *Han-chiang shui-tao ch'a-k'an pao-kao*, pp. 90-91. For the decline of navigation on the upper Han River during the early Republican period, see also Ho Ch'ing-yün, *Shan-hsi shih-yeh k'ao-ch'a-chi* (Taipei, 1971), p. 47.

[8] *Han-chiang shui-tao ch'a-k'an pao-kao*, pp. 25-26; 90-91.

> way or that way where the waters dash and foam over rocks and shallows. …… I had not seen any boats as large as ours, seventy feet over all, afloat on the river, and watched with interest to see how she might be handled. Two heavy sculls, thirty feet long, are pivoted on out-riggers, one on each side to propel the boat. They are worked by three men each, one man standing out on a springboard. Our captain, the bow pilot, mounted a bale of reeds and seized the big bow oar, and off we went with the current.[9]

Mr. Willis and his companions enjoyed three relaxing days on this part of the Han River, which he compared with the Hudson and the Rhine. In May, the water level was high and the trip was a pleasant one. However, at other times when the water level was low, navigation on the upper Han was often interrupted. Moreover, in order to pass through the rapids it was necessary to hire extra crewmen to walk along the banks pulling junks with ropes made of bamboo. For instance, one hundred men were required to pull a boat through the most dangerous waters along the Golden Gorge (Huang-chin-hsia 黃金峽).[10] On some occasions, if the water was shallow, it was necessary to discharge the boat's cargo before proceeding along the river. In such a situation the cargo had to be divided up and carried by small boats or else moved by laborers along the bank to the next spot where the larger boats could be reloaded.[11]

The lower part of the Han River, although flowing mostly through a flat plain, was not smooth during the whole course. According to an early nineteenth-century record, between Lao-ho-k'ou and Sha-yang 沙洋 there were "running sands" (*p'ao-sha* 跑沙), which appeared very often during summer and autumn and a boat could be buried if it did not escape in time.[12] The dangerousness and difficulty of navigation along this region was also noted by Ferdinand von Richthofen (1833-1905) in March, 1870.[13] Below Sha-yang, the Han River descend into a plain, and the course was tortuous. Junk navigation on the lower Han River depended mainly on the speed of the water and the direction of the wind. Sails were used when the wind was favorable; otherwise, only sculls were used to propel the junk downstream. Going upstream between Chung-hsiang and Lao-ho-k'ou, if the wind was unfavorable, it was also necessary to pull boats from the river bank as was the case on the upper part of the river.[14]

The native Hupeh vessels plying the Han River also had various names. In the

---

[9] Bailey Willis, *Friendly China, Two Thousand Miles Afoot among the Chinese* (Stanford, 1949), pp. 271-271; for the comparison of the Han River and other rivers, see p. 269; p. 275.

[10] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-paio*, in *Kuan-chung ts'ung-shu* (1934-1935), chüan A: 1.

[11] Li Yi-chih, p. 91. This practice was known as *t'i-t'an* (to lift over rapids).

[12] Yen Ju-i, *San-sheng pien-fang pei-lan*, 5: 6a-b.

[13] Ferdinand von Richthofen, "Letter on the Province of Hupeh" (Shanghai, 1870), p. 2

[14] *Shina shōbetsu zenshi*, IX, pp. 351-356.

late nineteenth century, some of the major kinds of vessels included:[15]

(1) *Ya-shao* 鴨艄

This type of boat was built in Han-yang, Sha-shih 沙市 (or Shasi), and Hsiang-yang. They were known as the Huang-p'i 黃陂 *ya-shao*, Lo-shan 螺山 *ya-shao*, and other names according to the locales to which they belonged. Their carrying capacity was usually from 70 to 100 piculs. The largest ones could carry 500 or 600 piculs and these were mostly owned by natives of Huang-p'i. The *ya-shao* boats were employed upstream to the upper part of the Han River but not as frequently as the *ch'iu-tzu* boats. They carried rice, sundries, paper, salt, and medicine upstream and yellow soybean, sesame seed, various cereals, fungus, and straw ropes downstream.

(2) *Pien-tzu* 艑子

This kind of skiff belonged to the Chung-pang 鍾幫 (a group of Chung-hsiang and T'ien-men natives) and the Fu-ho-pang 府河幫 (a group of Te-an-fu natives). There were Huang-p'i *pien-tzu* and Hsiang-yang *pien-tzu.* The Hsiang-yang *pien-tzu* could carry 100 to 250 piculs. They usually plied between Hankow and Lao-ho-k'ou, sometimes carrying passengers as far as Hunan and Kiangsi. Goods shipped upstream were rice, cotton yarn, cotton cloth, paper, salt, and sugar. Those shipped downstream were yellow soybean, sesame seed, tobacco, fungus, and medicine. The Huang-p'i *pien-tzu* plied on the Han River as well as on the Pien-ho 便河, a canal connecting Hankow and Shasi. On the Han River, their cargoes were tobacco, raw varnish, and fungus.

(3) *Ch'iu-tzu* 秋子

This type of boat appeared on the upper part of the river most frequently. Among them were Yen-ho 晏河 *ch'iu-tzu*, Yün-yang *ch'iu-tzu*, Kun-ho 滾河 *ch'iu-tzu*, Ku-ch'eng *ch'iu-tzu*, Chün-chou *ch'iu-tzu*, and wai-p'i-ku 歪屁股, or "wry stern", Each was named after the locale to which it belonged or after a particular feature of its construction. The carrying capacity of the largest *ch'iu-tzu* boats was 1,000 piculs, and of the smallest ones 70 to 80 piculs. However, 300 piculs was the normal capacity. The Yen-ho, Ku-ch'eng and wai-p'i-ku *ch'iu-tzu* shipped various grains, the Yün-yang *ch'iu-tzu* crried medicine and mountain goods, while the Chün-chou and Kun-ho *ch'iu-tzu* conveyed grains and mountain goods. The boats *ch'iu-tzu* belonged to Lao-ho-k'ou, Yün-yang and Ku-ch'eng, and plied between Hankow and Yün-yang. A

[15] The description of these boats is mainly based on the *Shina shōbetsu zenshi*, IX, pp. 326-330. In Imperial Maritime Customs, *Decennial Report, 1882-1891*, pp. 184-185, there is also a brief account on boats visiting the Han River. Types mentioned in these two sources are almost the same. For a discussion on the *wai-p'i-ku* boat which plied on the upper Yangtze River, see Joseph Needham, *Science and Civilization in China* (Cambridge, 1971), IV, pt. 3, pp. 430-431. The structure of this type of boat plying on the Han River was probably similar to those on the Yangtze River.

small passenger boat carried 3 to 4 passengers with a crew of four or five while a large one carried 7 to 8 passengers with seven to eight crew members.

(4) *P'ai-chiang* 排槳 *or P'ai-tzu* 排子

This type of boat belonged to Lao-ho-k'ou. The carrying capacity ranged from 30 to 40 piculs to 200 piculs. Between Hankow and Lao-ho-k'ou, they carried foreign cotton yarn, cotton pieces, sundries, and medicine upstream and various grains, oils, fungus, and varnish downstream.

(5) *Man-kan* 滿幹

These boats were built in Han-yang. They were used to carry both passengers and cargoes and plied between Hankow and Fan-ch'eng.

Usually it took 14 to 15 days to go downstream from Lao-ho-k'ou to Hankow; 24 to 25 days to go in the opposite direction.[16] It was quite certain that there had more traffic on this part of the Han River than on the upper part. If the amount of traffic on this section were known, it would be possible to project an estimate about the total trade on the Han River. However, available information does not give us a full picture. In March 1870, von Richthofen traveled on the Han River up to Fan-ch'eng. He counted up to five hundred boats lying at anchor at Sha-yang which he considered the most important trade center between Hankow and Fan-ch'eng.[17] In April 1894, a very strong freshet occurred in the Han River, and it was estimated that four hundred vessels were lost.[18] A much more detailed account was made by a group of Japanese students during the summer of 1915. They traveled from Lao-ho-k'ou to Hankow and recorded the number of boats they saw within fifteen to thirty minutes after leaving each place except the last part of the journey from Hsien-t'ao-chen 仙桃鎮 to Hankow. The total number of boats going up and down the river when they counted was 443 and the number of those lying at anchor at various places reached 598. But these figures did not include boats plying between Hsien-t'ao-chen and Hankow. It is said that there remained a great number of junks plying along this stretch of the river, although this part had been opened to steamship navigation since 1898.[19] This evidence seems to indicate that during the late nineteenth and early twentieth centuries, at least 500 junks plied up and down the lower Han River every day.

Besides the Han River itself, a score of its tributaries were also navigable.[20] Among them, the T'ang-pai-ho 唐白河 and the Tan-chiang 丹江 stood out as inter-provincial waterways. The T'ang-pai-ho indicates two rivers, T'ang-ho 唐河 and

[16] Mizuno Kōkichi, p. 204. Also see Gaimusho Tsūshokyoku, *Shinkoku jijō* (Tokyo, 1907), I, p. 984.
[17] Ferdinenty von Richthofen, "Letter on the province of Hupeh," p. 2.
[18] Imperial Maritime Customs, *Reports and Returns of Trade, 1894* (Shanghai, 1895), pt. 2, p. 109.
[19] *Shina shōbetsu zenshi*, IX, pp. 351-356.
[20] *Han-chiang shui-tao ch'a-k'an pao-kao*, pp. 27-30.

Pai-ho 白河, which joined before emptying into the Han River near Fan-ch'eng. Both rivers were navigable by small boats all year round. Although the Pai-ho was larger in size the T'ang-ho was more important in terms of commerce because it led up to She-ch'i-shen 賒旗鎮, which served as an entrepot for the transport of merchandise between the northern and the southwestern provinces before the coming of the railway.[21] From She-ch'i-shen to Chou-chia-k'ou 周家口 it was only 380 *li* by land and water, and Chou-chia-k'ou was situated on the route north to K'ai-feng 開封 and Peking. Although Chou-chia-k'ou was not directly connected by water to the Han River, before the Peking-Hankow railway was built through Honan, there was a good and much used road often crowded by thousands of carts making their way between Chou-chia-k'ou and Hankow.[22]

The Pai-ho, on the other hand, led up to Nan-yang 南陽. From there overland roads reached Ho-nan-fu 河南府 (where Lo-yang was located) and further north to Shansi and Mongolia. This route was well traveled by Shansi merchants and von Richthofen encountered many of them who were able to speak Russian to him.[23] The activities of the Shansi merchants will be mentioned later when we deal with the tea trade, but we may note here that their ability to speak Russian was due to their long experience in trading with Russians at Kiakhta since the early eighteenth century.[24]

Honan boats were also of different types. Two of them plied as far as Hankow; otherwise Fan-ch'eng was used as a terminal. The two types of boats plying to Hankow were: (1) The *K'ua-tzu* 舿子 which belonged to the Ho-nan *pang*, the Pai-ho *pang*, and the Ts'ang-t'ai 蒼台 *pang*. These boats carried goat skins, tobacco leaves, cow hides, medicine, straw ropes, and oak barks. The carrying capacity of boats of the Ho-nan *pang* ranged from 80 to 250 piculs, but 100 piculs was the most common load. Those of the Pai-ho pang carried from 70 to 300 piculs while those of Ts'ang-t'ai *pang* carried 70 to 100 piculs. (2) The *p'ai-tzu* boats belonged to Honan but sometimes were registered in Fan-ch'eng. Their carrying capacity ranged from 50 or 60 piculs to 200 piculs. They plied between Hankow, Fan-ch'eng, and Lao-ho-k'ou

---

[21] For a brief account on navigating conditions on the T'ang-ho and Pai-ho, see the *Hsiang-yang hsien-chih* (1873), 1: 25-26. For the position of She-ch'i-chen, see Ferdinand von Richthofen, "Report on the Provinces of Honan and Shansi" (Shanghai, 1875), p. 3; T. W. Kingsmill et al., "Inland Communication in China," *Journal of the North China Branch of the Royal Asiatic Society,* new series, 28 (1893-1984): 20. For the decline of She-ch'i-chen, see *Han-chiang shui-tao ch'a-k'an pao-kao*, pp. 59-60.

[22] T. W. Kingsmill et al., "Inland Communication in China," pp. 19-20.

[23] Ferdinand von Richthofen, "Letter on the Provinces of Chili, Shansi, Shensi, Sz'chwan" (Shanghai, 1872), p. 12.

[24] A recent study on the Russo-Chinese trade in the eighteenth century is by Clifford M. Foust, *Muscovite and Mandarin, Russia's Trade with China and its Setting, 1727-1805* (Chapel Hill, 1969). This book is mainly based on Russian sources. About the problem of language, Foust says, "… by and large the Russians never mastered Chinese, and it was said that the Chinese use of Russian was grating to the Slavic ear." p. 214.

and the southwestern part of Honan province. The upstream cargoes were sundries, cotton yarn, cotton cloth, and medicine. The downstream cargoes were beans, tobacco, hides, oils, and medicine.[25]

The Tan-chiang originates in the Ts'in-ling 秦嶺 mountains and flows southeastward to join the Han river at Hsiao-chiang-k'ou 小江口 in Kuang-hua hsien 光化縣, Hupeh. This river was navigable as far as Lung-chü-chai 龍駒寨 during all seasons and up to Shang-chou 商州 during the summer and autumn when water levels were high enough. In addition to these two places, Ching-tzu-kuan 荊紫關, situated further down the river, was also a shipping mart. From these three places overland roads led to Sian. According to von Richthofen, it took five days to reach Lung-chü-chai from Sian and two more days to go by land to Ching-tzu-kuan if the river was not in good condition for navigation. Then, it took about four days to follow the Tan-chinag to Lao-ho-k'ou. Based on this information, the trip from Sian to Hankow could be made in about 20 days, but it took 40 to 60 days to make a trip in the opposite direction.[26]

The navigating conditions on the Tan-chiang were recorded by Liu Hsien-t'ing 劉獻廷 (1648-1695) in the late seventeenth century. Since he elsewhere referred to the Ch'ing government's abortive plan of cutting a canal from Hsiang-yang to T'ung-kuan 潼關 for transporting rain in 1693, his record must be related to this plan.[27] According to Liu Hsien-t'ing, the Tan-chiang navigation was as follows:[28]

Distance (*li*)	Boats Used (*ch'ih*)		Carrying Capacity (*shih*)
Hsiang-yang to Hsiao-chiang-k'ou, 280	Length	Width	100 or 150*
Hsiao-chiang-k'ou to Ching-tzu-kuan, 265	30	6	15 or 20
Ching-tzu-kuan to Hsü-chia-tien, 115	20	3	10 or 15
Hsü-chia-tien to Lung-chü-chai, 220			7 or 10

*In the high water level period.

In addition to the necessity of changing boats on the way, there were 363 small and large rapids along the river according to the same source. Under these circumstances, navigation on the Tan-chiang was not easy. However, following the precedent of 1693

[25] *Shina shōbetsu zenshi*, IX, p. 330. In the *Kankō*, pp. 207-208 and the *Decennial Report, 1882-1891*, p. 185, only the *P'ai-tzu* of Honan is mentioned. In *Han-chiang shui-tao ch'a-k'an pao-kao*, p. 62, eight types of boats plying on the T'ang-pai-ho are mentioned; among them there are neither *P'ai-tzu* nor *K'ua-tzu*, but there are *Pien-tzu*, *Ch'iu-tzu*, and *Ya-shao*. But these did not belong to natives of Honan; they were from the lower Han River or even Hunan.

[26] Ferdinand von riththofen, "Letter on the Provinces of Chili, Shansi, Shensi, Sz'chuan," p. 35.

[27] Liu Hsien-t'ing, *Kuang-yang tsa-chi* (*Ts'ung-shu chi-ch'eng ch'u-pien*, tse 2958-2960), p. 112. For other attempts to cut canals connecting the Han River and the Yellow River area during other dynasties, see Huang Sheng-chang, "Li-shih-shang Huang-Wei yü Chiang-Han chien shui-lu lien-hsi ti kou-t'ung chi ch'i kung-hsien," *Ti-li hsüeh-pao*, 28.4 (Dec. 1962): 320-335.

[28] Liu Hsien-t'ing, pp. 48-49. Cf. Yen Ju-i, *San-sheng pien-fang pei-lan*, 5: 21a-b.

the Ch'ing government used this waterway frequently to transport grain from Hupeh to Shensi either for famine relief or for military supply.[29] In 1900 when the Ch'ing court fled to Shensi during the Boxer uprising and the siege of Peking, even grain from Kiangsu and Chekiang was sent to Shensi by this route.[30] Moreover, copper purchased in Yünnan and Japan along with lead purchased in Hankow were also transported by this route to the Shensi mints.[31]

The conditions of navigation on the Tan-chiang might be improved to some extent by digging out stones frequently as Yen Ju-i noted in the early nineteenth century.[32] Unfortunately, there was no information on the number of boats engaged in the government and private commercial transportation. In times of need, Hupeh usually sent 100,000 piculs of rice to Shensi.[33] According to Liu Hsien-t'ing, 1,000 boats with a carrying capacity of 100 piculs each would be needed, and at least five times that number of smaller boats would be necessary to transfer the rice further up the river. Since we do not know how many round trips each boat could make, it seems futile to try to speculate further about the real number of boats. Suffice it here to say that the Tan-chiang was a well-used waterway and important in connecting the southern and the northwestern provinces of China.

As for the other navigable tributaries of the Han River, they served mainly in inter-district communication. Among this category, the Yün-ho 溳河, also known as Fu-ho 府河, should be mentioned briefly. This river flowed through Te-an-fu, Hupeh, and was a major communication route between places in the prefecture and Hankow. In the *Te-an fu-chih* 德安府志 (The gazetteer of Te-an prefecture, 1888), nothing about navigating conditions on the Yün-ho was mentioned, although it was said that the river was the main one in the prefecture.[34] According to an investigation by the Peking-Hankow railway survey group during 1936-37, navigation on the Yün-ho might be divided into two sections. From Sui-chou 隨州 to T'ao-jen-ch'iao 道人橋, boats with a carrying capacity of 80 to 90 piculs could ply between this stretch of water from May to August; and from T'ao-jen-ch'iao to Hankow, boats with a carrying capacity of 200 piculs could ply during the same period. In other months,

---

[29] Yen Ju-i, *San-sheng pien-fang pei-lan*, 5: 22-25. Wang Hung-chih, *Tso Tsung-t'ang p'ing hsi-pei hui-luan liang-hsiang chih ch'ou-hua yü chuan-yün yen-chiu* (Taipei, 1972), pp. 135-136. For usage of the Han River in transporting grain in earlier period, see Ch'üan Han-sheng, *T'ang-Sung ti-kuo yü yün-ho* (Shanghai, 1946), p. 46.

[30] *Ch'ing Te-tsung shih-lu* (Taipei reprint, 1964), 472: 7; 473: 30b.

[31] *Hu-pu tse-li* (1874), 37: 12b; 22; 26b; 44b; 46. The transport of copper and lead on the Tan-chiang is also mentioned in Yen Ju-i, *San-sheng pien-fan pei-lan*, 5: 14.

[32] Yen Ju-i, *San-sheng pien-fan pei-lan*, 5: 14.

[33] *Ibid*.

[34] *Te-an fu-chih* (1888), chüan 2, deals with rivers, but it contains names of places by which the rivers pass and gives little information about navigation on them. This is the usual style of chapters on rivers in most of the local gazetteers.

only small boats with a carry capacity of 20 to 30 piculs could be used. Going downstream, from Shi-chou to Hankow, it took five days in the high water level period; otherwise, it took ten days. Going upstream, it required ten to twelve or thirteen days. Moreover, it was necessary to use extra laborers on the banks to pull boats when going upstream. Usually, a boat could make seven to ten round trips during a year. There were eight local groups of ship owners who specialized in transportation along the Yün-ho with a total number of boats amounting to 1,900.[35]

To perceive a more precise idea about junk navigation on the Han River and its tributaries, it is necessary to know the number of boats in existence. It seems likely that there was an increase in number of boats during the late nineteenth century, although it is difficult to know the exact proportion of increase. According to the 1908-1915 Japanese investigations, the number of the *ya-shao* boats belonging to the Huang-p'i and Hsiao-kan groups totaled about 20,000; the *pien-tzu* boats belonging to the Chung-hsiang, Tien-men, and An-lu groups numbered about 12,000 to 16,000; the *ch'iu-tzu* boats belonging to the Lao-ho-k'ou, Ku-ch'eng, and Yün-yang groups numbered around 2,000; while the number of the Honan and Shensi groups were unknown.[36] During 1936-1937, the Peking-Hankow railway survey groups found that there were in total 50,000 boats serving the Han River. They belonged to the following groups:[37]

Honan (the T'ang-pai-ho) group: 15,000 boats;
Hsiang-yang and Ku-ch'eng groups: 5,000 boats;
Hsi-ch'uan (on the Tan-chiang) group: 10,000 boats;
Lao-ho-k'ou group: 5,000 boats;
Huang-p'i, Hsiao-kan, chung-hsiang, and T'ien-men groups: 5,000 boats;
Hsing-an, Han-chung, and Yün-yang groups: 10,000 boats.

This information shows that boats from the T'ang-pai-ho made up about three-tenths, those from the Tan-chiang about two-tenths, and those from various places on the Han River about half of the total number. Comparing the number of boats belonging to various places along the Han River shows that the number in 1908-1915 was greater than that of 1936-1937. Junk navigation on the Han River reached its height during the late nineteenth century. During the early Republican period, navigation declined mainly due to the instability and disorder in the Han River area according to Li

[35] P'ing-Han t'ieh-lu ching-chi tiao-ch'a tsu ed., *Lao-ho-k'ou chih-hsien ching-chi tiao-ch'a* (Tokyo, 1937), pp. 313-315. The original survey was published in Chinese in 1936. Since the Chinese edition was not available in the Harvard-Yenching Library, the Japanese translation was consulted.
[36] *Shina shōbetsu senshi*, IX, pp. 326, 327, 328.
[37] *Lao-ho-k'ou chi-hsien ching-chi tiao-ch'a*, pp. 301-302.

Yi-chih and surveys done in the 1930's.[38]

The Han River was navigable for about 1,200 km and the total length of its twenty navigable tributaries amounts to about 3,250 km.[39] Although some of the tributaries are not navigable during the period of low water level and although they differ in size, these rivers together with the Han River itself really form an extensive network of waterways in the interior of China. Before modern technology was applied to improve the waterways for navigation, there were indeed many natural limitations, but water transport had the definite advantage of being cheaper than land transport.[40] Within the framework of traditional economy, the role of the water transport played in the circulation of commodities cannot be overrated.

Organization of the Water Transport system

Studies on the organization of the water transportation system have been done by Japanese scholars for part of the Yellow River, Fukien, Kiangsu, Chekiang, Kiangsi and Hunan provinces.[41] These studies show that there were certain general characteristics in the organization of people engaged in water transportation as well as local particularities. In general, there were a certain number of brokers known as *ch'uan-hang* 船行 (boat brokers) or *p'u-t'ou* 埠頭 ("fort heads") at each important shipping mart. The function of a boat broker was similar to that of a *ya-hang* 牙行, that is, he served a middle-man between a ship owner (*ch'uan-hu* 船戶) and a guest-merchant (*k'e-shang* 客商). The booker had to be a person who was not a degree holder and he had to have property of some value. He had to obtain a license issued by the *pu-cheng-ssu* 布政司 (commissioner of revenue) of the province. Every month he had to present to the local yamen a report of his business activities which included names and addresses of guest-merchants and ship owners, passport numbers, and the amount of cargo shipped under contracts negotiated by him during the period. Each year he paid a fixed amount of tax, *ya-t'ien-shui* 牙帖稅, to the government.[42]

---

[38] *Han-chiang shui-tao ch'a-k'an pao-kao*, pp. 27, 83.

[39] *Han-chiang shui-tao ch'a-k'an pao-kao*, pp. 1, 27-30.

[40] According to Ferdinand von Richthofen, "Report on the Provinces of Honan and Shansi,". P. 7, the cost of freight by land is form 20 to 40 times as high as the usual standard on rivers which are easily navigable. According to the *Han-chiang shui-tao ch'a-k'an pao-kao*, p. 96, during the 1930's. the cost of freight for one ton of cargo by boat is 20.3 *yüan* from An-k'ang to Lao-ho-k'ou, while it costs 237.5 *yüan* by motorcar.

[41] Some major studies are: Imahori Seiji, "Shindai iron i okeru Kōka no suiun nit suite," *Shigaku kenkyū*, 73 (April 1959): 23-37; Katō Shigeshi, "Shindai Fukken Kōso no senkō nit suite," in *Shina keizaishi kōshō* (Tokyo, 1952), II, 585-594; Yokoyama Suguru, *Chūgoku kindaika no keizai kōzō* (Tokyo, 1972), pt.3, "Unsōgyō no kikō" (Organization of transportation), pp. 147-210.

[42] In the above-mentioned Japanese studies, the most generally quoted passage is from the *Ta-ch'ing lü-li tseng-hsiu t'ung-ts'uan chi-ch'eng* (1895), 15: 1. For more detailed discussion on brokers, see Lien-sheng Yang, "Government Control of Urban Merchant in Traditional China," the *Tsing-hu Journal of Chinese Studies*, new series, 8.1 and 2 (August 1970): 193-194.

The sum of the tax paid by brokers of every sort was trivial compared with the land tax which was the main source of revenue of the Ch'ing government by the late nineteenth century. However, the purpose of requiring reports from the brokers was to prevent illegal activities in commerce.[43] Available records showed that in practice, reports of the boat brokers really served as a basis for intelligence. For instance, in 1778, investigations in a notorious case of jades smuggled from Yeh-erh-ch'iang 葉耳羌 in Chinese Turkistan to Soochow involved several provinces. According to a memorial of Ch'en Hui-tsu 陳輝祖 (1732-1783), governor of Hupei, boat brokers in Hankow and Fan-ch'eng provided useful information about merchants who hired boats.[44]

To serve efficiently as an agent between ship owners and guest-merchants, the brokers prepared contracts in which the following items were included: (1) the names and native places of the ship owner and guest-merchant, (2) the items in the cargo, (3) freight charges, (4) the destination of the ship, (5) the responsibilities for compensation, (6) the responsibilities for paying native customs duty, (7) the commission for the broker, (8) the names and signatures of the broker and the ship owner, and (9) the date.[45]

A style sheet of a contract dated May 15, 1887, is shown on the following page (see Plate 2). It was prepared by a broker in Hankow. A *pien-tzu* boat belonging to a ship owner from Hsiang-yang was hired by a guest-merchant bound for Lao-ho-k'ou. The cargo entrusted to the boat consisted of trunks of books and clothing, with miscellaneous items carried by the passenger himself. The ship owner guaranteed to keep the cargo dry. If there was any damage, he would redeem the owner of the goods on the basis of their price in the originating port at the time of departure. The freight charge was 26 strings and 500 cash of the *chiu-pa-ta-ch;ien* 九八大錢 or "980 cash string."[46] Twenty strings and 500 cash of this amount paid to the ship owner while the broker acted as witness and the remaining amount of 6 strings was to be paid en route. The freight charge did not include the native customs duties. The passenger paid duties on his own belongings while the ship owner paid ship fees. However, fees for worshipping the river gods along the way were included in the freight charge. In addition, each passenger had to pay 60 cash per day for food on the boat. In this contract the amount of the commission for the broker was not indicated.

---

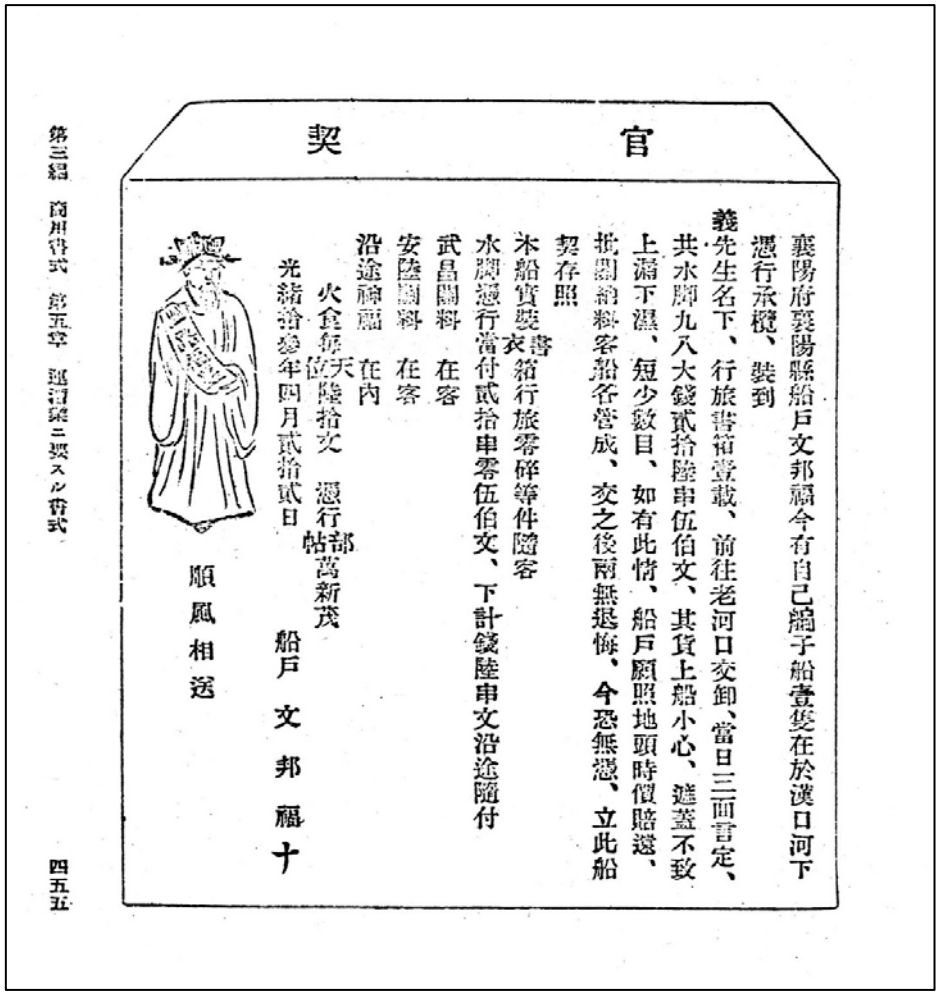
[43] Also see Lien-sheng Yang, "Government Control of Urban Merchant," pp. 193-199.

[44] *Shih-liao hsün-k'an* (Taipei reprint, 1963), p. 544. The case involved is the *Kao P'u ssu-yün-yü-shih-an* (the case of smuggling jades by Kao P'u).

[45] Yokoyama Suguru, p. 159.

[46] For a discussion on the "980 cash string", see Lien-sheng Yang, *Money and Credit in China* (Cambridge, Massachusetts, 1952), p. 35.

Plate 2: A style sheet of contracts prepared by boat brokers



官契

襄陽府襄陽縣船戶文邦福今有自己艙子船壹隻在於漢口河下憑行承攬、裝到義先生名下、行旅書箱壹載、前往老河口交卸、當日三面言定、共水脚九八大錢貳拾陸串伍佰文、其貨上船小心、遮蓋不致上漏下濕、短少數目、如有此情、船戶願照地頭時價賠還、抵關納料客船各管成、交之後兩無退悔、今恐無憑、立此船契存照

木船實裝書衣箱行旅零碎等件隨客

水脚憑行當付貳拾串零伍佰文、下計錢陸串文沿途隨付

武昌關料　在客

安陸關料　在客

沿途神福　在內

火食每天陸拾文　憑行部帖當新茂

光緒拾參年四月貳拾貳日　船戶　文邦福　十

順風相送

第三編　商用書式　第五章　運漕關二關スル書式　四五五

Source: Tōa Dōbenkai, *Shina keizai zensho*, IV, p. 455.

According to another source, the commission for the boat brokers in Hankow was normally 13 percent of the freight charge, but it could go up as high as 16 percent. The commission was received directly from the ship owner and not from the guest-merchant.[47] The rate of commission originally set by the Ch'ing government for every place was 3 percent.[48] In practice, however, it was often higher than the official rate. For example, in 1804, when Fukien brokers required a commission of 10 to 20 percent, it was considered too high. Therefore, the Fukien official regulations set the rate at 6 percent. In 1871, Kiangsu brokers exacted as much as 30 to 40 percent and so the officials passed regulations setting a maximum charge of 12 percent.[49] The rate of

[47] Mizuno Kōkichi, p. 211; also see *Shinkoku jijō*, I, 987.

[48] Yokoyama Suguru, pp. 154-155. It is mentioned that in the *T'ien-t'ai chih-lüeh*, chüan 1 and the *Hu-nan sheng-li ch'eng-an*, chüan 23, the official rate of commission was set at 3 percent.

[49] Yokoyama Suguru, p. 154, the *Fu-chien sheng-li*, chüan 22; and the *Chiang-su sheng-li hsü-pien*, item of the year 1871, are quoted.

the commissions in Hankow were higher than the official ones of Fukien and Kiangsu. However, the Hankow rates available dated from the 1900's, and this decade witnessed the most inflationary phase during the Ch'ing dynasty.[50] the actual value of the commission at Hankow might not have been too high. While the Hankow rate might have exceeded the officially set rates in other provinces, even the highest rate in Hankow, i.e., 16 percent, did not exceed some of the exorbitant commissions sought by brokers in Fukien and Kiangsu.

During the 1900's, there were 23 well-known boat brokers in Hankow. Twelve of them were in charge of the water transport between Hankow and Hunan, and the other eleven specialized in the transportation on the Han River.[51] Due to the scarcity of information, nothing can be said about the boat brokers at other shipping marts along the Han River.

As for the organization of the ship owners and their relationships with the crewmen, we also have very little information recorded for the Han River waterway. As mentioned above, boats belonged to different groups defined by their locales. According to the *Hsia-k'ou hsien-chih* (1920), there were four guild halls (*kung-so* 公所) established in Hankow by the ship owners of different local groups. The Hsiao-i kung-so 孝邑公所 was set up by the Hsiao-kan group in 1863. The Ho-nan ch'uan-pang kung-so 河南船幫公所 was set up by the Nan-yang, Hsin-yeh 新野, and T'eng-chou 鄧州 groups in 1874. The Huang-p'i kung-so 黃陂公所 was established by the group from Huang-p'o in 1883. The Shang-ch'uang kung-so 商船公所 was established by the Han-chung, Hsing-an, and Yün-yang groups in 1903.[52] Although no further information about the functions of these guilds was recorded in the same gazetteer, it seems likely that they were not very different from those of water transport organizations at other places. Imahori Seiji found that the ship owners' guild at Nan-hai-tzu 南海子, a shipping mart in the middle part of the Yellow river, had the following roles: (1) to manage the wharves, (2) to take charge of the administrative matters involved in water transport, such as registration of ship owners and crewmen, and to serve as an agent between the guild members and the officials, (3) to arbitrate disputes, and (4) to promote public welfare.[53] As the guild system was a common phenomenon in the pre-modern Chinese society, [54] these functions of the ship owners' guild might also be applicable to those founded in Hankow.

---

[50] Yeh-chien Wang, "The Secular Trend of Prices during the Ch'ing Period (1644-1911)," the *Journal of the Institute of Chinese Studies of the Chinese University of Hong Kong*, 5.2 (December 1972) : 361.

[51] Mizuno Kōkichi, pp. 209-210; also see *Shinkoku jijō*, I, 987.

[52] *Hsia-k'ou hsien-chih* (1920), 5: 28; 29; 31.

[53] Imahori Seiji, pp. 31-31.

[54] For general studies on this subject see, Ho Ping-ti, *Chung-kuo hui-kuan shih-lun* (Taipei, 1966); Negishi Tadachi, *Chūgoku no girudo* (Tokyo, 1953).

CHAPTER THREE
PRODUCTION AND TRADE OF CASH CROPS

In general, grains were the staple of farm production. In the nineteenth century, food supply in the Han River area was at least sufficient during normal years (see appendix). This was the basis on which the production of cash crops developed. As mentioned before, along the upper Han River, the cash income of farming households in the valley depended on growing a few *mou* 畝 (1 *mou* = 0.16 acre) of tobacco, turmeric, or medicinal herbs, while those in the mountains relied on rearing pigs. Thus, even in the remote mountains, peasants devoted some effort to producing cash income. In local gazetteers, there is usually an entry of *huo-shu* 貨屬, or "commercial goods," in the section dealing with local products. Occasionally, specialties of certain villages or towns are also mentioned. The general impression is that the peasants were market oriented, although the intensity of marketing varied in different places and cannot be measured precisely.

In this chapter there will be no attempt to analyze land utilization and cash income of individual farms because this sort of information is almost non-existent for the period and region under study. Instead, the focus will be on notable cash crops, which were produced in the Han River area and were transported over the Han River.

Some cash crops were produced on the plains while others were produced in the mountains. The items to be discussed in this chapter are beans, sesame seed, tea, tobacco, turmeric, fungus, and other mountain products such as wood oil, varnish, and vegetable tallow.

Both qualitative and quantitative data will be used to describe and analyze the tendency of development. Although the development of each crop involved different places and followed a slightly different pattern, general trends can be observed. On the one hand, the progress of commercialization was accelerated during the late nineteenth century owing to the new developments in processing industry that called for a larger demand for raw materials. Thus, despite fluctuations in prices, the exported volumes of soybeans, sesame seed, tobacco leaf, wood oil, and vegetable tallow were increasing. On the other hand, the development of certain products, which supplied mainly the domestic market, was limited because the demand was rather stable. The production levels of fungus, varnish, and prepared tobacco indicated this tendency. Foreign merchants were involved in some way with the trade of most

products, but their role in the tea trade provides an outstanding example of foreign competition at work in interior China. Moreover, certain products such as turmeric indicate that specialties of a district could have a nationwide market.

Beans

Beans played a role in the diet of Chinese people comparable to rice or millet. The *T'ien-kung k'ai-wu* 天工開物 (Exploiting the Works of Nature) said, "There are as many kinds of legumes as of rice and millet. Their sowing and harvesting times last through the four seasons, and they have been used daily as human food since the beginning of man's need for sustenance was known."[1] This was a conclusion made in the early seventeenth century. In the *Shou-shih t'ung-k'ao* 授時通考 (Comprehensive treatises to instruct the people during all seasons), compiled in 1741 by order of the Ch'ien-lung emperor, three volumes (*chüan* 卷) were devoted to beans and references in this work showed that considerable literature had been written on the species.[2]

The uses of the beans varied widely. Commonly, beans were used both as fodder and as food for human beings. Some traditional uses were as follows: green lentils could be ground into flour and made into chips or noodles; soybeans were mainly for making curds and sauces as well as extracting oil; red mung beans had some medicinal use.[3] Since the last decade of the nineteenth century, Chinese soybeans became well known on the world market. More and more industrial products were discovered which used soybeans as a basic raw material.[4]

Beans were grown quite extensively along the Han River valley. The *T'ien-kung k'ai-wu* remarked that broad beans were grown in great amounts on the upper reaches of the Han River and that their usefulness equaled millet as a staple food.[5] Chang Hsüeh-ch'eng mentioned that yellow soybeans, green lentils, red mug beans, black soybeans, and white soybeans (*fan-tou* 飯豆) were sent to Hankow from Hsiang-yang, Yün-yang, and Te-an prefectures.[6] In other local gazetteers various kinds of beans are listed, although little is said about their output or role in trade.

In the late nineteenth century, an increasing amount of beans was exported from Hankow. Before the railroad was extended to Honan, these beans were mostly sent via

---

[1] Sung Ying-hsing, *T'ien-kung k'ai-wu*: *Chinese Technology in the Seventeenth Century*, trans. E-tu Zen Sun and Shiou-chuan Sun (University Park and London, The Pennsylvania State University Press, 1966), p. 24.

[2] Chiang P'u et al., *Shou-shih t'ung-k'ao* (1826), chüan 27, 28, 29.

[3] *Ibid*.

[4] J. Arnold, *Commercial Handbook of China* (Washington, D. C., Government Printing Office, 1919), II, 282.

[5] Sung Ying-hsing, *T'ien-kung k'ai-wu*, p. 31.

[6] Chang hsüeh-ch'eng, *Chang Shih-chai hsien-sheng i-shu*, 1: 16.

the Han River. According to Japanese investigations during 1908-1915, in addition to the beans carried by the railway, 800,000 *shih* 石 (1 *shih* = 120 catties) of beans from Honan were shipped down the Han River to Hankow annually. These beans were known as the *T'ang-tou* 唐豆, that is beans from the T'ang-pai-ho valley.[7] The same investigations also mentioned that beans arrived yearly at the trade centers along the Han River as follows:[8]

Place	Yellow Soybean	Broad Bean	Garden Pea
Fan-ch'eng	200,000 *shih*	--	--
I-ch'eng	25,000 *shih*	200,000 *shih*	--
Sha-yang	150,000 *shih*	200,000 *shih*	50,000 *shih*

A great proportion of these beans must have been transshipped to Hankow, although amount is not indicated clearly in this source.

In the Maritime Customs returns of trade, started in 1889, beans are listed in an entry in the table of native goods exported from Hankow, and from 1893 on, different kinds of beans are listed separately. This indicates that beans became a principal item in the export trade of Hankow during the 1890's. Table 1 is a summary of exports of beans from Hankow.

Table 1: Exports of Beans from Hankow, 1893-1914

Period	Average Quantity 1,000 piculs	Average Value 1,000 HK Tls.	Average Price Per Picule	Pride Index 1895-99=100	Volume Index 1895-99=100
(1) Black beans					
1893-1984	31	34	1.11	70	110
1895-1899	28	43	1.58	100	100
1900-1904	62	122	1.88	118	221
1905-1909	70	149	2.09	132	321
1910-1914	51	119	2.34	148	182
(2) Green beans					
1893-1984	66	73	1.11	70	150
1895-1899	44	68	1.58	100	100
1900-1904	194	461	2.14	135	440
1905-1909	70	149	2.40	151	159
1910-1914	51	119	2.48	156	115
(3) Yellow and white beans					
1893-1984	613	683	1.11	70	117
1895-1899	345	553	1.57	100	100
1900-1904	1,354	2.813	1.90	121	392
1905-1909	1,843	4,032	2.16	137	534
1910-1914	558	1,296	2.31	147	161

Source: Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2, section on Hankow.

[7] *Shina shōbetsu zenshi*, IX, 574.
[8] *Ibid*., IX, 557-560.

Table 1 (continued)
Method of calculations:
(a) Average quantity and average value are derived from dividing the sum of each period by the number of years in each period, and then rounded off to the nearest 1,000.
(b) Average price is the arithmetic average of the average price of each year, rather than simply Average value/Average quantity. The two are not the same.
(c) This method will be followed in other tables of this study.

In addition, during 1900-1914, beans unclassified by category were entered separately in the Maritime Customs returns. The average quantities for the two periods amount to 11,000 piculs and 909,000 piculs respectively. This can help to clarify why the quantity of yellow and white beans decreased so drastically during 1910-1914 as compared with the previous period. Beans of the unclassified category were mostly broad beans which were shipped abroad as cattle feed.[9]

Processed beans were also a part of the trade pattern. Soybeans were used as a raw material for extracting oil and beancake was an important by-product. Japan took a large share of the exported beancake.[10] Western countries took some portion of bean oil for the manufacture of soap.[11] Table 2 shows a summary of beancake and bean oil exported from Hankow.

Table 2: Exports of Beancake and Bean Oil from Hankow, 1888-1914

Period	Average Quantity 1,000 Piculs	Average Value 1,000 HK Tls.	Average Price Per Picul	Price Index 1895-99=100	Volume Index 1895-99=100
(1) Beancake					
1888-1890	84	66	0.66	60	36
1892-1894	168	133	0.75	68	73
1895-1899	229	252	1.09	100	100
1900-1904	557	549	0.97	88	243
1905-1909	1,118	1,966	1.30	119	488
1910-1914	1,915	3,308	1.71	156	836
(2) Bean Oil					
1888-1890	12	59	4.76	78	144
1892-1894	4	17	3.84	62	51
1895-1899*	9	57	6.10	100	100
1900-1904	11	76	6.60	108	134
1905-1909	26	202	7.66	125	303
1910-1914	61	528	8.79	144	715

Source: Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2, section on Hankow.
*In the original returns there are no figures for the years 1896 and 1897; therefore this period consists of only three years.

[9] J. Arnold, *Commercial Handbook of China*, II, 282.
[10] Mizuno Kōkichi, *Kankō*, pp. 470-471.
[11] J. Arnold, *Commercial Handbook of China*, II, 282

From Table 1 it is obvious that the price of beans kept increasing while there were fluctuations in volume. Since high prices indicate that there was continued demand for beans, changes in volume were most likely linked to good or bad harvests. On the other hand, in Table 2, in spite of a fall in the price of beancake during the period 1900-1904, there was an increase in volume. This implies that the processing branch of this industry was going on well. According to Mizuno Kōkichi 水野幸吉, the old style oil extraction workshops could be found everywhere. Normally, 100 catties (1 picule) of soybeans were required to make 7 or 8 catties of oil. The bean oil which arrived in Hankow was mainly from places along the Han River and from the Huang-chou area.[12] In addition to the old style workshops, modern bean oil mills were also established in Hankow. According to the Maritime Customs reports, there were five bean oil mills in Hankow in 1907. These mills had a daily production capacity of 300 to 3,000 beancakes. It is said that 2 piculs of beans were needed to make five cakes and 20 catties of oil. The number of oil mills increased to seven during 1908. Of these mills, three made a profit and another one extended its plant. As for the others, the Japanese mill did badly and another mill lost money chiefly owing to a misjudgment of the money exchange rate. The new mills were erected with a daily capacity of 3,400 cakes each. In 1909, it was reported that all oil mills did better than in 1908 and that large profits were made.[13]

Although it is impossible to gauge the marketed beans at the percentage of output, it seems that from 1890 on, beans were marketed in larger amounts than before. In spite of the coming of the railway, the Han River was still an important trade route of beans in the first decade of the twentieth century.

Sesame Seed

While in Chinese, the sesame seed is used as a metaphor for something trivial or insignificant, people may not have been aware that in trade it played an important role at the end of the Ch'ing dynasty. In 1909, A. Sugden, acting commissioner of customs in Hankow said, "The port might become better known as a seed than as a tea port."[14]

The sesame plant was grown extensively along the Han River valley in Hupeh and the T'ang-pai-ho valley in Honan. Chang Hsüeh-ch'eng listed sesame seed among grains gathered at Hankow.[15] In local gazetteers of Chu-shan (1785 and 1876),

[12] Mizuno Kōkichi, *Kankō*, p. 408.

[13] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1907, pt. 2, p. 197; for the year 1908, pt. 2, p. 213; and for the year 1909, pt. 2, p. 260. Also see *Shinkoku jijō*, I, 858-859, for the working conditions in a Japanese bean pol mill and two other mills set up by Chinese around 1905.

[14] Imperial Maritime Customs *Reports and Returns of Trade, for the year 1908, pt. 2, p. 211.*

[15] Chang Hsüeh-ch'eng, *Chang Shih-chai hsien-sheng i-shu*, 1: 16.

Chu-hsi (1867), and Yün-hsien (1866), sesame seed was listed among the grains and sesame seed oil among the local commercial goods.[16] In the *I-ch'eng hsien hsiang-t'u-chih* 宜城縣鄉土志 (1906), it was estimated that sesame seed exported to Hankow amounted to 20,000 *shih* per year and that sesame oil and seed cake together reached about 500,000 catties annually.[17] The *Han-ch'uan t'u-chi cheng-shih* 漢川圖記徵實 (1895) said that on lands protected by dikes along the Hsiang 襄 River (i.e., Han River) white sesame plants were abundantly grown.[18] There is no estimate of the output of sesame seed in Hupeh during the Ch'ing dynasty. An estimate of 1932, however, shows that the cultivated acreage of sesame seed in Hupeh was about 1,366,000 *mou* with an annual output of 943,140 piculs. The Hsiang-yang area accounted for more than half of this amount.[19] In 1957, the output of sesame seed in Hupeh was the largest in China.[20] As Hsiang-yang remained the most productive area of sesame seed crops in the province, it may be safe to say that this achievement was due to some extent to its historical experience in land utilization.

As for production of sesame seed along the T'ang-pai-ho valley, little information about conditions during the nineteenth century is available because few local gazetteers were compiled during that period. The *Nan-yang fu-chih* 南陽府志 (1807) listed sesame oil among commercial goods but the chapter on local products is a duplication of that of the 1694 edition.[21] Despite the scarcity of information during the nineteenth century, it seems likely that the cultivation of sesame seed was encouraged as a result of trade in Hankow. P'an Shou-lien 潘守廉 (1845-1939), magistrate of Nan-yang hsien, estimated in 1904 that the annual output of sesame seed was about 20,000 *shih* and it was one of the two major exports of the district (the other being soybeans).[22] Before the coming of the railway, the sesame seed produced in Nan-yang prefecture found its outlet via the Han River to Hankow. The railway not only brought to Hankow a large amount of sesame seed from the eastern plain of Honan, but also began carrying part of the surplus from Nan-yang prefecture. For instance, in the Maritime customs report for the year 1903, it was mentioned that She hsien 葉縣 was a district largely gives over to the cultivation of the sesame plant. At that time sesame seed produced in She hsien was conveyed to Yüan-t'an 源潭, a mart on the T'ang-pai-ho, and from there shipped to Hankow. However, since the opening

---

[16] *Chu-shan hsien-chih* (1785), 11: 1, 5; *Chu-shan hsien-chih* (1867), 6: 1b, 5; *Chu-hsi hsien-chih* (1867), 15: 1b, 3b; *Yün-hsien-chih* (1866), 4: 39b, 56b.

[17] *I-ch'eng-hsien hsiang-t'u-chih* (1906), 4: 21b-22. The sesame oil consumed in the district city and other market towns amounted to 1 million catties, and the seed cake amounts to 300,000 catties.

[18] *Han-ch'uan t'u-chi cheng-shih* (1895), 4: 42.

[19] Shih-yeh-pu kuo-chi-mao-i-chü ed., *Chih-ma* (Ch'ang-sha, 1940), pp. 18-19.

[20] Sun Ching-shih, *Hua-chung ti-ch'ü ching-chi ti-li* (Peking, 1958), pp. 26-27.

[21] *Nan-yang fu-chih* (1807), 1: 59b-60; cf. *Nan-yang fu-chih* (1694), 1: 59b-60.

[22] P'an Shou-lien, *Nan-yang-hsien hu-k'ou ti-t'u wu-ch'an hsü-mu piao-t'u-shuo*, p. 65.

of the railway, the trade was gradually diverted to Yen-ch'eng 鄢城.[23] In the Maritime Customs annual returns, prior to 1885, export of sesame seed from Hankow was recorded only for 1868, 1880, and 1884 with 352 piculs, 1,370 piculs, and 453 piculs respectively. Table 3 summarizes the export of sesame seed from Hankow from 1885 to 1914.

Table 3: Sesame Seed Exported from Hankow, 1885-1914 (not including re-export)

Period	Average Quantity 1,000 Piculs	Average Value 1,000 HK Tls.	Average Price Per Picul	Price Index 1895-99=100	Volume Index 1895-99=100
1885-1889	22	39	2.08	71	16
1890-1894	49	97	1.54	52	37
1895-1899	131	396	2.92	100	100
1900-1904	534	1,936	3.57	122	407
1905-1909	1,230	6,057	4.78	163	938
1910-1914	1,607	8,991	5.53	189	1,226

Source: Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2, section on Hankow.

Despite the decline of price during the period 1890-1894, the quantity and total value of the sesame seed trade increased by leaps and bounds. The impact of railway transportation on the sesame seed trade can also be easily seen from this table, as the quantity of 1905-1909 was more than double that of the previous period. Because the trade brought large profits to growers, the cultivated acreage of sesame plants increased in Honan.[24] In 1909, sesame seed was even received for the first time from Pa-tung 巴東, a district in western Hupeh near Szechwan, where poppy-cultivated lands were being converted to grow sesame plants.[25]

By the same token, there was a large foreign demand for sesame seed. The increasing trade was partly due to shortage of crops in India and partly due to newly erected factories for extracting oil in Germany and Italy.[26] In 1909, it was reported that these new factories had "stimulated demand to such an extent that Chinese importers find it difficult to fill their orders."[27] Great as the demand was, the trade was hampered by the inadequacy of shipping space in steamers and by malpractices in trade. A great factor which encouraged malpractices was to "buy forward."[28] Buyers abroad often wanted to secure stocks of raw material for several months ahead and they offered forward contracts which foreign exporters found impossible to decline. However, it was difficult to predict the yield of each crop, as the sesame seed was bought in advance when the plants were still in flower. There was always a risk of

[23] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1903, pt. 2, p. 246.
[24] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1909, pt. 2, pp. 262-263.
[25] *Ibid*.
[26] *Ibid*., for the year 1907, pt. 2, p. 199; for the year 1909, pt. 2, p. 263.
[27] *Ibid*., for the year 1909, pt. 2, p. 263.
[28] *Ibid*., for the year 1910, pt. 2, pp. 289-290.

being unable to fulfill the contracts due to crop failures. In order to make up the quantity, quality was sacrificed. This in turn would play against the trade, and the final sufferers were the growers. At the same time, speculation was unavoidable. For instance, in 1907 some Chinese dealers held on to the crop in order to force prices up. They were successful in doing so, but other dealers who had to fulfill their contracts lost heavily.[29]

In spite of these uncertainties and malpractices, the sesame seed trade flourished during the first decade of the twentieth century. In 1911 a report stated, "The actual producers are said to have a large amount of sycee buried in their houses as the result of trade of the last two years, and to be indifferent to business save on their own terms."[30] What else could the peasants do? From the discussion above, it is clear that more land was devoted to the cultivation of sesame plants in response to the increasing demand. However, the economic framework of that time had not prepared the peasants to invest their accumulated wealth. Hoarding was a more traditional means of keeping money and seemed to be a secure method.

As with the soybean, the sesame seed was used as a raw material for extracting oil. However, little information is on record about the sesame oil extraction industry along the Han River. In Hankow, there were newly erected bean oil mills during the 1900's but no sesame oil mills. Meanwhile it cannot be ascertained whether there were old style oil pressing workshops that specialized in the producing of sesame oil or not. As for the yield of oil per unit of sesame seed, a reference was found in the *T'ien-kung k'ai-wu* which stated that one *shih* (approximately one picul in terms of the Ming measurement[31]) of sesame seed could yield 40 catties of oil.[32] According to the Maritime Customs annual returns of trade, prior to 1886, there was only a small amount of sesame oil exported from Hankow and there were many gaps in the records. From 1886 on, however, the annual export of sesame oil rarely exceeded 40,000 piculs and normally ranged between 10,000 and 20,000 piculs.[33] If the oil pressing technique had not changed very much from the late Ming and the ratio between the seed and oil remained more or less the same, 10,000 piculs of oil would require 25,000 piculs of seed. Thus, it seems likely that at the end of the Ch'ing dynasty a larger portion of sesame seed output was exported while a smaller portion was consumed for extracting oil at local workshops.

---

[29] *Ibid*., for the year 1907, pt. 2, p. 199.

[30] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1910, pt. 2, p. 290.

[31] Wu Ch'eng-lo, *Chung-kuo tu-liang-heng shih* (Shanghai, 1957), p, 58. In Ming, 1 *sheng* = 1.0737 litre; in Ch'ing, 1 *sheng* = 1.0355 litre.

[32] Sung Ying-hsing, *T'ien-kung k'ai-wu*, p. 216.

[33] Imperial Maritime Customs, *Reports and Returns of Trade*, for the years from 1867 to 1914, section on Hankow.

Tea

Hankow was known as a "tea port" in the late nineteenth century. Many studies have been done on the production and trade of tea.[34] It is impossible to deal with the whole story of tea trade in Hankow. Instead, the focus of this section will be on the Han River as a trade route of tea. Because the tea trade via the Han river was one of several activities of Shansi merchants,[35] and was related to the market of Kiakhta, the rise and fall of this trade not only affected the prosperity of some groups of Shansi merchants but the livelihood of people engaged in the production and transport of tea. Moreover, the peculiar Russian involvement in the tea trade in the Hankow area showed foreign competition in China during the late nineteenth century. Furthermore, it should be pointed out that although major tea production districts in Hupeh were not situated right along the Han River, there were districts along the river that produced tea for local consumption. Tea was a cash crop that some Ch'ing officials considered profitable for the people and therefore suitable for further expansion in cultivation.

Since the opening of the Kiakhta market in 1727, Shansi merchants dominated the trade but tea became an important commodity only gradually. The *Shina keizai sensho* 支那經濟全書 (China economic series) mentioned that the tea trade between China and Russia reached its height during the Ch'ien-lung period (1736-1795). It also said that the tea was sent up the Han River and then forwarded overland to Kiakhta.[36] Recent studies on the Sino-Russian trade during the Ch'ing dynasty prove that it was only at the end of the eighteenth century, or more precisely, in 1792, that tea rivaled nankeen among Chinese exports at the market of Kiakhta.[37] It seems that an increasing supply of tea was drawn from sources in Hupeh and Hunan rather than from Fukien, which had hitherto been the largest source of supply of tea for the

[34] A comprehensive work on tea, *All About Tea* by William Ukers was translated into Chinese as *Ch'a-yeh ch'üan-shu* (Shanghai, 1949). Since the original work was not available, the Chinese translation was used. T. H. Chu, *Tea Trade in Central China* (Shanghai, 1936), dealing with tea trade in Hupeh, Hunan, and Kiangsi, is based on both the Maritime Customs statistics and investigations by the author and his assistants. In 1888, the Maritime Customs produced a special series on tea, entitled *Tea, 1888* (Shanghai, 1889). This book includes correspondence between commissioners of Customs at each port and Robert Hart as well as other sources about tea trade. A brief yet informative account is Boris P. Torgasheff, *China as a Tea Producers* (Shanghai, 1926). Ch. XXIX is about the position of Russia in the China tea trade. In addition, there is a book written in Russian. A. P. Subbotin, *Chai i chainaia torgovlia v Rossii i drugikh gosudarstvakh: proizvodstvo, potreblenie i paspredelenie chia* (Tea and the Tea trade in Russia and other Countries: Production, Use, and Distribution of Tea; St. Petersburg, 1892). I am indebted to Miss Alison Dray, who kindly read this book and took notes for me.

[35] One group of Shansi banks was probably developed from the tea trade; see Ch'en Ch'i-t'ien, *Shan-hss p'ieo-chuang k'ao-lüeh* (Shanghai, 1937), p. 109.

[36] *Shina keizai zensho*, II, pp. 315-317.

[37] C. M. Foust, *Moscovite and Mandarin*, p. 358; Yoshida Kinichi, "Rosia to Shin no bōeki nit suite," *Tōyō gakuho*, 45.4 (March 1936): 55.

Kiakhta market.[38]

A Survey on Shansi merchant activities in the tea production districts will help to clarify this assumption. Major tea production districts in central China were located in the border area of Hupeh, Kiangsi, and Hunan. Yang-lou-tung 羊樓洞 among others was the most well-known tea production area in Hupeh.[39] According to investigations done during the 1930's, the beginning of tea cultivation at Yang-lou-tung dated from the Hsien-feng period (1851-1861). The story was that some Shansi and Anhwei merchants, who were going to Hunan to purchase tea, passed by Yang-lou-tung and found that it was a suitable spot for growing tea. Therefore, they instructed the natives on how to cultivate and manufacture tea.[40] Whether or not this story is true is difficult to prove. However, the date for the beginning of tea cultivation and manufacture at Yang-lou-tung can be placed at an earlier date. In the *P'u-ch'i hsien-chih* 蒲圻縣志 (1836), a poem written by a native revealed that at least during the 1830's Shansi merchants were already active at Yang-lou-tung. These merchants manufactured brick tea.[41] Moreover, the *Ch'ung-yang hsien-chih* 崇陽縣志 (1866) said,

> Previously, merchants who bought tea at Yang-lou-tung were all from Shansi. Gradually they extended their purchases at Sha-p'ing 沙坪 in the western part of Ch'ung-yang. …… At the end of the Tao-kung period (1821-1850), Kwangtung merchants came to buy tea.[42]

It also says that the brick tea manufactured by Shansi merchants was for markets beyond the Great Wall and was commonly known as "black tea" (*hei-ch'a* 黑茶).[43] The sequence of the arrival of the two groups of merchants suggests that the Shansi group came earlier than the Kwangtung group. At any rate, tea was being produced before 1850.

From 1861 on, the manufacture of brick tea in tea production districts in Hupei

---

[38] M. G. Timkovskii, *Travel of the Russian Mission through Mongolia to China, 1820-1821* (English trans., London, 1827). Fukien is mentioned as the source of supply of tea for Kiakhta market, see I, pp. 35-36, 162-163. Harry Parkes, "Report on the Russian Caravan Trade with China," *Journal of the Royal Geographical Society*, 24 (1854): 312, also says that Russians obtained teas mainly from Fukien. According to Chung Kan, *Ch'a-shih tsa-yung*, in the eighteenth century, even tea from Fukien was transported by Shansi merchants through Kiangsi, Honan, and beyond the Great Wall. The original source in included in P'eng Tse-i ed., *Chung-kuo chin-tai shou-kung-yeh-shih tzu-liao* (Peking, 1957), I, p. 304.

[39] For lists of tea districts in Hupeh, see the Maritime Customs, *Reports and Returns of Trade*, for the year 1864, section on Hankow, p. 7; Mizuno Kōkichi, *Kankō*, pp. 417-418; *Hu-pei nung-hui-pao* (1910), 7: 55a-b; *Hu-pei t'ung-chih* (1921), 22:30; B. P. Torgasheff, pp. 7-8.

[40] Chin-ling ta-hsüeh nung-yeh-ching-chi-hsi ed., *Hu-pei Yang-lou-tung lao-ch'ing-ch'a chih sheng-ch'an chih-tsao chi yün-hsiao* (hereafter, *Yang-lou-tung*, Nanking, 1936), p. 3.

[41] *P'u-ch'i hsien-chih* (1836), 4: 5b. In the 1866 edition of this gazetteer, 1:2. The poem is also quoted. The author of the poem, Chou Shun-t'i, was a *kung-sheng* (Senior licentiate) of 1815. The poem was probably written between 1815 and 1836.

[42] *Ch'ung-yang hsien-chih* (1866), 4: 60b-61a.

[43] *Ch'ung-yang hsien-chih* (1866), 4: 61b.

was not only carried out by Shansi merchants but by Russian merchants who came into the interior of China right after the Treaty of Peking was signed.[44] In the 1860's, Russian merchants operated old style brick tea factories like the natives used in the tea growing districts. However, from 1873 on, new factories were erected in Hankow; in 1878 there were six Russian-owned brick tea factories which were consolidated into three during the 1880's.[45] These Russian factories were large in scale. Japanese visitors in the 1900's were very impressed by them and observed that from chimneys of these factories "black smoke soars into the sky all the time."[46]

The Russian merchants never employed compradors to do business for them.[47] They spoke Chinese and dealt with the native producers and merchants directly. A report from Hankow said that in 1869, some fourteen Russian merchants were in charge of factories opened in the tea districts near Hankow. It also mentioned that the native growers preferred to offer their tea leaves to the Russians rather than to the Cantonese merchants because with the former they had fairer deals.[48] Another episode revealed that the Russian merchants did not participate with other foreign merchants in joint action taken against Chinese merchants. In 1883, when friction occurred over the weights of teas, other foreign buyers boycotted trading for one day to discuss the problem, while the Russian buyers picked up some of the choicest lots during that day.[49] As early as 1869, the commissioner of the Maritime Customs in Hankow pointed out that foreign merchants in general should follow the example set by the Russians in order to compete with the native merchants from old treaty ports.[50]

However, the Russian merchants' independence from compradors remained unique throughout the Ch'ing dynasty. Beyond the factor of language, undoubtedly, diplomatic and trade relationships between China and Russia since the early Ch'ing

---

[44] In 1869, there were 41 Canton hongs and 169 northern hong, of which 21 hongs were in Yang-lou-tung, operating in the tea districts in Hupeh and Hunan. See the Maritime Customs, *Reports and Returns of Trade*, for the year 1869, section on Hankow, p. 20. During the early Kuang-hsü period (1875-1908), the number of Shansi hongs at Yang-lou-tung was about 70 to 80, and this was the highest number ever reached, see *Yang-lou-tung*, p. 17. Russians came to Hankow right after the port was opened to foreign trade, see W. Ukers, *All About Tea* (Chinese trans.), II, p. 54; cf. Subbotin, pp. 308-315.

[45] The first Russian brick-tea factory was set up in 1863 by S. W. Litvinoff & Co. (Shun-feng chuan-ch'a-ch'ang 順豐磚茶廠) with hand-operated equipment. In addition, other Russian factories in Hankow were Hsin-t'ai 新泰 (Tokmakoff, Molotkoff & co.) and Fu-ch'ang 阜昌(Molchanoff, Pechatnoff & Co.), see Li Wen-chih ed., *Chung-kuo chin-tai nung-yeh-shih tzu-liao*, I, pp. 407-408.

[46] Mizuno Kōkichi, *Kankō*, p. 136. The scale of the Fu-ch'ang factory was the largest. This factory employed more than 1,300 workers. For Japanese visitors' impressions of the Russian brick-tea factories, see *Shina keizai zensho*, II, pp. 321-322; also, *Kankō*, p. 568.

[47] W. Karamisheff, trans. by Wang Cheng-wang, *Chung-kuo hsi-pei-pu chih ching-chi chuang-k'uan*g (Shanghai, 1933), p. 4; cf., Subbotin, p. 342.

[48] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1869, section on Hankow, p. 21.

[49] Imperial Maritime Customs, *Decennial Reports, 1882-1891*, pp. 169-170.

[50] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1869, section on Hankow, p. 28.

period had provided the Russians with a better knowledge about China and more experience in dealing with Chinese merchants.[51]

As for the shipment of tea, in addition to the Tientsin-Kalgan-Kiakhta route, the Han River was also an important route connecting overland roads to Mongolia and Siberia, Sinkiang and Central Asia. This route was predominantly in the hands of Shansi merchants. In 1861, the Russian government permitted for the first time the import of tea into Russia by sea route via European countries.[52] However, this policy did not affect the transportation of tea up the Han River immediately. For instance, in 1870, von Richthofen reported:

> On the highroad through northern Shansi, I was almost daily addressed in Russian, by Chinese merchants accompanying long caravans of camels loaded with brick-tea, and destined for Kiachta via Chang-kia-kou. This tea is from Hupeh and Hunan, and goes from Hankow by way of Fan-cheng and Shi-ki-chin to Shensi.[53]

On the other hand, the Russian tea firms in Hankow transported their own teas. It seems that they did not use the Han River for transporting tea.[54] They sent the tea by steamers from Hankow to Tientsin or Vladivostok and then overland to Mongolia and Siberia. From 1878 on, direct shipments of tea between Hankow and Odessa was carried by a Russian fleet, thus eliminating the need of European Russia to acquire tea via London.[55] During negotiations over the Ili crisis, one of the Russian demands was to open a route from Central Asia to Hankow via Sian and Han-chung, but this demand was finally given up in the Treaty of St. Petersburg.[56]

Owing to the activities of Russian merchants in interior China, the Kiakhta market gradually lost its importance. However, a considerable amount of tea was still sent up the Han River during the late Ch'ing period. The volume of tea transported via this route prior to 1870 is unknown. Harry Parkes (1828-1885) estimated that it amounted to 18,000,000 lbs. in 1852. But he described the trade as an "unknown trade" in terms of its extent and value.[57] No likin account was kept for this trade. Fortunately, the Maritime Customs trade reports recorded the quantity and value of the tea shipped

---

[51] Gaston Cahen, *Histoire des relations de la Russie avce la Chine sous Pierre le Grand, 1689-1730* (Paris, 1912), trans. and ed. by W. S. Ridge, *Some Early Russo-Chinese Relations* (Shanghai, 1914), pp. 127-128; C. M. Foust, *Muscovite and Mandarin*, pp. 207-214, p. 361; Immanuel C. Y. Hsü, *The Ili Crisis:A Study of Sino-Russioan Diplomacy, 1871-1882* (Oxford, 1965), pp. 7-9.

[52] Yoshida Kinichi, p. 68; *Shina keizai zebsh*o, II, p. 319.

[53] Ferdinand von Richthofen, "Letter on Provinces of Chili, Shansi, Shensi, Sz'chwan," p. 13.

[54] Subbotin, Map I, Principal route of Russian tea trade. The Han River is not marked out as a tea route on this map.

[55] *Shina keizai zensho*, II, p. 319.

[56] Immanuel C. Y. Hsü, *The Ili Crisis*, p. 57; p. 165.

[57] Harry Parkes, "Report on the Russian Caravan Trade with China," p. 310.

upstrame on the Han River. Table 4 shows a summary by decades.

Table 4: Tea Transported up the Han River to Fan-ch'eng for Forwarding to Mongolia and Siberia, 1871-1910

Period (Total)	Brick Tea		Leaf Tea		Stalk	
	Piculs	HK Tls.	Piculs	HK Tls.	Piculs	HK Tls.
1871-1880	941.636	5,045,601	376,002	7,889,330	--	--
1881-1890	165,423	796,283	958,110	11,230,303	5,008	10,017
1891-1900	236,103	1,887,383	395,120	6,774,420	29,043	58,092
1901-1910	28,996	200,641	73,985	1,129,020	10,418	25,315

Source: Imperial Maritime Customs, *Reports and Returns of Trade*, for the years 1878, 1882, 1890, and 1910, respectively in part I of each volume, p. liv, p. 14, and p. 34. The original tables are in annual series.

Although fluctuations in quantity and value during each year cannot be seen from Table 4, the general trend was for the volume of tea transported up the Han River to decrease during the last forty years of the Ch'ing dynasty. This is not only due to direct shipments of tea by steamers to Odessa but also to the opening of the Trans-Siberian railway in 1900 which dramatically shortened the time for overland transport via Siberia to European Russia from sixteen months to seven weeks.[58] the decline of the tea trade shows that the importance of the Han river in transportation diminished not only because of railways built in China but also because of those in Siberia.

In addition to the teas for foreign trade, there were also those grown mainly for domestic consumption. According to the *Hu-pei nung-hui-pao* 湖北農會報, tea was not only grown in districts south of the Yangtze River but also along the Han River, such as Chün-chou 均州, Ku-ch'eng 穀城, Nan-chang 南漳, Yün-hsien 鄖縣, and Chu-shan 竹山, by the end of the Ch'ing dynasty. Although the annual output of tea in each of these districts was not very large, that of Nan-chang amounted to 20,000 catties per year.[59] the tea of these districts was mainly consumed locally. Furthermore, along the upper Han River, Tzu-yang 紫陽 was thought to be the only district where a considerable amount of tea was produced. The tea of Tzu-yang was marketed up river at Han-chung and down river at Hiang-yang along the Han River, and it was also demanded by the market at Sian.[60] According to Ch'iu Chi-heng, an average quantity of tea sent to Hsiang-yang through the likin customs during 1904-1906 was about 1,000 piculs early.[61] Ch'iu Chi-heng also mentioned that tea was produced in Pai-ho 白河 and its quality was even better than that of Tzu-yang. Meanwhile, he assumed that there must be some other districts where tea was grown although the output might

[58] W. Ukers, *All About Tea* (Chinese trans.), II. P. 54.
[59] *Hu-pei nung-hui-pao* (1910), 7: 55.
[60] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 23. *Tsu-yang hsien-chih* (1924), 1: 47.
[61] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 23-24.

be very small. He suggested that the cultivated acreage of tea could be further extended in hilly areas in Pai-ho and this could improve the livelihood of the inhabitants.[62]

Ch'iu Chi-heng echoed Kao Tso-t'ing 高佐廷, magistrate of Ch'ung-yang in 1866, by recommending an extension of tea cultivation. The case of Ch'ung-yang is even more instructive because a memorable story of the locality is that Chang Yung 張詠 (946-1015), magistrate during the 980s, once ordered the tea shrubs in the district to be plucked out to save the people from a heavy burden of tea tax. However, the situation in the late Ch'ing was different from that of the early Sung, and caused Kao Tso-t'ing to remark:

> If Chang Yung were to carry out his policy today, I am not sure that people would follow him happily. Moreover, it is hard to tell if they would not take it as a cruel policy and gather in groups to demonstrate their protests.[63]

This suggests that some local officials, it not all of them, were well aware of the actual situation in their region and did not merely administer by following traditional policy.

Tea constituted the single most important item in terms of value of all the exports from Hankow, and tea trade must have some impact on the economic and social life of the people living in the tea production districts. Unfortunately, information of this sort is too scanty to provide much meaningful discussion. However, a statement in the *Ch'ung-yang hsien-chih* (1866) revealed some insights:

> Since the time when merchants arrived from the coast, brokers of the tea markets in cities and the countryside have increased in number day by day. In the tea districts around neighboring prefectures and provinces merchants assemble in crowds. Transported by boats or carried on shoulder-poles, traffic on roads and rivers is busy. There are artisans who make wooden boxes, tin-ware, bamboo boxes, and lacquer-ware (which are for the packaging of tea). Moreover, there are male workers who sift teas and female workers who select them. They sing and laugh in the marketplaces day and night. The sound they make is as loud as thunder and the sweat they wipe off is as heavy as rain. Inasmuch as the people who are waiting for food increase daily, tea is incoming while rice is outgoing and everything on the market becomes expensive and the native residents suffer. As for the hiding of beggars, worthless fellows and robbers among the crowds, the harm is beyond description.[64]

---

[62] *Ibid*., B: 24b.

[63] *Ch'ung-yang hsien-chih* (1866), preface: 2-5. The story about Chang Yung is recorded in Shen Kua, *Meng-hsi pi-t'an* (annotated by Hu Tao-ching, Shanghai, 1957), p. 310; see also *Ch'ung-yang hsien-chih* (1866) 2: 33-34; *T'ung-shan hsien-chih* (1867), 8: 42. But the biography of Chang Yung in the *Sung-shih* 宋史, chuan 293, does not mention this story.

[64] *Ch'ung-yang hsien-chih* (1866), 4: 61.

In other words, a boom in the tea trade did not necessarily make everybody in the tea districts satisfied and happy. An economists may emphasize the boom and neglect other results, by an historian should be interested in seeing everything.

In addition, the labor problem is noteworthy. First, the employment of women to sort tea in sheds erected at the processing plants caused a looseness of discipline, which in turn injured the quality of tea. In 1887, Walter Lay, commissioner of Customs in Wuhu, reported that in the tea districts of Hupeh and Hunan it was the practice to reject for employment women who were not "young and attractively dressed." If an agent who was sent upcountry to take charge of the tea sheds was a dissolute man, the tea was often left to be picked without proper supervision.[65]

Moreover, there were conflicts between the native workers and the agents because some agents were bad-tempered, and in response to their bullying, the workers frequently added impurities which damaged the tea.[66] Although memorials were sent to the throne urging the Ch'ing government to order a halt to the employment of women in the tea manufactories, local officials responded by saying that the employment of women had been great help to the livelihood of their poor families and that no prohibition should be issued without considering this.[67] Lack of information prevents us from elaborating on this discussion. However, here we grasp at least a blurred image of the first generation of Chinese women workers in a proto-type factory. Some of them might "aim at something else besides tea-picking" as Walter Lay puts it,[68] while others might be forced to work outside simply by being poor. As for the conflicts between the agents of tea merchants and the native workers, it seems that industrial rules had yet to be regulated and the personality of a man in charge of the work predominated in determining employer-worker relationships.

In summation, although the major tea districts were not situated along the Han River, the accessibility of transportation made the river a notable tea route until the end of the Ch'ing dynasty. Shansi merchants dominated the tea trade via this route and it is possible that the extension of tea cultivation into southeastern Hupeh resulted from this trade. After the opening of Hankow to foreign trade in 1861, tea was mostly shipped to the coast for transshipment abroad or even shipped directly from Hankow to London.[69] However, a considerable amount of tea was still sent up the Han River for forwarding overland to Mongolia and Siberia. The Han River as a tea route did not decline drastically until the beginning of the twentieth century. The impact of the tea

---

[65] Imperial Maritime Customs, *Tea, 1888*, English section: 59; Chinese section: 29-30. Also see *Chung-kuo shin-tai shou-kung-yeh-shih tzu-liao*, II, 273.

[66] Imperial Maritime Customs, *Tea, 1888*, English section: 60; Chinese section: 30.

[67] *Ch'ing Te-tsung shih-lu*, 257: 3.

[68] Imperial Maritime Customs, *Tea, 1888*, English section: 59.

[69] See T. J. Lindsay, "The Hankow Steamer Tea Races," *Journal of Hong Kong Branch of Royal Asiatic Society*, 8 (1968): 44-45.

trade on the economic and social life of the tea district cannot be easily generalized. However, a boom of the tea trade before its first setback in 1887 may have benefited those involved in the production and trade.[70] At the same time, women employed in the tea manufactories were in a sense forerunners of the Chinese women workers in modern factories.

Tobacco

Tobacco was introduced into China during the Wan-li period (1573-1620) in late Ming dynasty. It was first grown in Fukien but soon spread to other places and became very popular in the Ch'ing society.[71] Chang Hsüeh-ch'eng mentioned five famous tobacco manufacturing centers by the end of the eighteenth century as: Fukien, Ching-hsien 涇縣 in Anhwei, Heng-yang 衡陽 in Hunan, Chi-ning 濟寧 in Shantung, and Kansu.[72] Chang also mentioned that tobacco was grown in Ma-ch'eng 麻城, Hupeh,[73] but he did not indicate that tobacco was a special product of Chün-chou, the district became the greatest tobacco growing center in Hupeh by the beginning of the nineteenth century.[74]

According to the *Hsü-chi Chün-chou chih* 續輯均州志 (1884):

> Tobacco is commonly known as *yen* 烟 (a smoke). ……The tobacco which is grown at places 20 li south of the district city is particularly good. Merchants from the lower part of the river came to buy it in big boats. And the circulation of money in the district depends entirely on this trade. Recently, tobacco has been grown more extensively in other places, and profit has become less and less. However, people are still used to growing it.[75]

---

[70] See *Tea, 1888*, pp. 142-143, for a diagram showing the relative positions of Chinese and Indian teas on the London market. In 1866, the amount of Chinese teas was still larger than that of Indian teas.

[71] Berthold Laufer, *Tobacco and its Use in Asia* (Chicago, 1924), pp. 2-4. Mr. Laufer cited two passages from a Chinese source to indicate the introduction and spread of tobacco cultivation and smoking in China. But a few words are needed to clarify the Chinese source which Mr. Laufer used. Both passages are from the *Chin-ssu-lu* 金絲錄 (first publish 1737, reprint 1886) compiled by Wang Shih-han. The *Chin-ssu-lu* is perhaps the first Chinese work to specialize on the subject of tobacco. However, except for the preface, this book consists of different passages taken from more than 30 works by the late Ming and early Ch'ing writers. Mr. Laufer indicated that both passages he cited in p. 3 and p. 4 were by Chang Kiai-pin (Chang Chieh-pin 張介賓, a native of Chekiang rather than Shansi). In fact, the p. 3 passage is by Chang Chieh-pin (*Chin-ssu-lu*, p. 3b-4), while the one on p. 4 is by Wang Pu 王逋 (*Chin-ssu-lu*, p. 1b). Besides the *Chin-ssu-lu*, a number of books specifically dealing with tobacco were written during the Ch'ing dynasty, see Chang Yao-lun, "Ch'ing-tai yen-ts'ao chuna-shu wen-chien-lu," *Shuo-wen yüeh-kan*, 2.3 (June 1940): 622-629.

[72] Chang Hsüeh-ch'eng, *Hu-pei t'ung-chih kao*, in *Chang Shih-chai hsien-sheng i-shu*, 1: 17a-b.

[73] *Ibid*., 1: 18.

[74] In Wu Hsiung-kuang 吳熊光, *I-chiang pi-lu* 伊江筆錄, Chün-chou in Hupeh and Heng-chou in Hunan are mentioned as two major tobacco production districts. Wu Hsiung-kuang served as governor-general of Hu-kuang in 1802. I was not able to find the original book but it is cited in the *Chung-kuo tzu-pen-chu-i meng-ya wen-t'i t'ao-lun-chi* (Peking, 1957), I, 352.

[75] *Hsü-chi Chün-chou-chih* (1884), 3: 4.

In the early twentieth century, the yield of tobacco in Chün-chou was still the greatest around the Hankow area. The *Commercial Handbook of China* remarked: "An American familiar with the production of this article in the United States and in China states that the yield is phenomenal, reaching as much as 1,500 pounds per acre."[76]

As far as the tobacco trade was concerned, the "Yen-yeh shu-lüeh 烟葉述略" (A brief note on tobacco), an article written in 1898, indicated that the tobacco of Chün-chou was sold widely in Hupeh but could not be marketed at long distances because its quality was inferior to those from other places.[77] this statement is debatable. First, Mizuno Kōkichi mentioned in his book, the *Kankō* 漢口, that Chün-chou produced the largest amount of tobacco in Hupeh and the quality was of the first grade and there was a large demand for it.[78] Secondly, Ch'iu Chi-heng remarked that the tobacco imported to southern Shensi was from Chün-chou and Teng-chou, Honan.[79] Moreover, if long-distance marketing meant going toward the coast, it is difficult to prove that among the tobacco exported from Hankow as shown in the Maritime Customs annual returns, there was nothing from Chün-chou.

Places rivaling Chün-chou in growing tobacco were Teng-chou 鄧州, Honan and Huang-chou 黃州, Hupeh. As mentioned before, Chang Hsüeh-ch'eng noticed that tobacco was grown in Ma-ch'eng. However, the *Ma-ch'eng hsien-chih* 麻城縣志 (1882) did not mention tobacco. Since the author of the chapter on local products of this gazetteer tended to emphasize only useful articles, it seems likely that although tobacco was omitted it was not necessarily unknown in the district.[80] If Ma-ch'eng did not obtain much profit by growing tobacco, other districts in Huang-chou prefecture did. The *Ch'i-chou chih* 蘄州志 (1852) said, "Recently. Tobacco has been grown more and more extensively in the villages of Ch'ing-shan 青山, Ch'ung-chü 崇居, and Ta-t'ung 大同. The value of trade amounts to more than 100,000 strings of cash yearly. As a result, hilly lands are eroded and rivers are silted up. Since river beds become higher and higher, lands along the rivers are often flooded. Where profit is found, harmfulness also follows."[81] The *Kuang-chi hsien-chih* 廣濟縣志 (1872) indicated that tobacco was mostly grown on the hilly lands of the east Ling-ch'üan 靈泉 village.[82] The *Huang-mei hsien-chih* 黃梅縣志 (1876) mentioned that tobacco was planted on marginal lands of hillsides.[83] The *Huang-kang hsien-chih* 黃岡縣志

[76] J. Arnold, *Commercial Handbook of China*, I, 148.
[77] "Yen-yeh shu-lüeh" in *Nung-hsüeh-pao*, 21 (1898): 4b. The article is collected in *Chung-kuo chin-tai nung-yeh-shih tzu-liao*, I, 442-443.
[78] Mizuno Kōkichi, *Kankō*, pp. 459-460.
[79] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A: 36.
[80] *Ma-ch'eng hsien-chih* (1882), chüan 10.
[81] *Ch'i-chou chih* (1852), 3: 13b.
[82] *Kuang-chi hsien-chih* (1872), 1: 28.
[83] *Huang-mei hsien-chih* (1876), 7: 1.

(1882) simply said that smoking tobacco was as common as eating meals.[84] In the *Huang-chou fu-chih* 黃州府志 (1884) tobacco was listed as a special product of the villages in the northeastern part of Huang-kang.[85] In other words, almost every district in Huang-chou prefecture produced tobacco.

As for trade, the "Yen-yeh shu-lüeh" said that the tobacco of Huang-kang was able to compete with that of Teng-chou.[86] Whereas Mizuno Kōkichi said that because the tobacco of Huang-kang was not good enough, it was often mixed with products form other places and its foreign market was mainly in Germany.[87]

In addition to Chün-chou and districts in Huang-chou prefecture, tobacco was also grown in other districts in Hupeh. The *Hu-pei t'ung-chih* 湖北通志 (1921) stated that by the end of the Ch'ing dynasty, tobacco was grown in every prefecture, and the product of Chün-chou was the most well-known; those of Ch'i-chou 蘄州 and Chiang-hsia 江夏 were the next.[88] The *Chiang-hsia hsien-chih* 江夏縣志 (1869) did not mention tobacco, but tobacco was grown in Ch'ung-yang, a district in the same prefecture. The *Ch'ung-yang hsien-chih* 崇陽縣志 (1866) said, "Tobacco is grown everywhere." Moreover, there were tobacco shops at each market town, and seven to eight-tenths of the people smoked.[89] Although similar statements are not found in other gazetteers, the popularity of tobacco smoking in Ch'ung-yang was perhaps a general phenomenon rather than a particular one.

The tobacco cultivation in Teng-chou, Honan, might have been a development of the nineteenth century, because the *Teng-chou chih* 鄧州志 (1747) did not mention tobacco. No local gazetteer of the district was compiled during the nineteenth century and the chapter on local products in the *Nan-yang fu-chih* 南陽府志 (1807), which was a repetition of the 1694 edition, made no reference about tobacco cultivation and trade in the prefecture.[90] According to the "Yen-yeh shu-lüeh," in Teng-chou, lands within a sphere of several tens of li were all devoted to the cultivation of tobacco. The tobacco leaf which was collected and dried by the time of *ch'u-fu* 初伏 (the third *keng* 庚 day after the "summer solstice") was known as *fu-pai* 伏白 because the color was slightly white. This kind was exported north to Shansi and south to Kwangtung and as far as the Philippines. The tobacco leaf which was collected and dried after the *san-fu* 三伏 (the first *keng* day after the "Autumn Begins") was known as *fu-huang* 伏黃 because its color was yellow. This kind was

[84] *Huang-kang hsien-chih* (1882), 2: 75.
[85] *Huang-chou fu-chih* (1884), 3: 67.
[86] "Yen-yeh shu-lüeh" in *Nung-hsüeh-pao*, 21: 4b.
[87] Mizuno Kōkichi, *Kankō*, p. 459.
[88] *Hu-pei t'ung-chih* (1921), 22: 30.
[89] *Ch'ung-yang hsien-chih* (1866), 4: 61b.
[90] *Teng-chou-chih* (1747), chüan 9; *Nan-yang fu-chih* (1807), 1: 59-60.

sent to large and small marts in Hupeh.[91] Moreover, in the Maritime Customs trade returns, a considerable amount of the Teng-chou tobacco was brought to Hankow under transit passes during 1878-1880, 1883-1885, and in the 1900s.[92]

As for southern Shensi, tobacco was quite abundantly grown in the Han-chung area. Yüeh Chen-ch'uan 岳震川 (1755-1814) pointed out that in Ch'eng-ku 城固, "fertile lands are all planted with tobacco. During the summer, on the vast field one can see nothing but this plant. When the crops are collected they fill every corner of the houses. In the annual accounts of great merchants, silk in the summer and tobacco in the autumn are the two major items." He added that merchants of Nan-yang and Ch'eng-ku transported this article down the river to Hsiang-yang and Hankow. Money spent on it amounted to several thousands of taels each year. It was not only the people of Hupeh who spent their money while people of Han-chung collected profits, but also many people from Han-chung and Hsing-an wasted their cash on it. Therefore, he commented, "If tobacco is not grown in An-k'ang 安康, it is a good sign. I have heard that in Tzu-yang, people have devoted themselves to growing tobacco and their products are even better than those of Han-chung and can be sold more easily. This ought to be a warning and should not be imitated."[93]

What has been depicted by Yüeh Chen-ch'uan was the situation in the early nineteenth century. Other observers of the same period, such as Yen Ju-i, also remarked, "When one farmer owns lands of several tens of *mou*, he will plant a few *mou* of tobacco. One *mou* can yield 300 to 400 catties of tobacco leaf, which can be sold for 20 to 30 strings of cash. The money is for paying taxes, buying salt and cloth, and fulfilling human feeling on occasions such as funerals and weddings."[94] In the 1900s, Ch'iu Chi-hent indicated in his *Shan-ching Han-chiang liu-yü mao-i-piao* that tobacco was only imported to Hsing-an and not to Han-chung.[95] these passages all suggest that tobacco was cultivated more extensively in Han-chung than in Hsing-an.

According to Ch'iu Chi-heng the tobacco leaf from Chün-chou and Teng-chou which was sent to Hsing-an through the likin customs during 1904-1906 was shown in Table 5.

---

[91] "Yen-yeh shu-lüeh," in *Nung-hsüeh-pao*, 21: 4b.

[92] Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2, section on Hankow. Tobacco of Chün-chou was also brought to Hankow under transit passes, but during the 1900s, the value of tobacco from Honan under transit passes was larger than that from Hupeh.

[93] Ho Ch'ang-ling, *Huang-ch'ao ching-shih wen-pien*, 36: 7.

[94] Yen Ju-i, *San-sheng pien-fang pei-lan*, 8: 12b. This passage is also quoted in *Yang-hsien-chih* (1848), 4: 2.

[95] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A: 36.

Table 5: The Leaf Tobacco Imported into Shensi, 1904-1906

Year	Quantity (bundle*)	Price in Chün-chou (per large bundle)	Price in Hsing-an (per large bundle)
Nov. 1903-Nov. 1904	8,029	7,000 cash	9,000 cash
Nov. 1904-Oct. 1905	8,179	7,000 cash	9,000 cash
Oct. 1905-Oct. 1906	6,300	7,000 cash	9,000 cash

Source: Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A: 36-37.
*The figures of quantity are original quotations. It is not clear whether they are expressed in large bundles or in small bundles. 1 large bundle = 120 catties; 1 small bundle = 60 catties.

Besides going upstream, the tobacco of Chün-chou and Teng-chou was sent downstream to Hankow. There are no Likin accounts available for this direction. According to the *Commercial Handbook of China*, "In Hupeh there are produced annually about 20,000,000 pounds, of which 15,000,000 pounds are sold on the Hankow market. Kiangsi produces 6,000,000 to 8,000,000 pounds, of which about two-thirds is sold on the market for export, while Honan produces about 7,000,000 pounds, of which 6,000,000 pounds are forwarded to Hankow for sale."[96] This estimate shows that during the 1910s, on the Hankow market the tobacco from Hupeh was abpout two and a half times that from Honan. Although there is no quantitative information about the tobacco shipped down the Han River, the discussion above shows that Chün-chou and Teng-chou were the most productive tobacco districts in Hupeh and Honan and that the Han River was accessible from both places. Therefore, it seems likely that a large amount of tobacco produced in these two provinces was transported to Hankow via the Han River.

But, the Hankow market was complicated. The tobacco arriving on the market was not only from Hupeh and Honan but also from other provinces. For instance, because the tobacco from Teng-chou was greatly in demand for the London market, some tobacco that was sold as coming from Teng-chou was really from Szechwan, Shensi, and Kewichow.[97] The leaf tobacco from Ch'en-chou 辰州, Hunan, was thought to be the best quality tobacco by Chinese and it was not sent abroad but was sent to Shanghai, Ningpo, and Canton where it was often mixed with the tobacco of Hupeh to make prepared tobacco (*yen-ssu* 烟絲).[98]

It is not possible to figure out the proportions that every source of supply contributed to the total quantity of tobacco exported from Hankow through the Maritime customs. However, Table 6 gives a summary of the tobacco exports from Hankow which at least provides a general idea of the trade.

[96] J. Arnold, *Commercial Handbook of China*, I, 148.
[97] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1880, pt. 23, p. 52; for the year 1883, pt. 2, p. 78.
[98] *Ibid*., for the year 1880, pt. 2, p. 52; and *Decennial Reports, 1882-1891*, p. 172. Also see "Yen-yeh chu-lüeh," in *Nung-shüeh-pao*, 21: 5.

Table 6: Tobacco Exported from Hankow, 1867-1914 (not including re-export)

Period	Average Quantity 1,000 Piculs	Average Value 1,000 HK Tls.*	Average Price Per Picul	Price Index 1895-99=100	Volume Index 1895-99=100
(1) Leaf Tobacco					
1867-1869	25	203	8.27	126	36
1870-1874	39	278	7.23	110	57
1875-1879	58	369	6.38	97	85
1880-1884	52	304	5.79	88	76
1885-1889	42	309	5.85	89	61
1890-1894	59	330	5.57	85	86
1895-1899	68	474	6.54	100	100
1900-1904	85	553	7.15	109	125
1905-1909	114	844	7.41	113	167
1910-1914	95	820	8.52	130	139
(2) Prepared Tobacco					
1867-1869	27	651	24.45	180	36
1870-1874	35	742	21.76	160	47
1875-1879	52	825	15.63	115	70
1880-1884	63	920	14.59	107	85
1885-1889	74	1,281	17.26	127	100
1890-1894	81	1,517	18.38	135	109
1895-1899	74	1,009	13.56	10	100
1900-1904	62	909	14.67	108	83
1905-1909	74	1,402	18.76	136	100
1910-1914	63	2,089	32.86	242	85

Source: Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2 section on Hankow.

*The original figures of value prior to 1875 are quoted in tales rather than in HK Tls. The average value and price of the first two periods have not been adjusted. This will not be noted hereafter.

As far as leaf tobacco is concerned, regardless of the fluctuations, both the quantity and value show an upward trend. Variations in quantity are most likely caused by bad crops. For instance, the amount of tobacco exported from Hankow dropped considerably in 1889 and this was because heavy rains in the early autumn had damaged crops of the year.[99] Moreover, changes in price show that a turning point was reached roughly in the period of 1895-1899. Prior to that period the prices went down, while afterwards, the prices went up. In spite of the increasing prices, the quantities also increased by the end of the Ch'ing dynasty. This tendency is partly due to a new mintage of copper ten-cash coins during the 1900s which in general caused a "price revolution"[100], and partly due to the newly erected factory of the British-American Company in Hnakow in 1906.[101] A similar price adjustment can also be seen in the case of other products. The new factory stimulated more extensive

[99] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1889, pt. 2, p. 84.

[100] P'eng Hsin-wei, *Chung-kuo ho-pi-shih* (Shanghai, 1958), pp. 845-847.

[101] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1906, pt. 2, p. 142. The report ways that of women hands alone, the factory of the British-American Tobacco Company expected to employ 5,000. In the 1910 report, it is said that the factory was already proved too small, see pt. 2, p. 292.

cultivation of tobacco and drew more supplies of raw material to Hankow.

As for the prepared tobacco, there were two kinds – dry tobacco (*han-yen* 旱烟) and water tobacco (*shui-yen* 水烟). The Chinese were used to smoking with pipes which made use of a water chamber as a filter. The pipes were different in shape and made with various styles of craftsmanship.[102] It should be noted that tobacco smoking was very popular even among the common people – people who would not normally be considered consumers of luxury goods. Ma Chien-chung 馬建中 (1844-1900) estimated in 1881 that 60 to 70 percent of the population, both men and women, smoked.[103] If symbols of conspicuous consumption are sought, one would have to look at the varieties of pipes used rather than at smoking itself.

In short, Table 6 shows that during the first four periods, the prices of prepared tobacco went down and the quantities increased, whereas the percentage changes in volume did not exceed those in price. This means an inelastic demand. From the period 1885-1889 on, changes in price were rather irregular and fluctuations in volume were not very sharp. This also helps to show that demand for prepared tobacco was more or less static.

Turmeric

As an appendix to tobacco, turmeric (*chiang-huang* 薑黃) should be mentioned here. Turmeric was an ingredient of prepared tobacco and was also needed for making incense.[104] Yen Ju-i mentioned turmeric as one of the cash crops which were grown along the upper Han River.[105] Ch'iu Chi-heng pointed out that it was only in northern villages in Ch'eng-ku that turmeric was specially grown. The peasants who cultivated turmeric were very careful in preparing the soil until it was as fine as if it had been shifted. From the yield of one *mou*, a profit of several tens of strings of cash could be obtained.[106] According to Ch'iu chi-heng, the turmeric exported from southern Shensi is shown in Table 7. The cash income obtained from selling turmeric amounted to somewhat more than 20 million cash per year as the table shows. For the peasnts this was not a small amount of money.

---

[102] For some illustrations of tobacco pipes, see B. Laufer, *Tobacco and its Use in Asia*, plates I-VI.

[103] See *Chung-kuo chin-tai nung-yeh-shih tzu-liao*, I, 440. The original source is Ma Chien-chung, *Shih-k'o-chai chi-yen* 適可齋記言, 3: 12.

[104] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 32. In Nan-yang, some villages specialized in making incense which was exported to north china, see P'an Shou-lien, *Nan-yang hsien hu-k'ou t'i-tu wu-ch'an hsü-mu piao-t'u-hsuo*, p. 64..

[105] Yen Ju-i, *San-sheng pien-fang pei-lan*, 8: 13b-14.

[106] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 32.

Table 7: Turmeric Exported from Ch'eng-ku via the Han river, 1904-1906

Period	Quantity (bale*)	Price in Ch'eng-ku (per bale)	Price in Lao-ho-k'ou (per bale)
Nov. 1903-Nov. 1904	7,759	3,000 cash	3.7 to 4 taels
Nov. 1904-Oct. 1905	8,166	3,000 cash	3.7 to 4 taels
Oct. 1905-Oct. 1906	6,732	3,000 cash	3.7 to 4 taels

Source: Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 32-33.
*Each bale weighs 200 catties.

Turmeric was not only sent to Hankow all the way down the Han River, but also was sent overland to Honan, Chihli (Hopeh), and Shantung in the east and to Kansu in the west.[107] In other words, this specialty of one district dominated a nationwide market. An estimate shows that nine-tenths of the total output was transported to Lao-ho-k'ou for redistribution and only one-tenth was sent to Kansu.[108] In the trade of turmeric, Lao-ho-k'ou rather than Hankow was a distribution center. This explains why in the Maritime Customs annual returns, turmeric exported from Hankow was rather small in quantity.[109]

Fungus

From the mountainous area along the upper Han River edible fungus (*hei mu-erh* 黑木耳) was sent to Hankow in considerable amounts every year. Chang Hsüeh-ch'ng listed fungus as one of the mountain delicacies among goods gathered at Hankow.[110] apparently, fungus had long been a commodity in long-distance trade by the nineteenth century.

A main source of supply of fungus was Yün-yang prefecture in northwestern Hupeh and Hsing-an and Han-chung prefectures in southern Shansi. The *Yün-yang fu-chih* (1797) said that fungus was hitherto a famous product of Yün-yang, however, since hilly lands had almost entirely been turned into arable fields, the supply was mostly drawn from Hsing-an and Han-chung.[111] The *Yün-yang fu-chih* (1870) still mentioned fungus as a special product but it also said that the output had declined.[112] the *Fang-hsien-chih* (1866) also provided a similar statemdent.[113] this evidence suggests that during the nineteenth century the source of supply of fungus had moved upstream to the upper Han River highlands.

[107] *Ibid*., Besides turmeric, Ch'eng-ku also produced a large amount of ginger which was transported to Kansu and Sinkiang.
[108] *Ch'eng-ku-hsien hsiang-t'u-chih* in *Hsiang-t'u-chih ts'ung-pien* (Peking, 1937), pp. 27-28.
[109] Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt.2, section on Hankow.
[110] Chang Hsüeh-ch'eng, *Chang Shih-chai hsien-sheng i-shu*, 1: 16b.
[111] *Yün-yang chih* (1797), 4: 8.
[112] *Yün-yang fu-chih* (1870), 4: 10b-11.
[113] *Fang-hsien-chih* (1866), 11: 11a-b.

In general, a plantation of fungus in the mountain was known as *erh-pai* 耳朳 (扒). (*Pai* seems to be a dialectal usage meaning to clear lands for specialized type of production in the mountains.) Besides *erh-pai*, there are also *yao-pai* 藥朳 or medicine plantation, and *t'an-pai* 碳朳 or charcoal manufactory etc.)[114] According to *Tzu-yang hsien-chih* (1882), the white-barked chestnut trees were good for growing fungus while the black-barked ones were not. The trunks of the trees were cut into several sections and were laid on the ground for one year. In the next year, these pieces were hung up on frames for developing fungus which was called *shih-hua-erh* 試花耳(experimental fungus). In the third year, the yield of fungus would be very abundant if rainfall was even during the year and the fungus grown in this year was called *hung-tzu-erh* 鬨子耳 (clamorous fungus). In the fourth year, the same pieces of wood could not produce fungus any more, and were then used as firewood.[115] Other records mention that oak trees (*ch'ing-kang-shu* 青棡樹) were sued for growing fungus.[116] Ernest H. Wilson (1876-1930), the famous Harvard botanist, traveled in northwestern Hupeh in 1910 and found plantations of fungus beyond Peh-yang-tsai (白羊寨, near Fang hsien). He described the cultivation of fungus was as follows:

> Oak saplings, about 6 inches thick, are cut down, trimmed of their branches and cut into staves 8 to 10 feet long. These are allowed to lie on the ground for several months, where they become infested with the mycelium of the fungus. They are then stacked slantingly in scores of thereabout, and the fructifications of fungus develop.[117]

Mr. Wilson's observation is, perhaps more scientific, but the basic method of cultivating fungus is the same as that is recorded in local gazetteers. Mr. Wilson also found the fungus not "very palatable" when he tried them although he noted that the Chinese esteemed it as a delicacy.[117] Whether a product is a delicacy or not is a matter of taste and some Chinese such as Ch'iu Chi-heng agreed with Mr. Wilson.[118]

An interesting episode occurred in the trade of fungus during the time of the Russo-Japanese War (1904-1905). According to Ch'iu Chi-heng, the price of fungus rose drastically to 70 taels per picul a few years before 1904. A store in Han-chung thus gained a handsome profit. In 1904, the price fell gradually; in 1905, it went down to slightly over 30 taels and in 1906, it went down to between 20 and 30 taels. In turn, the store in Han-chung lost money. Furthermore, Ch'iu Chi-heng said that at first he did not understand why the price of such a common article as fungus could rise and

---

[114] *Pai-ho hsien-chih* (1893), 7: 8b; *Hsün-yang hsien-chih* (1783; revised, 1870), 11: 15b-16.
[115] *Tzu-yang hsien-chih* (1882), 3: 14b.
[116] Yen Ju-i, *San-sheng pien-fang pei-lan*, 9:15; *Pai-ho hsien-chih* (1893), 7: 8b; Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yümao-i-piao*, chüan B: 29.
[117] Ernest H. Wilson, *China, Mother of Gardens* (Reissued, New York, 1971), p. 36.
[118] Ernest H. Wilson, *China, Mother of Gardens* (Reissued, New York, 1971), p. 36.

fall so much during a short time. Then he found out that foreigners were using fungus in their military supplies. Fungus was light and could be carried easily. When it was soaked in water, one catty could become several catties. Moreover, it was nourishing and could be used as a substitute for fodder for feeding horses as well as for food for people. When the Russo-Japanese War was being fought, a great amount of fungus was in demand and the price went up. When the war ended, the demand declined. Because of this episode, Ch'iu Chi-heng commented,

> Previously, our merchants often said that foreign merchants were tricky. Whenever one engaged in trade with them one would definitely fail. Looking at it from this affair, I felt that our merchants encountered foreigners without enough knowledge about the business. Therefore, they gained profits by chance and lost money due to unawareness. How could one blame others for one's own fault? Take fungus for example, when the foreigners needed it they naturally bought more and the price went up because of more demand. When the foreigners did not need it any more they simply stopped buying and the price sent down because of less demand. However, our merchants were not informed of the situation. They were still allured by the profits gained before and tried to stock more supplies. To buy dearly and sell cheaply, there is no wonder they lost. Under these circumstances, even if our merchants met with a stupid foreign merchant they were not able to win, not to mention a smart one. Therefore, I conclude that a school of business should be established and the merchants' knowledge should be improved. Intellectuals should pay attention to this aspect and serve as a vanguard for merchants.[119]

Ch'iu Chi-heng was capable of using a small symptom for a great awakening.

Available statistics based on the likin reports about the fungus sent from the upper Han River during 1904-1906 is shown in Table 8.

Table 8: Fungus from the Upper Han River, 1904-1906

Period	Quantity (Picul)*	Price in Shensi Per Picul (Tael)	Price in Lao-ho-k'ou Per Picul (Tael)
Nov. 1903-Nov. 1904	14,060	40 or more	70
Nov. 1904-Oct. 1905	17,272	40	50 to 30
Oct. 1905-Oct. 1906	12,808	23	28 or 29

Source: Ch'iu chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 29-30
*The original figures for quantity are expressed in pao (bale). One bale weighs 200 catties (or 2 piculs).

[119] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 30b.

According to the Maritiem Customs annual returns, fungus exported from Hankow during the same period is shown in Table 9.

Table 9: Fungus Exported from Hankow, 1904-1906

Year	Quantity (Picul)	Value (HK Tls.)	Average Price (HK Tls.)
1904	14,303	786,665	55.00
1905	15,035	789,586	52.52
1906	19,716	504,730	25.60

Source: Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2, section on Hankow.

Comparing Tables 8 and 9, we find that there were parallels in quantity and in price, although fungus exported from Hankow might not come only from the upper Han River. Moreover, according to the Maritime Customs annual returns, the average price for the year 1904 was the highest in the series of 1867-1914 and that of 1905 was the second highest. These were the only two years in which the average price per picul was over 50 HK Tls. In terms of quantity, however, that of 1904 was the smallest during the 1900s. There is no reference about this phenomenon in the Maritime Customs report for Hankow during that year. If Ch'iu Chi-heng's discovery is valid, it may help us to understand this special case.

Finally, as mentioned above, fungus had long been a notable commodity from the mountainous area along the Han River. Although there are no statistics available for the first half of the nineteenth century, those for the second half are provided in the Maritime Customs annual returns. Table 10 shows a summary of fungus exported from Hankow.

Table 10: Fungus Exported from Hankow, 1867-1914 (not including re-export)

Period	Average Quantity 1,000 Piculs	Average Value 1,000 HK Tls.*	Average Price Per Picul	Price Index 1895-99=100	Volume Index 1895-99=100
1867-1869	10.4	228.1	22.18	94	49
1870-1874	11.6	287.2	24.95	106	55
1875-1879	15.2	354.7	22.86	97	72
1880-1884	16.2	365.1	22.71	96	77
1885-1889	21.7	379.7	19.39	73	103
1890-1894	20.9	320.5	15.41	65	100
1895-1899	20.9	498.3	23.52	100	100
1900-1904	20.7	631.6	32.60	138	99
1905-1909	19.3	619.9	33.13	140	92
1910-1914	21.2	657.3	31.24	132	101

Source: Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2, section on Hankow.

Undoubtedly, the real amount arriving at Hankow was greater than that exported.

However, it is impossible for us to estimate just how large it actually was. In spite of this, Table 10 shows quite clearly that in 1869-1889 the quantity doubled, but it did not change very much in the subsequent periods. This suggests that plantations of fungus were enlarged in response to the increasing trde of Hankow in general, but enlargements could not go beyond a certain limit, probably due to deforestation. Moreover, it is noticeable that although the price rose from the period 1867-1869 to the period 1870-1874, the quantity still increased. On the contrary, the quantity decreased when the price went down from the period 1885-1889 to the period 1890-1894. Even an increase of price in the period 1895-1899 had no effect on the quantity. This shows that an elastic supply ceased to exist after 1889. Also, only during the three periods from 1875 to 1889 can an elastic demand be found. The percentage increases in volume are greater than the percentage decreases in price during these periods as compared with the period 1895-1899.

After all, fungus was but a delicacy in Chinese cookery, and other than the episode in which fungus was used as fodder, few usages of fungus have been found. Still the money spent on this article was not a small amount, as the average value of each period showed.

Varnish, Wood Oil, and Vegetable Tallow

Varnish (*ch'i* 漆), wood oil (*t'ung-yu* 桐油), and vegetable tallow (*ch'ing-yu* 青油 or *mu-yu* 木油; *mu-yu* literally means "wood oil," but it should not be confused with *t'ung-yu* which is entered in the Maritime Customs returns as wood oil) were also major items among the commodities from the mountains.

Unfortunately, most of the local gazetteers do not provide more information on the production and trade of these items other than listing them. The *Chu-shan hsien-chih* (1867) said that the varnish produced in this district was known as *hsi-ch'i* 西漆 (western varnish) among merchants. It also said that the quality of this varnish was the best.[120] This is perhaps the sole exception that one can find among local gazetteers of districts in which varnish is mentioned. Regardless of the lack of information, the local gazetteers of Chu-hsi, Yün hsien, Fang hsien, Pao-k'ang, Yüan-an, Chung-hsiang, An-lu, Lo-t'ien, Ma-ch'eng, and T'ung-shan all listed varnish and wood oil as local commercial goods.[121] The geographical distribution shows that varnish and wood oil were products from hilly areas in Hupeh. An

[120] *Ibid*., chüan B: 30b-31.[120] *Chu-shan hsien-chih* (1867), 6: 5b.

[121] *Chu-hsi hsien-chih* (1867), 15: 3b; *Pao-k'ang hsien-chih* (1866), 4: 4; *Fang-hsien-chih* (1866), 11: 16; *Yün-hsien-chih* (1866), 4: 56b; *Yüan-an hsien-chih* (1867), 2: 17; *An-lu hsien-chih* (1843), 37: 4b; *Lo-t'ien hsien-chih* (1876), 1: 42; *Ma-ch'eng hsien-chih* (1882), 10: 14b; *T'ung-shan hsien-chih* (1867), 2:68.

estimate made in the 1930s indicated that annual output of wood oil in Hupeh was 300,000 piculs.[122] But estimate about the output of varnish was not available. Along the upper Han River, varnish and wood oil were found as far as Mien hsien.[123] As in the case of Hupeh, the local gazetteers of this area do not provide more information other than listing the items, except for the *P'ing-li hsien-chih* (1897). This gazetteer mentioned that in P'ing-li 平利, varnish, varnish oil (ch'i-yu 漆油), and wood oil together with fungus and ramie were major commodities from the lower parts of mountains. It also stated that there were people who specialized in producing these goods and became rich.[124]

In contrast, the *Shan-ching Han-chiang liu-yü mao-i-piao* provided valuable information. In this table of trade, Ch'iu Chi-heng remarked that as far as the production of wood oil was concerned, An-k'ang and Pai-ho produced the largest amount and shih-ch'üan and Hsün-yang the next largest. He also said that wood oil from the upper Han River was commonly known as Hsiang-t'ung 襄桐, which was slightly red in color. The wood oil from Szechwan was white in color and it was necessary to mix it with the Hsiang-t'ung to render the oil of Szechwan suitable for use. The wood oil was mainly used for caulking boats and was also sent overland to Chou-chia-k'ou and Shantung for painting furniture, making oil paper and oil cloth. Moreover, Ch'iu Chi-heng added that the wood oil arriving in Hankow was refined to make *Hsiu-yu* 秀油, which was named after the original production place at Hsiu-shan 秀山 in Ch'ang-te 常德, Hunan.[125] This statement is partly wrong because Hsiu-shan is in Szechwan rather than in Hunan. Since the wood oil from Hsiu-shan was usually sent to Ch'ang-te for transshipment to Hankow, this may have created the confusion about the location of Hsiu-shan.[126] It is curious that Ch'iu Chi-heng did not mention that wood oil was in demand for foreign trade as he did when he talked about varnish oil. If the *Hsiang-t'ung* was used mainly for making *Hsiu-yu* in Hankow, then it was probably confined to domestic markets as studies done in the 1930s suggested.[127] Also, if the *Hsiang-t'ung* was red in color as Ch'iu chi-heng said, it probably was not in demand by exporters because studies of the 1930s pointed out that only the white wood oil was exported abroad.[128]

The output of wood oil in southern Shensi was estimated at 100,000 piculs per year during the 1930s. At that time, Hsing-an was still a gathering center of wood oil

---

[122] Li Ch'ang-lung, *Chung-kuo t'ung-yu mao-i kai-lun* (Shanghai, 1934), p. 70; Chu Mai-yü. *Chung-kuo t'ung-yu-yeh* (K'un-ming, 1940), p. 71; Shih-yeh-pu kuo-chih-mao-i-chü ed., *T'ung-yu* (Ch'ang-sha, 1940), p. 40.

[123] *Mien-hsien hsin-chih* (1883), 1: 32.

[124] *P'ing-li hsien-chih* (1897), 9: 26a-b.

[125] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 8.

[126] *Hsiu-shan hsien-chih* (1891), 12: 3a; cf. Li Ch'ang-lung, p. 68; Chu Mei-yü, p. 109.

[127] Li Ch'ang-lung, p. 13; Chu Mei-yü, p. 102.

[128] Li Ch'ang-lung, p. 12; Chu Mei-yü, p. 39; *T'ung-yu*, p. 55.

while Han-chung had declined because disorders and bandit groups made the already difficult conditions of navigation on the stretch of the Han River impossible.[129]

In addition to wood oil, southern Shensi also sent wood oil cakes, varnish, and varnish oil to Hankow. Ch'iu chi-heng mentioned that wood oil cakes were sent to Hupeh for fertilizing fields.[130] As for varnish, P'ing-li was the district which produced the largest amount. The varnish was forwarded from Hankow to the southeastern provinces and abroad.[131] As for the varnish oil, An-k'ang, Hsün-yang, and Pai-ho produced the largest amount while Tzu-yang and P'ing-li ranked the next. The varnish oil was sent abroad in great amounts for manufacturing candles and soap. In China, it was necessary to add varnish oil to other oil material when making candles so that at times of a high temperature the candles would not melt.[132] Taking varnish oil as an example and seeing that Shensi exported mostly raw materials rather than manufactured good, ch'iu Chi-heng urged the people of Shensi to try to utilize varnish oil to make soap and candles instead of exporting it merely as a raw material.[133]

Table 11 shows a three year record based on the likin reports on the exports of wood oil, wood oil cakes, varnish oil and varnish from southern Shensi.

Table 11: Exports of Wood Oil, Wood Oil Cakes, Varnish Oil and Varnish from southern Shensi, 1904-1906

Item of Goods	Price per unit In Shensi	Price per unit In Hnakow	Quantity (Picul)*			
			1904	1905	1906	Average
Wood oil	7 tales	8 taels	30,880	24,396	26,844	27,373
Wood oil Cakes	700-800 cash	1.2-1.3 taels	3,054	2,671	3,868	3,198
Varnish oil	8,000 cash	8 taels	17,784	10,608	45,015	24,469
Varnish	45-46 strings	50 taels	3,311	2,696	2,660	2.889

Source: Ch'iu Chi-heng, *San-ching Han-chiang liu-yü mao-i-piao*, chüan B:8-16.

*The original figures of quantity are quoted in units of *lou* 簍 (basket), *p'ien* 片(piece), *pao* 包 (bale), and *t'ung* 桶 (bucket) respectively for the four items. However, each of these units has a certain weight, hence it is possible to convert them into piculs which is the unit used in the original quotation of prices. Statistics are originally based on the lunar calendar year.

According to the Maritime Customs annual returns, the average quantity of wood oil exported from Hankow during 1904-1906 was 424,816 piculs. Compared with the average quantity of wood oil from southern Shensi shown in Table 11, the latter was only 6 percent of the former. In the case of varnish, the average quantity exported from Hankow during the same period was 12,369 piculs, and the average quantity exported from southern Shensi was about 23 percent of that amount. Although both

[129] Li Ch'ang-lung, p. 82; for details of gathering and distribution of wood oil in southern Shensi, see *T'ung-yu*, pp. 92-98.

[130] Ch'iu Chi-heng, *San-ching Han-chiang liu-yü mao-i-piao*, chüan B: 10.

[131] *Ibid*., chüan B: 15.[132] *Ibid*., chüan B: 12.

[133] *Ibid*., chüan B: 13b-14.

sets of statistics are not perfect records, this rough comparison shows that the varnish from southern Shensi had a larger share on the Hankow market than the wood oil. As for varnish oil, there is no special entry in the Maritime Customs returns, because it is included in the entry of vegetable tallow.[134] the average quantity of vegetable tallow exported from Hankow during 1904-1906 was 173,068 piculs, and the4 average quantity from southern Shensi was about 14 percent of that amount.

Vegetable tallow is made from seeds of tallow trees (*wu-chiu* 烏桕, *Stilliges Sebifera*). In China, it was mostly used for lighting lamps and making candles. It seems likely that not very much of it was sent to Hankow from southern Shensi as Ch'iu chi-heng did not mention this item. But in the *Hsün-yang hsien-chih* (1902), *mu-yu* was listed among local commercial goods.[135]

The tallow trees were grown widely in Hupeh, but it cannot be ascertained when this started. The *T'ien-kung kai-wu* said that making candles from vegetable tallow was first tried in Kiangsi.[136] The *Nung-cheng ch'üan-shu* 農政全書 (Complete Treatise on Agriculture) mentioned that the people of Kiangsu and Chekiang planted a great number of tallow trees.[137] Neither book indicated whether in the seventeenth century tallow trees were already grown by people of Hupeh or not. The *Ching-men chou-shih* (1754) recorded an essay written by a native praising Shu Ch'eng-lung 舒成龍 (1706-1771), magistrate of Ching-men during 1743-1754, for promoting the cultivation of tallow trees in the district.[138] It seems that in the nineteenth century, specialization in the production and trade of vegetable tallow occurred. For instance, the *Ching-shan hsien-shih* (1882) said that the *mu-yu* produced at Sung-chia-ho 宋家河 was the best in quality. Two local names of *mu-yu* were *ch'a-hsüeh* 擦雪 or *sai-hsüeh* 賽雪 (both are composed of character of snow, which many imply that the oil was a shite or clear as snow). At Sung-chia-ho town, there were special stores known as *hsüeh-yu-chuang* 雪油莊 (stores of "snow oil") and several ten thousands of strings of cash were sent from Hankow to buy vegetable tallow every year.[139]

According to Mizuno Kōkichi, in the 1900s, vegetable tallow arriving at the market of Hankow was of four kinds. (1) That rom Ching-chou included products of

---

[134] Mizono Kōkichi, *Kankō*, p. 478. In the Maritime Customs, *Reports and Returns of Trade*, for the year 1908, pt. 2, p. 216, it is said that until that year, some *ch'i-yu* 漆油 left as vegetable tallow to be refined in Japan and part of this found its way back to Hankow as Japanese white wax. From 1908 on, however, *ch'i-yu* was refined in Hankow and entered as vegetable wax in the trade returns.

[135] *Hsün-yang hsien-chih* (1902), 7: 22.

[136] Sung Ying-hsing, *T'ien-kung k'ai-wu*, p. 219.

[137] Hsü Kuang-ch'i, *Nung-cheng ch'üan-shu* (1838), *38: 24b*.

[138] *Ching-men chou-chih* (1754), 36: 41. Shu Ch'eng-lung was considered as the first upright official (*hsün-li* 循吏) in Ching-men since the beginning of the Ch'ing dynasty, see *Ching-men chou-chih* (1868), 7.5: 18.

[139] *Ching-shan hsien-chih* (1882), 1: 14; 21: 32a-b; 21: 36.

western Hupeh, Szechwan, and Hunan. These were first gathered at Shasi and then forwarded to Hankow. The value of the annual output was estimated at 0.7 to 0.8 million taels. (2) That from Huang-chou and an estimated annual output valued at 0.5 million taels. (3) That from Fu-ho had an estimated annual output valued at 1 million taels. (4) That from Hsiao-kan had an estimated annual output valued at 0.3 to 0.4 million taels.[140] The total value of annual output of vegetable tallow was approximately 2.5 million taels. Compared with the value of vegetable tallow exported from Hankow through the Maritime Customs during the 1900s listed in Table 12, this total value represents a reasonable estimate.

Table 12: Exports of Wood Oil, Varnish, and Vegetable Tallow from Hankow, 1867-1914 (not including re-export)

Period	Average Quantity 1,000 Piculs	Average Value 1,000 HK Tls.	Average Price Per Picul	Price Index 1895-99=100	Volume Index 1895-99=100
(1) Wood Oil					
1867-1869	170	1,195	6.78	84	61
1870-1874	218	1,409	6.50	81	76
1875-1879	251	1,511	6.03	75	87
1880-1884	238	1,529	6.43	80	83
1885-1889	278	1,564	5.70	71	97
1890-1894	284	1,513	5.17	64	102
1895-1899	286	2,315	7.98	100	100
1900-1904	359	2,820	7.79	97	125
1905-1909	459	3,858	8.42	105	160
1910-1914	663	5,961	9.03	113	231
(2) Varnish					
1867-1869	4.5	128.1	28.76	88	40
1870-1874	5.6	175.4	31.30	96	48
1875-1879	6.4	219.5	34.16	105	57
1880-1884	6.8	222.5	32.66	100	60
1885-1889	7.4	213.8	29.11	89	66
1890-1894	9.2	262.9	28.64	88	82
1895-1899	11.2	361.8	32.37	100	100
1900-1904	10.8	405.2	36.60	113	96
1905-1909	14.9	816.3	54.28	167	133
1910-1914	13.4	900.4	67.24	207	119
(3) Vegetable Tallow					
1867-1869	53	451	8.57	127	41
1870-1874	69	625	9.23	136	53
1875-1879	75	644	8.60	127	58
1880-1884	83	594	7.18	106	64
1885-1889	92	584	6.28	93	71
1890-1894	130	808	6.24	92	100
1895-1899	129	868	6.74	100	100
1900-1904	171	1,504	8.66	126	132
1905-1909	182	1,828	9.97	147	141
1910-1914	164	1,731	10.22	156	127

Source: Imperial Maritime Customs, *Reports and returns of Trade*, for each year, pt. 2, section on Hankow.

Table 12 provides a summary of the wood oil, varnish, and vegetable tallow exported from Hankow during 1867-1914. Although it is impossible to estimate the exact5 proportions contributed by each source of supply, the statistics helps us at least to conceive of a more or less concrete view of the trade in these items during the last few decades of the Ch'ing dynasty.

From Table 12 it is obvious that both the quantity and value of these items were increasing, with the exceptions of the value of wood oil during 1890-1894, the value of varnish during 1885-1889, and the quantity of varnish during 1900-1904. Although there were fluctuations in prices before the period 1895-1899, after then, the prices showed an upward trend.

Varnish was indispensable for making lacquer-ware. Lacquer-ware handicrafts had existed in China since ancient times. During the T'ang dynasty (618-960), the Hsiang-yang area produced the best lacquer-wares, and they were known as the Hsiang-yang model (*Hsiang-yang* 襄樣). However, the art probably declined since the *Hsiang-yang fu-chih* (1885) simply referred to the history of its lacquer-ware industry and made no reference to the current conditions in the prefecture.[141] In 1905, Mizuno Kōkichi commented that lacquer-ware used by people in Hankow was very poor as far the craft was concerned.[142] Mizuno also said that of the varnish gathered at Hankow, about half was sent to Japan. Only about 2 percent was left for local consumption in Hankow.[143] After 1910, varnish was still no in demand for markets in the Western countries. This was due to the fact that "many persons are poisoned when they came into even atmospheric contact with this varnish."[144]

The cases of wood oil and vegetable tallow were different from that of varnish. There two raw materials were in demand for the newly developing chemical industries in Europe and America during the late nineteenth and early twentieth centuries. Vegetable tallow was used for manufacturing soap, face creams, and candles. Wood oil was chiefly used for the manufacture of varnish and paint.[145] In the beginning of the twentieth century, Hankow was already the greatest center of vegetable-oil materials and increasing trade might have enriched some merchants and producers. However, since the traditional technique of extracting oils had not been improved, foreign companies set up many factories in Hankow to refine oils before exporting them.[146] As Ch'iu Chi-heng commenting on the situation of Shensi said that

[140] Mizuno Kōkichi, *Kankō*, pp. 476-477.
[141] *Hsiang-yang fu-chih* (1885), 4: 6b.
[142] Mizuno Kōkichi, *Kankō*, pp. 371-372.
[143] *Ibid*., p. 464.
[144] J. Arnold, *Commercial Handbook of China*, II, 296.
[145] *Ibid.*, II, 293; 297.
[146] Mizuno Kōkichi, *Kankō*, pp. 475-476. Five German companies, two English companies, and two French companies set up oil refining factories in Hankow during the 1900s.

the character of trade as a whole was that of selling raw material rather than using them for industrial production. It is notable that in 1930s, wood oil succeeded silk, tea, and soybeans as the largest export item of China.[147] Wood oil soon found competitors in foreign countries. America, the greatest consumer of Chinese wood oil, led experiments in planting wood oil trees as early as 1905, and many other countries followed suit.[148]

[147] Chu Mei-yü, pp. 2-4.

[148] Li Ch'ang-lung, pp. 157-178; Chu Mei-yü, pp. 157-162' *T'ung-yu*, pp. 256-282. Each has a discussion on foreign experiments in cultivating the wood oil trees and prospects of trade during the 1930s.

CHAPTER 4
DEVELOPMENT OF HANDICRAFT INDUSTRIES

The handicraft industry of China usually developed in areas where raw materials were produced. This tendency of specialization will be seen from the industries to be discussed in this chapter. Since technological changes during the Ch'ing dynasty were slow and since there are special studies on technology, this chapter will not deal specifically with this aspect. The focus will be on the production and trade of individual articles manufactured by the handicraft industry.

First, I shall discuss the textile industry in terms of cotton, silk, and ramie. Along with food, clothing is an essential for human life. Under the traditional economic framework, rural households usually combined tilling of land and weaving of cloth as their basic way of earning a living. However, this survey of the textile industry along the Han rive4r will show that achieving self-sufficiency was not the sole aim of those producing cloth. Cotton was abundantly grown along the lower Han River and the cotton cloth woven in this area was marketed to many provinces. On the other hand, the cotton industry did not develop to a significant extent along the upper Han River, despite efforts of local officials to promote it. However, districts along the upper Han River did produce a considerable amount of silk for export. Although a balance between the cotton imported into and the silk exported from the upper Han River area cannot be drawn precisely, this development indicates very clearly a tendency to produce what was most profitable under local conditions. As for ramie, the amount produced along the Han River was not very large, but there was a demand for it in the long-distance trade.

In addition to textiles, paper, timber, iron, coal, and gypsum will be discussed. Papermaking factories were found in hilly areas in Hupeh and southern Shensi. Although the paper industry did not disappear following the deforestation of this area, it seems that the quality of paper degenerated. Both the timber and iron industries developed during the late eighteenth century when migrants moved into the upper Han River highlands. These two industries were quite extensive, but both were in decline by the first half of the nineteenth century. Small coal mines were also discovered along the upper Han River in the late eighteenth century when forests were gradually destroyed. Throughout the nineteenth century, coal was one of the goods shipped downstream. Gypsum was a special product of Ying-ch'eng, Hupeh, and it had a nationwide market.

To be sure, there were other handicraft goods which people living along the

Han River manufactured. But it seems proper to leave out those items about which no meaningful discussion can be made with the available information.

Cotton and Native Cotton Cloth

Cotton cultivation and cloth-making along the lower Han River differed from that along the upper Han River. The districts along the lower Han River produced a surplus of cotton and cotton cloth while those along the upper Han River required imports of these goods. This section will first describe the processes of cotton cultivation and cloth manufacturing in Hupeh and southern Shensi, and then will turn to the function of the Han River as trade route for cotton goods.

While it is not the aim of this section to trace the development of the cotton industry from the beginning, it is possible to demonstrate that during the sixteenth century cotton was already grown quite extensively in Te-an prefecture, Hupeh, and that a prosperous cotton handicraft industry prevailed. It is said that thousands of households depended on cotton cultivation and cloth-making for their livelihood at that time. A native merchant was given the credit for promoting this development, while Shansi and Shensi merchants were great buyers of the product.[1] Available seventeenth-century local gazetteers, such as the *Sui-chou-chih* (1667) listed cotton and cotton cloth as the only two items of local commercial goods,[2] and the *Ch'ien-chiang hsien-chih* (1694) listed cotton at the forefront of other goods.[3] While Sui-chou 隨州 was located along the Yün-ho 溳河, a tributary of the Han River; Ch'ien-chiang 潛江 was situated on the alluvial plain between the Han and the Yangtze rivers. In fact, by the end of the Ch'ing dynasty, cotton was grown in almost every district in Hupeh except for Ho-feng-chou 鶴峰州 in the southwestern part of the province.[4]

The plain along the Han and the Yangtze rivers was the main area of cotton cultivation in Hupeh. There is no estimate of the output of cotton during the nineteenth century. But literary impressions reveal that cotton was grown over a wide area. For instance, Wu Ch'i-chün 吳其濬 (1789-1847) wrote a poem on his travels along the road between Ying-ch'eng and Yün-meng, the last two lines of this poem state:

> Countless cotton plants are blooming in snowy white,
> There should be no cries of freezing worms during frosty nights.[5]

---

[1] *An-lu hsien-chih pu-cheng* (1872), chüan A: 29.
[2] *Sui-chou-chih* (1667), 1: 38b.
[3] *Ch'ien-chiang hsien-chih* (1694 ed; 1879 reprinted), 8: 42.
[4] *Hu-pei t'ung-chi*h (1921), 24: 37.
[5] *Yün-meng hsien-chih* (1840), 12:38b.

In the *Ching-shan hsien-chih* (1882), a poem written by a native says:

> In late spring one has counted on making winter clothing.
> Several ten thousands of cotton plants are planted.
> Flowers bloom like a sea before forming peach-shaped husks.
> Do the farmers ever complain that they labor so hard? [6]

The same gazetteer also said that surplus cotton was exported; this suggests that the output of cotton was not small. Moreover, three bridges in the district were built and repaired with funds collected from the likin on cloth (*pu-li* 布釐) which shows that the cloth trade was also quite large.[7]

Districts further up the Han River also produced cotton. In the local gazetteers of Yün, Fang, Chu-hsi, and Chu-shan districts cotton is listed among the local goods.[8] Moreover, the *Fang-shien-chih* (1866) said that in mountain villages both men and women wove cotton cloth.[9] According to Ch'iu Chi-heng, cotton produced from the Wei-ho 渭河 Valley in Shensi was transported overland to northwestern Hupeh for weaving.[10] This indicates that the output of raw cotton in northwestern Hupeh was not adequate for the needs of the area. It is not clear whether the cloth made in this area was only marketed locally or also exported. In Hsiang-yang prefecture, Tsao-yang was the most productive district of cotton and cotton cloth. The *Tsao-yang hsien-chih* (1854) remarked that Shansi and Shensi merchants came to buy un-dyed cotton cloth every year and that the local people benefited from the trade.[11] In the *I-ch'eng-hsien hsiang-t'u-chih* (1906), it was estimated that the annual output of raw cotton was about 10 million catties in good years. The native cloth consumed within the district city and other market towns was about 50,000 pieces, and the cotton yarn and thread consumed locally totaled more than 30,000 catties. Moreover, more than 30,000 catties of cotton and cotton goods were exported to Shasi and Honan.[12] The cotton industry in the Shasi area was quite notable, but the finished products were chiefly designed for markets in Szechwan and Yünan rather than in the northern provinces.[13] Little information is known about the cotton industry in Nan-yang, Honan. It seems likely that this area was more or less self-sufficient in producing cotton cloth.[14]

---

[6] *Ching-shan hsien-chih* (1882), 21: 35.
[7] *Ibid*., 1: 13b-14; 2: 24.
[8] *Yün-hsien-chih* (1866), 4:56b; *Fang-hsien-chih* (1866), 11: 15b; *Chu-hsi hsien-chih* (1867), 6: 5b-6.
[9] *Fang-hsien-chih* (1866), 11: 15b.
[10] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A: 4b-5
[11] *Tsao-yang hsien-chih* (1854), 2: 28.
[12] *I-ch'eng-hsien hsiang-t'u-chih* (1906), 4: 21b-22.
[13] *Chiang-ling hsien-chih* (1877), 22: 26; P'eng Tse-i ed., *Chung-kuo chin-tai shou-kung-yeh-shih tzu-liao* (Peking, 1957), II, 240-241.
[14] P'an shou-lien, *Nan-yang-hsien hu-k'ou ti-t'u wu-ch'an hsü-mu piao-t'u-shuo* (reprint, 1968), p. 18.

It is difficult to ascertain patterns of production and consumption of cotton in Hupeh. The *Sui-chou-chih* (1869) said that in the district every household planted cotton and everyone learned cloth-weaving.[15] However, the *Ying-shan hsien-chih* (1871) stated that the annual output of cotton cloth was from 200,000-300,000 pieces to 400,000-500,000 pieces and that seven-tenths of the cotton needed for weaving was obtained from other places.[16] The *Yüan-an hsien-chih* (1886) mentioned that peasants who produced silk sold their new silk in exchange for cotton. The peasants did not clothe themselves in silk, but they did weave their own cotton cloth.[17] A full picture of practices in the exchange of cotton cannot be depicted here, because little information about the cotton brokers, such as those found in the lower Yangtze delta, is available.[18]

On the whole, the cotton industry was a domestic handicraft. Before foreign yarn was imported into China in considerable amounts, it seems that spinning and weaving were done in the same households in Hupeh. For instance, an evening working scene of a rural household during the first half of the nineteenth century was depicted by a native poet in Yüan-an. He wrote:

> The loom creaks through the chilly night.
> The whole family gathers under a lamp light.
> The old woman spins while the old man twists the hemp.
> The boy does his studies nearby the low lamp stand.[19]

In many local gazetteers, spinning and weaving are often mentioned together, or else weaving is mentioned while spinning is omitted. But there is not a single case in which only spinning is mentioned. Of course, one should not rely only this negative evidence to exclude the possibility of cases in which just spinning was done in a household. However, those who owned no loom were probably few in number in places which specialized in the cotton textile handicraft. For example, the *T'ien-men hsien-chih* (1765) said, "Previously, only three out of ten households had their own loom, now nine-tenths have looms."[20] Literary descriptions such as, "Creaking of looms can be heard next door,"[21] also indicate that looms were widely owned.

---

[15] *Sui-chou-chih* (1869), 13: 2b.
[16] *Ying-shan hsien-chih* (1871), 8: 2.
[17] *Yüan-an hsien-chih* (1866), 8: 6;7b.
[18] For the cotton trade in the lower Yangtze area see Fu I-ling, "Ming-tai Chiang-nan te fang-chih kung-yeh yü chih-kung pao-tung," in *Ming-tai Chiang-nan shih-min ching-chi shih-t'an* (Shanghai, 1963), p. 85; Miyazaki Ichisada, "Min-shin jidai no Soshū to keikōgyō no hattatsu," *Tōhōgaku*, 2 (August 1951): 69-70; Nishijima Sadao, *Chūgoku keizaishi kenkyū* (Tokyo, 1966), pp. 874-882; Craig Dieterish, "Cotton Culture and Manufacture in Early Ch'ing China," in W. E. Willmott ed., *Economic Organization in Chinese Society* (Stanford, 1972), pp. 128-129.
[19] *Yüan-an hsien-chih* (1866), 8: 7b-8.
[20] *T'ien-men hsien-chih* (1765 ed., 1922 reprint), 1: 36b.
[21] *Han-ch'uan hsien-chih* (1873), 6: 19b.

According to Yen Chung-p'ing 嚴中平, one loom required an amount of yarn equal to that which could be spun by three persons using traditional methods.[22] If spinning and weaving were mostly done in the same household, how did people manage to obtain enough yarn? Both local gazetteers of Han-yang and Han-ch'uan state that during the slack seasons of farming, everybody in a household was mobilized to work day and night in spinning and weaving.[23] Under these circumstances, if one household had four units of labor, it would be able to supply the yarn necessary for weaving on one loom.

If this pattern of production organization was predominant, it seems that productivity would not be high. One piece (*p'i* 疋) of cloth a day was probably the maximum one person could weave.[24] However, this would have produced more than enough for an average sized family. Apparently mere self-sufficiency was not the sole aim of household production. Even after foreign yarn and cotton pieces were imported in considerable quantity, the weaving sector flourished for a short period, although the spinning sector was seriously injured. This was partly because foreign cotton pieces were not durable as the native cloth and were not welcomed by peasants, and partly because foreign yarn which was cheaper than cloth pieces could be used to weave the types of cloth which people preferred.[25] for instance, Mishiro Kiyohiko found during an investigation in northwestern Hupeh in the late 1890s that the peasant weavers bought foreign yarn for the warp, while they spun their own yarn for the woof.[26]

The cotton cloth marketed in Hupeh had long been known by names derived from either the place of its production or its size. At the end of the eighteenth century, Chang Hsüeh-ch'eng mentioned that cloth gathered in Hankow included the *hsiao-pu* 小布 (small cloth) from Huang-p'i and Hsiao-kan, the Mian-yang blue cloth, the Pa-ho blue cloth, and the Chien-li "shuttle" cloth (*so-pu* 梭布).[27] In the nineteenth century the variety of cloth was even greater. The *Han-yang heien-chih* (1868) said that people living in the villages in southern Han-yang were especially industrious in weaving. Their cloth was known as *k'ou-pu* 扣布 (lit. "fastening" cloth). Moreover, many inhabitants in the villages of Teng-chia-ling 鄧家嶺 and Ch'i-li-miao 七里廟 wove corduroy. The *k'ou-pu* was purchased by merchants for conveying to Shensi, Shansi, Yünnan, and Kweichow. The corduroy was marketed in Kiangsi, Hunan, Szechwan, and Kweichow, but this trade was in decline by the end of the Ch'ing

[22] Yen Chung-p'ing, *Chung-kuo mien-fang-chih shih-kao* (Peking, 1963), p. 25.
[23] *Han-ch'uan hsien-chih* (1873), 6: 19b; *Han-yang hsein-chi*h (1868), 9: 3.
[24] *Han-yang hsein-chi*h (1868), 9: 3.
[25] Li Wen-chih ed., *Chung-kuo chin-tai nung-yeh-shih tzu-liao* (Peking, 1957), I, p. 511. Cf. Yen Chung-p'ing, p. 82; Albert Feuerwerker, *The Chinese Economy, ca. 1870-1911* (Ann Arbor, Michigan, 1969), p.17.
[26] Li Wen-chih ed., pp.512-513.
[27] Chang Hsüeh-ch'eng, *Chang Shih-chai hsien-sheng i-shu*, 1: 16b.

dynasty.[28] The *Han-ch'uan hsien-chih* (1873) stated that there were two kinds of cloth: the big cloth and the small cloth. For nearer markets, the cloth was sent to Fan-ch'eng and Hsiang-yang or Hunan; for more distant markets, to Shensi, Shansi, Yünnan, and Kweichow.[29] The *Hsiao-kan hsien-chih* (1882) mentioned that the cloth collected by Shansi and Shensi merchants was known as *Hsiao-kan-pu* 孝感布, while *pien-pu* 邊布 (lit. "margin" cloth), a cloth narrower and shorted than the other, was used by the villagers themselves.[30] In the *Te-an fu-chih* (1888), un-dyed cloth and dyed cloth are mentioned. The former was simply *mien-pu* 棉布 (cotton cloth) which was in demand chiefly by northern provinces, the latter was called *so-pu* which supplied markets in southern provinces. The former was gathered in the prefecture city, while the latter was gathered in Ying-ch'eng for redistribution. Moreover, the cloth going in different directions was distinguished as *shan-chuang* 山莊 (stores for mountain route) and *shui-chuang* 水莊 (stores for water route); the former went north and the latter went south.[31]

At the end of the nineteenth century, the cotton textile handicraft became all the more prosperous around the Hankow area. This development was due chiefly to the importation of foreign yarn which provided the weaving handicraft a chance to compete with foreign cotton pieces. Table 13 shows the major varieties of cloth.

The varieties of cloth were, indeed, many. However, this does not imply that there were no trade rules or standards of production. According to in investigation by Mishro Kiyohiko, Shensi merchants who traded cotton cloth in Ying-shan had regulations about the standards of the cloth: each piece of the *hsin-kai-pu* 新改布 was to be 0.95 *ch'ih* 尺 (1 *ch'ih* = 32 cm) wide and 44 *ch'ih* long and each roll of this cloth was to weigh 70 catties. Each piece of the *ko-hsien-pu* 葛仙布 was to be 1.1 *ch'ih* wide and 32 *ch'ih* long and each roll of this cloth was to weigh 60 catties. When the cloth rolls were ready for shipment, merchants of the same trade were to be invited to check the size and weight. If a shortage was found, a fine of 20 cash was levied for each piece of substandard cloth. The fine would be used for public funds. Other regulations for the cloth trade flowed by the same merchant groups were as follows:[32]

(1) When a *chuang* 莊 (seasonal store) was organized to collect cloth from the producing places, each was not comprise more than three persons. No matter where a table was set to collect cloth, it must not be set along a roadside. These restrictions were to prevent unnecessary competition and disorder.

---

[28] *Han-yang hsien-chih* (1868), 9: 3; *Hu-pei t'ung-chih* (1921), 24: 37.
[29] *Han-ch'uan hsien-chih* (1873), 6: 19b.
[30] *Hsiao-kan hsien-chih* (1882), 5: 39.
[31] *Te-an fu-chih* (1888), 3: 87; *Ying-ch'eng hsien-chih* (1882), 1: 55.
[32] Peng Tse-i ed., II, 242-243.

Table 13: Varieties and Prices of Cloth Produced around Hankow, c. 1900

Names of Cloth	Producing Places	Size per Piece (*ch'ih*)		Price per Piece (tael)		
		Length	Width	1st gr.	2nd gr.	3rd gr.
Lao-pu	Huang-hua-lao (Huang-p'i)	40	1.20	0.52	0.49	0.48
Ma-an-pu	Ma-an-shan (south Han-yang)	(1) 10	0.80	170-180 cash		
		(2) 20	0.90	270-280 cash		
		(3) 30	1.00	370-380 cash		
Han-yang-pu	West-gate, Han-yang	34-36	1.15	480-490 cash		
Ko-hsien-pu	Ko-tien (Wu-ch'ang)	32	1.05	0.32	0.30	0.29
Feng-pu	Chiu-feng (Wu-ch'ang)	34	1.15	0.30	0.29	0.28
Heng-shan-pu	Huang-p'i	35-36	1.15	0.30	--	--
Tsui-pu	Huang-p'i	36	0.95	0.40	0.38	0.35
Kai-chi-pu	Hsiao-kan	32	1.05	0.31	--	0.28
Ching-chung-pu	Huang-chou area	40	1.20	0.51	0.50	0.49
Yang-lo-pu	Yang-lo (Huang-kang)	32	1.10	0.48	0.46	0.44
Ching-k'ou-pu	Chiang-hsia	34	1.30	0.50	--	0.49
Yüeh-k'ou-pu	Yüeh-chia-k'ou (T'ien-men)	40	1.20	0.58	0.55	0.50

Source: Mizuno Kōkichi, *Kankō* (Tokyo, 1907), pp. 499-502. Cf. Peng Tse-i ed., *Chung-kuo chin-tai shou-kung-yeh-shih tzu-liao* (Peking, 1957), II, 241; Li Wen-chih ed., *Chung-kuo chin-tai nung-yeh-shih tzu-liao* (Peking, 1957), I, 511-512.

(2) In each cloth-producing place there was a certain spot for setting up the table for collecting cloth. One was not allowed to move to other spots for his own convenience. One was not to raise the prices freely and one was not to accept any unsuitable pieces of cloth.

(3) Before each business season began in spring and autumn, merchants of the same trade would be notified to attend a meeting in order to decide the date for starting the business and the prices for that season. One was not allowed to monopolize the trade by starting earlier or to offer different prices. One who disobeyed the rules would be forced to treat his fellow traders to two banquets and two theatrical performances.

(4) Once the prices of the season were fixed, merchants in the same trade were to gather to discuss possible changes in price on the first and the fifteenth day of each month. An individual could not raise or lower the prices independently.

(5) The *chuang-shou* 莊首 (head of the seasonal store) representing the *hang* 行 (the main store) to which he belonged and he was responsible for any abuses occurring in the business.

(6) Each *hang* 行, regardless of whether it was in the city or in the countryside, was to confine itself to trade at certain markets (*p'u* 埠). No member of any *hang* was allowed to move from one market to another or to conspire with people in the sane trade to obtain cloth illegally. If such practices were discovered, the cloth obtained

from other markets was to be confiscated by the guild.

(7) Payment for the cloth was to be made in cash for the full amount. Money was not to be withheld from the weavers.

(8) A newcomer in the trade had to obtain documents of guarantee against default from people who were already in the trade.

(9) For each roll of cloth, one had to pay 5 cash into the public funds which were used for maintaining the *hui-kuan* and for financing annual celebvrations in the *hui-kuan*.

Although Ying-shan was probably not a very great center of the cloth trade along the Han River, these regulations define the trade rules and the standards of cloth quite precisely. Regulations of the cloth trade in other localities are still to be found, but it seems likely that similar practices prevailed elsewhere in the late Ch'ing period.

Usually, only un-dyed cloth was collected from the countryside. Pieces of cloth received from individual weavers were than pecked into rolls for sending to *pu-hang* 布行 (main stores which perhaps also served as brokers) in cities or towns for redistribution. In Hankow, once the cloth rolls arrived at the *pu-hang* they were distributed to *pu-tien* 布店 (cloth shops) where the rolls were unpacked and the pieces were graded for selling un-dyed or for sending to dyer's shops for dyeing. The cloth shops engaged both in retail and wholesale transactions. In retail trade, cloth was sold by the piece or by lengths, and each was required for payment each time. In wholesale trade, traveling merchants bought ten or twenty rolls of cloth at a time and the payment due was recorded in an account to be balanced two or three times a year.[33]

As for the finishing cloth, there were separate workshops fort dyeing (*jan-fang* 染坊) and calendering (*ch'uai-fang* 踹坊) in cities and towns. For instance, Ch'ang-chiang-p'u 長江埠 in Ying-ch'eng had a great number of dyers' shops. Cloth woven in Han-ch'uan district was usually sent there for dyeing.[34] Yüeh-chia-k'ou 岳家口 in T'ien-men was probably also a dyeing center, for among 32 kinds of the dyed cloth gathered in Hankow, 12 kinds were from this town.[35] Hankow was no doubt one of the great centers of the finishing trade. According to the amount of capital processed by a cloth shop and its relationship with the dyers' workshops, the cost of dyeing varied and hence also the prices of the dyed cloth.[36] In other words, the dyers did not maintain a standard price for everyone. In 1895, according to the newspaper *Shen-pao* 申報, artisans of the calendering and dyeing workshops in Hankow organized strikes to fight against payment of wages in cash mixing with privately

[33] Mizuno Kōkichi , *Kankō*, p. 506.
[34] *Han-ch'uan t'u-chi cheng-shih* (1895), 5: 2b-3.
[35] Mizuno Kōkichi , *Kankō*, pp. 503-504.
[36] Mizuno Kōkichi , *Kankō*, p. 507; P'eng Tse-i ed., II, p. 244.

minted coins. The calendering workers struck in May and the dyeing workers in June. In both cases, the results were that the cloth shops had to agree to pay the workshops with good officially minted cash.[37] A Japanese investigation in 1900 indicated that the cost of dyeing in Hankow was paid for in silver according to the current rate of exchange.[38] This evidence shows that confusion and instability of currency greatly affected trade and industry in the late Ch'ing period.

There are some statistics available for measuring the trade of raw cotton and cloth. As far as raw cotton was concerned, there is no estimate of the output during the nineteenth century. However, in 1910, the Nung-kung-shang-pu 農工商部 (Board of Agriculture, Industry, and Commerce) estimated that the total output of raw cotton in Hupeh was about 1.5 or 1.6 million *shih* 石 (1 *shih* = 120 catties). Of this amount, 600,000 *shih* were from Han-yang prefecture, 500,000 *shih* from Huang-chou prefecture, and 300,000 *shih* to 400,000 *shih* from Wu-ch'ang, An-lu, Te-an, and Ching-chou prefectures.[39] The 1908-1915 Japanese investigations state that during good years, the quantity of raw cotton that arrived annually at various trade centers near the producing places totaled about 600,000 picul (1 picul = 100 catties).[40] This amounted to about 30 percent of the total output estimated by the Nung-kung-shang-pu. The same Japanese investigations mention that about 60 percent of the cotton arriving at various trade centers was forwarded to Hankow.[41] This means that about 24 percent of the total output of Hupeh's raw cotton was sent to Hankow.

According to the Maritime Customs trade returns, in the first decade of the twentieth century, raw cotton became one of the principal items exported from Hankow. Table 14 shows a summary of these reports. This table shows very clearly that exporets of raw cotton from Hankow were notable only from 1900 on. The raw cotton exported went chiefly to Japan and occasionally to Germany and France.[42] In 1905, Mizuno Kōkchi observed that there were three causes for the increase in the export of raw cotton: (1) an increase in the price of raw cotton, (2) an increase in the cultivated acreage of cotton, and (3) an increase in the importation of foreign yarn, especially yarn from Japan.[43]

---

[37] P'eng Tse-i ed., II, p. 279. For a description of techniques of dyeing and calendering, see R. Hommel, *China at Work* (New York, 1937), pp. 190-193. A detailed study on the calendering trade in Soochow has been done by Yokoyama Suguru, see *Chūgoku kindaika no keizai kōzō*, pt. 2.

[38] P'eng Tse-i ed., II, p. 244.

[39] Nung-kung-shang-pu ed., *Mien-yeh t'u-shuo* (1910), p. 5

[40] *Shina shōbetsu zenshi*, IX, p. 463.

[41] *Ibid*.

[42] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1910, pt. 2 p. 294.

[43] Mizuno Kōkichi, *Kankō*, pp. 510-511.

Table 14: Raw Cotton Exported from Hankow, 1877-1914 (not including re-export)

Period	Average Quantity 1,000 Piculs	Average Value 1,000 HK Tls.	Average Price Per Picul	Price Index 1895-99 =100	Volume Index 1895-99=100
1877-1879	2.1	24.5	13.49	87	30
1880-1884*	0.5	6.1	12.70	81	7
1885-1889*	1.2	15.1	11.47	74	18
1890-1894	8.7	107.2	12.92	83	133
1895-1899	6.5	99.4	15.49	100	100
1900-1904	182.6	3,204.4	16.35	105	2,807
1905-1909	142.3	2,375.3	17.28	111	2,189
1910-1914	195.4	4,658.8	23.70	153	3,006

Source: Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2, section on Hankow.

*These two periods consist of only four years, excluding the years 1882 and 1887.

It should be noted here that the introduction of American cotton seed into Hupeh in 1892 had not produced any significant change in productive levels. Chang Chih-tung 張之洞 (1837-1909) was enthusiastic in promoting the cultivation of American cotton.[44] In the *Mien-yang hsien-chih* (1894) "foreign cotton" (*yang-hua* 洋花) was mentioned.[45] However, in 1910, the Board of Agriculture, Industry, and Commerce reported that the American cotton seeds planted in Hupeh did not yield as much as the native kind.[46] Therefore, it can be said that by 1910 the cultivation of American cotton in Hupeh was still in an experimental stage and had little effect on the increasing exports of raw cotton from Hankow.

Besides being sent to Hankow, the raw cotton produced in An-lu prefecture was also transported up the Han River. According to Ch'iu Chiu-heng, the raw cotton going in this direction through the likin customs was as shown in Table 15.

Table 15: Raw Cotton Imported into Southern Shensi through the likin Customs, 1904-1906

Year	Quantity Picul*	Price Per Picul (Tael)		
		In Hupeh	In S. Shensi	In NE Szechwan
Nov.1903-Nov.1904	13,005	20	22	25
Nov.1904-Oct. 1905	14,745	20	22	25
Oct. 1905-Oct. 1906	14,123	20	22	25

Source: Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A: 11-12.

*The original figures of quantity are quoted by *pao* 包 (bale). One big bale weighed 180 catties, one medium bale weighed 120 catties, and one small bale weighed 90 catties. Since it is not clear what category the original quantities were and since the original prices were expressed by taels per picul (100 catties), I have taken the average of the three categories, i.e., 130 catties, for each bale.

[44] Li Wen-chih ed., I, pp. 891-891.
[45] *Mien-yang hsien-chih* (1894), 4: 72b.
[46] Nung-kung-shang-pu ed., *Mien-yeh t'u-shou*, pp. 5-6.

Ch'iu Chi-heng also said that a great portion of the raqw cotton going up the Han River was forwarded to the northeastern corner of Szechwan via the Jen-ho 任河, a tributary of the Han River, and only a small part was distributed in Hsing-an and Han-chung. Moreover, he pointed out that the cotton was mostly used in these places for studding the winter clothing and bed covers and was seldom used for spinning.[47] As a matter of fact, the cotton industry probably did not develop to any great extent in places along the upper Han river despite the efforts of local officials to promote it.

The *Han-chung hsü-hsiu fu-chih* (1813) reported an announcement of Yen Ju-i for promoting spinning and weaving in Han-chung. According to this announcement, textile equipment such as bowing frames, spinning wheels, warp frames, and looms were sent to Han-chung from the south. Pictures of these devices could be obtained from the prefecture yamen. It was hoped that native artisans would construct copies of them and that native women would learn to operate them. The aim of promoting the cotton industry was not only to imp[rove the livelihood of poor households but also to promote chastity among the Han-chung women by providing them a means of self-support.[48] However, there is little record to prove that the cotton handicraft industry was thus developed in Han-chung.

In the *Shih-ch'üan hsien-chih* (1849) a special case is recorded. A certain tenant farmer, Wang Kuo-hsiang 王國相, who had become an owner of 100 *mou* of land, specialized in cultivating cotton and making cloth on his farm. Cotton was cultivated as the main crop with maize planted around the cotton field, while sesame plants and vegetables were grown on spare plots. The old farmer was at that time eighty-six and the household depended on selling the cotton cloth, but there was no worry about food. One reason the farm could become prosperous was that the property of the household was not divided among individual family members according to the common practice among Chinese families. Moreover, everyone in the household was engaged in production. The men tilled while the women spun and wove. Even the children could help in gleaning left-over cotton from the field. This case reads like a fiction, but it was written in the biography of this farmer.[49] Since the chief compiler of this local gazetteer, Shu Chün 舒鈞, magistrate of Shih-ch'üan, was very enthusiastic about the promotion of cotton industry,[50] it seems that the record of this case carried a special meaning. Like Yen Ju-i, Shu Chün stressed the importance of women of Shih-ch'üan being able to support themselves. However, it is also difficult to prove that the cotton

[47] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A: 11.
[48] *Han-chung hsü-hsiu fu-chih* (1813), 27: 64a-b.
[49] *Shih-ch'üan hsien-chih* (1849), 3: 50a-b.
[50] *Shih-ch'üan hsien-chih* (1849), the proclamation is recorded at the very end of this gazetteer, no chüan number is attached.

handicraft consequently became popular in this district. Among local gazetteers of districts in southern Shensi, only the *P'ing-li hsien-chih* (1897) and the *Hsün-yang hsien-chih* (1902) indicate that there was popular engagement in spinning and weaving.[51]

Compared with their sisters in south China, the Shensi women were considered as being too idle by local officials. The idleness of the Shensi women became all the more lamentable in the late Ch'ing times when opium addiction became popular among them.[52] Ch'iu Chi-heng estimated that in the 1900s, for southern Shensi alone, at least one million taels was spent annually in buying the cotton cloth from Hupeh. If the whole province of Shensi was taken into consideration, at least three times that amount of money was necessary. Therefore, he insisted that men and women in Shensi should give up their opium addiction and turn to cotton cultivation and cloth-making.[53] Although it is debatable whether it would have been more economical for Shensi to have developed a self-sufficient cotton industry, this account tends to prove that as far as the cotton industry was concerned, southern Shensi was a backward area.

According to Ch'iu Chi-heng, there were two kinds of native cotton cloth sent up the Han River to southern Shensi. The first kind was *ta-pu* 大布 (big cloth) which was entirely woven with native-spun yarn. It was heavy and durable and most welcomed by the people living further up the river. This kind of cloth was sent to Han-chung and also was forwarded to Kansu. The second kind was *chung-pu* 中布 (medium cloth) which was woven with foreign yarn and native yarn mixed together and was chiefly consumed around the Hsing-an area.[54] Table 16 shows the native cloth sent up the Han River through the likin customs to southern Shensi. It is notable that the quantity of *ta-pu* was decreasing while that of *chung-pu* was increasing. This coincides with the trend toward a declining spinning handicraft mentioned above.

Table 16: The Cotton Cloth of Hupeh Imported into Southern Shensi, 1904-1906

	Quantity (roll)		Price in Hupeh (tael)		Price in Shensi (tael)	
Year	*Ta-pu*	*Chung-pu*	*Ta-pu*	*Chung-pu*	*Ta-pu*	*Chung-pu*
Nov. 1903-Nov. 1904	33,929	46,402	13	12	17	13.5-13.6
Nov. 1904-Oct. 1905	28,644	48,490	13	12	17	13.5-13.6
Otc. 1905-Oct. 1906	22,081	57,715	13	12	17	13.5-13.6

Source: Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A: 1-4.

[51] *P'ing-li hsien-chih* (1897), 9: 27b; *Hsün-yang hsien-chih* (1902), 13: 20b.

[52] *Han-chung hsü-hsiu fu-chih* (1813), 27: 64b; *Shih-ch'üan hsien-chih* (1849), 4: 65; Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A:39b-40.

[53] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 27b-28.

[54] *Ibid.*, chüan B: 1; 3.

In addition to Shensi, Shansi was also a major buyer of Hupeh's cotton cloth. Moreover, according to van Richthofen, Mongols purchased cotton cloth mainly from Hupeh.[55] The cloth going to Shansi and Mongolia was probably sent up the Han River to Fan-ch'eng and then forwarded overland. Unfortunately, there is no record available for the cloth transported in this direction. According to the *Han-k'ou Shan-Shan-hsi hui-kuan-chih* (A gazetteer of the Shansi-Shensi guild hall in Hankow), there were ten cloth stores belonging to merchants of T'ai-yüan 太原 and Fen-chou 汾州 groups, but how large their trade was cannot be evaluated from this sosurce.[56]

The Maritime Customs annual returns recorded that native cotton cloth (nankeen) was exported from Hankow from 1867 on. Although these exports went chiefly to the southern provinces, the Maritime Customs statistics are a useful reference as far as the trade of Hupeh's cloth is concerned. Table 17 shows a summary of exports of the native cotton cloth from Hankow.

Table 17: Exports of the Native Cotton Cloth from Hankow, 1867-1914
(not including re-export)

Period	Average Quantity 1,000 Piculs	Average Value 1,000 HK Tls.	Average Price Per Picul	Price Index 1895-99 =100	Volume Index 1895-99=100
1867-1869	3.7	200.7	73.10	209	33
1870-1874	2.6	81.3	54.54	155	23
1875-1879	2.5	128.3	52.57	150	22
1880-1884	3.4	138.0	40.99	117	30
1885-1889	7.0	250.0	37.05	105	63
1890-1894	12.4	339.6	27.45	78	111
1895-1899	11.1	388.7	34.97	100	100
1900-1904	10.3	379.4	38.90	111	92
1905-1909	10.1	363.0	36.45	104	90
1910-1914	5.8	269.5	46.30	132	52

Source: Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2, section on Hankow.

This table indicates clearly that the Hupeh cloth trade reached a peak during the 1890s and remained prosperous for about twenty years. This implies that the weaving handicraft was flourishing for the reasons we have discussed above. Moreover, this table is useful for a comparison with Table 16. As shown in Table 16, the two kinds of cloth sent to southern Shensi totaled about 70,000 rolls per year. According to Ch'iu Chi-heng, one roll of the *ta-pu* weighed 51 or 52 catties and one roll of the *chung-pu* weighed 45 catties.[57] If 48 catties is taken for each roll, there would be 3,260,000

[55] Ferdinand von Richthofen, "Letter on the Provinces of Chili, Shansi, Shensi, Sz'chwan" (Shanghai, 1872), p. 12.

[56] Hou P'ei-chün and Chi Ling-shu, *Han-k'ou Shan-Shan-hsi hui-kuan-chih* (1896), chüan B: 18b. The names of these stores are listed on one tablet.

[57] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A: 1; 3.

catties or 32,600 piculs for the 70,000 rolls which were sent to southern Shensi. Table 17, on the other hand, shows that in the 1900s, the cloth exported from Hankow was about 10,000 piculs per year. A comparison of these two figures indicates that for southern Shensi alone, the quantity of cloth was more than three times that exported to the southern provinces. Therefore, it is possible to say that in the Hupeh cloth trade, the northern route was more important than the southern route. In other words, the Han River played an important role in the transport of cloth.

Silk

While districts along the upper Han River had to import cotton and cloth, they exported silk. During the Ch'ing dynasty, local officials in Shensi were enthusiastic about the promotion of sericulture.[58] T'eng T'ien-shou 滕天綬, prefect of Han-chung during 1686-1692, Tsou Jung 鄒溶, magistrate of Yang-heien in the 1690s, and Liu Ch'i 劉棨, magistrate of Ning-ch'iang-chou in the 1700s were pioneers in encouraging sericulture in their administrative spheres.[59] In the eighteenth century, Ch'en Hung-mo 陳宏謨 (1696-1771), who served as governor of Shensi for four terms during the 1740s and 1750s, urged an extension of sericulture in Shensi. He cited examples set by officials in Han-chung and local gentry such as Yang Shen 楊侁 (style Shuang-shan 雙山, 1687-1785) of Hsing-p'ing 興平, Sian prefecture.[60]

It seems proper to mention briefly Yang Shen's work on sericulture here. Yang Shen held the degree of *chien-sheng* 監生 (student of Imperial Academy). He was not only well versed in Confucian classics but was skilled in medicine. In 1741, he published a book entitled *Pin-feng kuang-i* 豳風廣義 (A broad interpretation of the odes of *Pin-feng*) in which he wrote down techniques of sericulture and animal husbandry based on the results of his own experiments. He pointed out that the Shensi people were rather poor because they had to use some of their grain supply to buy cloth. He said that he had tried to cultivate cotton and ramie but was not successful.

[58] Evelyn Rawski, "Agricultural Development and Official Action in Eighteenth Century China: The Case of the Han River Highland," unpublished paper, pp. 24-27. I have covered almost the same sources that Mrs. Rawski has used, but the focus is different.

[59] *Han-chung hsü-hsiu fu-chih* (1813), 9:13; 27:13b-15b; *Yang-hsien-chih* (1898), 3:3b; *Ning-ch'iang-chou-chih* (1888), 4: 47. For Liu Ch'i's official term in Ning-ch'iang, there are conflicts among different records. The *Ning-ch'iang-chou-chih* lists it between 1744 and 1746 (3: 9b); the *Han-chung hsü-hsiu fu-chih* lists it between 1738 and 1743 (10:32). But in a biography of Liu Ch'i in the *Ning-ch'iang chou-shih*, it is said that he was a *chin-shih* in 1685, he came to Ning-ch'iang after his term as magistrate in Ch'ang-sha and after Ning-ch'iang, he was promoted to be *pu-cheng-shih* 布政使 in Szechwan (2:10; 3:9b). The *Ch'ang-sha fu-chih* (1747) list Liu Ch'i as magistrate in 1695 (18:61), and the *Ssu-ch'uan t'ung-chih* (1815) lists him as *pu-cheng-shih* in 1712. Therefore, Liu Ch'i might have served as magistrate in Ning-ch'iang during the 1700s rather than the 1740s which Mrs. Rawski has cited in her paper (p. 24).

[60] Ho Ch'ang-ling, *Huang-ch'ao ching-shih wen-pien*, 28:4b. For Yang Shen's biography see *Hsing-p'ing hsien-chih* (1923), 5A: 18b-19.

The odes of *Pin-feng* inspired him to try sericulture and in thirteen years he achieved good results which he wanted to introduce to the public. He stated that to plant one *mou* of mulberry trees was sufficient to feed silkworms which could yield 9 catties of silk. If one household could produce 5 catties of silk, the money obtained from selling the silk would be more than enough for paying taxes. One catty of good silk could be sold for 1.4 or 1.5 taels and this money could buy 20 catties of cotton which was adequate for providing clothing for a family. If one household could produce several tens of catties of silk, it would achieve wealth equal to that of a "middle class" (*chung-fu* 中富). With these prospects in mind, he suggested that sericulture was the best for the Shensi people to pursue side by side with agriculture. Not only would the problem of clothing be solved, but surplus wealth would help tide over difficult periods.[61]

The *Pin-feng kuang-i* is written in a colloquial style and is furnished with illustrations. A careful comparison with other books which deal with sericulture undoubtedly will reveal useful information for students who are particularly interested in this subject. For instance, until the late nineteenth century, people of the lower Yangtze area still used bamboo sticks to pick up small silkworms when it was necessary to spread them evenly on trays. Yang Shen invented the use of bamboo or wooden spoons to do this.[62] It is obvious that by using a spoon the possibility of injuring the silkworms is less than by using a pair of sticks. At any rate, it seems that the practices advocated in the *Pin-feng kuang-i* were adopted by others to a certain extent.

Professor Evelyn Rawski has pointed out that Yeh Shih-cho 葉世倬(1751-1823), prefect of Hsing-an during 1807-1817, use the *Pin-feng kuang-i* to compiled the *Ts'an-sang hsü-chih* 蠶桑須知 (Essentials of sericulture) for distribution to districts in Hsing-an prefecture.[63] However, prefect Yeh's devotion did not bear substantial results immediately, as his friend Yüeh Chen-ch'uan 岳震川 revealed in a preface to the *Hsü Hsing-an fu-chih* (1812).[64] In a proclamation for persuading people of Shih-ch'üan to engage in spinning and weaving, magistrate Shun Chün also referred to prefect Yeh's encouragement of sericulture, but he added that the production of silk was small and profits were not great.[65] The *Han-yin t'ing-chih* (1818) and *Tzu-yang*

[61] Yang Shen, *Pin-feng kuang-i* (Shensi, 1882), *pien-yen* (preface), 2b-3b; *yüan-shu* (original proposal), 7a-b. The price of silk has been changed to "two or three taels" in the *Hsing-p'ing-hsien hsiang-t'u-chih* (1907), 4: 13, and the *Hsing-p'ing hsien-chih* (1923), 7: 19b.

[62] Yang Shen, *Pin-feng kuang-i*, chüan B: 15a-b; cf. Imperial Maritime Customs, *Special series: Silk* (Shanghai, 1881), p. 51.

[63] Evelyn Rawski, p. 23. Dr. Rawski has mentioned the *Pin-feng kuang-i* in note 82, but it seems that she has not consulted the book directly.

[64] *Hsü Hsing-an fu-chih* (1812), preface: 1b-2.

[65] *Shih-ch'üan hsien-shih* (1849), proclamation: 1 (at the end of the last ts'e).

hsien-chih (1882) also mention Yeh Chih-cho and his printing of the *Ts'an-sang hsü-chih*. But the development of sericulture in these districts owed much to the efforts of Ch'ien Ho-nien 錢鶴年, sub-prefect of Han-yin, and Ch'en Chin 陳僅, magistrate of Tzu-yang. Ch'ien Ho-nien was a native of Chekiang and he introduced the Hu-chou 湖州 mulberry trees and sericulture techniques to Han-yin in 1808.[66] Ch'en Chin was also a native of Chekiang and he encouraged the planting of more than 10,000 new mullberry trees in Tzu-yang in 1836, although whether the mulberry trees were from Chekiang was not clearly stated in the record.[67] Regardless of how sericulture was developed in these districts, these cases illustrate that methods advocated by the *Pin-feng kuang-i* were adopted at least indirectly.

The *Pai-ho hsien-chih* (1893) provided a case of their direct application. A certain *sheng-yuan* 生員 (licentiate) whose name was Tsou Hsieh-yung 鄒協用 engaged in sericulture on a grand scale. He is said to have adopted techniques of sericulture from a book by Yang Shuang-shan and for eleven years he developed new methods to use for those which were not suitable to local conditions. Since the *Pin-feng kuang-i* was reprinted in 1882, it is obvious that the book which Tsou Hsieh-yung used was this one. The magistrate Ku Lu 顧駼 expected him to introduce his new methods to the public, but it is not clear if he did so.[68]

Although it is debatable whether local officials' good intentions always bore significant results, sericulture was developed to a considerable extent along the upper Han River. The *Pin-feng kuang-i* said that in Han-chung, profits obtained from the annual output of silk amounted to several hundred thousand of taels.[69] This was the situation in the middle of the eighteenth century. In the early nineteenth century, Yüeh Chen-ch'uan remarked that in accounts of great merchants in Han-chung, silk in the summer and tobacco in the autumn were the two major items of business.[70] Yen Ju-i also stated that the profits from the *Yang-ch'ou* 洋紬 (silk cloth of Yang hsien) and *Ning-ch'ou* 寧綢 (silk cloth of Ning-ch'iang chou) were great.[71] The *Ning-ch'iang chou-shih* (1888) mentioned that besides the wild silk (i.e., tussore silk) which magistrate Liu Ch'i had taught people to produce, there were also mulberry trees which had been planted in districts since the early nineteenth century.[72] The *Yang-hsien-chih* (1898) said that in the city and nearby villages many people engaged in sericulture although few did so in mountain villages. The silk-cloth (*chüan* 絹) woven in the district was commonly known as a product of Ma-ch'ang 馬暢. In

[66] *Han-yin t'ing-chih* (1818), 2: 11; for Ch'ien Ho-nien's official term, see 5: 9b-10.
[67] *Tzu-yang hsien-chih* (1882), 3: 14; for Ch'en Chin's short biography, see 4: 8.
[68] *Pai-ho hsien-chih* (1893), 13: 11-12.
[69] Yang Shen, *Pin-feng kuang-i*, yüan-shu: 10a-b.
[70] Ho Ch'ang-ling, *Huang-ch'ao ching-shih wen-pien*, 36:7.
[71] *Han-chung hsü-hsiu fu-chih* (1813), 27: 64.
[72] *Ning-ch'iang chou-chih* (1888), 5: 7b-8.

reality, Ma-ch'ang supplied only about two-tenth of this total district output with the rest coming from Ch'eng-ku.[73] In 1913, Japanese investigators found that in Han-chung city, there were more than 30 silk-loth shops which were concurrently engaged in weaving. These shops obtained their supplies of raw silk from producers in the vicinity of Han-chung.[74]

On the whole, sericulture along the upper Han River experienced a notable development. In 1868, James A. Wylie, an English missionary, travelled from Ch'eng-tu 成都 to Hankow via the Han River and he observed en route that at many places along the upper Han River silk was being manufactured.[75] In the 1900s, Ch'iu Chi-heng provided more concrete evidence of this development with statistics. Table 18 shows the raw silk, tangled silk (*wan-shou-ssu* 挽手絲), and refused cocoon (*t'ang-chien* 湯繭) exported from southern Shensi through the likin customs.

Table 18: Raw Silk, Tangled Silk, and Refused Cocoon Exported from southern Shensi, 1904-1906

Items	Price (Per catty)			Quantity (catty)		
	In Shensi	In Nan-yang*	In Hankow*	1904	1905	1906
Raw silk	4,000 cash	7 tls.	3.6-3.7 tls.	4,305	27,485	17,867
Tangled silk	0.13 tls.**	0.17-0.18 tls.				
Refused Cocoon	0.50 tls.	0.57-0.58 tls.		45,400	130,400	95,200

Source: Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 17-18.
*In Nan-yang, one catty consists of 29 ounces (*liang* 兩); in Hankow, one catty consists of 16 ounces.
** This was the price in Lao-ho-k'ou.

The silk from southern Shensi was sent not only to Hankow for export but also to Nan-yang for weaving silk-cloth. The silk textile industry in Nan-yang had probably long been established. Chang Hsüeh-ch'eng mentioned *Teng-sha* 鄧紗 (silk gauze of Teng-chou) among silk textiles gathering on the Hankow market at the end of the eighteenth century.[76] Although this name is not found in local gazetteers, the *Nan-yang fu-chih* (1807) says that Teng-chou produced a certain kind of silk cloth.[77] This at least indicates that there was a silk industry in Teng-chou. According to P'an Shou-lien, in 1904, the number of silk textile workshops (*chi-fang* 機坊) in the southern part of the Nan-yang city were increasing. This was partly due to an improvement in technology which allowed weavers of Nan-yang to make fine silk fabrics and partly because of an increase of prices of the Nanking and Hangchow silk

[73] *Yang-hsien-chih* (1898), 4: 1a-b.
[74] *Shina shōbetsu zenshi*, VII, p. 622.
[75] A. Wylie, "Notes of a Journey from Ching-too to Hankow," *Proceedings of Royal Geographical Society*, 14.2 (June, 1870): 181-182.
[76] Chang Hsüeh-ch'eng, *Chang Shih-chai shien-sheng i-shu*, 1: 16b.
[77] *Nan-yang fu-chih* (1807), 1: 59b.

textiles. The demand for the satin, gauze, and crepe woven in Nan-yang was increasing. However, Nan-yang did not produce sufficient raw silk acquired from silkworms fed with mulberry leaves.[78] The supply of raw silk was drawn from other provinces and part of it was from southern Shensi as shown in Ch'iu Chi-heng's table of trade.

On the other hand, Nan-yang produced a considerable amount of wild silk. P'an Shou-lien estimated that in 1904, in Nan-yang hsien there were more than two thousand households engaging in raising silkworms. During normal years, about 50 to 60 million cocoons could be collected annually. Most of the households reled their own silk and wove tussore silk cloth (*chien-ch'ou* 繭綢). The silk and the silk-cloth were in demand for foreign markets.[79] In addition to Nan-yang, other districts also produced wild silk. According to the *Ho-nan-sheng ts'ai-cheng shuo-ming-shu* (A fiscal handbook of Honan procvince), a likin bureau was set up in Lu-shan 魯山 in 1897 for the collection of the likin on silk arriving from Lu-shan, Nan-yang, Yü-chou 裕州, Cheng-p'in 鎮平, and Nan-chao 南召. The wild silk was mostly sent to Mongolia and Russia by Shansi merchants of the T'ai-ku 太谷 group. It is said that the likin revenue was greatly injured because Russian merchants used transit passes to purchase silk in the places of production. Even so, the likin collected at Lu-shan still amounted to 5,561 taels in 1908. The rate of the silk likin was 10 percent. Consequently, the value of the silk going through Lu-shan was about 55,610 taels.[80]

In Hupeh, Chiang-ling 江陵 was probably the largest center of the silk industry. Chang Hsüeh-ch'eng said, "In Chiang-ling, there are many textile workshops. The *Ching-chüan* 荊絹 (the Ching-chou pongee) and *ssu-pu* 絲布 (silk cloth) are their special products."[81] In the *Chiang-ling hsien-chih* (1877) and *Ching-chou fu-chih* (1880), both *Ching-chüan* and *ssu-pu* were listed among the textiles. Moreover, also listed were other silk fabrics such as gauze, damask, satin (known as *t'ung-hai-tuan* 通海緞) and coarse pongee (*nien-ch'ou* 撚綢).[82] In the 1880s, there were 50 silk textile workshops in Chiang-ling but only seven in Hankow.[83] The silk workshops in Chiang-ling obtained supplies of raw silk from local producers and from Tang-yang 當陽, Yüan-an 遠安, and Ching-men-chou 荊門州. Ho-jung 河溶, a market town in Tang-yang, was a major center of raw silk production. For instance, the *Yüan-an hsien-chih* (1866) recorded a poem which said, "The new silk reserved for guest merchants from Ho-jung (*hsin-ssu liu-yü Ho-jung-k'o* 新絲留與河溶客)." The poem

[78] P'an Shou-lien, *Nan-yang-hsien hu-k'ou ti-t'u wu-ch'an hsü-mu piao-t'u-shuo*, p. 66.
[79] *Ibid*., pp. 65-66.
[80] *Ho-nan-sheng ts'ai-cheng shuo-ming-shu* (Peking, 1915), 3: 4; 10.
[81] Chang Hsüeh-ch'eng, *Chang Shih-chai shien-sheng i-shu*, 1: 18a-b.
[82] *Chiang-ling hsien-chih* (1877), 22: 26; *Ching-chou fu-chih* (1880), 6:10.
[83] Imperial Maritime Customs, *Silk*, p. 35.

was written by magistrate Chan Ying-chia 詹應甲 around 1806.[84] This reveals that sericulture was developed around Ho-jung long before Hankow was opened to foreign trade. In 1899, an article in the *Nung-hsüeh-pao* 農學報 (Journal of agriculture) revealed that the annual output of silk form the Ho-jung area was more than 2,000 piculs. Two silk firms in Shanghai usually sent their agents to Ho-jung to purchase silk which was in turn sold to British merchants.[85] Ho-jung was also a center of silk textiles and their products were commonly known as *Ho-jung-chüan* 河溶絹.[86] Although Chiang-ling and Ho-jung were not situated along the Han River, they had easy access to Hankow via other waterways.

Along the Han River in Hupeh, several districts produced silk. The *Fang-hsien-chih* (1866) and *Chu-shan hsien-chih* (1867) all listed silk among the local commercial goods.[87] the pongee of Fang-hsien (*Fang-chüan* 房絹) was probably well known for some time, although the *Yün-yang fu-chih* (1797 and 1870) remarked that it was no longer valuable.[88] In Hsiang-yang prefecture, prefect Chou K'ai 周凱 (1779-1837) once tried to encourage sericulture. He wrote three essays and twenty-four poems for the purpose of persuading people to cultivate mulberry trees and raise silkworms.[89] The *Hsiang-yang fu-chih* (1760 and 1885) listed silk and plain pongee among local goods and also said that the pongee woven at Miao-t'an 廟灘 in Ku-ch'eng district was the best known.[90] According to von Richthofen, in Fan-ch'eng there were many small workshops manufacturing silk brocades and ribbons. The thick thread used for making brocades was from places in the vicinity of Fan-ch'eng, while the fine thread for making ribbons was from Soochow.[91] Other districts along the Han River such as Chung-hsiang, T'ien-men, Ch'ien-chiang, Mien-yang, and Han-ch'uan, and districts in Huang-chou prefecture also produced silk and some sort of silk cloth. Among them, the *T'ien-men-chüan* 天門絹 was well known.[92]

Toward the end of the Ch'ing dynasty, local officials in Hupeh encouraged an extension of sericulture. A bureau of sericulture (Ts'an-sang-chü 蠶桑局) was established in 1890. It was reported that within three years, more than 10 million young mulberry trees were brought in from Chekiang and distributed to many districts

---

[84] *Yüan-an hsien-chih* (1866), 8: 6; for Chan Ying-chia's short biography, see 3: 7b-8.

[85] *Nung-hsüeh-pao*, 82(1899): 5a-b.

[86] *Ying-ch'eng hsien-chih* (1882), 1: 50b. The name *Ho-jung-chüan* is mentioned in a proclamation for encouraging sericulture in Ying-ch'eng.

[87] *Fang-hsien-chih* (1866), 11: 16; *Yün-hsien-chih* (1866), 4: 56b; *Chu-shan hsien-chih* (1867), 6: 6.

[88] *Yün-yang chih*(1797), 4:9b; *Yün-yang fu-chih* (1870), 4:12a; cf. *Hu-pei t'ung-chih* (1921), 24: 36b.

[89] *Hsiang-yang hsien-chih* (1873), 3: 22-27.

[90] *Hsiang-yang fu-chih* (1760), 6: 6a-b; *Hsiang-yang fu-chih* (1885), 4: 6.

[91] Ferdinand von Richthofen, "Letter on the province of Hupeh" (Shanghai, 1870), p. 5

[92] *Chung-hsiang hsien-chih* (1867), 2:17; *T'ien-men hsien-chih* (1765 ed., 1922 reprint), 3:21; *Ch'ien-chiang hsien-chih* (1694 ed., 1879 reprint), 8:42; *Mien-yang chou-chih* (1874), 4:72b; *Han-ch'uan t'u-chi cheng-shih* (1895), 4: 35; *Huang-chou fu-chih* (1884), 3: 67; cf. *Hu-pei t'ung-chih* (1921), 24: 36b-38b.

in Hupeh. After being transplanted, the percentage of surviving trees varied from 60 percent to as high as 80 to 90 percent or even 100 percent. In addition, artisans were invited from Soochow and Hangchow to teach native students the advanced technique of weaving silk fabrics in the bureau of sericulture. In 1897, products from the bureau were ready for sale.[93] In 1899, Chang Chih-tung proposed the establishment of a department of sericulture in the Nung-wu hsüeh-t'ang 農務學堂 (Academy of agriculture) and invited two Japanese instructors to teach modern technique of sericulture.[94] Some students must have been trained. However, in 1925 an investigation pointed out that after Chang Chih-tung, no officials were capable of carrying on the modernization of sericulture in Hupeh, and those who raised silkworms were still doing it in the old ways.[95]

This section will not pursue further the problem of modernization of sericulture which is probably a subject of another paper. But from the discussion above, a few points which may shed light on understanding China's modernization, can be made here. First, the cases of Yang Shen and Tsou Hsieh-yung indicate that there was no lack of an experimental spirit among Chinese gentry landowners. This experimental spirit is, in a sense, modern. Secondly, it is quite clear that local officials could introduce new methods of production efficiently if they themselves were familiar with the technique. For instance, Liu Ch'i, who was a native of Shantung, was able to instruct the people in Ning-ch'iang to produce wild silk; Ch'ien Ho-nien, who was a native of Chekiang, was able to introduce the Hu-chou mulberry trees to Han-yin. At a time when most people did not travel beyond their own market towns, officials who traveled more frequently and extensively could serve as a medium for spreading new knowledge. Although the role of local officials played in encouraging economic development should not be over-estimated, they were in a good position to do this. Of course, generalization can be made only when individual cases are checked against evidence more tangible than that stated in the official proclamations.

Ramie

Ramie (*chu-ma* 苧麻, *Boeheria nivea*), also known as "China grass," is mainly used for making the summer cloth (*hsia-pu* 夏布, also known as "grass cloth"). In Hupeh, the most productive districts of ramie were in Wu-ch'ang and Huang-chou prefectures. But districts along the Han River also produced ramie. In local gazetteers of Chu-shan, Yün-hsien, Hsiang-yang, An-lu, Ch'ien-chiang, and T'ien-men, either

[93] *Nung-hsüeh-pao*, 6 (1897): 1-4; 8(1897): 1b-2b; 9 (1898): 2b; 50 (1898): 1; also see Li Wen-chih ed., I, p.886. Cf. *Hu-pei t'ung-chih* (1921), 54: 1a-b.

[94] *Nung-hsüeh-pao*, 74 (1899): 3; cf. *Hu-pei t'ung-chih* (1921), 60: 5.

[95] Tung-hui (pseudonym), "Hu-pei chih t'an-ssu-yeh," *Shang-hai tsung-shang-hui yüeh-pao* (A monthly of the Chamber of Commerce of Shanghai), 5.8 (August 1925): *tiao-ch'a*, p. 2.

ramie or cloth made of ramie were listed among local commercial goods.[96] Mizuno Kōkichi estimated that the annual output of ramie in Hupeh was about 240,000 piculs during the 1900s. Of this amount, 200,000 piculs were from Wu-ch'ang and Huang-chou prefectures.[97] Along the upper Han River, ramie was also grown as a cash crop. The *Tzu-yang hsien-chih* (1882) mentioned that ramie was purchased by merchants from Kwangtung and it was beneficial to the people's livelihood.[98] Ch'iu Chi-heng remarked that ramie was produced in An-k'ang, Tzu-yang, and Shih-ch'üan, and that it was shipped to Swatow (Shan-t'ou 汕頭) in Kwangtung for weaving the summer cloth. An average quantity of ramie exported from southern Shensi through the likin customs during 1904-1906 was about 23,000 piculs.[99] Although the ramie produced along the Han River was not in very great amounts, it was in demand for long-distance trade.

In Hankow, ramie had long been one of the principal commodities. In the *Shih-wo chou-hang* 示我周行, a travel guide published during the Ch'ien-lung period, it was mentioned that ramie was sent to Hankow from several places in Hunan and that the standards of steelyards use for measuring ramie varied. Weight by the Li-ling 醴陵 steelyard was considered equal to only 95 percent of the Hankow weight and that of Hsiang-t'an 湘潭, only 80 percent.[100] At the end of the eighteenth century, Chang Hsüeh-ch'eng indicated that the summer cloth on the Hankow market was from Liu-yang 瀏陽 in Hunan and I-huang 宜黃 in Kiangsi.[101] There were the two famous places where the summer cloth was woven.

In the Maritime Customs trade returns, there is no entry for ramie prior to 1905. However, the *Decennial Reports of 1882-1891* pointed out that what was entered as "hemp" in Hankow was actually ramie.[102] Thus, it is possible to list the series of annual exports of ramie from Hankow. Table 19 shows the summary of these exports. Because ramie produced in Kiangsi was gathered in Kiukiang (Chiu-chiang 九江) for exportation,[103] these exports from Hankow were drawn from source in Hupeh, southern Shensi, Hunan, and Szechwan. It is difficult to determine the proportions contributed by each of these sources. Compared with raw cotton (see Table 14), ramie exported from Hankow was larger both in quantity and in value prior to 1900. Unlike

---

[96] *Chu-shan hsien-chih* (1785), 11:5; *Chu-shan hsien-chih* (1867), 6:6; *Yün-hsien-chih* (1866), 4:56b; *Hsiang-yang fu-chih* (1760), 6:6; *An-lu hsien-chih* (1843), 37:4b; *Ch'ien-chiang hsien-chih* (1694 ed., 1879 reprint), 8:42; *T'ien-men hsien-chih* (1765 ed., 1922 reprint), 3:21.

[97] Mizuno Kōkichi, *Kankō*, p. 452.

[98] *Tzu-yang hsien-chih* (1882), 3: 14b.

[99] Ch'iu Chi-heng, *Shan-ching Han-cchiang liu-yü mao-i-piao*, chüan B: 21-22.

[100] Anonym, *Shih-wo chou-hang* (1787), 3: 11b.

[101] Chang Hsüeh-ch'eng, *Chang Shih-chai shien-sheng i-shu*, 1: 16b.

[102] Imperial Maritime Customs, *Decennial Report, 1882-1891*, p. 172.

[103] Imperial Maritime Customs, *Reports and Returns of Trade*, pt.2, section on Kiukiang; the China grass and grass cloth exported from this port were larger than those from Hankow.

raw cotton, which was probably mainly consumed locally in spinning and weaving, ramie was probably sold largely as raw material rather than as cloth. The ramie-producing localities in Hupeh were not well known for the cloth made of this fiber except for the *Lien-ch'iao chu-pu* 連翹苧布 mentioned in the *Ma-ch'eng hsien-chih* (1882).[104] In the Maritime Customs trade returns, exports of the grass-cloth from Hankow were in small amounts; usually, it was only a few hundred of piculs or even only a few tens of piculs per year.[105]

Table 19: Ramie Exported from Hankow, 1867-1914 (not including re-export)

Period	Average Quantity 1,000 Piculs	Average Value 1,000 HK Tls.	Average Price Per Picul	Price Index 1895-99 =100	Volume Index 1895-99=100
1867-1869	39.3	392.6	10.09	137	35
1870-1874	47.8	354.9	7.40	100	42
1875-1879	67.7	589.6	8.68	117	60
1880-1884	111.9	704.5	7.56	102	100
1885-1889	97.3	676.5	6.97	94	87
1890-1894	104.6	641.4	6.14	83	93
1895-1899	111.7	824.3	7.36	100	100
1900-1904	134.2	1,176.1	8.70	118	120
1905-1909	156.6	1,617.4	10.33	140	140
1910-1914	153.3	1,991.7	13.02	176	137

Source: Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2, section on Hankow.

Paper

Paper-making factories were usually found in mountains where it was possible to fulfill three conditions. First, raw materials such as bamboo and paper-mulberry trees (*ch'u* 楮, *ku* 穀, or *kou* 構, *Broussonetia papyrifera*) had to be easily obtainable. Secondly, there had ti be a ready access to water. Water was not only necessary for making pulp but was utilized for operating water-powered mills (*shui-tuei* 水碓) for pounding the pulp. Thirdly, limestone and firewood had to be available.[106] the process of paper-making using traditional t4echniques can be found in other books.[107] this section will discuss only the paper-making industry along the Han River and the paper trade.

[104] *Ma-ch'eng hsien-chih* (1882), 10: 15.

[105] Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2, section on Hankow. For instance, in 1902, there were 896 piculs of fine grass-cloth and 801 piculs of coarse grass-cloth exported; in 1910, only 61 piculs of fine grass-cloth and 60 piculs of coarse grass-cloth were exported.

[106] Yen Ju-i, *San-sheng pien-fang pei-lan*, 9: 5b. Yen Ju-i did not mention the use of water-powered mills.

[107] For instance, Sung Ying-hsing, *T'ien-kung k'ai-wu*, E-tu Zen Sun and Shiao-chuan Sun trasns., pp. 224-231; Dard Hunter, *Paper-making: The History and Technique of an Ancient Craft*, (New York, 1947).

In districts along the upper Han River, there were a considerable number of paper-making factories. According to Yen Ju-i, who wrote at the beginning of the nineteenth century, there were more than 20 factories in Hsi-hsiang, more than one hundred in Ting-yüan, and more than 20 small ones newly established in Yang-hsien. A large factory usually employed more than one hundred persons including artisans and laborers, and a small factory employed 40 to 50 persons.[108] Yen Ju-i did not provide information about the size of these factories in terms of equipment. The *Lüeh-yang hsien-chih* (1847) contained an essay, "Han-p'eng-shan chi 寒蓬山記" (A note on the Han-p'eng mountain), which stated that around 1814, there were in this mountain more than one hundred water-powered mills and that peasants made paper in the winter when they were not engaged in agriculture.[109] In addition to factories in Han-chung prefecture, Lu K'un 盧坤 (1772-1835) reported that in 1823 in Hsing-an prefecture, there were 63 paper-making factories in An-k'ang, 22 small factories in Chuan-p'ing-ting 磚坪廳, and several small ones in Tzu-yang.[110]

The paper-making industry along the upper Han River was not as greatly affected by the increasing deforestation as the timber trade was. In 1868, A. Wylie still observed that paper was manufactured among hill near Hsi-hsiang, and this gave rise to the great deal of traffic.[111] in the 1900s, Pai-ho, Hsün-yang, and An-k'ang produced considerable amounts of paper and paper-mulberry back for exportation to other places.[112] Table 20 shows exports of these goods from the upper Han River through the likin customs during 1904-1906.

Table 20: Paper and Paper-mulberry Bark Exported from southern Shensi, 1904-1906

Items	Unit	Quantity			Price (tael or cash)	
		1904	1905	1906	In Pai-ho	In Hupeh
Bark paper	lump*	52,389	54,031	55,550	3,500-5,000 cash	3.5-5.5 tls.
"Fire" paper	lump*	136,696	155,424	110,512	0.1-0.17 taels	0.12-0.19 tls.
Paper-mulberry bark	picul	4,775	6,023	6,394	1,300-3,800 cash	1.8-4.0 tls.

Source: Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 26-43.

*One lump (*kuai* 塊) of the first grade paper weighed 50 catties, while one lump oof the secondary grade paper weighed 90 catties. But the original figures of quantity do not distinguish the two grades of paper.

Back paper (*p'i-chih* 皮紙) was mainly sent to Hankow where the prime grade paper was used for making paper-umbrellas and for packing fine commodities, while the secondary grade paper was for common packages. The "burnt-offering" paper

[108] Yen Ju-i, *San-sheng pien-fang pei-lan*, 9: 7a-b.
[109] *Lüeh-yang hsien-chih* (1847), 4: 55.
[110] Lu K'un, *Ch'in-chiang chih-lüeh*, pp. 59, 61; according to Lu K'un, there were 45 paper-making factories in Ting-yüan and 38 in Hsi-hsiang, see pp. 49, 54.
[111] A. Wylie, "Notes of a Journey," p. 180.
[112] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 36, 38, 42.

(*huo-chih* 火紙) was mostly sent to Sha-yang and Honan. As for the paper-mulberry bark (*kou-p'i* 構皮), it was in demand as a raw material for the paper-making industry elsewhere; and the paper bark (*kou-jang* 構瓤) was for making the finest paper and also for making rugs.[113] The *Hsün-yang hsien-chih* (1870) says that paper-mulberry trees were grown abundantly in the district. However, the bark trade was monopolized by Shansi merchants. The merchants paid an advance in money to the owners of trees and thus prevented the bark from being sold to others. The owners of trees had to rely on the merchants to set the prices. This practice was known as *tien-kou* 點構 (to assign paper-mulberry trees with advance money). Because of this practice, the producers did not really gain large profits. The advance money paid to the producers was just like a lure for fish.[114] This trade practice was, of course, not unique. Similar practices, such as *mai-ch'ing* 買青 (to buy grain while the crops are still green) found in An-k'ang,[115] and *p'u-hua* 樸花, *p'u-ch'ing* 樸青,[116] and *mai-p'ei* 買焙 [117] (all referring to the practice of buying lichee and longan while the flowers are in blossom or the fruits are still green) prevailed in Fukien and Kwangtung, indicate that this was rather commonplace in the commercial dealings of traditional China. If applied properly, the advance payment would benefit both producers and merchants. But because the growers of special products had to depend on merchants for selling their goods, they tended to be victimized by these trade practices. This sort of trade practice should be taken into consideration when one tries to understand the position of the merchants in the traditional economy.

In addition to paper and paper-mulberry bark, the Han River served as a trade route for a kind of yellow ceremonial paper (*huang-piao-chih* 黃表紙) made in Sui-ting 綏定 prefecture in northeastern Szechwan. According to Ch'iu Chi-heng, during the 1900s about 500,000 boxes of this paper, which were sent annually through the Han River to Lao-ho-k'ou for redistributing to Shansi, Honan, and Chihli (Hopei). Ch'iu Chi-heng also said that for the Hankow area, the ceremonial paper was supplied from Kiangsi.[118]

Paper was also made in hilly districts in Hupeh. The *Yün-hsi hsien-chih* (1866) mentioned that inhabitants of Yen-tun-pao 烟墩堡 village specialized in making paper.

---

[113] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 36, 38, 42.

[114] *Hsün-yang shien-chih* (1870), 11: 16b-17.

[115] *An-k'ang hsien-chih* (1815), 10: 3b.

[116] Chou Liang-kung, *Min-hsiao-chi* (*Ts'ung-shu chi-ch'eng ch'u-pien*, n. 3162), p. 10 This practice can be traced back at least to the Sung period. The correct character of *p'u* 撲 (mean "to hit") should be written with a "hand" radical. For a detailed discussion, see Lien-sheng Yang, "Buddhist Monasteries and Four Money-Raising Institutions In Chinese History," in *Studies in Chinese Institutional History,* pp. 196-199, n. 2; pp. 214-215, n. 50 and n. 53.

[117] Ch'ü Ta-chün, *Kuang-tung hsin-yü* (1700), 25: 17b.

[118] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 34-35b. For a short history of using paper in ceremonies in China, see D. Hunter, *Paper-making*, pp. 203-217.

The paper trade supported their living and helped pay their taxes.[119] The *Ching-shan hsien-chih* (1882) said that along the Hsiao-fu-shui 小富水 River, people living in hills were skillful in making paper.[120] The *P'u-ch'i hsien-chih* (1836) recorded a case of a Cheng 鄭 clan, composed of more than forty households, which was engaged in manufacturing paper at a place known as Chih-p'eng 紙棚 (paper-making shed).[121] Both the *Ch'ung-yang hsien-chih* (1866) and *T'ung-shan hsien-chih* (1867) stated that water-powered mills were set up along mountains creeks for making paper.[122] These all show that certain places in Hupeh specialized in paper-making.

However, in the late nineteenth century, the quality of paper produced in Hupeh was probably not as good as before. For instance, at the end of the eighteenth century, Chang Hsüeh-ch'eng mentioned several kinds of four-fold paper (*lien-chih* 連紙) produced in Hsing-kuo-chou 興國州.[123] But the *Hu-pei t'ung-chih* (1921) said that these kinds were no longer manufactured in the late Ch'ing period. The same gazetteer also remarked that the quality of some kinds of paper deteriorated.[124]

Nevertheless, in the late nineteenth century, the paper trade in Hankow was considered one of the eight great trades.[125] It is impossible to determine how large the trade was. According to the Maritime Customs trade returns, a summary of the paper exported from Hankow is shown in Table 21.

Table 21: Exports of Paper from Hankow, 1867-1914 (not including re-export)

(1) The first quality paper

Period	Average Quantity 1,000 Piculs	Average Value 1,000 HK Tls.	Average Price Per Picul	Price Index 1895-99 =100	Volume Index 1895-99=100
1867-1869	0.6	10.0	15.71	71	28
1870-1874	0.3	4.3	13.19	60	14
1875-1879	0.5	5.4	10.11	46	23
1880-1884	0.7	8.1	11.98	54	33
1885-1889	0.8	15.4	17.00	77	38
1890-1894	1.4	29.5	20.91	95	70
1895-1899*	2.1	46.1	21.92	100	100
1900-1904	1.8	44.9	25.70	117	85
1905-1909	1.4	38.2	27.72	126	66
1910-1914	1.1	37.5	35.47	161	52

[119] *Yün-hsi hsien-chih* (1866), 18: 49a-b.
[120] *Ching-shan hsien-chih* (1882), 1: 6 (section on rivers).
[121] *P'u-ch'i hsien-chih* (1836), 4: 45.
[122] *Ch'ung-yang hsien-chih* (1886), 1: 65; *T'ung-shan hsien-chih* (1867), 2: 28b.
[123] Chang Hsüeh-ch'ing, *Chang Shih-chai hsien-sheng i-shu*, 1: 17.
[124] *Hu-pei t'ung-chih* (1921), 24: 39b-40.
[125] *Hsia-k'ou hsien-chih* (1902), 12: 12.

Table 21 (continued)

(2) The secondary quality paper

Period	Average Quantity 1,000 Piculs	Average Value 1,000 HK Tls.	Average Price Per Picul	Price Index 1895-99 =100	Volume Index 1895-99=100
1867-1869	8.7	41.2	4.89	84	26
1870-1874	7.6	37.6	5.02	86	23
1875-1879	14.4	66.7	4.68	80	43
1880-1884	11.7	59.5	5.07	87	35
1885-1889*	15.9	76.4	4.97	85	48
1890-1894	29.3	100.5	3.43	59	88
1895-1899	33.0	196.6	5.79	100	100
1900-1904	37.7	247.1	6.57	113	114
1905-1909	46.1	25.0	5.54	95	139
1910-1914	43.2	313.2	7.36	127	130

Source: Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2, section on Hankow.

*The original figures for the years 1886-1888 include both the first and secondary quality paper. Since the average prices per unit derived from the quantity and value of these years are close to those of the secondary quality paper in other years, I have counted these three years for the secondary quality paper only. For the first quality paper in the period 1885-1889, only two years are counted.

Table 21 suggests three points. (1) The paper trade was not very large in terms of quantity ore value. (2) The quantity of the first-grade paper was rather small. This may imply that there were technical difficulties in making fine paper. On the other hand, it seems likely that since the demand for the first-grade paper was not very large, the paper manufacturers preferred to produce other kinds which were more popularly in demand. (3) The volume of the secondary quality paper shows an upward trend despite fluctuations in prices. This may imply that the paper-making industry at least kept pace with the increasing trade in Hankow.

Timber

This section will deal with the timber industry which developed in mountains along the upper Han River during the late eighteenth century. The beginning of this development and its decline cannot be dated precisely. Since work in the timber mills was largely done by migrants, the beginning of the timber industry probably followed the movements of migrants into the mountains.[126]

According to Pi Yüan 畢沅 (1730-1797), migrants first came to the upper Han River highlands around the year 1773.[127] This might be taken as the tentative beginning date of the timber industry in this area. In 1823, Lu K'un noticed that there

[126] Yen Ju-i, *San-sheng pien-fang pei-lan* 9: 1. For the movements of migrants into the upper Han River highlands, see Ping-ti Ho, *Studies on the Population of China* (1959), pp. 149-153.

[127] *An-k'ang hsien-chih* (1815), 17: 4b-5.

were many timber mills operating in southern Shensi.[128] By this time the process of deforestation was well on the way. Deforestation became more and more serious throughout the nineteenth century. In 1904, Bailey Willis observed that people of a village in the Tsin-ling Mountains were near starvation because "their trade of lumber has gone with the forest."[129] This was probably a common destiny for the people who once relied on the forest for their prosperity.

The conditions of the timber industry described below are based on Yen Ju-i's writing. The situation as described represents the timber industry in southern Shensi in its most prosperous stage.

A large scale timber mill included three departments: *yüan-mu* 圓木 (trunks), *fang-pan* 枋板 (planks), and *hou-ch'ai* 猴柴 (firewood, literally "monkey wood," meaning wood pieces without any standard shape). Distinctions among the three departments were based on the quality and the length of the trunks. Those with a length of three to five *chang* 丈 were classified as *yüan-mu*, those of one *chang* were sawed into planks, and those which were twisted in shape were cut into pieces for selling as firewood. A small mill usually operated only with planks ans firewood.[130]

The timber mills were invested in by merchants from the cities of Sian, Chou-chih 盩厔, and Han-chung. They employed managers known as *chang-kuei* 掌櫃 or *tang-chia* 當家 to take charge of the mills in the mountains. Under the managers, there were clerks, *shu-pan* 書辦, who were responsible for accounting and handling contracts. Moreover, there were leaders on the riversides, *ling-an* 領岸, who were in charge of the transport of timber at the water-front, and heads of laborers, *pao-t'ou* 包頭, who supervised laborers in transporting timbers.[131]

Usually, a large scale timber mill employed 3,000 to 5,000 persons including skilled workers and transporting laborers. For discipline, this large group of workers was organized like a military battalion, and commands were given whenever they were to move forward or stop. The number of laborers hired in small mills could range from a few tens to a few hundreds.[132] It is not very clear how the wages were paid. A memorial in 1806 mentioned that a worker in Tzu-yang was paid 100 cash for sawing one *chang* of planking and he received his wages once a month.[133] There is also no information about time limitations of employment. One important factor that affected working conditions of the timber mills and other industries in mountain was

[128] Lu K'un, *Ch'in-chiang chih-lüeh*, pp. 55, 61; cf. Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 47b. ,
[129] Bailey Willis, *Friendly China*, p. 257.
[130] Yen Ju-i, *San-sheng pien-fang pei-lan*, 9: 1.
[131] *Ibid*., 9: 2a-b.
[132] *Ibid*., 9:2b; 4b.
[133] See the citation in the *Tzu-pen chu-i meng-ya wen-t'i t'ao-lun-chi*, I, pp. 520-521.

the harvest of maize.[134] If there was a shortage of maize, workers might find it difficult to acquire enough to eat. Also it seems that there was no assurance of payments of wages during difficult times, thus, workers gathered in the mountains were considered potential elements of social disorder.[135]

Transporting timber out of the mountain required heavy capital investments. Timber mills were often found near rivers for the sake of utilizing water transportation, but when forests in the outer part of the mountains were exhausted it was necessary to obtain timbers from the inner mountains and some sort of mechanical apparatus for transportation had to be employed. Mills deep in the mountains had to set up equipment such as *liu-tzu* 溜子 (slippery flume) and *t'ien-ch'e* 天車 (celestial wheels), to help move timbers out. The *liu-tzu* was an apparatus constructed like a bridge connecting the timber mills and the water fronts. The idea was to utilize its smooth surface for moving timbers easily. The *t'ien-ch'e* was built by applying the mechanical principles of the pulley and the crank for lifting heavy trunks from inner mountain slopes.[136] Once the timbers were gathered at the water front, they were allowed to float downstream with laborers holding hooks to prevent them from being driven away by the currents.[137] But for the most valuable planks used in making coffins, water transport was prohibited. These planks were carried by strong laborers who were mockingly called as *mou-lo-tzu* 某騾子 (a certain human mule) by people in the timer trade. Yen Ju-i commented that mules really could not compete with these laborers.[138] In 1904, Bailey Wills traveled on foot over the Tsin-ling mountains and he met some laborers carrying heavy loads of wood or boards.[139] From the size of these boards which Mr. Willis described, one gets and impression that although the forest was almost gone, people still would go to great lengths to obtain suitable wood for a good coffin.

Firewood was more related to daily life than planks which served the dead. The "monkey wood" pieces floated down streams and rivers and were gathered at certain spots where they were piled up. Poor people bought some of these pieces with a few hundred cash; cut them into smaller pieces and packed them into bundles. By transporting them to cities and towns for sale, a profit of several tens of cash could be obtained in one day.[140] It seems that firewood was available as a cargo for people to

---

[134] Yen Ju-i, *San-sheng pien-fang pei-lan*, 9: 2b-3; Lu K'un, *Ch'in-chiang chih-lüeh*, pp. 49, 55.
[135] *Ibid*.
[136] Yen Ju-i, *San-sheng pien-fang pei-lan*, 9: 1-2. According to the description of *t'ien-ch'e*, the *pa-chiao-lun* 八角輪 might be a pulley and the *chuan-ch'e* might be a crank. For the mechanical principles of the pulley and crank, see Joseph Needham, *Science and Civilization in China* (Cambridge, 1965), IV. Pt. 2, pp. 95-119.
[137] Yen Ju-i, *San-sheng pien-fang pei-lan*, 9: 2.
[138] *Ibid*., 9; 4.
[139] Baily Willis, *Friendly China*, p. 235.
[140] Yen Ju-i, *San-sheng pien-fang pei-lan*, 9: 4a-b.

buy and sell along the upper Han River. In 1868, A. Wylie reported, “Our skipper killed every available corner with a cargo of it as a commercial speculation, some of the men also investing their money in a similar enterprise.”[141]

There is no complete account about the number of timber mills along the upper Han River when the trade was still prosperous. By the end of the Ch’ing dynasty, the timber mills had almost disappeared as pointed out by Ch’iu Chi-heng.[142] Although Ch’iu Chi-heng mentioned that wood planks were sent from the Hsing-an area to Lao-ho-k’ou, in his statistics he lumped the wood planks with the bamboo pieces, and it is difficult to determine precisely what proportion of the trade was in wood planks.[143]

No matter how large the timber trade was, it had almost died out in the beginning of the twentieth century. In the early nineteenth century, preoccupied by the White Lotus rebellion, Yen Ju-i and others could only see a “great harm” implied in the crowds of workers and paid little attention to the harmfulness of deforestation.[144] One had to wait for one hundred years before Ch’iu Chi-heng called attention to to the urgent need of reforestation.[145] His foresight is even more remarkable as we review it today.

Iron

The iron industry along the upper Han River in the early nineteenth century deserves some notice. Ironworks were found in Feng-hsien, Lüeh-yang, Nin-ch’iang, and Ting-yüan, while those in Hsün-yang and Liu-pa were no longer worked according to Yen Ju-i.[146] In 1823, Lu K’un reported that there were two ironworks in Ting-yüan, five in Lüeh-yang, and 17 in Feng-hsien.[147] Ann iron factory usually had three divisions: (1) the *hung-shan* 紅山 (literally, “red mountain”) where the iron ore was worked out, (2) The *hei-shan* 黑山 (literally, “black mountain”) where the charcoal for heating the ore in furnaces was made, and (3) furnaces for smelting iron. In some cases, there might be a fourth division where the iron was forged into pans and agricultural impolements.[148]

---

[141] A.Wylie, “Notes of a Journey,” p.82.
[142] Ch’iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 47b.
[143] Ch’iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 46-47.
[144] Yen Ju-i, *San-sheng pien-fang pei-lan*, 9: 14b.
[145] Ch’iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 47b.
[146] Yen Ju-i, *San-sheng pien-fang pei-lan*, 9: 4b-5.
[147] Lu K’un, *Ch’in-chiang Chih-lüeh*, pp. 49, 55, 58.
[148] Yen Ju-i, *San-sheng pien-fang pei-lan*, 9: 4b-5. Other sources say that the hei-shan is the iron ore, see *Feng-hsien-chih* (1892), 1: 10b; Ch’iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A: 24b.

The number of workers employed in the first two divisions, i.e., in mining and charcoal production, was larger than the number working at the furnaces. In general, to supply enough materials for one furnace, it required more than one hundred workers to dig the ore to cut the wood for making charcoal, and to transport these to the furnace. A large iron factory might have six or seven furnaces and a small one might have three or four furnaces. For each furnace, one skilled worker was in charge of keeping the proper temperature in the furnace and assuring the fineness of iron. More than ten laborers took turns operating the blast bellows. Therefore, an iron work with six or seven furnaces usually employed more than one thousand workers and one with three or four furnaces employed several hundred workers. In the cases where there was an attached workshop for manufacturing tools and utensils, another thousand men would be required to work as artisans and transport laborers. Ordinarily, the large ironworks at T'ieh-lu-ch'uan 鐵爐川 in Feng-hsien, each had a working force of two to three thousand men.[149]

It is difficult to determine precisely when the iron industry along the upper Han River began to decline. Apparently the decline was due mainly to the deforestation that caused a shortage of charcoal. In places where the forest had been exhausted first the ironworks were also closed first. For instance, the ironworks in Hsün-yang and Liu-pa were shut down in the early nineteenth century for this reason.[150] In 1870, von Righthofen noticed that steel was manufactured at several places in Han-chung prefecture.[151] However, the *Feng-hsien-chih* (1892) revealed clearly that the situation had already declined because of deforestation and hence the shortage of charcoal.[152] In the 1900s, Ch'iu Chi-heng cited similar reasons for the decline of the iron industry and recommended the substitution of coal for charcoal in the smelting of iron.[153]

As for the output of iron and the ironware trades, there is little information available. The *Feng-hsien-chih* (1892) said that the iron produced in the district was sold in long-distance trade.[154] However, in Ch'iu Chi-heng's table of trade, iron was one of the commodities imported into Shensi from Hankow.[155] This indicates that in the beginning of the twentieth century, iron was sent upstream rather than downstream on the Han River.

---

[149] Yen Ju-i, *San-sheng pien-fang pei-lan*, 9: 5a-b.
[150] *Ibid*., p: 5.
[151] Ferdinand von Richthofen, "Letter on the provinces of Chili, Shansi, Shensi, Sz'chwan," p.44.
[152] *Feng-hsien-chih* (1892), 1: 6a-b; 10b.
[153] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A: 24b.
[154] *Feng-hsien-chih* (1892), 1: 6b, 10b. The iron was previously marketed to Kansu.
[155] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A: 23.

Coal

In the nineteenth century, there were a number of small coal mines along the upper Han River. The *Hsü Hsing-an fu-chih* (1812) pointed out that coal was not recorded previously because it was found only when the forest was gradually destroyed after 1785.[156] It seems that throughout the nineteenth century, coal mining was going on along the upper Han River. In 1868, A. Wylie observed that coal was mined from the face of a cliff.[157] In 1904, Bailey Willis also visited some coal mines during his trip on the Han River from Shih-ch'üan to Hsing-an.[158]

No information about the output of coal along the upper Han River is known. Ch'iu Chi-heng estimated that during 1904-1906, annually there were about one hundred boats each loaded with 20,000 catties of coal going downstream to Lao-ho-k'ou. Usually, the coal was shipped and sold by boatmen who could earn a little profit from the saving of a freight charge. But few merchants were engaged in this trade because coal was bulky and cheap. The coal arriving at Lao-ho-k'ou provided fuel for restaurants and common residences.[159]

Gypsum

Gypsum (*shih-kao* 石膏, also known as *han-shui-shih* 寒水石) was a special product of Ying-ch'eng, Hupeh. It was mainly used for medical purpose prior to Ming times. It is not clear when people began to apply gypsum in making bean-curd. It seems that this new usage of gypsum was already common in the sixteenth century as Li Shih-chen 李時珍 (1518-1593) pointed out, "Now people use gypsum to congeal ben-curd. This is what people of previous generations did not know."[160]

Gypsum was discovered in Ying-ch'eng only in the late Ming period. According to Hsi Ta-chuang 奚大壯 (1775-1829), who served as magistrate of Ying-ch'eng three terms during 1806-1815, the natives informed him that the discovery of gypsum occurred during an accident where a cliff collapsed. Gradually, it was found that gypsum was in existence everywhere within the boundary of the district. But owing to a belief in *feng-shui* 風水 (geomancy; literally, "winds and waters"), people dared not excavate beyond the Hsien-ho 縣河 River to southeastern part of the district, fearing that the site of the city might be affected.[161]

---

[156] *Hsü Hsing-an-fu-chih* (1812), 2: 16.
[157] A. Wylie, "Notes on a Journey," pp. 182-183.
[158] Bailey Willis, *Friendly China*, p. 277
[159] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan B: 48-50.
[160] Li Shih-chen, *Pen-ts'ao kang-mu* (Anhui, 1885), 9: 33a-b.
[161] *Ying-ch'eng hsien-chih* (1882), 1: 55b; *Te-an fu-chih* (1888), 3: 87b-88. For a discussion of the concept of *feng-shui* and its functions in Chinese society, see Maurice Freedman, *Chinese Lineage and Society: Fukien and Kwangtung* (London, 1966), ch. 5, esp. pp. 122-125, 139.

Even so, it seems that the gypsum trade was quite prosperous. Chang Hsüeh-ch'eng remarked in the late eighteenth century, "In Ying-ch'eng, the livelihood of people relies on gypsum." And the gypsum that sent to the Hankow market "filled in streets and lanes and was piled up like mountains and clouds."[162] Essays and verses were composed to praise this useful and profitable article. These lines written by a native scholar in the early nineteenth century revealed some pertinent facts:[163]

As it is indispensable for daily usages,
    It is sold far away to the nine regions of the empire.
Being brought to markets and ready for sale in shops,
    It is as efficient as acupuncture and cauterization in curing serious diseases.
The customs stations is set up and merchants can trade easily,
    The wealth acquired is comparable with that from salt and tea.

Taxation records on gypsum indicate that the trade was a notable one. A native customs for collecting duties on gypsum was established in the beginning of Yung-cheng period (1723-1735). The original tax quota was 1,100 taels with a surcharge for meltage (*hao-yin* 耗銀) in the amount of 121 taels. In 1865, it was ordered that all of the surplus should be sent to the central government, and the total value of that sent amounted to 3,827 taels. In 1886, the gypsum tax was transferred to a likin bureau and the quota of the likin was listed at 20,000 strings of cash.[164] If 3,000 taels were normally collected, the tax on gypsum would amount to about one-sixth of the land tax collected in Ying-ch'eng.[165] This demonstrates that gypsum tax was quite an important revenue as far as Ying-ch'eng was concerned.

Table 22 indicates the gypsum exported from Hankow during the period 1867-1914. Moreover, according to Ch'iu Chi-heng, the gypsum which was sent up the Han River through the likin customs to Shensi is shown in Table 23. Both tables show that gypsum trade was increasing in volume by the end of the Ch'ing dynasty. Thanks to the low per capita output under traditional technological methods, the gypsum mines were not exhausted after more than four hundred years of excavation. Today, Ying-ch'eng is still the largest gypsum-producing area in China, and new tehnology certainly will bring forth new prospects of productivity.[166]

---

[162] Chang Hsüeh-ch'eng, *Chang Shih-chai hsien-sheng i-shu*, 1: 17, 18.

[163] *Ying-ch'eng hsien-chih* (1882), 1: 56; *Te-an fu-chih* (1888), 3: 88a-b. The original text says, "li-kuan-chin 立關津" (to set up the customs). But if *li* is changed to another character that means profit (利), the whole sentence will make better sense. This was pointed out to me by Professor Yang.

[164] *Ying-ch'eng hsien-chih* (1882), 3: 21; *Hu-pei t'ung-chih* (1921), 50: 38, 43b-44.

[165] *Ying-ch'eng hsien-chih* (1882), 3: 11a-b. The total of land tax was 16,294.1 taels.

[166] Sun Ching-chih, *Hua-chung ti-ch'ü ching-chi ti-li*, p. 48.

Table 22: Gypsum Exported from Hankow, 1867-1914

Period	Average Quantity 1,000 Piculs	Average Value 1,000 HK Tls.	Average Price Per Picul	Price Index 1895-99 =100	Volume Index 1895-99=100
1867-1869	34.4	10.5	0.31	106	18
1870-1874	38.7	11.7	0.29	100	20
1875-1879	71.6	21.5	0.29	100	37
1880-1884	114.8	36.6	0.31	106	60
1885-1889	154.6	51.5	0.33	113	81
1890-1894	151.1	67.5	0.46	158	79
1895-1899	190.3	57.1	0.29	100	100
1900-1904	277.9	101.2	0.35	120	146
1905-1909	345.8	148.7	0.42	144	181
1910-1914	379.5	190.2	0.49	168	199

Source: Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2, section on Hankow

Table 23: Gypsum Imported into southern Shensi, 1904-1906

Year	Quantity (Picul)	Price in Ying-ch'eng	Price in Shensi
Nov. 1903-Nov. 1904	1,764	0.7 taels	1,500-1,600 cash
Nov. 1904-Oct. 1905	2,252	0.7 taels	1,500-1,600 cash
Oct. 1905-Oct. 1906	3,015	0.7 taels	1,500-1,600 cash

Source: Ch'iu Chi-heng, *San-ching Han-chiang liu-yü mao-i-piao*, chüan A: 43-44.

But one cannot be sure whether gypsum will continue to play an important part in the life of Ying-ch'eng for another four hundred years under the high productivity of modern technology.

CHAPTER 5
MARKETING SYSTEM AND ECONOMIC CHANGE

In the two previous chapters, discussion has been devoted to the relations between production and trade. In this chapter I shall look further into economic changes to study the working of the marketing system and to estimate the level of per capita trade.

Scholars who have studied the rural marketing system in the Ch'ing dynasty have generally agreed that the rural markets were periodic. Katō Shigeshi 加藤繁 had surveyed numerous local gazetteers and found that periodic markets existed in Chihli (Hopei), Shantung, Shansi, Honan, Fukien, Kwangtung, and Kwangsi. By contrast, the gazetteers of districts in Kiangsu lack information about market days. Katō suggested that this was probably because the rural markets in Kiangsu were held daily. He believed that small markets convening periodically might still have existed in Kiangsu, although they were rot recorded. At any rate, Katō concluded that the daily market was the highest development of the rural market and from the beginning of the Ch'ing dynasty, the general tendency was for the number of rural markets to increase and the market schedule to intensify.[1] G. William Skinner, who did field work in Szechwan, had formulated a model of the Chinese rural marketing system. The hexagonal marketing area depicted by Skinner was based on different market schedules that were distributed among a number of market towns, which in turn were situated a certain distance apart. Skinner also pointed out that the distribution of markets and patterns of marketing behavior provided a sensitive index of the progress of modernization, which was characterized as a process of gradual commercialization of the agrarian economy. He concluded that in traditional times, the marketing system developed when new market towns were added and the size of the marketing area was reduced. On the other hand, progress of modernization involved a decrease in the number of market towns while the size of the marketing area was enlarged.[2] The first half of Skinner's conclusion is similar to Katō's, but Skinner goes further to formulate a hypothesis for testing the progress of modernization in the rural marketing system.

Although both Katō and Skinner cover many provinces in their studies, they do not give examples from places within the Han River area. Moreover, although Morita Akira 森田明 has written an article dealing with the periodic markets in the Hu-kuang 湖廣 area, his study shows that the localities where rural markets convened

[1] Katō Shigeshi, "Shindai ni okeru sonchin no teiki ichi," in *Shina keizaishi kōshō*, II, pp. 505-506.
[2] G. William Skinner, "Marketing and Social Structure in Rural China," *Journal of Asian Studies*, Part I, 24.1 (Nov. 1964): 3-43; Part II, 24.2 (Feb. 1965): 212-215.

periodically were in Hunan rather than in Hupeh.[3] It seems that further study on the working of rural marketing system in the Han River area is still needed.

To begin with, I shall try to clarify the terminology used in Chinese records. But before going to do this, it should be noted here that although Skinner has defined three levels of "market town," this study will not attempt sorting the rural markets in the Han River area into these levels. The main reason is that there is no precise way of sorting. This will become clear in the following discussion. But, the settlement pattern of market towns is different from that of other rural markets. In this study, the term "market town" will be used to mean a site, situated in the rural areas, where there were streets and permanent shop buildings. The term "rural market" will be used to mean a site, where there was a marketplace but no streets and permanent shop buildings.

Based on the size of a town and the amount of commercial tax levied there, Chang Hsüeh-ch'eng mentioned that the market towns in Hupeh could be divided into two categories: the *fan-sheng* 繁盛 (busy and prosperous) and the *p'ien-p'i* 偏僻 (out of the way and isolated).[4] But these categories are not found in any prefectural and district local gazetteers. Instead, in local gazetteers, markets found in the rural areas are listed under various categories, such as *chen-shih* 鎮市, *shih-chen* 市鎮, *hsiang-chen* 鄉鎮, *hsiang-shih* 鄉市, *shih-chi* 市集, *chi-chen* 集鎮, *ts'un-chen* 村鎮, *ts'un-chi* 村集, or *tien* 店. Apparently, there are no standardized criteria for applying these names. Moreover, not every place name under these categories is suffixed with a character that indicates a market. However, key terms are *chen* (town), *shih* (marketplace), *chi* (rural market), and *tien* (shop). Philologically, these terms have different connotations. In the usage during the nineteenth century, at least from records along the Han River area, these terms are all used to mean rural markets, large or small. But it seems that place names suffixed with these terms were ranked only roughly in a descending order in the marketing hierarchy.

In Ch'ing times, a *chen*, as a rule, was a site where a sub-district magistrate (*hsün-chien* 巡檢) had his office.[5] In this sense, a *chen* had administrative as well as commercial functions and was usually a large market town. In the regulations of local self-government (*tzu-chih chang-ch'eng* 自治章程) issued in 1908 by the Ch'ing court, a *chen* was defined as having a population of 50,000 in its administrative area.[6] Although the administrative area referred to in this definition might not coincide with

[3] Morita Akira, "Shindai Kō-kō chihō ni okeru teiki ichi nit suite," *Shōkei lonsō*, 5.1: 55-56.

[4] Chang Hsüeh-ch'eng, *Chang Shih-chai hsien-sheng i-shu*, 1: 19.

[5] T'ung-tzu Ch'ü, *Local Government in China under the Ch'ing* (Cambridge, Mass., 1962), pp. 8-9,

[6] These regulations are included in *Ta-ch'ing fa-kuei ta-ch'üan* (Shanghai, 1909), 3: 2. Cf. Chu Tzu-shuang, *Chung-kuo hsien-chih shih-kang* (Chungking, 1942), p. 64; Wen Kung-shih ed., *Ch'ü-hsiang-chen tzu-chih ts'ung-shu* (Shanghai, 1933), I. p. 145, *chen* is defined as a nucleated settlement with one hundred and more households.

the marketing area around a *chen*, the official definition of a *chen* shows that it was ranked highest below the *hsien* in the local administrative hierarchy during the modern transition obviously owing to an earlier development. This indicates that in traditional china, a rural commercial center was not independent of administrative control. There are, however, exceptions to the official usage of the term *chen*. In the *Yün-hsi hsien-chih* (1866) all markets in the rural areas were suffixed with the character *chen*.[7]

Although some *chen* might not always have administrative roles, they were consistently market towns. For instance, T'ien Tsung-han 田宗漢, a native of Han-ch'uan, did investigations in the 1890s in his native district and along the Han River in Hupeh. He used *chü-chen* 巨鎮 (big towns), *chung-chen* 中鎮 (middle towns), and *chi-shih* 集市 (rural markets) to mark the sites of markets on maps. But his usage of these terms shifted in relation to the area being considered. For instance, when he dealt with the individual case of Han-ch'uan, he mentioned two *chü-chen* in the district. However, these two were marked as *chung-chen* in a larger spectrum along the Han River.[8] T'ien Tsung-han's category do demonstrate that the use of *chen* was restricted to market towns and not rural markets. But this shifting in defining the size of market towns is important to keep in mind, because the same practice may also occur in records of different local gazetteers.

Places indicated by *shih* had no administrative functions, and they were most likely market towns smaller than a *chen* or just rural markets. Leaving out its modern usage for a metropolitan area, *shih* originally meant a marketplace. The compilers of the *Hu-pei t'ung-chih* (1921) commented on a lack of information about markets in the rural areas in some local gazetteers and said, "In remote areas, there may be no *chen*, but how can it be possible that there is no shih?"[9] In this statement, *chen* was apparently restricted to mean market towns and *shih* marketplaces or rural markets. However, in some districts all markets in the rural areas were referred to by the character *shih*.[10] Moreover, the *Yün-hsien-chih* (1866) said, "The markets in the rural areas (*ssu-hsiang chi-shih* 四鄉集市) are either composed of several hundred households or one hundred and several tens of households. These are situated along rivers or near mountain roads. Shops are lined up side by side and the volume of their trade differs."[11] From this statement it is apparent that the markets in the rural areas of Yün-hsien, although not called *chen*, had permanent shop buildings and thus can be

[7] *Yün-hsi hsien-chih* (1866), 2: 17-18.

[8] T'ien Tsung-han, *Han-ch'uan t'u-chi cheng-shih* (1895), ts'e 5: 43; *Hu-pei Han-shui t'u-shuo* (1901), map: 1b-2. The two market towns are Hsi-ma-k'ou and T'ien-erh-ho.

[9] *Hu-pei t'ung-chih* (1921), 33: 1.

[10] For instance, see *T'ung-shan hsien-chih* (1867), 1: 21a-b; *T'ung-ch'eng hsien-chih* (1867), 8:42b; *Ta-yeh hsien-chih* (1867), 3: 41a-b.

[11] *Yün-hsien-chih* (1866), 2: 55.

ranked as market towns rather than rural markets.

As for *tien*, it may have become an alternative tern for a market town rather than just a shop. For instance, Wu-chia-tien 吳家店 in Tsao-yang had a thousand households (*yen-huo ch'ien-chia* 煙火千家, *ch'ien* should not be taken too literally) and it was a large town south of the district city of Tsao-yang.[12] Moreover, in Te-an-fu 德安府 and other localities along the Han River, market towns were usually referred to by the character *tien*.[13]

As for *chi*, a typical term for a rural market, it was sometimes interchangeable with *chen* in meaning. For instance, Sung-pu-chen 宋埠鎮 in Ma-ch'eng hsien was described as "*i-chung shou-chi* 邑中首集", or the first market town in the district.[14] In addition, in Han-yang hsien, several *chi* were ranked with *chen*, and the inhabitants were called "*chen-shih hsiao-min* 鎮市小民", or common people in the market towns.[15] But, *chi* was probably more often used to refer to small rural markets. For instance, T'ien Tsung-han said that *chi* was used for some market towns where traveling and sedentary merchants (*shang-ku* 商賈) no longer gathered but only peddlers (*fu-fan* 負販) who served the needs of villagers.[16]

Furthermore, some brief references found in local gazetteers also shed light on understanding the function of market towns. For instance, the *T'ien-men hsien-chih* (1765) remarked, "In big towns, traveling merchants (*hsing-shang* 行商) trade, sedentary merchants (*tso-ku* 坐賈) gather, and pawnshops issue pledges (*chih-chi* 質劑). But there are only a few of these towns in the districts."[17] The *Yün-hsi hsien-chih* (1866) had all markets in the rural areas suffixed with the character *chen* and said, "A *chen* is established for protecting people and also for providing conveniences to people. Commodities can be obtained there, trade is carried on there, and merchants and artisans gather there."[18] Moreover, as mentioned before, in Yün-hsien, market towns were places where shops were lined up together along the road. All these statements suggest that in places along the Han River, the people spoke of market towns as places where there were shops and where trade was carried on continuously rather than periodically. These market towns, in fact, should be distinguished from other rural markets, which convened periodically or only a few hours daily.

Clarifying the usage of terms is but the first step. In the following paragraphs the working of the market system in the Han River area will be discussed in terms of

---

[12] *Tsao-yang hsien-chih* (1854), 1: 21b-22.
[13] *Te-an fu-chih* (1888), 2: 42b-246; cf. *Sui-chou-chih* (1667), 2:4b. *Huang-an hsien-chih* (1822 and 1882) also uses *tien* as the category of rural markets, both in chüan 2.
[14] *Ma-ch'eng hsien-chih* (1935), 1: 42.
[15] Fan K'ai, *Han-k'ou ts'ung-t'an* (1822), 1: 17; *Han-yang hsien-chih* (1868), 3:5b-6b. .
[16] *Han-ch'uan t'u-chi cheng-shih* (1895), ts'e 5: 43.
[17] *Yün-hsien-chih* (1866), 1: 17.
[18] *T'ien-men hsien-chih* (1765 ed., 1922 reprint), 1: 33b.

the distribution of markets, the market schedules, the changes in the number of markets, the size of marketing areas, and the average population per market. In each of these themes Katō's and Skinner's theses will be tested. Also the vicissitudes of economic development along the Han River will be illustrated.

Spatial Distribution of Markets

The structure of the marketing system is first of all spatial. This is succinctly pointed out by Chang Hsüeh-ch'eng. When talking about the market towns in Hupeh, he remarked, "Cities are created according to strategic positions of mountains and rivers; small and large market towns are formed between cities and village settlements."[19] The implication of geography and transportation as determining factors for locations of cities and towns is thus clear. Consequently, Chang Hsüeh-ch'eng provided a list of major market following the directions of rivers – the Yangtze, the Han, and their tributaries. The importance of these trade routes is obviously implied.

Market towns situated right along the Han River can serve as an example of spatial distribution of markets. Chang Hsüeh-ch'eng mentioned thirteen major market towns along the Han river in Hupeh.[20] Among these, seven were marked as big towns, three as middle towns, and another three as rural markets by T'ien Tsung-han in 1901.[21] The seven big towns were: Hankow, Ts'ai-tien 蔡甸, Hsien-t'ao-chen 仙桃鎮, Yüeh-chia-k'ou 岳家口, Sha-yang 沙洋, Fan-ch'eng, and Lao-ho-k'ou. This suggests that as far as big towns along the Han River were concerned, there was little change during the nineteenth century, apparently because these places already occupied the most strategic positions. Moreover, from details about rural markets provided by T'ien Tusng-han, it is possible to say that below Yüeh-chia-k'ou, markets were closely distributed on the banks because the course of the river was tortuous and the river bed narrow. Higher up the river, however, where the river bed widened and where there were more shoals, the markets were more sparsely distributed and situated further away from the banks.[22] The locations of markets along a river seemed to be determined more by the natural course of the river and its surroundings than by any other spatial considerations.

The distribution of markets in the rural areas can also be observed from the point of view of a district. In most local gazetteers, as a rule, the markets in the rural areas of a district were grouped according to their relative position to the hsien city in

[19] Chang Hsüeh-ch'eng, *Chang shih-chai hsien-sheng i-shu,* 1: 15b.
[20] *Ibid*., 1: 16.
[21] T'ien Tsung-han, *Hu-pei Han-shui t'u-shuo* (1901), map.
[22] *Ibid*., cf. Ferdinand von Richthofen, "Letter on the Province of Hupeh", pp. 1-2, for description of the Han River.

terms of four or more directions. Thus, the structural relationship between the rural market towns and the hsien city is clear. Moreover, in each district, there were sometimes more than one road connecting the rural market towns and the hsien city. For instance, the *Ying-shan hsien-chih* (1871) mentioned that there were five marketing paths (*chi-lu* 集路) in the southeast, one in the northeast, two in the southwest, and three in the northwest (see Map 3).

Map 3: Markets in the Rural Areas of Ying-shan hsien, Market Paths, and the Distance in terms of li to the hsien city.

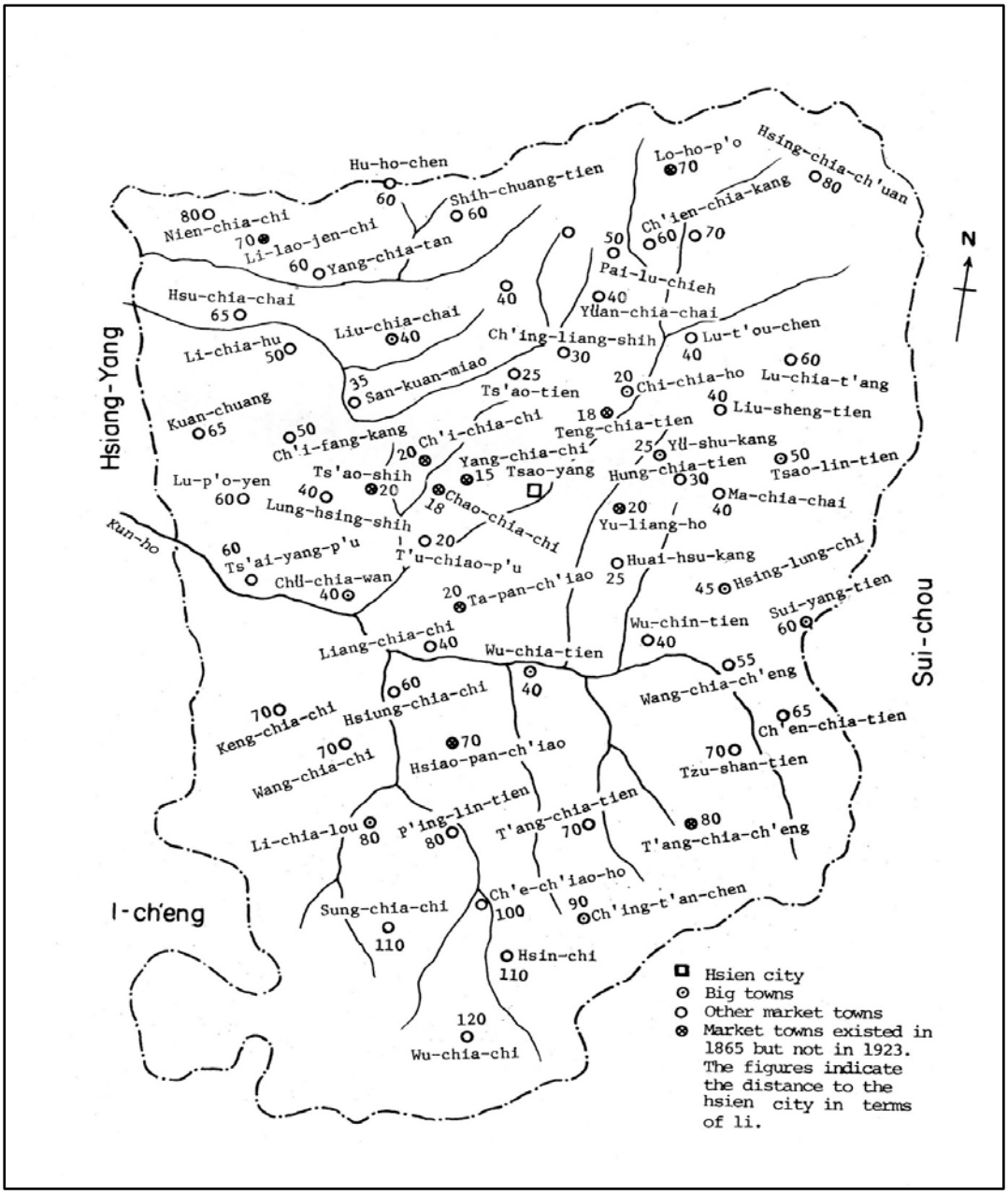
Source: *Ying-shan hsien-chih* (1871), map and 6:2b-5.

The distance between two markets in the same direction and on the same road was about 10 li, 15 li, or 20 li (1 li = 0.5 km). The maximum distance was 30 li.[23] This indicates that the distribution of market towns and rural markets depended on the walking distance from villages situated in between two markets. Although not every local gazetteer provides information about marketing paths, most gazetteers do provide the distance from each market town or rural market to the hsien city. From these data, one can gather that markets were rather evenly distributed in all directions radiating from the hsien city.

[23] *Ying-shan hsien-chih* (1871), 6: 2b-5.

The distribution of market towns and rural markets in Tsao-yang hsien is given here as an example (see Map 4).

Map 4: The Distribution of Market Towns in Tsao-yang hsien, ca. 1910



Source: *Tsao-yang hsien-chih* (1865 and 1923).

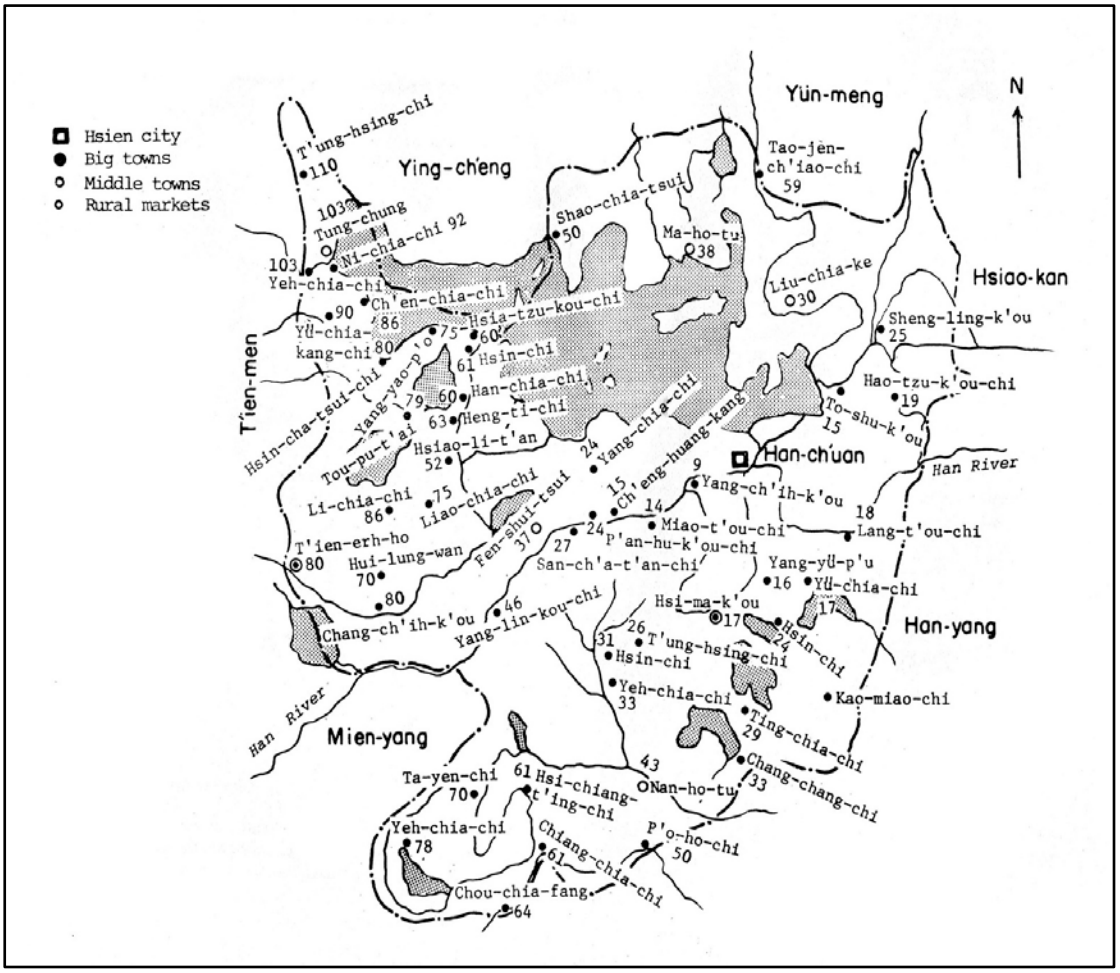
Tsao-yang is situated on a plain with an average altitude of 50-250 meters above sea level.[24] In addition to transportation over land, navigation of small boats was possible on Kun-ho 滾河, a tributary of the Han River.[25] The terrain is favorable for an even

[24] See Chang Ch'i-yün. *Chung-hua min-kuo ti-t'u-chi* (Taipei, 1962), Map C7.

[25] *Han-chiang shui-tao ch'a-k'an pao-kao*, p. 28. Kun-ho is also known as K'un-shui 昆水. See *Tsao-yang hsien-chih* (1923), 3: 7b, 9.

distribution of markets in this district. But it seems that the structural relationship between the large market towns and the small ones does not appear in a rigid hexagonal model. Moreover, the situation differs from district to district as the topography is not all the same. For instance, in Han-ch'uan hsien, market towns and rural markets were mostly found on the banks of lakes and rivers, and some were situated very close to each other (see Map 5). A rigid hexagonal model is likewise not applicable to this case. On the other hand, in the mountainous Ning-ch'iang chou, the distance between two rural markets is longer and the distribution appears in a simple triangle pattern rather than a complicated hexagon (see Map 6).

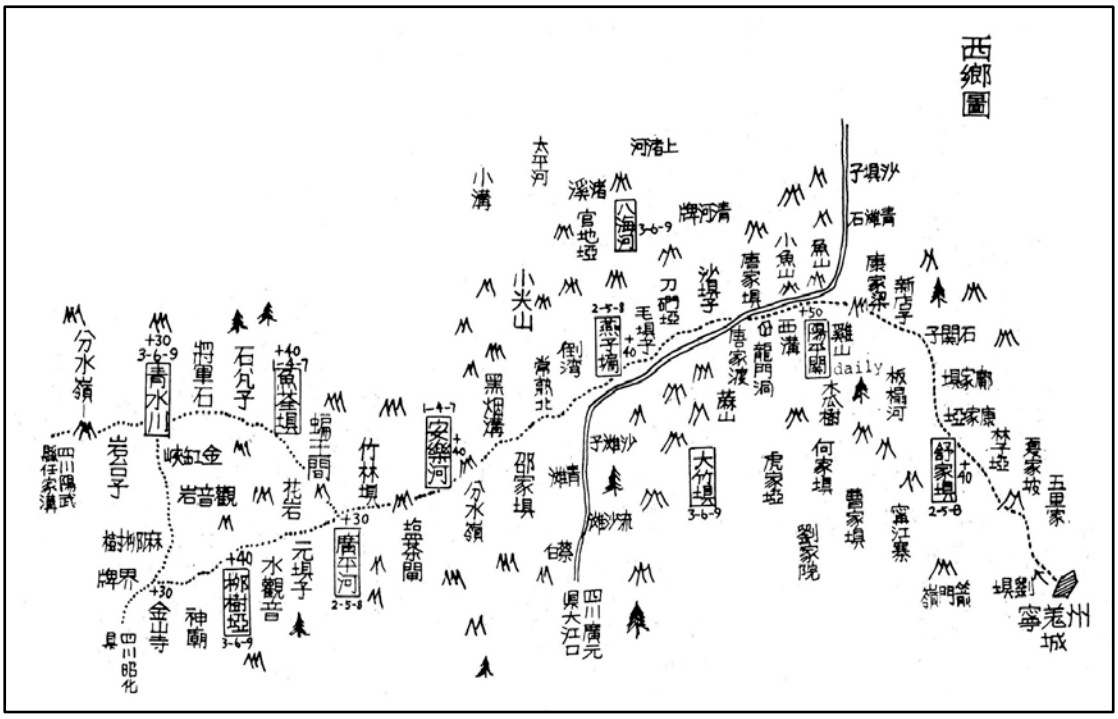
Map 5: The Distribution of Market Towns in Han-ch'uan hsien, c. 1900



Source: This map is adopted from *Han-ch'uan-hsien chien-chih* (1959). The Market towns are from *Han-ch'uan t'u-chi cheng-shih* (1895), ts'e 5:43-50. Cf. *Han-ch'uan hsien-chih* (1921), 33:12b-13.

The figures indicate the distance to the hsien city in terms of li. For Hsia-tzu-kuo-chi (60), Hsin-chi (61), Han-chia-chi (60), Heng-ti-chi (63), Ma-ho-tu (59), the distance is by water route; for Liu-chia-ke (30), by both land and water route.

Map 6: Market Towns in the Western Part of Ning-ch'iang-chou



Source: *Ning-ch'iang chou-chih* (1888), Map, 1: 23b-24.
Market towns and market schedules, 1: 42b. Roads and the additional distance between two places in terms of li, 1: 17b, 18b.

Market Schedule

As for the rural marketing system regulated by different market schedules, Skinner's model shows that a higher-level market town had a number of dependent market towns. The operative relationships were built on the principle that the periodic market schedule of the higher-level market towns was not in conflict with those of its dependent market towns. This device, on the one hand, enabled the peddlers to circulate among a number of markets in order to acquire enough demand for their goods and services. On the other hand, it gave the villagers the opportunity to visit higher-level markets for goods and services that they could not obtain at their own markets.[26] Although the hexagonal model depicted by Skinner existed in Szechwan, the practices in other localities may be different. In some places, the periodic market schedules might be distributed among different markets that formed a triangle rather than a hexagon, as shown in the Ning-ch'iang case in Map 6. In other places, where most markets had developed to the stage of convening daily, there were more chances for both peddlers and villagers to visit different markets and thus rigid circulating rules were ignored.

[26] G. W. Skinner, "Marketing and Social Structure in Rural China," Part I, 24.1: 10-14.

For the districts in Hupeh, it is necessary to point out first that information about periodic market days is not found in local gazetteers other than the *Hsing-shan hsien-chih* 興山縣志 (1865).[27] This gazetteer listed market days for three of the thirteen markets in the rural area. The days when the market convened were called *je-ch'ang* 熱場 (literally, "hot field"). This was similar to the practice in Szechwan, apparently because Hsing-shan was near Szechwan.[28] Because Hsing-shan was located not within the Han River basin, this negative example suggests that *je-ch'ang* was probably not a common phenomenon in the districts along the Han River.

How can one explain the lack of information about market days? Is it possible that the rural markets in most of Hupeh had developed to the stage of meeting daily in the late Ch'ing period, as Katō Shigeshi suggested was probably true in Kiangsu? It has been demonstrated above that in market towns, trade was carried on continuously rather than periodically. But how was the situation at other rural markets? Evidence shows that at places where people were commonly engaged in weaving cotton cloth, people living around the markets sold their cloth every morning.[29] Moreover, the *Ma-ch'eng hsien-chih* (1882) said that except for the three large market towns, other markets in the rural areas had only "midday markets for the inhabitants (*chü-min jih-chung-chih-chi* 居民日中之集)"[30] In addition, in 1922, a Han-ch'uan merchant, who had been engaged in trade along the Han River for ten years, pointed out that at a market town called Tou-tsui 剅嘴, the market was held every morning and this was similar to the practice in the countryside.[31] Although evidence is scanty, and one cannot derive a definite conclusion without any reservations, it does seem that Katō's interpretation about the situation in Kiangsu is also partly applicable to that in Hupeh. At least, for most rural markets mentioned in local gazetteers, markets were held daily for a few hours, and therefore, the records are mute about market days. If this is true, the level of commercialization in Kiangsu and Hupeh during the Ch'ing period was higher than that in Sung times, when the rural markets in these two areas were still on

---

[27] *Hsing-shan hsien-chih* (1865), 2: 33-34.

[28] *Ibid*., 1: 49b. For the practice in Szechwan, see G. W. Skinner, "Marketing and Social Structure in rural China," Part I, 24.1: 21. The term *je-ch'ang* is comparable with the term *chieh-shih* 疥市, which was used in Szechwan in the Sung period. Both use the cycles of malaria fever as metaphors. See Shiba Yoshinobu, *Sōdai shōgyōshi kenkyū* (Tokyo, 1968), p. 350.

[29] Fan K'ai, *Han-k'ou ts'ung-t'an*, 1: 17.

[30] *Ma-ch'eng hsien-chih* (1882), 5: 11a-b. In *T'ien-men hsien-chih* (1765 ed., 1922 reprint), 1: 33b, *Hsiao-kan hsien-chih* (1882), 2: 7b, the phrase "jih-chung wei-shih 日中為市 " is quoted. The concept of convening markets at midday is rather ancient, as this hrase is from *I-ching* 易經 (Book of Change), see Z. D. Sung trans., *The Text of Yi King* (Shanghai, 1935), p. 310.

[31] K'uang Yüan-tung, "Han-shui liu-yü chien-wen chi," in *Hsin yu-chi hui-k'an hsü-pien* (Shanghai, 1925), chüan 21, p. 10, pp. 23-24. In *Hu-pei Han-shui t'u-shuo*, map: 2, Tou-tsui is marked as a *chi-shih*, a rural market.

a three-day periodic schedule.[32]

While most rural markets in Hupeh seemed to have been held daily, in southern Shensi, periodicity was still predominant. The *Yang-hsien-chih* (1898) recorded that among 24 markets in the rural areas, twelve convened once every three days, three daily, one on the 1-4-7 schedule, another on the 3-6-9 schedule, and for the rest, the dates were unknown.[33] The *Lüeh-yang hsien-chih* (1847) mentioned 27 rural markets and each was held on the 1-4-7, the 2-5-8, or 3-6-9 schedule.[34] The *Ning-ch'iang chou-chih* (1888) listed 36 rural markets that convened markets on the same schedules as those in Lüeh-yang, and one on a daily schedule.[35] The *Feng-hsien-chih* (1892) also mentioned 19 rural markets with the same schedules as Lüeh-yang.[36] Thus, in these districts marketing activities were less intensive than in Hupeh. Apparently, transportation was more difficult along the upper Han River than along the lower part. This had the effect of producing less intensive marketing activities.

Changes in Number of Markets

The development of the marketing system can also be seen from the changes in the number of markets in the rural areas. As mentioned before, both Katō and Skinner have agreed that in traditional times the marketing system developed when the number of rural markets increased. Table 24 showing the number of rural markets in the rural areas of each district and prefecture in the Han River area will test this rule. Districts in Hsing-an-fu are omitted because, except for Tzu-yang and Shih-ch'üan, there is no information about rural markets in local gazetteers. Also it should be noted that in counting the number of markets from lists provided in different local gazetteers, I do not try to differentiate market towns from rural markets, because most of the lists do not give information other than the distance of a place to the *hsien* or *chou* city. To avoid confusion, it is better to count the total only.

Table 24 shows that percentage changes in some cases are rather great. This is mainly due to the different criteria of selection used in the original records. There are cases in which the number of markets given is no more than ten. These cases probably represent only the large market towns rather than the total number of rural markets. On the other hand, there are cases in which the number given is more than one hundred or at least more than fifty. These cases probably include even minor places

[32] Shiba Yoshinobu, p. 342. The citation from Ch'en Yūan-ching, *Shu-lin kuang-chi*, says, "The custom in the Ching 荊 (i.e., modern Hupeh) and Wu 吳 (i.e., modern Kiangsu) areas is to convene markets on *yin* 寅, *ssu* 巳, *shen* 申, and *hai* 亥 days."

[33] *Yang-hsien-chih* (1898), 2: t'u-ti-chih, 3b-4. For the market days of these schedules, see G. W. Skinner, "Marketing and Social Structure in Rural China," Part I, 24.1: 14.

[34] *Lüeh-yang hsien-chih* (1847), 1: 33a-b.

[35] *Ning-ch'iang chou-shih* (1888), 1: 42-43.

[36] *Feng-hsien-chih* (1892), 1: 5b-6b.

where there were only small shops along the roadsides rather than a market. Because no other information is available for making a complete adjustment, these numbers from different local gazetteers have been adopted. It is import to note, however, that none of these are precise and perfect. Numerical data are useful only for illustrating tendencies of change. They should not be taken too literally.

Table 24: Number of Markets in the Rural Areas in Prefectures along the Han River

Prefecture	Number of Markets			Percentage change			Source* *TC*: *t'ung-chih;FC*: *fu-chih*; *HC*: *hsien-chih*; *CC*: *chou-chih*
	ca. 1800	ca. 1870	ca. 1910	1800-1870	1800-1910	1870-1910	
Han-chung-fu							
Liu-pa	13	--	--				*FC* (1813), 7:1
Ting-yüan	1	--	--				*FC*, 7:2
Nan-cheng	3	--	12				*FC*, 7:4b; *HC* (1921). 2:9b.
Pao-ch'eng	7	--	--				*FC*, 7:5b.
Ch'eng-ku	4	--	4				*FC*, 7:7b; *Hsiang-t'u-chih*, p. 21.
Yang-hsien	2	--	24				*I-t'ung-chih*, 238:16b; *HC* (1898), 2:3b-4.
Hsi-hsiang	2	--	--				*I-t'ung-chih*, 238:16b.
Feng-hsien	2	--	29				*I-t'ung-chih*, 238:16b; *HC* (1892),1:5b-6b.
Ning-ch'iang	2	--	37				*FC*, 7: 14; *CC* (1888), 1:42-43.
Mien-hsien	3	--	--				*FC*, 7: 15.
Lüeh-yang	4	27	--				*I-t'ung-chih*, 238:16b; *HC* (1847), 1:33.
Total	53	--	--				
Yün-yang-fu							
Yün-hsien	41	31	29	-25	-23	-7	*FC* (1797). 2:45; *HC* (1866), 4:20.
Fang-hsien	68	107	30	57	-56	-72	*FC*, 2:45-46; *HC* (1866), 3:6-22.
Chu-shan	50	22	22	-56	-56	0	*FC*, 2:46; *HC* (1867), 2:2b-3b.
Chu-hsi	45	45	24	0	-47	-47	*FC*, 2:46b-47; *HC* (1867), 3:9b-10.
Yün-hsi	16	14	12	-23	-25	-15	*FC*, 2:47b; *HC* (1866), 2:17-18.
Pao-k'ang	20	48	48	140	140	0	*FC*, 2:47; *HC* (1866), 2:54-56.
Total	240	267	265	93	-74	-141	
Hsiang-yang-fu							
Hsiang-yang	73	56	54	-24	-27	-4	*TC* (1803), 13:16; *HC* (1873), 1:27-32.
I-Ch'eng	69	13	25	-82	-63	69	*TC* (1803), 13: 17; *HC* (1866), 2:34b-37.
Nan-chang	25	24	31	-4	24	29	*TC* (1803), 13:17b; *HC* (1865), 10:1-2.
Tsao-yang	53	65	57	22	7	-13	*TC* (1803), 13:17b-18;*HC* (1854), :20b-25.
Ku-ch'eng	87	90	32	3	-64	-65	*TC* (1803), 13:18; *HC* (1867), 2:5-9.
Kuang-hua	36	28	32	-23	-12	14	*TC*(1803), 13:18b-19;*HC* (1884), 1:26-29..
Chün-chou	48	6	21	-88	-57	250	*TC* (1803), 13:19; *CC* (1884), 2:22.
Total	391	282	252	-196	-192	240	
An-lu-fu							
Chung-hsiang	4	48	63	1,100	1,475	31	*TC* (1803), 13:14; *HC* (1867), 2:31b-32.
Ching-shan	9	65	73	622	811	12	*TC* (1803), 13:14; *HC* (1882), 2: 27b-28b.
Ch'ien-chiang	23	27	57	17	147	111	*TC* (1803), 13:14b; *HC* (1880), 4: 8b-10b.
T'ien-men	19	--	67	--	352	--	*TC* (1803), 13:15b-16.
Total	55	140	260	1,739	2,785	154	
Te-an-fu							
An-lu	11	32	42	190	281	31	*TC* (1803), 13:12; *FC* (1888), 2: 42b-43.
Yün-meng	9	20	16	122	77	-20	*TC* (1803), 13:12b; *FC* (1888), 2:43.
Sui-chou	59	50	75	-16	27	50	*TC* (1803), 13:13; *FC* (1888), 2: 44b-45.
Ying-ch'eng	44	60	37	36	-16	-39	*TC* (1803), 13:13, *HC* (1882), 1:36b-37b.
Ying-shan	19	40	52	110	173	30	*TC* (1803), 13:13b; FC (1888), 2: 45b-46.
Total	142	202	222	442	542	52	

Table 24 (continued)

Prefecture	Number of Markets			Percentage change			Source
	ca. 1800	ca. 1870	ca. 1910	1800-1870	1800-1910	1870-1910	*TC*: *t'ung-chih*; *FC*: *fu-chih*; *HC*: *hsien-chih*; *CC*:*chou-chih*
Han-yang-fu							
Han-yang	3	13	17	333	466	30	*TC*(1803), 13:13:6b; *HC* (1868), 3:5b-6b.
Hsia-k'ou	--	--	7	--	--	--	*TC* (1921), 33:12.
Han-ch'uan	79	37	31	-54	-61	-17	*TC* (1803), 13:6b-7; *HC* (1873), 6:7b-13.
Hsiao-kan	24	49	35	104	45	-29	*TC* (1803), 13:8; *HC* (1882), 2:7b-10.
Huang-p'o	14	10	23	-29	64	130	*TC* (1803), 13:8; HC (1871), 2:42b-43.
Mien-yang	21	132	24	728	14	-82	*TC* (1803), 13:9; CC (1894), 3:1-9.
Total	141	241	137	1,082	528	32	
Nan-yang-fu							
Nan-yang	17	--	47				*FC* (1807), 2:75b-76; P'an Shou-lien, p.61.
Nan- Chao	4	--	--				*FC*, 2:76.
Cheng-p'ing	10	27	--				*FC*, 2:76b; *HC* (1876), 2:22b-23..
T'ang-hsien	15	--	--				*FC*, 2:77.
Pi-yang	11	80	--				*FC*, 2:77b; *HC* (1828), 1:4-7.
T'ung-po	9	--	--				*FC*, 2:77b-78.
Teng-chou	26	--	--				*FC*, 2:78.
Hsin-yeh	11	--	--				*FC*, 2:79
Nei-hsiang	18	--	--				*FC*, 2:79.
Hsi-ch'uan	16	12	--				*FC*, 2:80; *T'ing-chih* (1860), 1:44b-45
Yu-chou	16	--	--				*FC*, 2:80b.
Wu-yang	18	40	--				*FC*, 2:81; *HC* (1855), 2:26.
She-hsien	17	--	--				*FC*, 2:81b-82.
Total	188	--	--				

*In addition to sources listed in the table, also see *Hu-pei t'ung-chih* (1921), 33: 11-17 for districts in Han-yang-fu; 33: 21-32 for districts in Te-an-fu; 33:33-39 for districts in An-lu-fu; 34: 2-10b for districts in Hsiang-yang-fu; and 34: 12-17b for districts in Yün-yang-fu.

From Table 24, an overall view shows that the number of markets in the rural areas was increasing during the nineteenth century. It is also notable that in Yün-yang, Hsiang-yang, and Han-yang prefectures, the number decreased during 1870-1910. Skinner has suggested that in the transition from traditional to modern marketing system, the number of rural market towns decreased while the large trading centers emerged. Did certain rural markets in these prefectures disappear during 1870-1910 due to this modern transition? This is a question that one may ask as these are circumstances that seem appropriate to Skinner's thesis. However, the problem here is rather whether these quantitative evidences are sufficient to test the transition from traditional to modern marketing system. To solve this problem, one must know how the small rural markets were abandoned and how the large market towns were formed. A few cases show that a market was abandoned either because it had been ruined by flood waters or because of a change in the trade route.[37] In addition, war was a crucial

[37] For instance, see *Ch'ien-chiang hsien-chih* (1860), 4:9; *I-ch'eng hsien-chih* (1866), 2:35b,, for cases in which markets were ruined by flood. *Han-ch'uan t'u-chi cheng-shih* (1895). Ts'e 5: 49b-50. Hsiao-li-t'an 小里潭 declined because the postal route was changes.

factor of destruction. It seems likely that the changes during the late Ch'ing period were still taking place mainly within the traditional framework rather than beyond it.

In the upper Han River area, the rural markets developed during the eighteenth century along with the influx of immigrants. During the seventeenth century, this area was sparsely populated because the area had been greatly damaged by wars during the Ming-Ch'ing transition period and the three Feudatories period. Markets were probably found only in cities. For instance, Tsou Jung 鄒溶, the 1691 magistrate of Yang-hsien, remarked that there were no markets in the rural areas of this district.[38] The record of rural markets in the *Han-chung hsü-hsiu fu-chih* (1813) did not reflect the real conditions of development during the eighteenth century. Except for Liu-pa 留壩, where there were 13 rural markets, the record shows only markets within each hsien city and not those in the rural areas. In Table 24, I have adopted the number of *chen* mentioned in the *Chia-ch'ing I-tung-chih*. But the number of rural markets in Han-chung for the period around 1800 was understated. To be sure, some rural markets might have been destroyed during the White Lotus Rebellion (1794-1804) and the Taiping Rebellion (1850-1864). However, there are no records for tracing the changes taking place after the wars. The numbers for the year 1901 can be taken as a result of development during the nineteenth century. But it is also not a complete record. Information for Hsing-an-fu is just as scarce. It seems likely that because this prefecture was most disturbed by the White Lotus rebels, the compilers of local gazetteers tended to emphasize the establishment of walled villages (*pao-chai* 堡寨) rather than market towns as records about the former abound while there is a lack of records about the latter. Nevertheless, a lack of information does not imply that there were no rural markets, although they might have ceased to function during the wars.

In Yün-yang-fu, the number of rural markets decreased from 1800 to 1910. This is probably because the rural markets destroyed during the wars had not all been restored. The abnormally large number of rural markets in Fang-hsien in the 1860s is obviously due to the different criteria of selection used for the records. Since the *Fang-hsien-chih* (1866) used the category of *ts'un-chen* to list rural markets and market towns, it seems likely that many villages without markets were also lumped in the list. A comparison of the 1797, the 1866, and the 1921 lists of rural market towns in Fang-hsien shows that the 1866 list has most of the names included in the two other lists but not all. Obviously, place names change and markets rise and fall. But the 1797 list is under the category of *shih-chi* and the 1921 list *chen-shih*; both are more restrictive than the 1866 list.

[38] *Yang-hsien-chih* (1898), 3: *feng-ssu*, 3b.

In Hsiang-yang-fu, the number of rural market towns decreased during 1800-1910, but the percentage change showed an increase during 1870-1910. Apparently, the percentage increase is an overstatement because the great gain in Chün-chou is due to the different selection criteria in the records. Both Yün-yang and Hsiang-yang were overrun by the white Lotus rebels and the Taipings, but Hsiang-yang occupied a better position for trade and thus, its rural markets might have been restored more easily.

As for Han-yang-fu, the great increase in the number of markets in the 1870s was mainly due to the different selection criteria of the records for Mien-yang. If the number of market towns in 1910 is compared with that in 1800, changes are not really great.

Thus, there was. In general, an increase in the number of rural market towns in the Han River area during the nineteenth century. From 1870 to 1910, the process was probably aimed at restoration from destruction by war rather than progress toward modernization of the marketing system.

Nevertheless, since commercialization gradually reached a higher level during the late Ch'ing period, the tendency toward a modernization of the marketing system should not be neglected entirely. In some places, further development of urban centers and large market towns might have been taking place at the expense of small market towns. If in the late nineteenth century there was only a symptom, in the early twentieth century came the result. For instance, in Tsao-yang (see Map 4), four market towns near the hsien city, two between Wu-chia-tien and Chü-chia-tien, another two between Chi-chia-ho and Yü-shu-kang, ceased to function in 1923. This development in the central area of Tsao-yang is probably comparable with zone A in the Ning-po case described by Skinner.[39] How the marketing activities were shifted from small market towns to big ones is not clear in the records, but at least it is known that the big market towns in Tsao-yang as marked on Map 4 each had a branch of the chamber of commerce (*shang-hui* 商會).[40]

Size of Marketing Area

The operation of the marketing system can also be observed from the size of the marketing area. Skinner suggests that for China, the best fit model is the two-ring model of a standard marketing area with its total of 18 villages. He also mentions that in the 1890s, the ratio between village to market town in Kwangtung province was 19.6; in the 1930, the field study in Tsou-p'ing hsien 鄒平縣, Shantung, showed the

[39] G. W. Skinner, "Marketing and Social Structure in Rural China," Part II, 24.2: 209-216.
[40] *Tsao-yang hsien-chih* (1923), 12: 1b-3; 14: 16b.

ratio of 21.4.[41] For the Han River area, it is impossible to measure the ratio between the village and the market town for the whole area, because the number of villages in most districts is not recorded. But there is information available for some districts.
The *Han-yang hsien-chih* (1868) listed 304 villages and 13 market towns.[42] Thus, the ratio was 23.3 between villages and market towns. This was quite close to Skinner'smodel. However, without a detailed map of the villages, it is not clear whether these villages were distributed in a two-ring hexagonal marketing area. Moreover, as markets were probably held daily in Han-yang, villagers might have had more chances of marketing at different market towns.

More details about the villages and market towns are available for Nan-yang hsien, Honan. Table 25 shows a summary of the distribution of villages and market towns in this district.

Table 25: Ration between the Villages and the Market towns
in Nan-yang hsien, Honan, 1904

Hsiang	Number of Towns	Number of Villages	Ratio
Northeast	12	769	64.0
Southeast	16	460	28.7
Southwest	12	340	28.3
Northwest	7	442	63.1
Total	47	2,011	42.8

Source: P'an Shou-lien, *Nan-yang hsien hu-k'ou ti-t'u wu-ch'an hsü-mu piao-t'u-shuo* (1904; Taipei reprint, 1968), p. 61.

It is obvious that the average ratio between the villages and market towns in Nan-yang hsien was greater than that in Skinner's mode. But, since there is no precise definition of the size of villages, the difference may lay partly in the fact that he size of villages varied. Moreover, there were more market towns in the southern than in the northern part of the district. This demonstrates that the size of the marketing area different considerably in different parts of this district. Furthermore, because nothing was mentioned about a periodic marketing schedule and because the information is available for number of shops in each market town and the staple trade of these towns, it seems likely that trade was carried on daily in these market towns.[43] thus, it seems likely that the periodic standard marketing area is not necessary applicable to this case.

[41] G. W. Skinner, "Marketing and Social Structure in Rural China," Part I, 24.1: 18.
[42] *Han-yang hsien-chih* (1868), 3: 5b-11.
[43] P'an Shou-lien, pp. 3-59.

Average Population per Marketing Area

As for the average population per standard marketing area, Skinner has estimated that it was somewhat over 7,000 persons.[44] The calculations of Katō show that in Shantung, the average population per market town was close to skinner's model case, but in other provinces, differences were notable.[45] Katō has also pointed out that it was impossible to estimate precisely the population per rural marketing areabecause in most cases there was no differentiation between the rural and urban population in records. The *Shih-ch'üan hsien-chih* (1849) was one of the few gazetteers that provided information about rural and urban population. This gazetteer recorded the total population in the district as 74,103 persons, of which 5,818 lived in the district city and 68,288 in the villages and there were 10 rural market towns.[46] Thus, the average population per market towns was about 6,828. This was close to Skinner's model.

Nevertheless, because the population density varied considerably, this model figure for the population distribution among market towns was not reflected in every district along the Han River. Take some districts in Han-chung-fu for example as shown in Table 26.

Table 26: Average Population per Market town in Han-chung-fu, c. 1900

District	Year	Population	Number of Towns	Average Population
Nan-cheng	1896	114,072	12	9,506
Yang-hsien	1897	119,222	24	4,967
Feng-hsien	1896	31,705	19	1,669
Ning-ch'iang	1897	55,381	37	1,496
Lüeh-yang	1897	72,354	27	2,679

Source: For the number of market towns, see Table 24. For the population, see *Hsü Shan-hsi (Shensi) t'ung-chih kao* (1931), 31: 12b-13b. It is noted that the figures of population were from the *pao-chia* 保甲 records of each district except for Yang-hsien; cf. *Yang-hsien-chih* (1898), 2: t'u-ti-chih, 1b. Here the total population of each district is adopted, because it is impossible to distinguish rural population from urban population

It is striking that except for Nan-cheng, the average population per market town is rather small. Apparently, this is mainly due to a lesser population density. Moreover, as was mentioned before, In Yang-hsien, Feng-hsien, Ning-ch'iang, and Lüeh-yang, predominantly rural market towns still convened periodically. Although in terms of number, there were more market towns in each of these districts than in Nan-cheng; in reality, because they convened only periodically, few market towns in these districts

[44] G. W. Skinner, "Marketing and Social Structure in Rural China," Part I, 24.1: 33.
[45] Katō Shigeshi, *Shina keizaishi kōshō*, II, pp. 508-520.
[46] *Shih-ch'üan hsien-chih* (1849), 2: 23-25; 1: 16b.

could achieve the magnitude of trade that one market town in Nan-cheng did. The lack of population density, in addition to relatively difficult condition of transportation, limited the intensification of marketing activities.

In contrast to these districts in the remote part of the upper Han River, the average population per market town in the lower Han River area as large. Table 27 shows the average population per market town in prefecture along the lower Han River. Obviously, the further up the Han River, the smaller the average population per market town. It seems that the patterns of economic development along the Han river can be seen in this light. Wang Yeh-chien has included the Han River basin as part of the "developed area" during the Ch'ing dynasty.[47] the findings of the present study may help to draw the line more precisely.

Table 27: Average Population per Market Town along the Lower Han River Area, c. 1910

Prefecture	Population	Number of Towns	Average Population
Yün-yang	1,479,405	165	8,905
Hsiang-yang	2,373,025	252	9,416
An-lu	2,408,501	260	9,263
Te-an	2,382,122	222	10,730
Han-yang	3,254,052	137	23,752

Source: For the number of market towns, see Table 24; for the population, see *Hu-pei t'ung-shih* (1921), 43: 13-15. The population investigation was done in 1908. The original figures are by district. The total in each prefecture is adopted here.

Level of Per Capita Trade

While the number of rural market towns increased, the varieties of commodities available at the markets also increased. Morita Akira has done some comparisons on this aspect by using the lists of commercial goods in local gazetteers.[48] The problem that has not been touched upon is the level of per capita trade, which Professor Perkins has pointed out as the most relevant economic aspect of the marketing system.[49] In theory, this aspect should not be neglected; in practice, however, scarcity of statistics makes even a tentative estimate difficult, especially for the per capita trade within a local marketing area. Fortunately, an unusual document is available for measuring this per capita trade in terms of the long-distance trade.

It is possoblde to use Ch'iu Chi-heng's statistics in *Shan-ching Han-chiang liu-yü mao-i-piao* for estimating the per capita long-distance trade in southern Shansi,

[47] Wang Yeh-chien, "Ch'ing-tai ching-chi ch'u-lun," *Shih-ho yüeh-k'a*n, new series, 2.11 (February 1973): 6.
[48] Morita Akira, "Shihdai Ko-kō chihō ni okeru teiki ichi ni tsuite", pp. 65-67.
[49] Dwight Perkins, *Agricultural Development in China, 1368-1968*, p. 115.

including Hsing-an-fu and Han-chung-fu. Inspired by the Maritime Customs trade returns and reports, Ch'iu Chi-heng, who served as the superintendent of the likin bureau at Pai-ho, used the likin receipts to compile these tables of trade.[50] The likin bureau at Pai-ho controlled the entrance and exit of goods going upstream and downstream on the upper Han River. Commodities imported into southern Shensi had to be assessed for the likin fees collected at Pai-ho, while those exported had to be checked there before departure. Therefore, the Pai-ho likin bureau possessed relatively complete information of trade on the upper Han River.[51]

In addition, Ch'iu Chi-heng also consulted merchants and boatmen for local price conditions. In these tables he presented the quantity of goods and prices of each item instead of the amount of likin revenue. This is one of the strong points of this document. One shortcoming is that the units used for expressing quantity are not standardized. Furthermore, because the value of each commodity is not given, to calculate the value it is often necessary to choose an average price for different grades of one commodity and to convert the original figure of quantity to one that is expressed in terms of the average computed price. However, imperfect the statistics are, there is no other source material that will serve better. The original tables are divided into two parts: one on commodities imported to southern Shensi, the other on those exported from southern Shensi. Moreover, in the original tables, both the monthly and the annual quantity of each commodity are given. I have calculated the value of each commodity and summarized the original tables in Table 28. Although some items have been mentioned in previous chapters, these details when shown together provide a vivid picture of what was bought and sold by people in southern Shensi at the end of the Ch'ing dynasty.

Table 28 shows that in 1904 and 1905 the value of exports were larger than the value of imports. In 1906, however, the balance of trade became somewhat unfavorable. Because the data are for three years only, it is impossible to depict a long-term trend. However, it seems likely that by 1905 the people of southern Shensi sold at least enough to buy the necessities they did not produce. The years 1905-1906 marked a turning point in the trade on the upper Han River. With the coming of the Peking-Hankow railway, some commodities that had been transported from Sian via Hsing-an or Shang-chou to the Han River might have been diverted to Honan and then transported by the railway. Although the impact of the railway on the decline of the Han River might not have been immediate, the railway was no doubt an important factor of change.

[50] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, preface: 2b-3a.
[51] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, preface: 3a-b.

Table 28: Commodities Imported and Exported from Southern Shensi via the Han River, 1904-1906

(1) Imports — Unit of value: Tael

Items	Unit of Quantity	Price per unit[2]	Nov.1903-Nov. 1904		Nov. 1904-Oct. 1905		Oct. 1905-Oct. 1906	
			Quantity	Value	Quantity	Value	Quantity	Value
Ta-pu	roll	17.00	33,929	566,793	28,644	486,948	22,081	375,377
Chung-pu	roll	13.50	46,402	626,427	48,490	654,628	57,715	779,142
Japanese cloth	*pan*[3]	4.05	21,381	86,593	20,656	83,657	18,227	73,820
British and American cloth	*p'i*[4]	5.80	13,573	78,723	18,260	105,908	11,471	67,532
Raw cotton	picul	22.00	13,005	286,110	14,745	324,390	14,123	310,706
Cotton yarn	catty	0.40	77,297	30,919	70,138	28,055	64,324	25,729
White sugar	catty	0.08	627,415	50,193	724,710	57,977	829,980	66,398
Brown sugar	catty	0.06	970,050	58,203	703,685	42,211	1,118,530	67,112
Kiangsi porcelain	*tzu*[5]	3.00	29,676	89,028	19,370	58,110	24,770	74,310
Honan porcelain	*t'ung*[6]	0.17	51,225	8,708	51,515	8,757	77,793	13,243
Hunan iron	*tan*[7]	5.00	648	3,240	484	2,420	1,520	7,600
Sapanwood	catty	0.07	234,765	17,063	276,750	19,372	431,460	30,202
Indigo	catty	0.05	64,000	3,200	101,000	5,050	167,000	8,350
Foreign dyes	catty	0.80	4,003	3,202	2,575	2,060	3,637	2,909
Kerosene oil	box	2.00	3,773	7,546	5,894	11,788	4,391	8,782
Matches	box	21.00	1,609	33,789	1,447	30,387	1,378	28,938
Tobacco leaf	bundle	7.50	8,029	60,218	8,178	62,335	6,300	47,250
Straw hats	byndle	2.50	915	2,288	1,327	3,316	840	2,100
Alum	catty	0.25	121,950	30,488	88,350	22,088	256,950	64,238
Gypsum	picul	1.25	1,764	2,205	2,252	2,615	3,015	3,369
Medicine	bale	?	3,367	?	3,076	?	3,137	?
Total				**2044936**		**2012074**		**2099207**

(2) Exports

Items	Unit of Quantity	Price per unit	Nov.1903-Nov. 1904		Nov. 1904-Oct. 1905		Oct. 1905-Oct. 1906	
			Quantity	Value	Quantity	Value	Quantity	Value
Hides	picul	23.50	8,535	200,819	5,377	126,371	3,186	74874
Goat skins	picul	30.00	3,360	100,800	2,922	87,660	4,308	129240
T'ung oil	picul	7.00	30,880	216,160	24,396	170,772	26,844	187906
Oil cakes	picul	0.75	3,054	2,290	2,671	2,003	3,868	2901
Lacquer oil	picul	8.00	17,784	142,272	10,608	84,864	45,015	360125
Varnish	picul	45.00	3,311	149,022	2,696	121,329	2,660	119722
Raw silk	picul	4.00	4,305	17,220	27,485	109,940	17,867	71468
Tangled silk & refused coccons	picul	13.50	454	6,129	1,304	17,604	952	12852
Hemp & Ramie	picul	9.00	19,723	177,508	25,759	231,822	23,229	209066
Tea	picul	21.00	939	19,724	1,295	27,196	1,008	21169
Opium	*liang*[8]	0.13	753,448	97,948	1,098,071	142,748	620,499	80664
Fungus	picul	40-23*	14,060	562,400	17,272	690,880	12,808	294584
Turmeric	Bale	3.00	7,759	23,277	8,166	24,498	6,732	20196
Huang-piao-chih	Box	0.26	640,509	157,122	495,952	128,947	427,081	110041
Bark paper	Lump	5.00	53,389	261,945	54,031	270,155	55,550	277750
Fire paper	Lump	0.13	136,696	17,770	155,424	20,205	110,512	14366
Straw ropes	piece	0.02	388,990	7,780	327,210	6,544	310,425	6208
Straw ropes	bundle	0.15	141,230	21,184	72,149	10,822	62,185	9328
Paper-mulberry bark	picul	2.50	4,775	11,938	6,023	15,057	6,394	17234
Oak bark	bundle	1.20	5,226	6,271	4,677	5,612	7,244	8693
Bamboo plank[1]	*kua* [9]	60.00	170	10,200	133	7,980	157	9420
Wood plank	*kua*	100.00	72	7,200	57	5,700	67	6700
Fruits	bale	1.30	614	982	1,749	2,798	2,267	2720
Medicine	bale	?	8,910	?	9,640	?	10,974	?
Total				**2218011**		**2311507**		**2048226**

Source: Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A and B.

Table 28 (continued)
Notes:

[1] The original figures of quantity did not distinguish between the bamboo plank and wood plank, but it is said that the former was about 70 percent and the later 30 percent of the total quantity. The quantities shown in the table are calculated using these proportions.

[2] When it is necessary to convert the price from copper cash to tael, the ratio of 1,200 cash to 1 tael is used. This ratio is that for the year 1904 adopted from P'eng Hsin-wei, *Chung-kuo huo-pi shih* (Shanghai, 1958), p. 843. For the imported goods, the prices are those in Shensi rather than those in the place of production; for the exported goods, the prices are also those in Shensi.

[3] One *pan* 板 has a length of 40 yards.

[4] One *p'i* 疋 has a length of 10 *chang*.

[5] One *tzu* 子 consists of 40 *mei* 枚(pieces).

[6] One *t'ung* 筒 consists of 10 *mei*.

[7] One *tan* 擔 weighs 132 catties.

[8] One *liang* 兩 is one ounce.

[9] There are three grades of *kua* 掛 (bundles for banging up): The large *kua* has a length of 7 to 10 *chang* and a width of 5 to 7 *chang*; the medium *kua* has a length of 5 to 7 *chang* and a width of 3 to 5 chang; the small *kua* has a length of 3 to 5 *chang* and a width of 2 to 3 chang. But the original figures of quantity are not classified in these grades. This is an extreme case in terms of the complicated units of expressing quantity. Other cases can be converted more easily.

*For the first two years, the first price is used, for the third year, the second price is used.

To quantify per capita trade, one must know the figure of population. In the *Hsü Shan-hsi (Shensi) t'ung-chih kao* (1931), the population figures of districts in Han-chung-fu are mostly based on the 1897-1898 *pao-chia* records, but for districts in Hsing-an-fu, with the exception of P'ing-li, the population figures are those of the year 1823. If the population of Han-chung-fu for the period 1897-1898 is compared with that in 1823, the former is about 70 percent of the latter.[52]

Assuming that this proportion is the same in Hsing-an, then the total population in Han-chung-fu and Hsing-an-fu around the year 1900 would be approximately 1,967,700 persons. From Table 28, the average value of imports is 2,038,739 taels. Thus, for southern Shensi around 1900, the per capita trade of goods arriving from the long-distance trade was somewhat more than one tael.

But this estimate is based only on the commodities imported via the Han River. Undoubtedly, southern Shensi had commercial contacts with other areas. Moreover, likin records included most of the commodities in the long-distance trade, but not all. For instance, salt was not included. A record in the *Ning-ch'iang-chou hsiang-t'u-chih*, which was compiled in the 1900s, can be used for further references. This gazetteer mentioned that major items of commodities imported to this district were cotton cloth from Hupeh; sugar and salt from Szechwan; tea and oil from Han-chung; wine and tobacco from Kansu. These goods were distributed in the district city and five major

[52] *Hsü Shan-hsi (Shensi) t'ung-chih kao* (1931), 31: 12-14b; Lu K'un, *Ch'in-chiang chih-lüeh*, pp. 49-59. The population of Han-chung-fu in 1823 was 1,575,700 persons; in 1897-1898 it was 1,099,288 persons; the population of Hsing-an-fu in 1823 was 1,237,700 persons.

market towns.[53] Table 29 shows the quantity, value, and per capita trade of these goods in Ning-ch'iang.

Table 29: Commodities Imported and Consumed in Ning-ch'iang chou, c. 1900

Unit of price and value: Tael

Items	Quantity	Price per unit	Value	Population in 1899	Per capita Trade
Cotton cloth	5,000 rolls	(1) 15.0	75,000	56,511	1.32
Paper	6,500 bundles	(2) 2.5	16,250		0.28
Salt	2,800 bales	(3) 3.6	10,080		0.18
Sugar	3,000 catties	(4) 0.06	180		0.003
Tea	2,500 catties	(5) 0.25	625		0.01
Oil	10,000 catties	?	?		?
Wine	7,000 catties	?	?		?
Tobacco	3,000 catties	?	?		?
Total					1.793

Source: *Ning-ch'iang-chou hsiang-t'u-chih* (in *Hsiang-t'u-chih ts'ung-pien*, 1937), pp. 40-41, for the quantity for goods; p. 23 for the population.

The value of each item is calculated by using the price per unit from the following sources:

(1) Ch'iu Chi-heng, *Shan-ching han-chiang liu-yü mao-i-piao*, chüan A:13. The average price of the *ta-pu* and the *chung-pu* is adopted here.
(2) *Shina shōbetsu zenshi*, VII, p. 655. The price of *mao-pien-chih* 毛邊紙 from Szechwan is used here.
(3) *Ibid*., the price of the white salt from Szechwan is used here.
(4) Ch'iu Chi-heng, *Shan-ching han-chiang liu-yü mao-i-piao*, chüan A: 17. This is the price of brown sugar at Pai-ho.,
(5) Ch'iu Chi-heng, *Shan-ching han-chiang liu-yü mao-i-piao*, chüan B: 23. The tea distributed to Ning-ch'ian from Han-chung is actually from Tzu-yang. There are three grades of the Tzu-yang tea, the selling price of the second grade is used here.

Table 29 suggests that the inhabitants of Ning-ch'iang consumed not only essentials, such as cloth and salt, but also luxuries such as paper, tea, sugar, wine and tobacco. As for oil, it is not clear whether it was for burning or for cooking. Because this oil was only consumed by the inhabitants of the district city of Ning-ch'ing, it had little to do with those living in the countryside.[54] If it was kerosene, then this oil was already introduced to this remote district by the end of the Ch'ing dynasty. Moreover, because wine and tobacco were from Kansu, the prices of these items cannot be estimated with available information. It is especially difficult to convert from one measurement of quantity to another.[55] Despite the imperfection of the data, it seems likely that the per capita trade of goods from outside Ning-ch'iang was about two taels.

For measuring the per capita trade in the lower Han River area, there are no statistics similar to those for the upper Han River area. If the likin revenue in Hupeh

[53] *Ning-ch'iang-chou hsiang-t'u-chih*, pp. 39-40.
[54] *Ning-ch'iang-chou hsiang-t'u-chih*, p. 40b.
[55] Cf. *Shina shōbetsu zenshi* VII, pp. 652-653.

could be used for an estimate, it would still be impossible to separate the amount of likin obtained in prefectures along the Han River from that obtained in other prefectures. Therefore, only a rough estimate of the per capita trade in Hupeh as a whole can be made here. According to Lo Yü-tung, the likin revenue in Hupeh was 1,615,119 taels in 1908.[56] Professor Perkins has used this figure and the 2 percent Hupeh rate of likin to convert likin revenue to trade estimates. Thus, the trade estimate in Hupeh in 1908 was 80,760,000 taels.[57] But this includes both imports and exports. For calculating per capita trade, one can use either the value of imports or exports, but not both. If half of the total value of trade estimated in Hupeh can be used for the purpose, them it is 40,380,000 taels. The population of Hupeh in 1908 was 24,770,961 poersons.[58] Thus, the per capita trade is about 1.6 taels. This is at least as high as that in southern Shensi.

But, for the lower Han River area, this estimate appears to be too low. There are two reasons for this. First, after the re-organization of the likin bureaus in 1905, there were still 13 out of 34 bureaus located along the lower Han River.[59] this indicates that the volume of trade on this route must be greater than in other directions in Hupeh. Second, the Maritime Customs trade returns show that about 90 percent of the total value of trade forwarded by transit passes in Hupeh was directed to prefectures along the Han River.[60] this also proves that trade in the lower Han River area was greater than in other areas in Hupeh.

To be sure, the real value of trade must be larger than that estimated from likin records. The above estimate of the per capita trade in the Han River area in terms of the long-distance trade is only tentative. If this can be considered as a reflection of the economic conditions in late Ch'ing period, then the people living along the Han River could not have been very rich, as they spent on the average only one or two taels a year on goods that were not produced locally. This analysis proves that they at least kept themselves above the subsistence level. But it also reveals that the capacity of

---

[56] Lo Yü-tung, *Chung-kuo li-chin shih* (Shanghai, 1936), p. 464.

[57] Dwight Perkins, *Agricultural Development in China, 1369-1968,* Table I.1 in p. 347 and Table I.9 in p. 356. The 2 percent rate is the original likin rate in Hupeh. According to Lo Yü-tung, the rate increased throughout the late Ch'ing period. It may have been as high as 10 percent around the year 1910 (p. 301). If this high rate is used to convert likin revenue to trade estimates, the result will be smaller. But as shown in Perkins's Table I.9, the likin trade estimate is close to the Maritime Customs trade estimate. Therefore, 80,760,000 tales is adopted here.

[58] *Hu-pei t'ung-chih* (1921), 43: 13. The population census in 1908 was conducte3d as part of the preparations for the election of local representatives.

[59] Lo Yü-tung, *Chung-kuo li-chin shih*, p. 299.

[60] Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, pt. 2, section on Hankow, tbles of transit trade. From 1873 to 1895, the value of transit trade is broken down by prefectures. Thus it is possible to calculate the percentage shared by each prefecture. The total value of transit trade inn Hupeh was about 1 million taels annually in the 1900s. If this amount is added to likin trade estimates, the result of per capita trade will not be greatly affected.

consumption was limited. This is probably one of the important factors that retarded the development of industrialization in China.

The courses of industrialization may differ from one county to another. However, there were certain conditions that enabled one country to develop earlier than others. If European experiences offer a proper perspective for observation, China In the late nineteenth century is comparable to the European countries in the mid-eighteenth century. Professor Landes has pointed out that the industrial revolution first occurred in England partly because in the mid-eighteenth century the purchasing power per head in England was already higher than on the European continent.[61]

[61] David Landes, *The Unbound Prometheus* (Cambridge, 1969), pp. 47-50.

CHAPTER 6
CONCLUSION

The Han River was a natural highway for communication in China between the south, the north, and the northwest. It had long been a channel for domestic long-distance trade and also served as a connecting link in the overland caravan trade. The opening of Hankow to foreign trade in 1861 added a new dimension to the function of the Han River. The coming of the Peking-Hankow railway in 1905 had the effect of extending Hankow's hinterland, however, its impact on the decline of the Han River as a trade route did not occur immediately because water transportation was still cheaper. Trade on the Han River stimulated economic development along the Han River area.

The progress of commercialization in agriculture accelerated in the late nineteenth century as there were greater demands for crops suitable for modern industrial usage. Quantitative data has shown that in spite of fluctuations in price, the exportation of beans, sesame seed, tobacco leaf, wood oil, vegetable tallow, and raw cotton was increasing in volume. In the traditional period, although there was official encouragement of the production of certain crops, on the whole there was no governmental planning in the field of economic development and only the operation of the marketing system conveyed information about the demand of goods to the peasants. On the one hand, it is undeniable that increasing demand brought profits to the growers. But on the other hand, merchants who served middlemen between the native growers and foreign buyers must have gained even more. Regardless of who received the larger profits, both the native growers and merchants were sellers of raw materials. They had little withholding power, and the profits gained were in turn drained out to pay for imported products made of these raw materials. This was a major disadvantage which held back the further development of Chinese economy when it encountered threatening foreign competition in the late nineteenth century. Nevertheless, credit should be given to the legacy of traditional agriculture and to the people who were diligent in production. Chinese agriculture contributed to the world market with silk, tea, soybeans, and wood oil. These goods were major items that helped balance China's foreign trade. It was not only from the coastal area but also from the interior that such goods were obtained.

Foreign merchants' activities in interior China illustrated the importance of foreign competition. The tea trade revealed that Chinese growers held Russian merchants who employed no compradors in great prestige. Both Chinese and other

foreign merchants felt the competition of Russians. The Han River as a trade route for shipping tea to the Kiakhta market was also affected by Russian engagement in the manufacture of tea in Hankow.

Besides giving, trade involved taking. In general, people living along the Han River sold enough to buy various goods that they did not produce themselves. In the traditional period, although the government did not always place prime consideration on foreign trade, rich people were always able to afford exotic goods. Leaving out the exotic items introduced in earlier dynasties,[1] in the late eighteenth century, commodities such as black pepper, sapanwood, ebony, garu-wood, and the once very popular snuff, were familiar around the Hankow area.[2] The trouble was that not all the exotics were just harmless luxuries. The role that opium played in nineteenth-century Chinese life was the most obvious instance of this. Narcotic addiction was so influential that not only did foreign opium penetrate quickly into the interior but the growing of opium prevailed in China to a wide extent. Thus, Ch'iu Chi-heng lamented that Shensi was "the India of China"[3] and that opium was the tool with which the Shensi people paid for their need of cotton cloth. Moreover, in the late nineteenth century, foreign trade brought in consumer goods, such as kerosene oil, foreign dyes, cotton yarn and cloth, which gradually drove native products out of the market. For good or for evil, these goods affected the economic life in the hinterland to some extent. The story was told in the changes of the cotton industry.

The greatest difference between handicraft and modern industry lies in technology. In the cases of iron, timber, gypsum, and paper-making industries, the traditional techniques worked adequately to supply the demand for domestic trade. But the output was not very large and further development was hampered by a lack of technological improvements. A technological breakthrough was undoubtedly needed for bringing forth industrial changes. Moreover, although there was evidence of an experimental spirit and entrepreneurship among the social elite and merchants, and although there was a certain awakening to the importance of adopting new technology and business management, these individual cases were not influential enough to mobilize a backward economy such as China had in the late nineteenth century.

The level of per capita trade along the Han River area suggested that people were in general able to keep rhemselves above the subsistence level. However, the purchasing power was too weak to support a great stride forward in industrialization. To be sure, some modern factories were already built in the Hankow area in the

---

[1] For instance, see E. H. Schafer, *The Golden Peaches of Samarkand, A Study of T'ang Exotics* (Berkeley, 1963).

[2] Chang Hsüeh-ch'eng, *Chang shih-chai hsien-sheng i-shu*, 1: 16b, 17b.

[3] Ch'iu Chi-heng, *Shan-ching Han-chiang liu-yü mao-i-piao*, chüan A: 5b.

1890s.[4] But these factories suffered from a lack of good planning, good management, sufficient capital investment, and a skilled labor force. From a historical perspective, to modernize a backward economy, a powerful ideology was also required in addition to institutional changes to 'grease the intellectual and emotional wheels of industrialization.[5] It seems that this view advanced by Professor Gerschenkron is also applicable to the Chinese case.

The 1911 Revolution was not a significant turning point of economic development. Although the native city of Hankow was destroyed during the Revolution and trade affected to some extent, it son regained its strength. In 1913, the total value of trade in Hankow surpassed that in 1910.[6] The development after 1911 still need careful study. Suffice it to say here that it was in the 1920s when navigation on the upper Han River became almost impossible owing to banditry and warlord disorders that the Han River declined as a trade route. In the 1930s, the peasants of Han-chung, who had become dependent on the Han River market system, were facing bankruptcy. Ch'en Han-sheng has pointed out that commercialization in agriculture was the prime cause for this.[7] It seems more suitable to say that the peasants suffered because the channel of trade for their products was disrupted.

---

[4] For the Han-yang Iron and Steel Works, see Ch'üan Han-sheng, "Ch'ing-mo Han-yang t'ieh-ch'ang," *She-hui k'o-hsüeh lun-ts'ung*, 1 (April 1950): 1-33. For the Hupeh Cotton Mill, see Yen Chung-p'ing, *Chung-kuo mien-fang-chih shih-kao*, pp. 93-98.

[5] A. Gerschenkron, *Economic Backwardness in Historical Perspective* (Cambridge, Mass., 1962), pp. 22-26.

[6] The Maritime Customs, *Reports and Returns of Trade*, for the year 1911, pr. 2, p. 311. It is said that the native city of Hankow was "a heap of charred ruins." The total value of trade in 1910 was 135,299,167 HK Tls. and in 1913 it was 154,029,939 HK Tls. See the Maritime Customs returns for the years 1910 and 1913.

[7] Ch'en Han-sheng, "P'o-ch'an-chung te Han-chung te p'in-nung," *Tung-fang tsa-chih*, 30.1 (January 1933): 67-72.

APPENDIX
NOTES ON THE GRAIN TRADE IN THE HAN RIVER AREA

The first concern of agriculture is to produce food. Only when there is a surplus in food supply can advances in other aspects of development be made. Professor Perkins' study on agricultural development in China during the past six hundred years has shown that Chinese agriculture was able to raise grain output most of the time to keep pace with population growth.[1] In the Han river area, although rice and wheat were staple food crops, maize and potatoes were already widely grown on hilly lands by the nineteenth century.[2] During the nineteenth century, probably about half of the population in the Han River area relied on maize4 and potatoes for their sustenance.[3] this survey of data on the grain trade may serve two purposes: first, to clarify the limitations of available information; second, to help us understand the conditions of food supply in the Han river area during the nineteenth century.

Rice

The whole Han River basin extends below the natural division line – the Tsin-ling and Huai-ho – of north and south China. Natural conditions provide a suitable ground for rice cultivation. In the upper Han valley of southern Shensi rice was grown. Not only were natural conditions favorable for rice cultivation, but irrigation system of various sizes were constructed extensively in Han-chung prefecture and to a lesser extent in Hsing-an prefecture.

The *Han-chung hsü-hsiu fu-chih* (1813) contained a detailed chapter on irrigation. Added together, the total irrigated acreage amounts to about 200,000 *mou*.[4] According to the *Ch'in-chiang chih-lüeh*, there were approximately 337,000 *mou* of irrigated paddies in Han-chung prefecture during the 1820s.[5] The *Shan-sheng pien-fang pei-lan* mentioned that in the upper Han River valley, the yield of rice per *mou* was 3 *shih*.[6] The *Nan-cheng hsien-chih* (1921) said that the yield of rice per *mou*

[1] Dwight Perkins, *Agricultural Development in China, 1368-1968*, chapter 2.

[2] Evelyn Rawski, "Agricultural Development and Official Action in Eighteenth Century china: The Case of the Han River Highlands' (unpublished paper read in the AAS Conference in Chicago, March 1973), pp. 7-24. This paper has utilized most of the available information about agriculture in the upper Han River area from local gazetteers, although some details still need further study.

[3] Yen Ju-i, *San-sheng pien-fang pei-lan*, 8:4b; *T'ung-shan hsien-chih* (1867), 2: 67b-68; *Hu-pei t'ung-chih* (1921), 22: 13b.

[4] *Han-chung hsü-hsiu fu-chih* (1813), 20: 12-42.

[5] Lu K'un, *Ch'in-chiang chih-lüeh*, pp. 51-57.

[6] Yen Ju-i, 8:12. The same source is also quoted in the *Yang-hsien-chih* (1898), 4: 2.

was 2 to 2.5 *shih*.[7] The Japanese investigation in 1913 indicated that the yield of rice per *mou* in Han-chung was 1 shih (probably husked).[8] From these sources, one may assume that the output of rice in Han-chung prefecture amounted to approximately 600,000 to 900,000 *shih* annually during the nineteenth century. Lack of additional information, however, makes it difficult to prove the validity of this estimation.[9] A certain amount of the rice produced in Han-chung was transported overland to Sian, but no details about this trade are known.[10]

Documentation for Hsing-an prefecture is even more scarce. The *Hsin-an fu-chih* (1788) showed that the irrigated acreage of each dam was rather small, the total acreage added up to only about 15,700 *mou*.[11] The *San-sheng pien-fang pei-lan* provided an estimate of around 80,000 mou as the total acreage under irrigation in Han-yin, P'ing-li, An-k'ang, and Shih-ch'üan districts.[12] The *Ch'in-chiang chih-lüeh* did not give any precise acreage of the paddies in Hsing-an-fu although it did mention that there were several hundred thousand *mou* in Han-yin.[13] Although rice produced in Hsing-an was probably not as abundant as in Han-chung, it was exported to Hsiang-yang. For instance, the *An-k'ang hsien-chih* (1815) mentioned that merchants from the prefectural city were used to buying rice from the peasants in advance when crops were still green, a practice known as *mai-ch'ing* 買青. In this way the merchants obtained great profits by shipping the rice down the river to Hsiang-yang.[14] Moreover, rice was sold easily as long as there were demands for it from urban centers. For instance, the *Tzu-yang hsien-chih* (1882) said that rice paddies in the district were very small in acreage. Although some villages produced rice, the villagers never consumed it but sold it.[15]

During the Ch'ing dynasty, the T'ang-pai-ho valley produced a very small amount of rice. This was due mainly to the decay of the local irrigation system. According to the Nan-yang shien-chih (1904), the irrigation system had not been repaired significantly since the early Ch'ing period because landowners came mostly from Shansi and Shensi and they did not realize the importance of irrigation. Tenants changed frequently, and although they wanted to repair the irrigation works, there were not able to do it alone. Moreover, whenever there was proposal for repairs,

---

[7] *Nan-cheng hsien-chih* (1921), 5: 1.
[8] *Shina shōbetsu zenshi*, VII, p. 409.
[9] An investigation in 1932 shows that the annual output of rice was 130,000 *shih* in Hsi-hsiang and 288,380 *shih* in Ch'eng-ku. See Ho Ch'ing-yün, *Shan-hsi shih-yeh k'ao-ch'a-chi*, pp. 37, 41. Although the output of other districts is not known, it seems that a total of 600,000 *shih* would not be too large.
[10] *Shina shōbetsu zenshi*, VII, p. 413.
[11] *Hsing-an fu-chih* (1788), chüan 6, 7,8.
[12] Yen Ju-i, 8: 4b-5.
[13] Lu K'un, p. 60.
[14] *An-k'ang hsien-chih* (1815), 10: 3a-b.
[15] *Tzu-yang hsien-chih* (1904), 9: 6b-7.

conflicts of interest among villages could not be easily solved.[16] Thus, in Nan-yang rice was rarely grown. An estimate by P'an Shou-lien indicates that in 1904 the annual output of rice in Nan-yang hsien was only 5,000 s*hih* and this amount was mainly consumed in the district city.[17] It can be assumed that rice was probably not an important export product.

As for the rice trade in Hupeh, it is noteworthy that in the early nineteenth century, rice from Chu-shan and Chu-hsi – two districts in hilly northwestern Hupeh – was even demanded by Hsün-yang and Pai ho in southern Shensi.[18] In the *I-ch'eng-hsien hsiang-t'u-chih* (1906), an estimate of farm products in this district showed that in good years the annual output of rice amounted to 1,000,000 *shih*, of which 300,000 *shih* was consumed in the district city and other market towns, and 100,000 *shih* was sent to Hankow.[19] In other words, 30 percent of annual output of rice from I-ch'eng was marketed within the district and 10 percent was entered into the long-distance trade. Since I-ch'eng was the most productive rice district in Hsiang-yang prefecture,[20] these percentages probably represented a higher than average marketing rate. The total percentage of marketed rice from I-ch'eng, i. e., 40 percent, is 25 percent higher than the average percentage of rice marketed in China during 1931-1937.[21]

According to the Japanese investigations of 1908-1915, rice arriving annually at markets in Fan-ch'eng and Sha-yang was estimated at 100,000 *shih* for each locale. It seems likely that part of this amount was further shipped to Hankow. Although the same source did not indicate this clearly, it did give the freight charge for shipping rice to Hankow.[22]

Since Hankow was the greatest city along the Han River, knowledge of the rice sent to this city may be helpful in understanding the rice trade in Hupeh. The 1908-1915 Japanese investigations indicated that Hankow received rice from Hunan, Kiangsi, Anhui, Szechwan, and Hupeh provinces. Among the sources of supply in Hupeh were Hsiang-yang-fu, Ching-chou-fu, Huang-p'i-hsien, Hsiao-kan-hsien, An-lu-fu, Huang-chou-fu, and Wu-ch'ang-fu. The quantity of rice arriving from these places were estimated as follows: That from the Shasi area was between 50,000 to 60,000 *shih*, that from the Hsiang-yang-fu area was 300,000 *shih*, and that from other places in Hupeh was 400,000 *shih*.[23] This indicates the directions of rice movement in Hupeh. If these quantities are more or less representative of the situation in the 1900s,

[17] P'an Shou-lien, *Nan-yang-shien hu-k'ou ti-t'u wu-ch'an hsü-mu piao-t'u-shuo*, p. 3.
[18] Yen Ju-i, *San-sheng shan-nei feng-t'u tsa-shih*, p. 19b.
[19] *I-ch'eng-hsien hsiang-t'u-chih* (1906), 4: 21b-22.
[20] *Hu-pei nung-hui-pao* (1910), 2: 63b.
[21] Dwight Perkins, *Agricultural Development in China, 1368-1968*, p. 157.
[22] *Shina shōbetsu zenshi*, IX, pp. 558-560.
[23] *Ibid.*, pp. 544-545.

then the annual shipments of rice on the Han River was about 300,000 *shih*.

It is impossible to estimate precisely the annual output of rice in Hupeh as Mizuno Kōkichi has pointed out in his book, the *Kankō*.[24] In the 1908-1915 Japanese investigations, the annual output of rice in Hupeh was estimated at 89,165,850 *shih*. This figure was derived as follows: (1) The total cultivated acreage in Hupeh was 59,443,900 *mou* according to the *Hu-pu tse-li*. (2) It was estimated that 50 percent of the total cultivated acreage was rice cultivated acreage. (3) The yield of rice per *mou* was estimated to be 3 *shih* (unhusked).[25] this estimate can be revised.

According to the *Ta-ch'ing hui-tien*, the cultivated acreage in Hupeh was 58,103,764 *mou* in 1887. Excluded from this figure was the acreage of reed fields (*lu-t'ien* 蘆田).[26] According to the adjustment made by Professor Perkins, the cultivated acreage in Hupeh was 51 million *mou* in 1873 and 65 million *mou* in 1957.[27] As for the average yield of rice per *mou* in Hupeh, the *Shinkoku jijō* said that it was 1.2 *shih* (probably husked).[28] It is necessary to determine the percentage of cultivated rice acreage in terms of the total acreage. No information of this sort is available for the Ch'ing dynasty. According to the *Hua-chung ti-ch'ü ching-chi ti-li*, in 1957, cultivated rice acreage was about 30 percent of the total acreage in Hupeh, and it was more than 50 percent in both Hunan and Kiangsi.[29] It seems likely that the cultivated rice acreage in Hupeh did not exceed 50 percent of the total acreage during the late Ch'ing period. Assuming that rice acreage in Hupeh during the 1900s was 30 percent of the total acreage, there would be about 17.4 million *mou* of rice paddies that would yield annually about 20,880,000 *shih* of husked rice or about twice that amount if the rice was unhusked.[30] Hence, in terms of husked rice, the above estimated amount of rice arriving in Hankow annually from various places in Hupeh, i.e., 800,000 shih would be only about 3.5 percent of the total output of rice in Hupeh, while in terms of unhusked rice, the percentage would be less than 2.

Moreover, both the *Kankō* and the *Shinkoku jijō* recorded the quantity of rice exported from Hankow during 1901-1905, and assumed that the source of supply was from Hupeh.[31] But the statistics were quoted from the Maritime customs annual trade returns and both exports and re-exports were included. It is, therefore, misleading to take these amounts for granted in calculating rice production in Hupeh.[32]

---

[24] Mizuno Kōkichi, *Kankō*, p. 445.
[25] *Shina shōbetsu zenshi*, IX, p. 542.
[26] Li Wen-chih ed., *Chung-kuo chin-tai nung-yeh-shih tzu-liao*, I, pp. 62-63.
[27] Dwight Perkins, *Agricultural Development in China, 1368-1968*, p. 236.
[28] *Shinkoku jijō*, I, p. 916; also see Li Wen-chih ed., I. p. 621.
[29] Sun Ching-chih, *Hua-chung ti-ch'ü ching-chi ti-li* (Peking, 1958), p. 20, p. 76, p. 120.
[30] For a discussion of the ratio between husked and unhusked rice see, Dwight Perkins, p. 309.
[31] Mizuno Kōkichi, *Kankō*, p. 445; *Shinkoku jijō*, I, pp. 889-890.
[32] The *Chung-kuo chin-tai nung-yeh-shih tzu-liao* quotes the source from the *Shinkoku jijō* without pointing out this mistake, see I, p. 478.

In the Maritime Customs annual trade returns, prior to 1886, tice exported from Hankow was listed only in the years 1867, 1873, and 1873 with 26 piculs, 2,376 piculs, and 697 piculs respectively. There were also no exports of rice in 1910 an\and 1911. On the other hand, there were imports of rice from other ports, but during most of the years there were re-exports. Table A-1 shows the exports of rice from Hankow during 1886-1909; the re-exports are not included.

Table A-1: Exports of Rice from Hankow, 1886-1909 (not including re-exports)

Year	Quantity 1,000 Piculs (1)	Value 1,000 HK Tls.(2)	Average Price HK Tls.(3)	Price Index 1898=100(4)	Volume Index 1898=100(5)	Percentage of Autumn Harvest in Hupeh(6)
1886	79.0	117.5	1.48	59	63	60+
1887	21.3	39.0	1.83	73	17	60+
1888	0.9	1.3	1.44	57	0.7	60+
1889	62.4	80.8	1.29	51	49	40+
1890	443.0	627.5	1.41	56	354	60+
1891	19.7	24.1	1.22	49	15	60+
1892	1,257.0	1,530.3	1.20	48	1,005	60+
1893	1,668.6	2,169.2	1.30	52	1,334	60+
1894	496.8	695.6	1.40	56	396	60+
1895	6.6	11.9	1.80	72	5	60
1896	8.2	11.5	1.40	56	6	60+
1897	223.3	301.5	1.35	54	178	50+
1898	125.0	312.5	2.50	100	100	60
1899	256.2	594.4	2.32	93	204	60+
1900	22.2	51.1	2.30	92	17	50
1901	40.4	92.9	2.29	91	32	60
1902	961.7	2,490.6	2.58	103	769	--
1903	3,258.5	7,948.7	2.43	97	2,607	--
1904	2,150.1	5,590.3	2.60	104	1,720	60
1905	1,140.6	2,132.9	1.86	74	912	50+
1906	4707	112.3	2.35	94	38	60+
1907	1.0	2.9	2.90	116	0.8	--
1908	42.2	101.4	2.40	96	33	--
1909	7.0	15.0	2.14	85	5	--

Source: Cols. 1 and 2 are from Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, section on Hankow. Each figure includes rice and duty free rice, but not paddy rice which does not show up every year. The original figures have been rounded off. Cols. 3, 4, and 5 are my calculations based on Cols. 1 and 2. Col. 6 is from Li Wen-chih ed. *Chung-kuo chin-tai nung-yeh-shih tzu-liao* (Peking, 1957), I, p. 760. The original figures are expressed in portions of tenths.

Obviously, there are drastic fluctuations in volume. The fluctuations in volume do not coincide with the percentage changes of the autumn harvests in Hupeh during the same period. One can argue that exports of rice through the Maritime Customs do not include all possible exports. Still it is difficult to reconcile, as the differences are so great. Moreover, after 1898 prices were higher than before. But changes in price do not follow completely the percentage changes of harvest, either. It seems that there are

defects in the percentages given for the harvests. Therefore, relevant factors, such as severe flood, drought, or famine are concealed. An answer to the question of fluctuations in volume and in price cannot be found just in the changing conditions of the harvests in Hupeh alone. Hupeh was not the only source of supply of rice exported from Hankow even if re-exported are not taken into account

Moreover, a search in the Maritime Customs trade returns of the other ports reveals the following facts. (1) The port of Chungking was open in 1891, but there were no exports of rice from that port. (2) Ichang was opened in 1876 and exports of rice started only in 1899. (3) Between 1902 and 1908 there rice exports from Shasi but the quantity of each year was very small. (4) Yochow was opened in 1899 but exports of rice started only in 1902. (5) Changsha was opened in 1904 and exports of rice began in that year. Prior to the opening of the ports of Yochow and Changsha, exports of rice from Hunan probably went through Hankow. On August 6, 1895, the newspaper *Shen-pao* reported that a great amount of rice still arrived at Hankow from Hunan but very little was from Szechwan.[33] this evidence shows that the Hankow rice market was rather complicated, and the marketing percentage cannot be easily gauged.

In summation, during normal years rice produced from the Han River valley was not only marketed within a district where it was grown but was put into long-distance trade using water transportation facilities. The rice marketed along the Han River was as high as 10 percent of the total output in the 1900s. The rice arriving at Hankow from various places in Hupeh was probably only two to three percent of the total output of rice in this province.

Wheat

Hupeh is the most important wheat producing province in central China.[34] Local gazetteers of different districts in Hupeh often lit wheat next to rice. The *Hsiang-yang fu-chih* (1760 and 1885) said that wheat produced from this prefecture was of better quality than that of other places along the lower Han River.[35] the *Commercial Handbook of China* revealed that wheat was grown more extensively in the Hankow area than had been thought.[36]

According to the 1908-1915 Japanese investigations, wheat arrived annually at the trade centers along the Han River in the amounts as follows:[37]

---

[34] Sun Ching-chih, *Hua-chung ti-ch'ü ching-chi ti-li*, p. 22.
[35] *Hsiang-yang fu-chih* (1760), 6: 4; and (1885), 4: 5.
[36] J. Arnold, *Commercial handbook of China* (Washington, D. C., 1919), pt. 1, p. 146.
[37] *Shina shōbetsu zenshi*, IX, pp. 558-560.

Fan-ch'eng	400,000 *shih* (including wheat from Honan),
I-ch'eng	30,000 to 40,000 *shih*,
Chung-hsiang	60,000 to 70,000 *shih*,
Sha-yang	150,000 *shih*.

The total amount was approximately 650,000 *shih*. The same source indicates neither the amount of wheat that was consumed at each locality nor the amount that was transported to Hankow. The Japanese investigations in Honan during the same period mentioned that wheat arriving in She-ch'i-chen amounted to about 100,000 *shih* per year and this was mostly transshipped to Fan-ch'eng.[38] thus, the wheat from the T'ang-pai-ho valley comprised about one-sixth of the total amount of wheat marketed along the Han river during the 1900s.

Wheat was also grown in the upper Han valley.[39] there is no estimate of the quantity of wheat arriving at markets along the upper Han River. It is only known that the amount was very small.[40]

As for the percentage of wheat output that was marketed along the Han River, no precise information is available. The *I-ch'eng-hsien hsiang-t'u-chih* (1906) mentioned that in good year 8,000 shih of wheat was transported from I-ch'eng to Hankow. However, the same source did not give a separate estimate of the annual output of wheat. It only said that the annual output of wheat and beans together amounted to about 300,000 *shih*.[41] If half of this amount is taken as the output of wheat, then approximately 5 percent entered into long-distance trade.

In the Maritime Customs annual returns, there was no mention of wheat exports from Hnkow prior to 1880. The export of wheat was interrupted during 1883-1891 and again during 1896-1897. Table A-2 shows exports of wheat from Hankow during 1898-1911. Because there was no re-export of wheat during the years, prior to January 1, 1904, when the Peking-Hankow railway was opened to Chu-ma-tien 駐馬店, Honan,[42] the supply source of these exports must have been the Han River area.

The drastic fluctuations in volume in 1901 and 1910 were very likely due to floods that occurred in Hupeh during these two years.[43] The notable increases in quantity during 1904-1905 were probably the results of the railway transportation which drew supplies of wheat from the plain of eastern Honan.[44] Moreover, the

[38] *Shina shōbetsu zenshi*, VIII, p. 647.
[39] Yen Ju-i, *San-sheng pien-fang pei-lan*, 8: 12b.
[40] *Shina shōbetsu zenshi*, VII, p. 417.
[41] *I-ch'eng-hsien hsiang-t'u-chih* (1906), 4: 21b-22.
[42] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1904, pt. 2, p. 275.
[43] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1902, pt. 2, p. 218; for the year 1910, pt. 2, p. 289; cf. Ping-ti Ho, *Studies on the Population of China*, appendix, IV, p. 300.
[44] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1904, pt. 2, p. 271. The report for the year 1905 says that almost all the wheat from Honan came by water due to the high railway freight charge, see pt. 2, p. 146.

modern flour mills established in Hankow from 1904 on probably encouraged shipments of wheat to Hankow, causing a considerable amount of wheat to be held for use in the mills.[45] The export of 1911 was a great amount. It is obvious that a good crop of wheat was harvested in early summer, and that the Revolution which took place in October did not affect the export of wheat.[46]

Table A-2: Exports of Wheat from Hankow, 1898-1911

Year	Quantity 1,000 Piculs (1)	Value 1,000 HK Tls.(2)	Average Price HK Tls.(3)	Price Index 1898=100(4)	Volume Index 1898=100(5)	Percentage of Summer Harvest (6)
1898	65.1	110.7	1.70	100	100	50+
1899	321.9	421.7	1.31	77	494	60+
1900	271.2	433.9	1.59	93	416	60+
1901	3.6	5.7	1.50	88	5	60+
1902	219.7	395.5	1.80	105	337	60
1903	144.3	248.2	1.72	101	221	60+
1904	441.9	795.5	1.80	105	678	60
1905	557.6	959.0	1.71	100	887	50+
1906	134.5	269.0	2.00	117	206	50+
1907	259.9	657.6	2.59	152	399	60
1908	462.7	1,156.8	2.50	147	710	50+
1909	126.9	342.7	2.70	158	194	70+
1910	6.4	16.0	2.50	147	9	50+
1911	524.1	1,441.3	2.75	161	804	--

Source: Cols. 1 and 2 are from the Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, section on Hankow. Cols. 3, 4, and 5 are my calculations based on Cols. 1 and 2. Col. 6 is from Li Wen-chih ed. *Chung-kuo chin-tai nung-yeh-shih tzu-liao* (Peking, 1957), I, p. 757. These are percentages in Hupeh.

To try figuring out the percentage of wheat output that was marketed is as difficult as it was in the case of rice. Annual output of wheat in Hupeh during the late Ch'ing period is unknown. If the percentage of cultivated wheat acreage in Hupei indicated in the *Hua-chung ti-ch'ü ching-chi ti-li* is used, it would be about 15 percent of the total cultivated acreage.[47] thus, the cultivated wheat acreage in Hupeh in the 1900s would be about 8.7 million *mou* out of the total acreage of 58 million *mou*.

As for the yield of wheat per *mou*, there are three estimates available. One was form a missionary report on the situation in Kuang-chi in 1888, which states that the yield of wheat per *mou* was 12 bushes for the first grade of land, 8 bushels for the

[45] The first flour mill was set up in 1904 and in 1908 there were six flour mills working in Hankow. See Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1904, pt.2, p. 271, and 1908, pt.2, p. 213.

[46] The 1911 Revolution caused a decrease of trade in general, see Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1911, pt. 2, p. 311.

[47] Sun Ching-chih, *Hua-chung ti-ch'ü ching-chi ti-li*, p. 20.

second grade of land, and 5 to 6 bushels for the third grade of land. These figures are considered too high by the editors of the *Chung-kuo chin-tai nung-yeh-shih tzu-liao*.[48] Another estimate of 2 *shih* per *mou* for the Shasi area was made in the *Shinkoku jijō*.[49] The third estimate of 141 catties per *mou* was made in 1957.[50] When compared with the third estimate, the first two estimates appear to be too high. Taking information available for other localities into consideration, I found that the yield of wheat per mou in Nan-yang was 102 catties in 1904,[51] and that in Han-chung was 0.7 *shih* in 1913.[52] It seems likely that prior to 1910, the yield of wheat per *mou* in Hupeh did not exceed 140 catties or 1.4 *shih*. Then, the total annual output of wheat from 8.7 million *mou* would be approximately 12 million *shih*. Finally, it is necessary to assume that the wheat exported from Hankow during 1898-1903 was drawn from sources in Hupeh. As a result, an average quantity of these exports amounts to only 1.3 percent of the total output as estimated above.

In summation, the percentage of wheat output that was marketed was smaller than that of rice as far as Hupeh was concerned. The case of I-ch'eng shows that about 5 percent of the wheat output was marketed along the Han River. An estimate based on the Maritime Customs statistics shows that no more than 2 percent of the wheat output in Hupeh was exported from Hankow. The T'ang-pai-ho valley produced more wheat than rice, and the wheat that was sent from this valley to the markets along the Han River was about one-sixth the total amount transported on this trade route. The coming of the railway extended the source of supply of wheat to eastern Honan but it did not affect the Han River as a trade route of wheat during the first decade of the twentieth century.

Maize and Potatoes

Although Chang Hsüeh-ch'eng listed maize first among the grain for sale on the Hankow market at the end of the eighteenth century,[53] it was only in 1911 that maize was entered among the goods exported from Hankow in the Maritime Customs trade returns.[54] Since no statistics about output and trade of maize and potatoes are available for the nineteenth century, it is impossible to measure the percentage of output that was marketed. It seems likely that these crops were consumed around mountainous areas where they were produced.

---

[48] Li Wen-chih ed., I, p. 636.
[49] *Shinkoku jijō*, II. p. 425; also see Li Wen-chih ed., I, p. 621.
[50] Sun Ching-chih, *Hua-chung ti-ch'ü ching-chi ti-li*, p. 20.
[51] P'an Shou-lien, *Nan-yang-hsien hu-k'ou ti-t'u wu-ch'an hsü-mu paio-t'u-shuo*, p. 2.
[52] *Shina shōbetsu zenshi*, VII, p. 409.
[53] Chang Hsüeh-ch'eng, *Chang shih-chai hsien-sheng i-shu*, 1: 16a.
[54] Imperial Maritime Customs, *Reports and Returns of Trade*, for the year 1911, pt. 2 section on Hankow, table of native goods exported.

BIBLIOGRAPHY

An-k'ang hsien-chih 安康縣志 (Gazetter of An-k'ang county), 1815 ed.

An-lu hsien-chih 安陸縣志, (Gazetteer of An-lu county), 1843 ed.

An-lu hsien-chih pu-cheng 安陸縣志補正 (Supplement and correction of Gazetter of An-lu county), 1872.

Arnold, Julien. *Commercial Handbook of China*, Washington, D. C., Government Printing Office, 1919.

Cahen, Gaston. *Histoire des relations de la Russie avce la Chine sous Pierre le Grand, 1689-1730*, Paris, 1912. Ridge, W. Sheldon trans. *Some Early Russo-Chinese Relations*, Shanghai, 1914.

Chang Ch'i-yün 張其昀. *Chung-hua min-kuo ti-t'u-chi* 中華民國地圖集 (Collection of maps of the Republic of china), Taipei, Kuo-fang yen-chiu-yüan 國防研究院, 1959-1962.

Chang Hsüeh-ch'eng 章學誠. *Chang shih-chai hsien-sheng i-shu* 章實齋先生遺書 (The Recollected works of Mr. Chang Hsüeh-ch'eng), 6 chüan, 1910. This book is a single edition of *Hu-pei t'ung-chih kao* 湖北通志稿 (Draft gazetteer of Hupeh).

Chang Hung-chao 章鴻釗 (H. T. Chang). *Shih-ya* 石雅 (Lepidarium sinicu: A Study of the rocks, fossils, and metals as known in Chinese literature), Peking, Chung-yang ti-chih tiao-ch'a-so 中央地質調查所, 1927.

Chang Yao-lun 張堯倫. "Ch'ing-tai yen-ts'ao chuna-shu wen-chien-lu," 清代煙草專著聞見錄 (A bibliography of works specialized on tobacco during the ch'ing dynasty), *Shuo-wen yüeh-kan* 說文月刊 (Shuo-wne monthly), 2.3 (June 1940): 622-629.

Ch'ang-sha fu-chih 長沙府志 (Gazetteer of Ch'ang-sha prefecture), 1747 ed.

Ch'en Ch'i-t'ien 陳其田, *Shan-hsi p'iao-chuang k'ao-lüeh* 山西票莊考略 (A brief survey of the Shansi bank), Shanghai, Shang-wu yin-shu-kuan 商務印書館, 1937.

Ch'en Han-sheng 陳翰笙, "P'o-ch'an-chung te Han-chung te p'in-nung," 破產中的漢中的貧農 (The Han-chung poor peasants facing bankruptcy), *Tung-fang tsa-chih* 東方雜誌 (Eastern miscellany), 30.1 (January 1933): 67-72.

Ch'eng-ku hsien-chih 城固縣志 (Gazetteer of Ch'tng-ku county) , 1717 ed., 1878 reprint.

Ch'eng-ku-hsien hsiang-t'u-chih 城固縣鄉土志 (Historical gazetteer of Ch'eng-ku county) in *Hsiang-t'u-chih ts'ung-pien* 鄉土志叢編 (Collection of historical gazetteers), Peking, Yen-ching University 燕京大學, 1937.

Chia-ch'ing ch'ung-hsiu i-t'ung-chih 嘉慶重修一統志 (Revised comprehensive gazetteer in the Chia-ch'ing reign), 1825; *Ssu-pu ts'ung-k'an* 四部叢刊 ed., Shanghai, Shang-wu yin-shu-kuan 商務印書館, 1934.

Chiang-hsia hsien-chih, 江夏縣志 (Gazetteer of Chiang-hsia county), 1869 ed.

Chiang-ling hsien-chih 江陵縣志 (Gazetteer of Chiang-ling county), 1877 ed.

Chiang P'u 蔣溥 et al., *Shou-shih t'ung-k'ao* 授時通考 (Comprehensive treatises to instruct the people during all seasons), 78 chüan, 1826.

Chiang-su sheng-li hsü-pien 江蘇省例續編 (Additional precedents of Kiangsu province), Chiang-su shu-chü 江蘇書局, 1875 ed.

Ch'ien-chiang hsien-chih 潛江縣志 (Gazetteer of Ch'ien-chiang county), 1694 ed; 1879 reprinted.

Chin-ling ta-hsüeh nung-yeh-ching-chi-hsi 金陵大學農業經濟系 (Department of Agricultural Economy, Chin-ling University) ed., *Hu-pei Yang-lou-tung lao-ch'ing-ch'a chih sheng-ch'an chih-tsao chi yün-hsiao* 湖北羊樓洞老青茶之生產製造及運銷 (The production, manufacture, and trade of tea at Yang-lou-tung, Hupeh), Nanking, Chin-ling University 金陵大學, 1936.

Ching-chou fu-chih 荊州府志 (Gazetteer of Ching-chou prefecture), 1880 ed.

Ching-men chih-li-chou chih 荊門直隸州志 (Gazetteer of Ching-men chih-li-chou), 1868 ed.

Ching-men chou-chih 荊門州志 (Gazetteer of Ching-men chou), 1754 ed.

Ching-shan hsien-chih 京山縣志 (Gazetteer of Ching-shan county), 1882 ed.

Ch'i-chou chih 蘄州志 (Gazetteer of Ch'i-chou), 1852 ed.

Ch'i-shui hsien-chih 蘄水縣志 (Gazetteer of Ch'i-shui county), 1880 ed.

Ch'ing Te-tsung shih-lu 清德宗實錄 (Veritable records of the Te-tsung reign in Ch'ing), Taipei, Hua-wen shu-chü 華文書局 reprint, 1964.

Ch'iu Chi-heng 仇繼恆, *Shan-ching Han-chiang liu-yü mao-i-piao* 陝境漢江域貿易表 (Tables of trade on the Han River in Shensi), in *Kuan-chuung ts'ung-shu* 關中叢書 (Collection of literatures of Kuan-chung area), Shan-hsi t'ung-chih-kuan 陝西通志館, 1934-1935, ts'e 47-48.

Chou Liang-kung 周亮工, *Min-hsiao-chi* 閩小記 (Notes on Fukien), in *Ts'ung-shu chi-ch'eng ch'u-pien* 叢書集成初編 (Collected literature, first series), ts'e 3162, Shanghai, Shang-wu yin-shu-kuan, 1936.

Chu-hsi hsien-chih 竹谿縣志 (Gazetteer of Chu-hsi county), 1867 ed.

Chu Mai-yü 朱美予. *Chung-kuo t'ung-yu-yeh* 中國桐油業 (Chinese wood oil trade), K'un-ming, Chung-hua shu-chü 中華書局, 1940.

Chu, T. H. *Tea Trade in Central China,* Shanghai, China Institute of Pacific Relations, 1936.

Chu Tzu-shuang 朱子爽, *Chung-kuo hsien-chih shih-kang* 中國縣制史綱 (A short

history of the institution of hsien in China), Chungking, Tu-li ch'u-pan-she 獨立出版社, 1942.

Chu-shan hsien-chih 竹山縣志 (Gazetteer of Chu-shan county), 1785 ed.; 1807 ed.

Chüeh-tzu 蹶子 (pseudonym). "Han-shui san-ch'ien-li yu-chi" 漢水三千里遊記 (Notes on a journey along the Han River, 1922), in *Hsin-yu-chi hui-k'an hsü-pien* 新遊記彙刊續編 (A new series of travels), Shanghai, Chung-hua shu-chü, 1923.

Ch'ü Ta-chün 屈大鈞. *Kuang-tung hsin-yü* 廣東新語 (New notes on Kuangtung), 1700.

Ch'ü, T'ung-tzu. *Local Government in China under the Ch'ing*, Cambridge, Mass., Harvard University Press, 1962.

Ch'üan Han-sheng 全漢昇. *T'ang-Sung ti-kuo yü yün-ho* 唐宋帝國與運河 (The T'ang-Sung empire and the grand canal), Shanghai, Shang-wu yin-shu-kuan, 1946.

Ch'üan Han-sheng 全漢昇. "Ch'ing-mo Han-yang t'ieh-ch'ang" 清末漢陽鐵廠 (The Han-yang Iron and Steel Works, 1890-1908), *She-hui k'o-hsüeh lun-ts'ung* 社會科學論叢 (Journal of social sciences),, 1 (April 1950): 1-33.

Ch'üan Han-sheng 全漢昇. "Mei-chou pai-yin yü shih-pa shih-chi Chung-kuo wu-chia ke-ming te kuan-hsi" 美洲白銀與十八世紀中國物價革命的關係 (American silver and the eighteenth-century price revolution in China), *The Bulletin of the Institute of History and Philology, Academia Sinica*, 28 (1957): 517-550.

Chung-hsiang hsien-chih 鍾祥縣志 (Gazetteer of Chung-hsiang county), 1867 ed.

Chung-kuo ch'a-yeh yen-chiu she 中國茶葉研究社 (Study society of the tea in China) trans., *Ch'a-yeh ch'üan-shu* 茶葉全書 (Translation of William Ukers's *All About Tea*), 2 vols., Shanghai, 1949.

Chung-kuo Jen-min ta-hsüeh li-shih chiao-yen-shih 中國人民大學歷史教研室 (Department of History, People's University of China) ed. *Chung-kuo tzu-pen-chu-i meng-ya wen-t'i t'ao-lun-chi* 中國資本主義萌芽問題討論集 (Collection of essays on the burgeoning capitalism in China), 2 vols. Peking, San0lien shu-tien 三聯書店, 1957.

Ch'ung-yang hsien-chih 崇陽縣志 (Gazetteer of Ch'ung-yang county), 1866 ed.

Cressey, George B. *China's Geographic Foundations: A Survey of the Land and its People*, New York, McGraw-Hill Book Co., 1934.

Dieterish, Craig, "Cotton Culture and Manufacture in Early Ch'ing China," in W. E. Willmott ed., *Economic Organization in Chinese Society*, Stanford, Stanford University Press, 1972, pp. 109-136.

Fan K'ai 范鍇, *Han-k'ou ts'ung-t'an* 漢口叢談 (Miscellaneous notes on Hankow), 6 chüan, 1822.

Fang-hsien-chih 房縣志 (Gazettee of Fang county), 1866 ed.

Feng-hsien-chih 鳳縣志 (Gazetteer of Feng county), 1892 ed.

Feuerwerker, Albert ,*The Chinese Economy, ca. 1870-1911*, *Michigan Paper in Chinese Studies*, no. 5, Ann Arbor, Michigan, 1969.

Foust, Clifford M. *Muscovite and Mandarin, Russia's Trade with China and its Setting, 1727-1805*, Chapel Hill, The University of North Carolina Press, 1969.

Freedman, Maurice. *Chinese Lineage and Society: Fukien and Kwangtung*, London, Athlone Press, 1966.

Fu-chien sheng-li 福建省例 (Precedents of Fukien province), in *Tai-wan wen-hsien ts'ung-k'an* 臺灣文獻叢刊 no. 199. Taipei, Taiwan Yin-hang chin-chi yen-chiu-shih 臺灣銀行經濟研究室, 1964.

Fu I-ling 傅衣凌. *Ming-Ch'ing shih-tai shang-jen chi shang-yeh tsu-pen* 明清時代商人及商業資本 Merchants and commercial capital in the Ming and Ch'ing periods), Peking, Jen-min ch'u-pan-she 人民出版社, 1956.

Fu I-ling 傅衣凌. "Ming-tai Chiang-nan te fang-chih kung-yeh yü chih-kung pao-tung" 明代江南的紡織工業與織工暴動 (The textile industry and riots of the textile workers in Chiang-nan during the Ming dynasty) in *Ming-tai Chiang-nan shih-min ching-chi shih-t'an* 明代江南市民經濟試探 (Studies on the urban economy of Chiang-nan during the Ming dynasty), Shanghai, Jen-min ch'u-pan-she, 1963.

Fujii Hiroshi 藤井宏, "Shinan shōnin no kenkyū" 新安商人の研究 (a study on Hsin-an merchants), *Tōyō gakuhō* 東洋學報 Reports of the oriental society), 36.2 (Sept., 1953): 32-60.

Gaimusho Tsūshokyoku 外務省通商局 (Foreign Office, Bureau of Commercial Affairs), *Shinkoku jijō* 清國事情 (Conditions in the Ch'ing empire), 2 vols. Tokyo, 1907.

Gerschenkron, Alexander. *Economic Backwardness in Historical Perspective*, Cambridge, Mass., The Belknap Press of Harvard University Press, 1962.

Han-chiang shui-tao ch'a-k'an pao-kao 漢江水道查勘報告 (Report on the survey of the Han river waterway) in *Shui-tao ch'a-k'an pao-kao* 水道查勘報告 (Collection of reports on waterways), The Ministry of Economic Affairs, 1939..

Han-chung hsü-hsiu fu-chih 漢中續修府志 (Additional Gazetteer of Han-chung prefecture), 1813 ed.

Han-ch'uan hsien chien-chih 漢川縣簡志 (Brief gazetteer of Han-ch'uan county), Wu-han, Hu-pei jen-min ch'u-pan-she 湖北人民出版社, 1959.

Han-ch'uan hsien-chih 漢川縣志 (Gazetteer of Han-ch'uan county), 1873 ed.; 1921 ed.

*Han-yang hsein-chi*h 漢陽縣志 (Gazetteer of Han-yang county), 1868 ed.

Han-yin t'ing-chih 漢陰廳志 (Gazetteer of Han-yin t'ing), 1818 ed.,

Ho Ch'ang-ling 賀長齡, *Huang-ch'ao ching-shih wen-pien* 皇朝經世文編 (Essays on statecraft during the Ch'ing dynasty), Sao-yeh shan-fang 埽葉山房, 1896.

Ho Ch'ing-yün 何慶雲, *Shan-hsi shih-yeh k'ao-ch'a-chi* 陝西實業考察記 (Notes of survey on industry in Shensi) Taipei, Wen-hai ch'u-pan-she 文海出版社 1971.

Hommel, Rudolf P. *China at Work*. New York, John Day Co., 1937.

Ho-nan-sheng ts'ai-cheng shuo-ming-shu 河南省財政說明書 (A fiscal handbook of Honan province), Peking, Ching-chi hsüeh-hui 經濟學會, 1915.,

Ho, Ping-ti. "The Salt Merchants of Yang-chou: A Study of Commercial Capitalism in Eighteenth Century China," *Harvard Journal of Asiatic Studies*, 17 (1954): 130--168.

Ho, Ping-ti. *Studies on the Population of China, 1368-1953*. Cambridge, Mass., Harvard University Press, 1959.

Ho Ping-ti 何炳棣, *Chung-kuo hui-kuan shih-lun* 中國會館史論 (A historical survey of "Landsmannshaften" in China), Taipei, Hsüeh-sheng shu-chü 學生書局, 1966.

Hou P'ei-chün 侯培俊 and Chi Ling-shu 冀麟書, *Han-k'ou Shan-Shan-hsi hui-kuan-chih* 漢口山陝西會館志 (A gazetteer of the Shansi-Shensi guild hall in Hankow), 1896.

Hsia-k'ou hsien-chih 夏口縣志 (Gazetteer of Hsia-k'ou county), 1920 ed.

Hsiao-kan hsien-chih 孝感縣志 (Gazetteer of Hsiao-kan county), 1882 ed.

Hsiang-yang fu-chih 襄陽府志 (Gazetteer of Hsiang-yang prefecture), 1760 ed.; 1885 ed.

Hsiang-yang hsien-chih 襄陽縣志 (Gazetteer of Hsiang-yang county), 1873 ed.

Hsing-an hsien-chih 興安縣志 (Gazetteer of Hsing-an county), 1788 ed.; revised, 1812 ed.

Hsing-p'ing hsien-chih 興平縣志 (Gazetteer of Hsing-p'ing county), 1923 ed.

Hsing-p'ing-hsien hsiang-t'u-chih 興平縣鄉土志 (Historical gazetteer of Hsing-p'ing county), 1907 ed.

Hsing-shan hsien-chih 興山縣志 (Gazetteer of Hsing-shan county), 1865 ed.

Hsiu-shan hsien-chih 秀山縣志 (Gazetteer of Hsiu-shan county), 1891 ed.

Hsü-chi Chün-chou-chih 續輯均州志 (Revised gazetteer of Chün-chou), 1884.

Hsü, Immanuel C. Y., *The Ili Crisis: A Study of Sino-Russian Diplomacy, 1872-1882* Oxford, The Clarendon Press, 1965.

Hsü Kuang-ch'i 徐光啟. *Nung-cheng ch'üan-shu* 農政全書 (Complete treatise on agriculture), 1838.

Hsü Shan-hsi (Shensi) t'ung-chih kao 續陝西通志稿 (Revised draft gazetteer of Shensi), 1931 ed.

Hsün-yang hsien-chih 洵陽縣志 (Gazetteer of Hsün-yang county), 1783 ed.; revised, 1870, and 1902 ed.

Hu-nan sheng-li ch'eng-an 湖南省例成案 (Cases in precedents of Hunan province), Ch'ing edition, year unknown. (Reprint edition, Peking, 2012.)
Hunter, Dard, *Paper-making: The History and Technique of an Ancient Craft*, New York, 1947.
Hu-pei nung-hui-pao 湖北農會報 (Journal of the Hupeh Agriculture Society), Hu-pei ch'üan-sheng nung-wu tsung-hui 湖北省農務總會 (Hupeh provincial agricultural association), 1910.
Hu-pei t'ung-chih 湖北通志 (Gazetteer of Hupei province), 1803 ed.; 1921 ed.
Hu-pu tse-li 戶部則例 (Precedents of the Board of Revenue), 1874.
Huang-an hsien-chih 黃安縣志 (Gazetteer of Huang-an county),1822 ed.; 1882 ed.
Huang-chou fu-chih 黃州府志 (Gazetteer of Huang-chou prefecture),1884 ed.
Huang-kang hsien-chih 黃岡縣志 (Gazetteer of Huang-kang county) ,1882 ed.
Huang-mei hsien-chih 黃梅縣志 (Gazetteer of Huang-mei county), 1876 ed.
Huang-p'i hsien-chih 黃陂縣志 (Gazetteer of Huang-p'i county), 1871 ed.
Huang Sheng-chang 黃盛璋, "Li-shih-shang Huang-Wei yü Chiang-Han chien shui-lu lien-hsi ti kou-t'ung chi ch'i kung-hsien" 歷史上黃渭與江漢間水陸聯係的溝通及其貢獻 (The land and water communications betwwn the Huang-Wei and Chiang-Han in historical times and its contribution), *Ti-li hsüeh-pao* 地理學報 (Journal of Geography), 28.4 (Dec. 1962): 320-335.
Huc, Evariste. *L'empier Chinois*, English translation (London, 1855).
Hung Fu. "The Geographical Refions of China and Their Subdivisions: A study in Methodology," reprinted from the *Proceedings, 8th General Assembly, 17th Congress, International Geographical Union*, Washington, 1952.
Hunter, Dard. *Papermaking: The History and Technique of an Ancient Craft*. New York, Alfred & Knopf, 1947.
I-ch'eng hsien-chih 宜城縣志 (Gazetteer of I-ch'eng county), 1866 ed.
I-ch'eng-hsien hsiang-t'u-chih 宜城縣鄉土志 (Historical gazetteer of I-ch'eng county), 1906 ed.
Imahori Seiji 今堀誠二, "Shindai iron i okeru Kōka no suiun nit suite" 清代以後における黃河の水運について *Shigaku kenkyū* 史學研究 (Studies on history), 73 (April 1959): 23-37.
Imperial Maritime Customs, *Reports and Returns of Trade*, for each year, 1864-1914, Shanghai, Inspector General of Customs.
Imperial Maritime Customs, *Decennial Report*, 1882-1891, 1892-1901, 1902-1911, Shanghai, Inspector General of Customs.
Imperial Maritime Customs, *Special Series: Silk*, Shanghai, 1881.
Imperial Maritime Customs, *Special Series: Tea, 1888*, Shanghai, 1889..
Katō Shigeshi 加藤繁, *Shina keizaishi kōshō* 清代經濟史考證 (Studies on Chinese

economic history), 2 vols. Tokyo, Tōyō bunko 東洋文庫, 1952.
Kingsmill, T. W. et al. “Inland Communication in China,” *Journal of the North China Branch of the Royal Asiatic Society*, new series, 28 (1893-1984): 1-213.
Ku-ch’eng hsien-chih 穀城縣志 (Gazetteer of Ku-ch’eng county), 1867 ed.
Ku Kung-hsieh 顧公燮. *Hsiao-hsia hsien-chi chai ch’ao* 消夏閒記摘鈔 in *Han-fen-lou mi-chi* 涵芬樓秘籍 (Treasure books of Han-fen-lou), Shanghai, Shang-wu yin-shu-kuan, 1917.
Kuang-chi hsien-chih 廣濟縣志 (Gazetteer of Kuang-chi county), 1872 ed.
Kuang-hua hsien-chih 光化縣志 (Gazetteer of Kuang-hua county), 1884 ed.
K’uang Yüan-tung 匡遠東, “Han-shui liu-yü chien-wen chi” 漢水流域見聞記 (My experience along the Han River), in *Hsin yu-chi hui-k’an hsü-pien*, chüan 21, Shanghai, Chung-hua shu-chü, 1925.
Landes, David S. *The Unbound Prometheus*, Cambridge, Cambridge University Press, 1969.
Laufer, Berthold, *Tobacco and its Use in Asia*. Chicago, Field Museum of Natural History, 1924.
Li Ch’ang-lung 李昌隆, *Chung-kuo t’ung-yu mao-i kai-lun* 中國桐油貿易概論 (A general survey on Chinese wood oil trade), Shanghai, Shang-wu yin-shu-kuan, 1934.
Li Shih-chen 李時珍, *Pen-ts’ao kang-mu* 本草綱目 (Outline of medicinal plants and minerals), Anhwei, Chang-shih Wei-ku-chai 張氏味古齋, 1885.
Li Wen-chih 李文治 ed., *Chung-kuo chin-tai nung-yeh-shih tzu-liao* 中國近代農業史資料 (Materials on the history of modern Chinese agriculture), Peking, San-lien shu-tien, 1957.
Li Yi-chih 李儀祉. “Han-chiang hang-yün ch’ing-hsing chi cheng-li i-chien” 漢江航運情形暨整理意見 (The navigating conditions on the Han river and suggestions for improvement), in *Han-chiang shui-tao ch’a-k’an pao-kao*.
Lindsay, T. J. “The Hankow Steamer Tea Races,” *Journal of Hong Kong Branch of Royal Asiatic Society*, 8 (1968): 44-55.
Liu Hsein-t’ing 劉獻廷, *Kuang-yang tsa-chi* 廣陽雜記 (Collected miscellanes), in *Ts’ung-shu chi-ch’eng ch’u-pien* , ts’e 2958-2960, Changsha, Shang-wu yin-shu-kuan, 1937.
Liu, Kwang-ching. *Anglo-American Steamship Rivalry in China, 1862-1874*. Cambridge, Mass., Harvard University Press, 1962.
Liu Ts’ui-jung 劉翠溶, “Ch’ing-ch’u Shen-chih K’ang-hsi nien-chien chien-mien fu-shui te kuo-ch’eng” 清初順治康熙年間減免賦稅的過程 (Land-poll tax reduction and exemption during the reigns of Shun-chih and K’ang-hsi), *The Bulletin of the Institute of History and Philology, Academia Sinica*, 32.2 (1967):

757-777.
Lo-t'ien hsien-chih 羅田縣志 (Gazetteer of Lo-t'ien county), 1876 ed.
Lo Yü-tung 羅玉東. *Chung-kuo li-chin shih* 中國釐金史 (A history of likin in China), Shanghai, Shang-wu yin-shu-kuan, 1936.
Lu K'ung 盧坤, *Ch'in-chiang chih-lüeh* 秦疆治略 (an administrative guide of Shensi), in *Shan-hsi-chih chi-yao* 陝西志輯要 (Collection of important gazetteers of Shensi), Kuan-chung Ssu-shu-t'ang 關中賜書堂, 1827.
Lüeh-yang hsien-chih 略陽縣志 (Gazetteer of Lüeh-yang county), 1847 ed.
Ma-ch'eng hsien-chih 麻城縣志 (Gazetteer of Ma-ch'enf county), 1882 ed.; 1935 ed.
Mien-hsien hsin-chih 沔陽新志 (New gazetteer of Mien-yang), 1883 ed.
Mien-yang chou-chih 沔陽州志 (Gazetteer of Mien-yang chou), 1894 ed.
Miyazaki Ichisada 宮崎市定, "Min-shin jidai no Soshū to keikōgyō no hattatsu" 明清時代の蘇州と輕工業の發達 (The development of the light industry in Soochow under the Ming and Ch'ing dynasties), *Tōhōgaku* 東方學 (Eastern studies), 2 (August 1951): 64-73.
Mizuno Kōkichi 水野幸吉, *Kankō* 漢口(On Hankow), Tokyo, Fuzanbō 富山房, 1907.
Morita Akira 森田明, "Shindai Kō-kō chihō ni okeru teiki ichi nit suite" 清代湖廣地方における定期市について (On the periodic markets in the Hu-kuang area during the Ch'ing dynasty), *Shōkei lonsō* 商經論叢 (Studies on commerce and economics), 5.1 (November 1964): 49-73.
Nan-cheng hsien-chih 南鄭縣志 (Gazetteer of Nan-cheng county), 1921 ed.
Nan-chang hsien-chih 南漳縣志 (Gazetteer of Nan-chang county), 1861 ed.
Nan-yang fu-chih 南陽府志 (Gazetteer of Nan-yang prefecture), 1694 ed.; 1807 ed.
Nan-yang hsien-chih 南陽縣志 (Gazetteer of Nan-yang county), 1904 ed.
Needham, Joseph. *Science and Civilization in China.*Cambridge, Cambridge University Press, Vol. IV, Part 2, 1965; Part 3, 1971. 1965).
Negishi Tadachi 根岸佶, *Chūgoku no girudo* 中國のギルド (The guild in China), Tokyo, 1953.
Niida Noboru 仁井田陞, "Shindai no Kankō San-Sen kaikan to San-Sen hō (girudo)" 清代の漢口山陝會館と山陝幫(ギルド) (Shan-Shan-hsi hui-kuan and Shan-Shan guild in Hankow under the Ch'ing dynasty), *Shankai keizai shigaku* 社會經濟史學 (The Journal of Social and Economic History Society), 13.6 (Sept. 1943): 1-23.
Ning-ch'iang-chou-chih 寧羌州志 (Gazetteer of Ning-ch'iang chou), 1888 ed.
Ning-ch'iang-chou hsiang-t'u-chih 寧羌州鄉土志 (Hisotrical gazetteer of Ning-ch'iang chou), in *Hsiang-t'u-chih ts'ung-pien*, Peking, Yen-ching University, 1937.

Nishijima Sadao 西島定生. *Chūgoku keizaishi kenkyū* 中國經濟史研究 (Studies on the Chinese economic history), Tokyo, Tokyo University, 1966.

Nishikawa Niichi 西川喜一. *Chōkō kōun to ryūiki no fugen* 長江航運と流域の富源 (The navigation on the Yangtze and the natural resources of the basin), Shanghai, Jih-pen-t'ang 日本堂, 1925.

Nung-hsüeh-pao 農學報 (Journal of agriculture), 1896-1899.

Nung-kung-shang-pu 農工商部 ed. *Mien-yeh t'u-shuo* 棉業圖說 (An illustrated treatise on cotton), Peking, 1911.

Pai-ho hsien-chih 白河縣志 (Gazetteer of Pai-ho county), 1893 ed.

P'an Shou-lien 潘守廉. *Nan-yang-hsien hu-k'ou ti-t'u wu-ch'an hsü-mu piao-t'u-shuo* 南陽縣戶口地土物產畜牧表圖說 (A table, a map, and an essay on population, land, products, and pastoral industry in Nan-yang hsien), Taipei, Ch'eng-wen ch'u-pan-she 成文出版社, 1968; first print, 1904.

Pao-ch'eng hsien-chih 褒城縣志 (Gazetteer of Pao-ch'eng county), 1832 ed.; 1968 reprint.

Pao-k'ang hsien-chih 保康縣志 (Gazetteer of Pao-k'ang county), 1866 ed.

Parkes, Harry, "Report on the Russian Caravan Trade with China," *Journal of the Royal Geographical Society*, 24 (1854): 306-312.

P'eng Hsin-wei 彭信威. *Chung-kuo ho-pi-shih* 中國貨幣史 (A history on money in China), Shanghai, Jen-min ch'u-pan-she, 1958.

P'eng Tse-i 彭澤益 ed., *Chung-kuo chin-tai shou-kung-yeh-shih tzu-liao* 中國近代手工業史資料 (Materials on the history of modern Chinese handicraft industry, 1840-1949), 2 vol., Peking, San-lien shu-tien. 1957.

Perkins, Dwight. A*gricultural Development in China, 1368-1968.* Chicago, Aldine Publishing Co., 1969.

Pi-yang hsien-chih 泌陽縣志 (Gazetteer of Pi-yang county), 1828 ed.

P'ing-Han t'ieh-lu ching-chi tiao-ch'a tsu 平漢鐵路經濟調查組 (Economic survey group of the Peking-Hankow railway) ed. *Lao-ho-k'ou chih-hsien ching-chi tiao-ch'a* 老河口支線經濟調查 (Economic survey along the branch line of Lao-ho-k'ou). The original survey was published in Chinese in 1936. Since the Chinese edition is not available in the Harvard-Yenching Library, the Japanese translation, published in Tokyo, 1937, is used.

P'ing-li hsien-chih 平利縣志 (Gazetteer of P'ing-li county), 1755 ed.; 1897 ed.

P'u-ch'i hsien-chih 蒲圻縣志 (Gazetteer of P'u-ch'i county), 1836 ed.; 1866 ed.

Rawski, Evelyn S. "Agricultural Development and Official Action in Eighteenth Century China: The Case of the Han River Highland," unpublished paper read in the AAS Conference in Chicago, March, 1973.

Richthofen, Ferdinand von. "Letter on the Province of Hupeh," Shanghai, 1870.

Richthofen, Ferdinand von. “Letter by Baron von Richthofen on the Provinces of Chili, Shansi, Shensi, Sz’chwan and with notes on Mongolia, Kansu, Yünnan, and Kweichau,” Shanghai, 1872.

Richthofen, Ferdinand von. “Report by Baron von Riththofen on the Provinces of Honan and Shansi,” Shanghai, 1875.

Schafer, Edward H. *The Golden Peaches of Samarkand, A Study of T’ang Exotics*. Berkeley, University of California Press, 1963.

Shang-chou chih-li-chou chih 商州直隸州志 (Gazetteer of Chang-chou chih-li-chou), 1744 ed.; 1758 ed.

Shen Kua 沈括, *Meng-hsi pi-t’an* 夢溪筆談 (Dream pool essays), annotated by Hu Tao-ching 胡道靜, Shanghai, Chung-hua shu-chü, 1957.

Shiba Yoshinobu 斯波義信, *Sōdai shōgyōshi kenkyū* 宋代商業史研究 (Studies on the history of commerce during the Sung dynasty), Tokyo, Kazama shobō 風間書房, 1968. Translated and abstracted by Mark Elvin as *Commerce and Society in Sung China*, Ann Arbor, Michigan, 1970.

Shih-ch’üan hsien-chih 石泉縣志 (Gazetteer of Shih-ch’üan county), 1849 ed.

Shih-liao hsün-k’an 史料旬刊 (Historical materials published every ten days), Taipei, Kuo-feng ch’u-pan-she 國風出版社, reprint, 1963.

Shih-wo chou-hang 示我周行 (A guide for highways), 1787.

Shih Sheng-han, *A Preliminary Survey of the Book Ch’i-Min Yao-shu* (Peking, 1962).

Shih-yeh-pu kuo-chi-mao-i-chü 實業部國際貿易局 (Ministry of Industry, Bureau of International Trade), ed. *Chih-ma* 芝麻 (Sesame seed trade), Ch’ang-sha, Shang-wu yin-shu-kuan, 1940.

Shih-yeh-pu kuo-chih-mao-i-chü ed., *T’ung-yu* 桐油 (Wood oil trade), Ch’ang-sha, Shang-wu yin-shu-kuan, 1940.

Skinner, G. William. “Marketing and Social Structure in Rural China,” *Journal of Asian Studies*, Part I, 24.1 (Nov. 1964): 3-43; Part II, 24.2 (Feb. 1965): 195-228.

Subbotin, A. P., *Chai i chainaia torgovlia v Rossii i drugikh gosudarstvakh: proizvodstvo, potreblenie i paspredelenie chia* (Tea and the Tea trade in Russia and other Countries: Production, Use, and Distribution of Tea), St. Petersburg, 1892.

Sui-chou-chih 隨州志 (Gazetteer of Sui-chou), 1667 ed.; 1869 ed.

Sun Ching-shih 孫敬之, *Hua-chung ti-ch’ü ching-chi ti-li* 華中地區經濟地理 (An economic geography of central China), Peking, K’o-hsüeh ch’u-pan-she 科學出版社, 1958.

Ssu-ch’uan t’ung-chih 四川通志 (Gazetteer of Ssu-ch’uan province), 1815 ed.

Sung, Z. D. trans., *The Text of Yi King*, Shanghai, The China Modern Education Co., 1935.

Sung Ying-hsing 宋應星. *T'ien-kung k'ai-wu* 天工開物, trans. by E-tu Zen Sun and Shiou-chuan Sun with the sub-title of *Chinese Technology in the Seventeenth Century*, University Park and London, The Pennsylvania State University Press, 1966.

Ta-ch'ing fa-kuei ta-ch'üan 大清法規大全 (A Complete collection of the law during the Ch'ing), Shanghai, Cheng-hsüeh-she 政學社, 1909.

Ta-ch'ing hui-tien 大清會典 (Collected statutes of the Ch'ing dynasty), the Kuang-hsü edition, 1887.

Ta-ch'ing lü-li tseng-hsiu t'ung-ts'uan chi-ch'eng 大清律例增修統纂集成 (A complete collection of law and precedents of the Ch'ing dynasty), 1895.

Ta-yeh hsien-chih 大冶縣志 (Gazetteer of Ta-yeh county), 1867 ed.

Tang-yang hsien-chih 當陽縣志 (Gazetteer of Tang-yang county), 1866 ed.

Te-an fu-chih 德安府志 (Gazetteer of T-an prefecture), 1888 ed.

Teng-chou-chih 鄧州志 (Gazetteer of Teng-chou), 1747 ed.

Terada Takanobu 寺田隆信, *Sansei Shōnin no kenkyū* 山西商人の研究 (Studies on Shansi merchants), Kyoto, Kyoto University, 1972. Review by Yang Lien-sheng 楊聯陞, in *Shih-huo yüeh-k'an* 食貨月刊 (Shih-huo monthly), new series, 3.2 (May 1973): 88-95.

Ting-yüan t'ing-chih 定遠廳志 (Gazetteer of Ting-yuan t'ing), 1879 ed.

T'ien-men hsien-chih 天門縣志 (Gazetteer of T'ien-men county), 1765 ed.; 1922 reprint.

T'ien Tsung-han 田宗漢. *Han-ch'uan t'u-chi cheng-shih* 漢川圖記徵實 (A verification of gazetteer and map of Han-ch'uan), 1895.

T'ien Tsung-han 田宗漢. *Hu-pei Han-shui t'u-shuo* 湖北水道圖說 (Notes and maps of the Han River in Hupeh), 1901.

Timkovskii, M. George., *Travel of the Russian Mission through Mongolia to China and Residence in Peking in the years 1820-1821*, translated into English by H. E. Lloyd, with corrections and notes by Julius von Klaproth, London, Longman, Rees, Orme, Brown, and Green, 1827.

Tōa Dōbunkai 東亞同文會. *Shina keizai zensho* 支那經濟全書 (China economic series), vols. 1-4, Ōsaka, Maruzen, 1907; vols. 5-12, Tokyo, Tōa Dōbunkai, 1908.

Tōa Dōbunkai 東亞同文會. *Shina shōbetsu zenshi* 支那省別全誌 (Comprehensive gazetteers of provinces in China), Tokyo, Tōa Dōbunkai, 1917-1920. Vols. VII, VIII, and IX are used in this study.

Torgasheff, Boris P., *China as a Tea Producers*, Shanghai, The Commercial Press, 1926.

Tsao-yang hsien-chih 棗陽縣志 (Gazetteer of Tsao-yang county), 1854 ed.

Tung-hui 東暉 (pseudonym), "Hu-pei chih t'an-ssu-yeh" 湖北之蠶絲業 (The silk

trade in Hupeh), *Shang-hai tsung-shang-hui yüeh-pao* 上海總商會月報 (Monthly report of the Chamber of Commerce of Shanghai), 5.8 (August 1925), *tiao-ch'a* 調查, pp. 1-5.

T'ung-ch'eng hsien-chih 通城縣志 (Gazetteer of T'ung-ch'eng county), 1867 ed.

T'ung-shan hsien-chih 通山縣志 (Gazetteer of T'ung-shan county), 1867 ed.

Tzu-yang hsien-chih 紫陽縣志 (Gazetteer of Tzu-yang county), 1882 ed.

Ukers, William. *All About Tea*, Chinese translation, *Ch'a-yeh ch'üan-shu* 茶葉全書, Shanghai, 1949.

Wang Cheng-wang 王正旺 trans. *Chung-kuo hsi-pei-pu chih ching-chi chuang-k'uan*g 中國西北部之經濟狀況 (Economic conditions of northwestern China), trans. from W. Karamisheff, Shanghai, Shang-wu yin-shu-kuan, 1933.

Wang Chih-yin 王志沂, *Han-nan yu-ts'ao* 漢南遊草 (Notes on traveling along the upper Han River), in *Shan-hsi-chih chi-yao* 陝西志輯要 (Collection of important gazetteers of shensi), Kuan-chung Ssu-shu-t'ang, 1827.

Wang Hung-chih 王宏志, *Tso Tsung-t'ang p'ing hsi-pei hui-luan liang-hsiang chih ch'ou-hua yü chuan-yün yen-chiu* 左宗棠平西北回亂糧餉之籌劃與轉運研究 (A study on Tso Tsung-t'ang's planning and transportation of grain and military supplies to the northwest during the Moslem rebellion), Taipei, Chung-chung shu-chü 正中書局, 1972. .

Wang Shih-chen 王士禎. *Shu-tao i-ch'eng-chi* 蜀道驛程記 (Notes on the way to Szechwan through the postal stages), in *Yü-yang san- shih- liu-chung* 漁洋三十六種 (Thirty-six works of Wang Shih-chen), 1703-1704.

Wang Shih-han 汪師韓. *Chin-ssu-lu* 金絲錄 (Records about tobacco), first publish 1737, reprint 1886.

Wang, Yeh-chien. "The Secular Trend of Prices during the Ch'ing Period," *Journal of the Institute of Chinese Studies of the Chinese University of Hong Kong*, 5.2 (Dec. 1972): 361.

Wang Yeh-chien 王業鍵. "Ch'ing-tai ching-chi ch'u-lun" 清代經濟芻論 (Some Reflections on the Economy of China under the Ch'ing, 1644-1911), *Shih-huo yüh-k'an* 食貨月刊, new series, 2.11 (Feb. 1973): 1-10.

Wen Kung-shih 文公直 ed. *Ch'ü-hsiang-chen tzu-chih ts'ung-shu* 區鄉鎮自治叢書 (Collected literature about local self-government), Shanghai, Shih-huan shu-chü 時還書局, 1933.

Willis, Bailey. *Friendly China, Two Thousand Miles Afoot Among the Chinese*. Stanford, Stanford University Press, 1949.

Willmott, W. E. ed. *Economic Organization in Chinese Society*, Stanford, Stanford University Press, 1972.

Wilson, Ernest H. *China, Mother of Gardens*, New York, Benjamin Blom Inc., 1971.

Wu Ch'eng-lo 吳承洛, *Chung-kuo tu-liang-heng shih* 中國度量衡史 (A history of measurement in China), Shanghai, Shang-wu yin-shu-kuan, 1957.

Wylie, Alexander. "Notes of a Journey from Chingtoo to Hankow," *Proceedings of Royal Geographical Society*, 14.2 (June 1870): 168-185.

Yang-hsien-chih 洋縣志 (Gazetteer of Yang county), 1898 ed.

Yang, Lien-sheng. *Money and Credit in China*, Cambridge, Mass., Harvard University Press, 1952.

Yang, Lien-sheng. *Studies in Chinese Institutional History*, Cambridge, Mass., Harvard University Press, 1961.

Yang, Lien-sheng. "Government Control of Urban Merchant in Traditional China," the *Tsing-hua Journal of Chinese Studies*, new series, 8.1 and 2 (August 1970): 186-209.

Yang Shen 楊侁, *Pin-feng kuang-i* 豳風廣義 (A broad interpretation of the odes of ping-feng), Shensi, Hui-hsin-ke 會心閣, 1882.

Yen Chung-p'ing 嚴中平, *Chung-kuo mien-fang-chih shih-kao* 中國棉紡織史稿 (Draft history of the cotton industry in China), Peking, K'o-hsüeh ch'u-pan-she, 1963.

Yen Ju-i 嚴如熤. *San-sheng pien-fang pei-lan* 三省邊防備覽 (Manual of the defense on the border of the three provinces), 1822.

Yen Ju-i 嚴如熤. *San-shemg shan-nei feng-t'u tsa-shih* 三省山內風土雜識 (Miscellaneous notes on the custom in mountainous areas of the three provinces), in *Kuan-chung ts'ung-shu* , ts'e 36, 1934-1935.

Ying-ch'eng hsien-chih 應城縣志 (Gazetteer of Ying-ch'eng county), 1882 ed.

Ying-shan hsien-chih 應山縣志 (Gazetteer of Ying-shan county), 1871 ed.

Yokoyama Suguru 横山英. *Chūgoku kindaika no keizai kōzō* 中國近代化の經濟構造 (Economic structure of China's modernization), Tokyo, Aki shobō 亞紀書房, 1972.

Yoshida Kinichi 吉田金一, "Rosia to Shin no bōeki ni tsuite" ロシアと清の貿易について (Trade between Russia and Ch'ing China), *Tōyō gakuho*, 45.4 (March 1936): 39-86.

Yüan-an hsien-chih 遠安縣志 (Gazetteer of Yüan-an county), 1866 ed.

Yün-hsien-chih 鄖縣志 (Gazetteer of Yün county), 1866 ed.

Yün-hsi hsien-chih 鄖西縣志 (Gazetteer of Yün-hsi county), 1866 ed.

Yün-meng hsien-chih lüeh 雲夢縣志略 (Brief gazetteer of Yün-meng county), 1840 ed.

Yün-yang fu-chih 鄖陽府志 (Gazetteer of Yün-yang prefecture), 1797 ed.; 1870 ed.