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INTERNATIONAL BULLION FLOWS AND THE CHINESE ECONOMY CIRCA 1530-1650*

DURING MANY OF THE YEARS ENCOMPASSED BY THIS STUDY, MASSIVE amounts of foreign silver flowed into China in exchange for raw silk, silk and cotton textiles, porcelain, copper cash, gold, precious stones, mercury and a wide variety of other products.¹ Students of European, Ottoman and South Asian history during this period perhaps will not be surprised to learn that by facilitating rapid monetary growth and greatly enhancing the efficiency of exchange, these imports of silver played an important role in determining the pace and, to a certain lesser extent, the direction of the country's economic development. As was true elsewhere, however, those imports ultimately proved to be a mixed blessing and, for various reasons to be discussed below, did much to undermine the economic and political stability of the Ming (1368-1644) empire during the last few decades of that dynasty's existence.²

THE JAPANESE CONNECTION

From the 1530s until at least the 1570s, China's primary source of foreign silver was western Japan, where substantial deposits of the

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¹ For an exhaustive list of items regularly exported from China to Manila during the late sixteenth and early seventeenth centuries, see Antonio de Morga, *The Philippine Islands, Moluccas, Siam, Cambodia, Japan and China at the Close of the Sixteenth Century*, trans. Henry E. J. Stanley (London, 1868), pp. 337-8. For a list of ninety-six predominantly Chinese goods carried by Portuguese merchants from Macao to Nagasaki in 1637, see C. R. Boxer, *The Great Ship from Amacou: Annals of Macao and the Old Japan Trade, 1555-1640* (Lisbon, 1959), pp. 191-7. See also Iwao Seiichi, *Shuin-sen to Nihon-machi* [Red-Seal Ships and Japanese Trading Communities Overseas] (Tokyo, 1978), pp. 66-8; Katô Eiichi, "The Japanese-Dutch Trade in the Formative Period of the Seclusion Policy", *Acta Asiatica*, xxx (1976), p. 64.

² These issues are discussed in a preliminary fashion in my "Notes on Silver, Foreign Trade and the Late Ming Economy", *Ch'ing-shih wen-t'i*, iii no. 8 (1977), pp. 1-33. Parts of the present study draw upon that article, and I would like to thank the former editor of *Ch'ing-shih wen-t'i*, Dr. Ramon H. Myers, for permission to use that material here.

metal were discovered throughout the sixteenth century.³ As Kobata Atsushi, Sakuma Shigeo and others have demonstrated, some of that silver was soon being used by Japanese merchants in a flourishing but often illegal commerce with China. Indeed, despite repeated attempts by the Ming government first to control and then to prohibit trade between the two countries, smuggling was widespread along the Chinese coast during the middle decades of the sixteenth century, and by the 1540s, if not earlier, merchants from Chekiang, Fukien and Kwangtung provinces were exchanging Chinese goods for silver at ports in southern Japan.⁴

They were joined there in 1542 or 1543 by the Portuguese, who quickly became middlemen in Sino-Japanese trade, a role which proved particularly lucrative when Chinese merchants temporarily stopped going to Japan at the height of the so-called *wakō* ("Japanese pirate") disturbances during the 1550s and 1560s.⁵ Once those disturbances had ended, however, economics prevailed over politics, and the partial relaxation of restrictions on maritime trade by the Ming government in 1567 constituted official recognition of an established fact: foreign silver had become so important to the Chinese economy that the country's merchants would do almost anything to procure it. To be sure, even after 1567 those merchants were prohibited from trading directly with the dreaded Japanese, but that does not seem to have stopped them.⁶ Two years before the restrictions were eased, for example, the Portuguese encountered a number of Chinese merchants engaged in business at the port of Fukuda in western Kyūshū.⁷

In part because so much of the trade between the two countries was conducted illegally, it is impossible to determine just how much silver flowed from Japan to China during the middle decades of the sixteenth century. Drawing upon the research of Kobata, C. R. Boxer and others, Evelyn S. Rawski has written:

We have only one item of information on this question, derived from the capture of three merchant ships in 1542. The ships, which were on their way to [Chang-chou] from Japan, carried 80,000 [Chinese] ounces [3,000 kilograms] of silver. With per-

³ The most important work on mining in pre-modern Japan is by Kobata Atsushi, whose major findings have been collected in his *Nihon kōzanshi kenkyū* [Studies on the History of Japanese Mining] (Tokyo, 1968). In English, see Deltmer M. Brown, *Money Economy in Medieval Japan* (New Haven, Conn., 1951), pp. 56-61; Tetsuo Kamiki and Kozo Yamamura, "Silver Mines and Sung Coins: A Monetary History of Medieval and Early Modern Japan in International Perspective" (paper presented at the Workshop in Pre-Modern World Monetary History, Univ. of Wisconsin-Madison, 28 Aug.-1 Sept. 1977; hereafter P.-M. W. M. H. Workshop, 1977).

⁴ Sakuma Shigeo, "Mindai kaigai shibōeki no rekishiteki haikai", [The Historical Background of Private Maritime Trade during the Ming Period], *Shigaku zasshi*, lxxiii no. 1 (1953), pp. 19-21; Kobata Atsushi, *Kingin bōekishi no kenkyū* [Studies on the History of the Bullion Trade] (Kyoto, 1976), pp. 2-3, 243-4, 284-5.

⁵ For a recent discussion of these disturbances in English, see So Kwan-wai, *Japanese Piracy in Ming China during the Sixteenth Century* (East Lansing, Mich., 1975).

⁶ See, for example, Kobata, *Kingin bōekishi*, pp. 284 ff.

⁷ Boxer, *Great Ship from Amacón*, pp. 30-1.

haps ten to twenty ships plying the Japan-China trade during this period, silver imports into Chekiang and Fukien may have been as much as 530,000 ounces [19,875 kilograms].⁸

Although there is no way to verify this estimate, it would appear to be well within the realm of possibility. For example, the distinguished Japanese authority Iwao Seiichi has calculated that during the opening years of the seventeenth century, Chinese merchant vessels were carrying an average of approximately 23,500 taels (883 kilograms) of silver from Japan to China, a figure which is quite close to the average of 26,666 taels (1,000 kilograms) seized from each of the three ships mentioned in the above quotation.⁹ Moreover, there is considerable evidence to suggest that there were many more than "ten to twenty ships" involved in Sino-Japanese trade at any one time during the period in question. Indeed, individual Chinese entrepreneurs are said to have controlled entire fleets of trading vessels, and when the Ming authorities tried to stamp out smuggling along the Chekiang and Fukien coasts during the late 1540s and early 1550s, they encountered literally hundreds of "pirate" ships operating out of illicit ports such as Shuang-hsü-kang on Liu-heng Island near Ning-po.¹⁰

As impressive as these figures are, however, it was not until the late sixteenth and early seventeenth centuries that trade between Japan and China reached its peak. This occurred as mining technology in Japan was improved¹¹ and as military and political leaders there sought to bolster their economic positions through foreign trade. The most successful of those leaders were Toyotomi Hideyoshi (1536-1598) and the first Tokugawa shogun, Ieyasu (1542-1616), whose commercial and foreign policies have been the subjects of numerous studies.¹² For these men and their contemporaries, foreign trade essentially meant trade in Chinese raw silk and silk textiles, items which proved extraordinarily lucrative for those who dominated the rapidly expanding Japanese domestic market for luxury goods. Both Hideyoshi and Ieyasu amassed immense personal fortunes, as did some of

⁸ Evelyn Sakakida Rawski, *Agricultural Change and the Peasant Economy of South China* (Cambridge, Mass., 1972), p. 76. See also Kobata, *Kingin bōekishi*, p. 59.

⁹ Iwao, *Shuin-sen to Nihon-machi*, p. 78.

¹⁰ There is considerable literature on this subject in Chinese and Japanese. For brief but informative surveys in English, see So, *Japanese Piracy*, pp. 41-79; John E. Wills Jr., "Maritime History from Wang Chih to Shih Lang: Themes in Peripheral History", in Jonathan D. Spence and John E. Wills Jr. (eds.), *From Ming to Ch'ing: Conquest, Region, and Continuity in Seventeenth-Century China* (New Haven, Conn., 1979), pp. 204-13.

¹¹ Kobata, *Kingin bōekishi*, pp. 221-8; Brown, *Money Economy in Medieval Japan*, pp. 56-61.

¹² See, for example, Nakada Yosunao, "Ieyasu seiken to gaikoku bōeki no kichō" [The Administration of Tokugawa Ieyasu and the Underlying Tone of Japanese Foreign Trade], *Rekishi kyōiku*, viii no. 10 (1960), pp. 22-36; Izumi Chōichi, *Sakai to Hakata: Sengoku no gōshō* [The Cities of Sakai and Hakata: The Great Merchants of the Sengoku Period] (Osaka, 1979), pp. 99-266.

the merchants and officials upon whom they depended for help in administering the trade.

In part because of the chaotic political situation which existed in Japan during much of this period, reliable mining and trading figures for the country as a whole are not available. Nevertheless, after considering the fragmentary information which does survive, Tetsuo Kamiki and Kozo Yamamura have recently suggested that between 1560 and 1600, exports of silver from Japan probably averaged between 33,750 and 48,750 kilograms per year.¹³ This estimate may be high, but it is not impossible. Japanese and Chinese vessels were exporting substantial quantities of the metal at this time, and an English traveller in Asia during the 1580s later wrote the following about another important aspect of this trade:

When the Portuguese go from Macao in China to Japan, they carry much white silk, gold, musk, and porcelain; and they bring from thence nothing but silver. They have a great carrack which goes there every year and she brings from thence every year above six hundred thousand cruzados [approximately 17,000 kilograms]. And all this silver . . . they employ to their great advantage in China.¹⁴

Moreover, as C. R. Boxer has shown in his classic study on this subject, between 1557 and 1590 the Portuguese often employed more than one ship per year in their trade with Japan.¹⁵ Under the circumstances, then, it is neither surprising that Japan became known in Europe during the late sixteenth century as the "Silver Islands" nor that the profits made there by the Portuguese were the envy of sailors, merchants and adventurers from Amsterdam to Manila.¹⁶

That envy is likely to have increased following the establishment of the Tokugawa shogunate in 1603. Perhaps the world's leading authority on the subject, Kobata Atsushi, believes that in some years during the early seventeenth century, exports of silver from Japan on Japanese, Chinese, Portuguese and Dutch ships may have reached annual totals of between 150,000 and 187,500 kilograms.¹⁷ Although

¹³ Kamiki and Yamamura, "Silver Mines and Sung Coins", p. 24.

¹⁴ J. Horton Ryley (ed.), *Ralph Fitch: England's Pioneer to India* (London, 1899), p. 179. The spelling and punctuation of the original have been modernized. Cf. Michael Edwards, *Ralph Fitch, Elizabethan in the Indies* (London, 1972), pp. 125-41. Despite the existence of Kobata Atsushi's important article, "The Production and Uses of Gold and Silver in Sixteenth- and Seventeenth-Century Japan", trans. W. D. Burton, *Econ. Hist. Rev.*, 2nd ser., xviii (1965), pp. 245-66, scholars in the west have generally not appreciated the magnitude of Japanese bullion production and exports during this period. Among the exceptions to this statement are Kamiki and Yamamura, "Silver Mines and Sung Coins"; Kristof Glamann, "The Changing Pattern of Trade", in E. E. Rich and C. H. Wilson (eds.), *The Cambridge Economic History of Europe*, v (1977), pp. 257-8.

¹⁵ Boxer, *Great Ship from Amacon*, pp. 24-55.

¹⁶ Kobata Atsushi, *Nihon to Kingintō* [Japan and the Gold and Silver Islands] (Osaka, 1943), pp. 54 ff.

¹⁷ Kobata Atsushi, "Jūroku, jūnana seiki ni okeru Kyōkutō no gin no ryūtsū" [The Circulation of Silver in the Far East during the Sixteenth and Seventeenth Centuries], in *Kobata Atsushi Kyōju taikan kinen kokushi ranshū* [A Collection of Essays on Japanese History in Honour of the Retirement of Professor Kobata Atsushi] (Kyoto, 1970), p.

trading restrictions imposed by the Ming government meant that much of this silver first had to go to Macao, Taiwan, the Ryūkyū (Liu-ch'iu) Islands, Korea and South-East Asia, most of it ultimately reached China where it was used to purchase goods for the Japanese market. Moreover, this trade was so lucrative that the great Japanese merchant houses vied for shogunal permission to send their ships overseas, and sizeable Japanese trading communities were established in most of the above locations. There Japanese merchants were able to trade without interference from Tokugawa or Ming officials, and, like those of the Portuguese in Macao, their profits are said to have been enormous.¹⁸

EXPORTS OF SPANISH-AMERICAN SILVER TO EAST ASIA DURING THE SIXTEENTH AND SEVENTEENTH CENTURIES

China's other major source of silver at this time was the New World, where fabulously rich mines had been discovered by the Spanish during the 1540s. As D. A. Brading, Harry E. Cross and others have demonstrated, however, it was not until the mercury amalgamation process of refining was disseminated throughout Spanish-America several decades later that bullion production there began to soar to the heights which would transform world monetary history.¹⁹ At Potosí in the viceroyalty of Peru this occurred during the early 1570s, and silver output there rose from an annual average of 41,048 kilograms during the 1571-5 quinquennium to 124,050 kilograms in 1576-80, 187,591 kilograms in 1581-5, 202,453 kilograms in 1586-90, and 218,506 kilograms in 1591-5.²⁰ A prime beneficiary of this Potosí-led boom was Ming China, to which Spanish-American silver flowed along several routes.

The most important of these ran directly across the Pacific from Acapulco on the west coast of modern Mexico to the Philippine Islands, the latter having been conquered by the Spanish during the late 1560s and early 1570s. Almost as soon as they arrived in the area of Manila in the spring of 1571, the conquistadores began a brisk

(n. 17 cont.)

8. A partial English translation of this article is appended to the same volume. Kobata's estimate is slightly higher than those given in Iwao Seiichi, *Shuin-sen bōekishi no kenkyū* [Studies on the History of Trade by Red-Seal Ships] (Tokyo, 1958), pp. 328-30; Iwao, *Shuin-sen to Nihon-machi*, pp. 78-9.

¹⁸ The classic study of these overseas trading communities is Iwao Seiichi, *Nanyō Nihon-machi no kenkyū* [Studies on Japanese Trading Communities in the "South Seas"] (Tokyo, 1978 edn.).

¹⁹ D. A. Brading and Harry E. Cross, "Colonial Silver Mining: Mexico and Peru", *Hispanic Amer. Hist. Rev.*, li (1972), pp. 545-79.

²⁰ Harry E. Cross, "South American Bullion Production and Export, 1550-1750" (paper presented at P.-M.W.M.H. Workshop, 1977), appendix 2. See also P. J. Bakewell, "Registered Silver Production in the Potosí District, 1550-1735", *Jahrbuch für Geschichte von Staat, Wirtschaft und Gesellschaft Lateinamerikas*, xii (1975), pp. 92-7; Pierre Vilar, *A History of Gold and Money, 1450-1920*, trans. Judith White (London, 1976), pp. 119-33.

trade with merchants from China's Fukien and Kwangtung provinces in which they used Peruvian and Mexican silver to purchase large quantities of Chinese goods.²¹ In 1573, for example, two galleons sailed from the Philippines to Acapulco with a cargo which included, among other things, "712 pieces of Chinese silk and 22,300 pieces of 'fine gilt china and other porcelain ware'".²² Six years later Francis Drake seized Chinese silk, porcelain and linen during his famous raid along the Pacific coast of North and South America,²³ and when Thomas Cavendish took the Acapulco-bound galleon *Santa Ana* off California in 1587, he is said to have acquired silks and other items worth more than 2,000,000 pesos.²⁴ Another indication of the growth and extent of Sino-Spanish trade during this period is the fact that between 1570 and about 1600, the number of Chinese living in the Philippines increased from approximately forty to more than fifteen thousand.²⁵ Moreover, the latter figure does not include the large number of merchants from Fukien and Kwangtung who travelled across the South China Sea every year to trade.

Despite the vigorous efforts of the Spanish government to control the amount of bullion shipped from the New World to East Asia, it is clear that much of the commerce between Acapulco and Manila at this time was conducted illegally.²⁶ It is thus difficult to say with any

²¹ The classic study of the Manila-Acapulco trade is William L. Schurz, *The Manila Galleon* (New York, 1939). See also Pierre Chaunu, *Les Philippines et le Pacifique des Ibériques, XVI^e, XVII^e, XVIII^e siècles: introduction méthodologique et indices d'activité* (Paris, 1960); C. R. Boxer, "Plata es Sangre: Sidelights on the Drain of Spanish-American Silver in the Far East, 1530-1750", *Philippine Studies*, xviii (1970), pp. 457-68; O. H. K. Spate, *The Spanish Lake* (London, 1979), pp. 176-291. There are three excellent articles on Sino-Spanish trade in Manila by the distinguished Chinese economic historian Ch'uan Han-sheng, all of which have been reprinted in his *Chung-kuo chung-chi shih lun-t'ung* [Studies on Chinese Economic History], 2 vols. (Hong Kong, 1972), I, pp. 417-73.

²² Schurz, *Manila Galleon*, p. 27.

²³ Derek Wilson, *The World Encompassed: Drake's Great Voyage, 1577-1580* (London, 1977), p. 148. The recent discovery of nearly six hundred shards of late sixteenth-century Chinese porcelain on the coast of California near San Francisco has led to renewed speculation about where Drake landed in 1579 after plundering Spanish shipping in the eastern Pacific. Whether or not these particular shards came from Drake's *Golden Hind*, they are further proof of the extensive trade which existed between China and the New World at that time. See Christopher Reed, "Porcelain Clue to Drake's Landing", *Guardian*, 13 May 1980, p. 7. The "Drake's Landing" controversy is far from over, however. See Roy Perrott, "Hindsight on the Hind Sight", *Sunday Times*, 2 Aug. 1981, p. 14; David Cross, "The Mystery of Francis Drake's Californian Voyage", *History Today*, xxxi (Aug. 1981), pp. 10-14.

²⁴ Schurz, *Manila Galleon*, pp. 305-8.

²⁵ Victor Purcell, *The Chinese in Southeast Asia*, 2nd edn. (London, 1966), pp. 500-1. For further information on the Chinese in the Philippines at this time, see Ch'en Ching-ho, *Shih-lu shih-chi chih Fei-lü-pin hua-ch'iao* [Chinese in the Philippines during the Sixteenth Century] (Hong Kong, 1963); Albert Chan, "Chinese-Philippine Relations in the Late Sixteenth Century and to 1603", *Philippine Studies*, xxvi (1978), pp. 51-82.

²⁶ On this point, see Woodrow Borah, *Early Colonial Trade between Mexico and Peru* (Berkeley and Los Angeles, 1954), pp. 124-5; Schurz, *Manila Galleon*, pp. 77, 184-6, 194; Cross, "South American Bullion Production and Export".

assurance just how much silver flowed through the Philippines into China, although current evidence suggests that in a good year during the early seventeenth century it probably amounted to between two and three million pesos (57,500-86,250 kilograms).²⁷ Nevertheless, one distinguished historian of Latin America has uncovered information which indicates that in some years the total could have been substantially higher. In 1602 the Mexican authorities informed Madrid that annual shipments of silver from Acapulco to Manila usually amounted to five million pesos (143,750 kilograms) and that in 1597 the total had been twelve million (345,000 kilograms).²⁸

Whether these enormous figures can be believed or not remains a matter for some debate. Although the extremely large vessels which made the Acapulco-Manila voyages could easily have carried that much silver, particularly since more than one galleon usually made the trip in each direction, it is by no means clear that sufficient quantities of bullion were being mined in the New World at that time to permit such huge amounts to be exported to the Philippines.²⁹ Nevertheless, it should also be noted that illegal mining, smuggling and official corruption were endemic in Spanish America, and in 1632, a time when Sino-Spanish trade is thought to have been long past its early seventeenth-century peak, the ecclesiastical council in Manila informed Philip IV that some 2,400,000 pesos (68,990 kilograms of silver) were being brought to that city annually from Acapulco.³⁰ Moreover, another well-placed observer of commercial activity in Manila during these years wrote that the "king of China could build a palace with the silver bars from Peru which have been carried to his country . . . without . . . having been registered and without the king [of Spain] having been paid his duties".³¹

A second route for New World silver going to China began with the famous *flotas de plata*, the Spanish treasure fleets which carried bullion every year from Mexico and the isthmus of Panama to Seville. From there substantial quantities of silver were transported illegally into Portugal where they were loaded, perhaps with other bullion which had been smuggled to Lisbon from Peru via Buenos Aires,³²

²⁷ Ch'üan, *Chung-kuo ching-chi shih*, i, p. 444. In this article pesos have been converted to kilograms of silver at a rate of 0.02875 kilograms per peso.

²⁸ Borah, *Early Colonial Trade*, p. 123.

²⁹ See, for example, the estimates of Spanish-American bullion production in Brad- ing and Cross, "Colonial Silver Mining", p. 579; Bakewell, "Registered Silver Production", pp. 92-7; Vilar, *History of Gold and Money*, p. 351.

³⁰ "Letter from the Ecclesiastical Cabildo to Felipe IV", in E. H. Blair and J. A. Robertson (eds.), *The Philippine Islands*, 55 vols. (Cleveland, Ohio, 1903-9), xxiv, pp. 254-5.

³¹ Don Hieronimo de Banuelos y Carillo, "Relation of the Filipinas Islands", in *ibid.*, xxix, p. 71. Pierre Chaunu and O. H. K. Spate regard this statement with justifiable scepticism, but it is clear that illegal shipments of silver to Manila during this period were substantial. For the views of Chaunu and Spate, see Spate, *Spanish Lake*, p. 201.

³² On this smuggling, see Cross, "South American Bullion Production and Export".

on to huge carracks and shipped around the Cape of Good Hope to Goa. In Goa these vessels unloaded European goods and took on additional silver, some of which had filtered through the Mediterranean and Middle Eastern trading areas into India. Proceeding first to Malacca and then to Macao, the Portuguese used this silver to purchase Chinese goods for the markets of Japan, India, the Middle East and western Europe.³³ As is true of the Acapulco-Manila trade at about this time, the illegal nature of much of this commerce makes its value and extent very difficult to estimate. Nevertheless, it seems likely that during the late sixteenth and early seventeenth centuries, Portuguese vessels carried between 6,000 and 30,000 kilograms of silver annually from Goa to Macao.³⁴

The third and final route for Spanish-American silver going to China also began with the *flotas de plata*, but in this case some of the bullion which arrived in Seville was shipped, legally or illegally, to Amsterdam and London. During the early seventeenth century ships of the Dutch and English East India Companies began carrying some of this silver to South-East Asia, where it was used to purchase pepper, spices and, even more importantly for our purposes here, Chinese luxury goods such as silk and porcelain. Although the amounts of silver involved in this commerce were considerably smaller than those discussed above,³⁵ they were not unappreciated by the Chinese merchants who had long been a potent economic force in maritime South-East Asia. Indeed, the appearance of bullion-laden European ships in the waters of this region was greeted by an immediate expansion of Chinese commercial activity there. Before long the Chinese were exporting so many Spanish reals from Bantam that they "caused a shortage of these coins in the town, which indicates that the Dutch and English did not have enough barter commodities to obtain the Chinese goods, particularly the silk and porcelain".³⁶

In fact, the Europeans probably did not have any "barter com-

³³ For a recent discussion of this trade, see C. R. Boxer, "Macao as a Religious and Commercial Entrepot in the Sixteenth and Seventeenth Centuries", *Acta Asiatica*, xxvi (1974), pp. 64-90.

³⁴ This estimate is based on Boxer, *Great Ship from Amacon*, pp. 62-4; C. R. Boxer, *Fidalgos in the Far East, 1550-1570* (The Hague, 1948), p. 6; Geoffrey Parker, "The Emergence of Modern Finance in Europe", in Carlo M. Cipolla (ed.), *The Fontana Economic History of Europe: The Sixteenth and Seventeenth Centuries* (Glasgow, 1974), p. 528; Vilar, *History of Gold and Money*, pp. 99-101.

³⁵ For figures on the amounts of silver shipped to Asia from Europe during these years, see Parker, "The Emergence of Modern Finance", p. 529; M. A. P. Meilink-Roelofz, *Asian Trade and European Influence in the Indonesian Archipelago between 1500 and About 1630* (The Hague, 1962), p. 378 n. 149; K. N. Chaudhuri, *The English East India Company* (London, 1965), p. 115; F. S. Gastra, "The Exports of Precious Metals from Europe to Asia by the Dutch East India Company, 1602-1795" (paper presented at P.-M.W.M.H. Workshop, 1977).

³⁶ Meilink-Roelofz, *Asian Trade and European Influence*, p. 246. See also Leonard Blussé, "Chinese Trade to Batavia during the Days of the V. O. C.", *Archipel*, xviii (1979), pp. 195-213.

modities" in which the sophisticated traders from what was still one of the most technologically advanced nations on earth were really interested. As Antonio de Morga explained in his informative discussion of trade in Manila at this time, the Chinese accepted only silver for their products, "for they do not like gold, nor any other goods in exchange, nor do they carry any to China".³⁷ An English merchant put it more bluntly several decades later when he wrote that the Chinese "will as soon part with their blood as [silver], having once possession".³⁸

DOMESTIC SUPPLIES OF SILVER IN MING CHINA

In order to appreciate why foreign silver was so prized by Chinese merchants during the late Ming period, it might be helpful to examine the figures in Table 1, compiled by Ch'üan Han-sheng. While these figures represent only official receipts from mining and not total production, Ch'üan, who has studied these problems for many years, believes that the Ming government took about 30 per cent of all the

TABLE 1
MING GOVERNMENT REVENUES
FROM DOMESTIC SILVER MINING 1401-1520*

	Taels	Kilograms (a)	Annual average in kilograms
1401-10 (b)	1,299,167 (+)	48,719 (+)	5,413 (+)
1411-20	2,905,602	108,960	10,896
1421-30	1,993,591 (+)	74,760 (+)	7,476 (+)
1431-40 (b)	1,277,863 (+)	47,920 (+)	5,324 (+)
1441-50 (b)	289,752	10,866	1,811
1451-60 (b)	363,454	13,630	2,272
1461-70	614,680 (+)	23,051 (+)	2,305 (+)
1471-80	589,248 (+)	22,097 (+)	2,210 (+)
1481-90 (c)	802,396	30,090	3,009
1491-1500	530,552	19,896	1,990
1501-10	325,200	12,195	1,220
1511-20	329,200	12,345	1,235

* Notes and source: Ch'üan Han-sheng, "Ming-tai ti yin-k'o yü yin-ch'an-e" [Taxes on Silver Mining and Silver Production Quotas during the Ming Dynasty], *Hsin-ya shu-yüan hsieh-shu nien-k'an*, ix (1966), pp. 246-54. The symbol (+) indicates that certain figures in the original source are imprecise and the totals are likely to have been slightly higher than those which appear in the Table.

(a) Taels are converted into kilograms at 0.0375 kg. per tael.

(b) No information is available for 1401, 1435, 1441-3 and 1450-4. Tael and kilogram totals for the decades in which those years fall are thus lower than they should be, and the annual averages have therefore been computed on the basis of those years for which information is available.

(c) From 1487 to 1520 government revenues from gold and silver mining were reported together. Since the amount of gold mined is thought to have been very small, however, the totals are listed as if they were only silver.

³⁷ Morga, *Philippine Islands*, p. 340.

³⁸ Cited in Boxer, *Great Ship from Amacon*, p. 1. See also Boxer, "Plata es Sangre", *passim*.

bullion mined in official and officially sanctioned mines.³⁹ Even if this admittedly speculative estimate is wildly inaccurate, and despite some problems with certain figures upon which the above Table is based,⁴⁰ it still appears reasonable to assume that under normal circumstances the Ming government and its agents would have taken as much bullion as possible without making the mines uneconomic to operate. Moreover, given the crucial role played by silver in Chinese economic life after 1400, a point which will be discussed below, it is unlikely that substantial amounts of bullion were mined without the government's knowledge or approval. For these reasons, it is the contention here that the figures in Table 1 can be taken as a very rough guide to the trends in Chinese silver production during the first half of the Ming period.

That guide indicates, and the research of Ch'üan, Liang Fang-chung and Momose Hiromu appears to confirm, that a very considerable boom in Chinese bullion mining during the early fifteenth century was followed by an erratic though substantial decline in silver production for the rest of the period up until 1520. Moreover, although reliable figures for the years after 1520 are unavailable, there does not seem to have been any significant increase in production above the low levels which are indicated in Table 1 for the late fifteenth and early sixteenth centuries. Indeed, it is likely that China's domestic output for the rest of the dynasty equalled but a fraction of the bullion imported into the country from Japan and the New World. In fact if Ch'üan's estimates are only approximately accurate, Chinese mines may never have produced as much silver annually as one Spanish galleon often carried across the Pacific from Acapulco to Manila

³⁹ Ch'üan Han-sheng, "Ming-tai ti yin-k'o yü yin-chan-e" [Taxes on Silver Mining and Silver Production Quotas during the Ming Dynasty], *Hsin-ya shu-yüan hsüeh-shu nien-k'an*, ix (1966), pp. 258-9. On Ming silver mining, see also the important studies by Liang Fang-chung, "Ming-tai yin-k'uang k'ao" [A Study of Ming Silver Mines], *Chung-kuo she-hui ching-chi shih chi-k'an*, vi (1939), pp. 65-112; Momose Hiromu, "Mindai no ginsan to gaikoku gin ni tsuite" [On Domestic Silver Production and Foreign Silver during the Ming Period], *Seikyū gakusō*, xix (1935), pp. 90-147.

⁴⁰ During the late fifteenth and early sixteenth centuries, official receipts from bullion mining in Ming China took on a perfunctory, bureaucratic quality with the same annual total sometimes being recorded for a number of years in succession. The reason for this would seem to be that official figures at that time no longer reflected fluctuations in bullion production but rather were tax receipts collected at fixed annual rates from mining districts throughout the empire. Although it is unlikely that actual production was lower than those figures, it is clearly risky to speculate about the former on the basis of the latter. Nevertheless, there is reason to suspect that considerably less silver was being mined in China during the 1490-1520 period than had been the case even a few years earlier. Not only do the raw figures decline in the early 1490s and drop sharply after 1498, facts which should not be dismissed out of hand, but the throne was informed on several occasions during the late fifteenth and early sixteenth centuries that mines in certain parts of the country had declined in fertility to the point that they were no longer economic to operate. See Wada Sei (ed.), *Minshi shokkashi yakuchū* [An Annotated Translation of the Economic Chapters of the Ming Dynastic History], 2 vols. (Tokyo, 1957), ii, pp. 793-801.

during the late sixteenth and early seventeenth centuries. And by 1636, when four Portuguese galliots transported more than 75,000 kilograms of silver from Nagasaki to Macao for use in the Canton market,⁴¹ bullion production in China was apparently negligible.

In order to evaluate the significance of these facts for the Ming economy, it is necessary to relate them to certain features of the dynasty's monetary system. Following the collapse of Mongol rule in China during the mid-fourteenth century, the first Ming emperor T'ai-tsu (reigned 1368-98) attempted to establish a nationwide currency system based on paper notes and copper coins. Convinced by the experiences of earlier dynasties that such a system could succeed only if precious metals were removed from circulation, T'ai-tsu and his advisors imposed severe restrictions on bullion mining, prohibited the use of silver and gold in commercial transactions, and ordered that commercial taxes were to be paid in government-issued paper notes and copper coins.⁴² These policies proved unworkable. Far too much paper currency was printed during the early years of the dynasty with the result that just over a decade after the first notes were issued in 1375, their value *vis-à-vis* silver had plummeted by 80 per cent and subsequently fell even lower.⁴³ At the same time, the government failed to produce adequate supplies of copper coins to serve as subsidiary currency for the world's largest and, in many ways, most sophisticated economy.⁴⁴ It is thus hardly surprising that silver continued to circulate in economically advanced regions of the country,⁴⁵ although the legal restrictions on mining and trading must have kept it in relatively short supply.

This situation changed dramatically during the reign of the third Ming emperor Ch'eng-tsu (reigned 1403-24). Not long after he usurped the throne during the summer of 1402, Ch'eng-tsu ordered sharp increases in mining quotas and opened or reopened bullion mines in seven provinces and in the Chinese-held portions of northern South-East Asia as well.⁴⁶ The impact of these policies on government finances was immediate and substantial. In 1403, for example, official receipts from silver mining rose to 80,135 taels (3,007 kilograms) from a previously recorded high of 29,830+ taels (1,119+ kilograms)

⁴¹ Boxer, *Great Ship from Amacon*, pp. 145-58.

⁴² P'eng Hsin-wei, *Chung-kuo huo-pi shih* [Chinese Monetary History] (Shanghai, 1965), pp. 632-9; Ray Huang, *Taxation and Governmental Finance in Sixteenth-Century Ming China* (Cambridge, 1974), pp. 69-70.

⁴³ P'eng, *Chung-kuo huo-pi shih*, p. 671; Huang, *Taxation and Governmental Finance*, pp. 69-74.

⁴⁴ On this point, see Ch'üan, *Chung-kuo ching-chi shih*, i, pp. 355-67.

⁴⁵ Wada, *Minshi shokkashi*, ii, p. 705. I am indebted to Dr. James R. Geiss for bringing this point to my attention.

⁴⁶ *Ibid.*, ii, pp. 781-7. See also John S. Deyell, "The China Connection: Problems of Silver Supply in Medieval Bengal" (paper presented at P.-M.W.M.H. Workshop, 1977); J. K. Whitmore, "Vietnam and the Monetary Flow of Eastern Asia, Thirteenth to Eighteenth Centuries" (paper presented at P.-M.W.M.H. Workshop, 1977).

in 1390. By 1406 the annual total had reached 209,136 taels (7,843 kilograms), and, as the figures in Table I indicate, official receipts from mining remained high for several decades to come.⁴⁷

If we accept Ch'üan Han-sheng's assumptions concerning the relationship between these receipts and total production, the above figures mean that substantial quantities of silver were being mined in early fifteenth-century China which were not flowing directly into government coffers. There is considerable evidence to suggest that much of this additional bullion eventually filtered into circulation, where it was traded by weight and contributed to the general prosperity which marked the first third of the fifteenth century. Indeed, it appears that continuing public distrust of paper currency, serious shortages of copper coins, population growth and an expanding economy led many people to rely more and more heavily on silver as a medium of exchange. Negative evidence for this can be found in the government's periodic attempts to ban the metal's use in commercial transactions.⁴⁸ These attempts failed and by the 1430s, if not earlier, China was firmly committed to the silver standard it was to maintain until very recent times.

However, it was also during the 1430s that domestic production of silver in China dropped sharply from the record levels of the previous three decades. This was due to a combination of factors which included radical changes in government economic policy, widespread corruption in and mismanagement of mining operations, and the declining fertility of many mines.⁴⁹ According to the figures which are currently available, between 1436 and 1520 the Ming government's annual receipts from silver mining exceeded 100,000 taels (3,750 kilograms) only four times and averaged less than 50,000 taels (1,875 kilograms) per year over the entire period.⁵⁰ The probable implications of this for total production need not be reiterated. What should be emphasized is the fact that by 1500 the population of the Ming empire probably exceeded 100,000,000 and the Ming economy was once again beginning to expand with some vigour. With domestic production of bullion clearly insufficient to meet that economy's monetary needs, it is hardly surprising that foreign traders found the Chinese demand for silver almost insatiable when they appeared off the country's south-eastern coast during the sixteenth century. Fortunately for the Chinese, of course, foreign demand for Chinese goods was equally intense and an extraordinary expansion in commercial activity ensued.

⁴⁷ For these figures and general discussions of bullion production in China at this time, see Ch'üan, "Ming-tai ti yin-k'o", pp. 246-7; Momose, "Mindai no ginsan", pp. 93-100.

⁴⁸ Wada, *Minshi shokkashi*, II, pp. 703-19; Huang, *Taxation and Governmental Finance*, p. 71.

⁴⁹ Wada, *Minshi shokkashi*, II, pp. 781-92.

⁵⁰ Ch'üan, "Ming-tai ti yin-k'o", pp. 249-54.

THE IMPACT OF JAPANESE AND SPANISH-AMERICAN SILVER
ON THE LATE MING ECONOMY

Although statistical work on the pre-modern Chinese economy is still in its infancy, the figures in Table 2 are of more than passing interest for our purposes here. As Ch'üan Han-sheng and Li Lung-hua have noted in the article from which the figures are drawn, during the fifteenth and sixteenth centuries the T'ai-ts'ang vault (or treasury) became the chief receiving agency for central government revenues collected in silver. Despite accounting procedures at the vault which leave much to be desired,⁵¹ Ch'üan and Li believe that the fluctuations in its annual receipts not only reveal a good deal about the state of government finances from year to year, but also reflect changes in

TABLE 2
SILVER RECEIPTS OF THE T'AI-TS'ANG VAULT 1528-1643*

	Taels	Kilograms		Taels	Kilograms
1528	1,300,000	48,750	1590†	3,740,500 (+)	140,269 (+)
1539†	2,000,000 (+)	75,000 (+)	1592†	4,512,200 (+)	169,200 (+)
1549	2,125,355	79,701	1593	4,723,000 (+)	177,113 (+)
1551	2,000,000 (+)	75,000 (+)	1604	4,582,000	171,825
1552	2,000,000 (+)	75,000 (+)	1605	3,549,000	133,088
1553	2,000,000 (+)	75,000 (+)	1606	4,000,000	150,000
1554	2,000,000 (+)	75,000 (+)	1609	4,000,000	150,000
1555	2,000,000 (+)	75,000 (+)	1612	4,000,000 (+)	150,000 (+)
1556	2,000,000 (+)	75,000 (+)	1613†	4,000,000	150,000
1557	2,000,000 (+)	75,000 (+)	1616	4,000,000	150,000
1563	2,200,000 (+)	82,500 (+)	1617†	3,890,000	145,875
1564	2,470,000 (+)	92,625 (+)	1618	6,000,031 (+)	225,001 (+)
1565	2,200,000 (+)	82,500 (+)	1620	5,830,246 (+)	218,634 (+)
1567	2,014,200 (+)	75,533 (+)	1621	7,552,745 (+)	283,228 (+)
1568	2,300,000 (+)	86,250 (+)	1622	4,968,795 (+)	186,330 (+)
1569	2,300,000 (+)	86,250 (+)	1623	7,893,137 (+)	295,993 (+)
1570	2,300,000 (+)	86,250 (+)	1625	3,030,725 (+)	113,652 (+)
1571	3,100,000 (+)	116,250 (+)	1626	3,986,241 (+)	149,484 (+)
1573	2,819,153 (+)	105,718 (+)	1628	7,064,200 (+)	264,905 (+)
1577	4,359,400 (+)	163,478 (+)	1630†	9,136,357 (+)	342,613 (+)
1578	3,559,800 (+)	133,493 (+)	1631	12,249,195 (+)	459,345 (+)
1580	2,845,483 (+)	106,706 (+)	1634	12,812,000 (+)	480,450 (+)
1581†	3,704,281 (+)	138,911 (+)	1637	16,700,000	626,250
1583	3,720,000 (+)	139,500 (+)	1639	20,000,000	750,000
1585†	3,700,000 (+)	138,750 (+)	1641	21,451,736 (+)	804,440 (+)
1586†	3,890,000 (+)	145,875 (+)	1642	23,000,000 (+)	862,500 (+)
1589	3,270,000 (+)	122,625 (+)	1643	21,300,000 (+)	798,750 (+)

Notes and source: Ch'üan Han-sheng and Li Lung-hua, "Ming chung-yeh hou T'ai-ts'ang sui-ju yin-liang ti yen-chiu" [Studies on the Annual Silver Receipts of the T'ai-ts'ang Vault after the Middle of the Ming Period], *Chung-huo wen-hua yen-chiu-so hsüeh-pao*, v no. 1 (1972), pp. 136-9. The symbol (+) indicates that the figure given for this year in the original source(s) is imprecise and is likely to have been slightly higher than that which appears in the Table.

† This date is given in the original source(s) as an approximate one.

‡ For the years 1630-43, see n. 72 below.

⁵¹ See Huang, *Taxation and Governmental Finance*, pp. 269-77.

the role played by silver in the economy and in the monetary system.⁵² For reasons which should become apparent below, I share this belief, although with some reservations and qualifications.

Unless one takes the sharp rise recorded in the T'ai-ts'ang vault's silver receipts between 1528 and 1539 as significant, and this would be risky considering the paucity of information, there seems to be little or no statistical evidence of the impact of foreign bullion on Ming central government finances before the 1560s. Even then, a perfunctory and bureaucratic quality of reporting makes generalization difficult if not impossible. In 1571, however, something dramatic clearly happened as a huge increase is registered in the vault's silver revenues. This occurred, it should be noted, four years after the Ming government had relaxed its restrictions on maritime trade, one year after Sino-Japanese trade was boosted by the founding of Nagasaki, and the same year in which Sino-Spanish trade began in earnest with the establishment of Manila as the Spanish capital in the Philippines. By 1577 the amount of silver entering the vault was nearly double the highest total recorded for the 1560s, and until the very end of the dynasty silver receipts there probably never fell below 100,000 kilograms per year. While other factors were involved in these developments, including important changes in the system of taxation to be discussed below, it seems clear that the marked increase in government silver revenues during this period was directly related to an unprecedented increase in foreign trade and bullion imports.

Further support for this contention can be found in Table 3. During the late sixteenth century Yüeh-kang in Fukien's Hai-ch'eng

TABLE 3
SILVER COLLECTED AS FEES FOR LICENSES, POUNDAGE AND
TONNAGE IN HAI-CH'ENG COUNTY
1567-1628*

	Taels	Kilograms		Taels	Kilograms
1567-72	3,000‡	113‡	1594	29,000 (+)	1,088 (+)
1573	6,000	225	1599†	27,000 (+)	1,013 (+)
1576	10,000	375	1615	23,400	878
1583	20,000 (+)	750 (+)	1628	23,400	878

* Notes and source: Ch'üan Han-sheng, "Ming-chi Chung-kuo yü Fei-lü-pin chien ti mao-i" [Trade between China and the Philippines during the Ming Period], in his *Chung-kuo ching-chi shih lun-ts'ung* [Studies on Chinese Economic History], 2 vols. (Hong Kong, 1972), I, p. 428. The symbol (+) indicates that the figure given for this year in the original source(s) is imprecise and is likely to have been slightly larger than that which appears in the Table.

† This date is given in the original source as an approximate one.

‡ This figure is given in the original source as an annual one for the years in question.

⁵² Ch'üan Han-sheng and Li Lung-hua, "Ming chung-yeh hou T'ai-ts'ang sui-ju yin-liang ti yen-chiu" [Studies on the Annual Silver Receipts of the T'ai-ts'ang Vault after the Middle of the Ming Period], *Chung-kuo wen-hua yen-chiu-so hsüeh-pao*, v no. 1 (1972), p. 124.

county became one of China's leading ports, with a trading network which stretched from Japan to South-East Asia. It is now generally agreed that the rapid rise in silver collections shown in Table 3 was due almost entirely to the expansion of Yüeh-kang's foreign trade during these years and is thus indicative of the increased rate at which Japanese and Spanish-American silver was entering the Fukienese and ultimately the Chinese economy.⁵³

The impact of that silver is also reflected in the changes which occurred in China's gold-silver ratio during this period. These changes are given in Table 4 along with the ratios which existed in Japan and in the Spanish empire at approximately the same time. Despite the very large gaps in our current information, it can be seen from Table 4 that as increased silver production led to the widening of gold-silver ratios in Japan and the Spanish Empire, increased silver imports (and some gold exports) gradually had the same effect in China. Indeed, by the last few decades of the Ming dynasty the ratio there was approaching levels in other parts of the world. However, while this last fact may be of some significance in indicating the degree to which China was becoming integrated into an emerging "world

TABLE 4
BIMETALLIC RATIOS OF SILVER TO GOLD 1566-1644
(UNITS OF SILVER TO ONE UNIT OF GOLD)*

	China	Japan	Spanish Empire
1566	—	—	12.12
1568	6.00	—	12.12
1571	—	7.37	12.12
1572	8.00	—	12.12
1575	—	10.34	12.12
1581	—	8.92	12.12
1588	—	9.15	12.12
1589	—	11.06	12.12
1594	—	10.34	12.12
1596	7.50	—	12.12
1604	—	10.99	12.12
1609	—	12.19	13.13
1615	—	11.38	13.13
1620	8.00	13.05	13.13
1622	—	14.00	13.13
1627-44	10.00-13.00	—	13.13-15.45
1643	—	—	15.45

* Sources: P'eng Hsin-wei, *Chung-kuo huo-pi shih* [Chinese Monetary History], (Shanghai, 1965), p. 714; Tetsuo Kamiki and Kozo Yamamura, "Silver Mines and Sung Coins: A Monetary History of Medieval and Early Modern Japan in International Perspective" (paper presented at the Workshop in Pre-Modern World Monetary History, Univ. of Wisconsin-Madison, 28 Aug.-1 Sept. 1977), table 10; Harry E. Cross, "South American Bullion Production and Export, 1550-1750" (paper also presented at the above workshop), table 1.

⁵³ On these points, see Rawski, *Agricultural Change*, pp. 57-69; Kobata, *Kingin boekishi*, pp. 243-83; Ch'üan, *Chung-kuo ching-chi shih*, I, pp. 427-9; Huang, *Taxation and Governmental Finance*, p. 235.

economy", it reveals less about the country's domestic situation than might be thought. This is because the very small amounts of gold mined in China were rarely used in commercial transactions. Instead, following the virtual collapse of the Ming dynasty's system of paper currency during the late fourteenth and early fifteenth centuries, the Chinese had developed a bimetallic monetary system which was based not upon gold and silver, but rather upon silver traded by weight⁵⁴ and copper coins issued by the government. Although one tael (approximately 0.0375 kilograms) of silver was theoretically equal in value to 1,000 copper coins, in fact the exchange rate varied widely over time.⁵⁵ This was due to a combination of factors which included the government's inability to control the amount of silver entering circulation, its failure to provide an adequate supply of copper coins for domestic use, and the export of some of those coins to Japan and South-East Asia.⁵⁶

Despite these complications, it is clear that any assessment of the impact of foreign silver on the late Ming economy must take into account the changes which occurred in the silver-copper exchange rate. Unfortunately, the figures which are currently available on this subject are very sketchy. (See Table 5.) Until much more research has been done on all aspects of this problem, it is of course risky to speculate about the precise meaning of these figures. However, it should be noted that the substantial narrowing of the silver-copper exchange rate between 1368 and 1453 was probably related to the relatively high levels of domestic silver production during the early

⁵⁴ One of the great puzzles in world monetary history is the failure of pre-modern Chinese governments to coin precious metals except for essentially ceremonial purposes. Yang Lien-sheng suggests this may have been because "the demand for such a medium of exchange was not strong enough to induce the state to take action". While this explanation may have some validity for the period prior to 1400, it is less than satisfactory for the "Silver Age" which followed. It clearly was not the case that Chinese governments during the late imperial period were technologically or administratively incapable of producing gold and silver coins, but it may be that holding sway over a vast centralized empire far removed from those parts of the world where such coins were minted, they did not feel the same compulsion as governments elsewhere to advertise their prestige and legitimacy in this way. Moreover, they may have learned earlier than most of the difficulties involved in trying to persuade people to accept valuable coins at face value. As J. K. Galbraith has noted about late sixteenth-century Europe, "With numerous coins in circulation variously adulterated, clipped, filed, sweated, trimmed, and with the worst being offered first, coins became a problem. The path was now open for the next great reform, which was to go back to weighing. This decisive step was taken by the City of Amsterdam in 1609 . . .". This was a step the eminently practical Chinese did not have to take as they had never given up weighing. See J. K. Galbraith, *Money: Whence it Came, Where it Went* (Harmondsworth, 1976), p. 20. For Yang's views on gold and silver coinage, see his *Money and Credit in China: A Short History* (Cambridge, Mass., 1971), pp. 9, 27.

⁵⁵ For useful discussions of the relationship between unminted silver and copper coins during the late imperial period, see Ch'üan, *Chung-kuo ching-chi shih*, i, pp. 355-67; Huang, *Taxation and Governmental Finance*, pp. 74-81.

⁵⁶ On this last point, see Kamiki and Yamamura, "Silver Mines and Sung Coins", pp. 15-16, and table 2; Whitmore, "Vietnam and the Monetary Flow of Eastern Asia", pp. 15-17.

TABLE 5
BIMETALLIC RATIO OF COPPER TO SILVER 1368-1627*

	Ratio of copper to silver
1368	320 to 1
1453	266 to 1
1577	229 to 1
1597	152 to 1
1616	152 to 1
1621-7	112 to 1

* Source: P'eng, *Chung-kuo huo-pi shih*, p. 715.

fifteenth century. (See Table 1.) Similarly, the changes which occurred after 1577 almost certainly reflect the impact of silver imports on the economy and the monetary system.

If the statistical evidence for this contention is less than overwhelming, however, more impressionistic evidence is abundant.⁵⁷ For example, it was during the middle decades of the sixteenth century that the Ming government introduced the so-called "Single Whip Method" (*i-t'iao pienfa*) into its outmoded and appallingly complex system of taxation. Although this "method" was itself complicated and subject to regional and even local variation, it essentially meant that most land taxes, labour service obligations, and extra levies were commuted into silver payments. Given the depressed state of Chinese domestic bullion production at the time, it seems reasonable to assume that commutations on this scale would only have been possible with regular and substantial imports of foreign silver. Otherwise it will be difficult to explain why many of the most important early experiments with the "Single Whip Method" were conducted in Fukien and Chekiang, two of the provinces most directly involved in maritime commerce and bullion imports. Nor is it likely to have been merely a coincidence that probably the three most influential "Single Whip" reformers in sixteenth-century China, Hai Jui (1513-87), P'ang Shang-p'eng (1524?-81?) and Wang Tsung-mu (1523-91), were all natives of the south-eastern coast and thus were undoubtedly aware of the special conditions which existed there.⁵⁸

In any event, there can be no question that the "Single Whip" reforms and the increased monetization which facilitated their implementation had a profound impact on the late Ming economy. And, as might be expected given the preceding discussion, nowhere was

⁵⁷ The following section draws heavily on my "Notes on Silver", pp. 5-8. See also Willard J. Peterson, *Butter Gourd: Fang I-chih and the Impetus for Intellectual Change* (New Haven, Conn., 1979), pp. 64-80.

⁵⁸ On these points, see Liang Fang-chung, *The Single-Whip Method of Taxation in China*, trans. Wang Yü-ch'uan (Cambridge, Mass., 1956); Huang, *Taxation and Governmental Finance*, pp. 112-33; the biographies of P'ang, Hai and Wang which appear in L. Carrington Goodrich and Chaoying Fang (eds.), *Dictionary of Ming Biography*, 2 vols. (New York, 1976).

this more apparent than in the economically and technologically advanced south-east. There cities such as Nanking, Soochow, Sung-chiang, Ning-po, Chang-chou and Canton boomed as perhaps never before, smaller towns in the surrounding countryside became thriving centres of specialized occupations, and the number of periodic markets in rural districts nearby rose dramatically.⁵⁹ At the same time, life in these areas became much more luxurious, at least for the favoured few. Merchants and entrepreneurs amassed and spent huge fortunes, sumptuary laws were tested and then ignored, and conspicuous consumption of all kinds increased significantly:

Late Ming writers in Nanking and other cities were quite aware of changes in urban life-styles and social attitudes. They relate some of this change to the reform of the tax system . . . Some features of [this reform] . . . , particularly those involving commutation of labor services and special exactions are said . . . to have been conducive to ostentatious consumption in the cities. Urban commoners who had money were no longer under great pressure to conceal that fact; they could display their wealth in elegantly enlarged houses, gardens now free of restrictions on size . . .⁶⁰

Of course, there is nothing in this discussion to suggest that the important economic and social changes which occurred in late Ming China can be attributed solely to the large amounts of foreign bullion which flowed into the country after 1530. Indeed, some students of Ming history might even argue that when compared to the size and scope of its domestic commerce, China's trade with Japan and the West during this period was of minor importance. To do so, however, would be to seriously underestimate the impact a substantial increase in the stock of precious metals could have on an economy which was imperfectly monetized and in which credit techniques were not highly developed.⁶¹

With a discredited system of paper currency, an inadequate supply of copper coins, and rudimentary banking and credit institutions, the economy of late Ming China would seem to be an excellent case in point. In fact, if Chinese domestic bullion production was as low at the time as now appears likely, the country's money supply may even have been in danger of contracting because of the wear and tear on

⁵⁹ Between 1491 and 1573, for example, the number of periodic markets in Fukien's Chang-chou prefecture increased by 245 per cent and continued to multiply right into the seventeenth century. Similar growth occurred in the countryside around Ning-po, although the rate of change there seems to have been somewhat slower, perhaps because the city had long been an important international trading centre and was thus under closer governmental supervision. This of course would have reduced the possibility or at least the profitability of illegal commercial activities. On periodic markets in the Chang-chou and Ning-po areas during this period, see Rawski, *Agricultural Change*, pp. 70-1; Shiba Yoshinobu, "Ning-po and Its Hinterland", in G. William Skinner (ed.), *The City in Late Imperial China* (Stanford, 1977), p. 399.

⁶⁰ F. W. Mote, "The Transformation of Nanking, 1350-1400", in Skinner (ed.), *The City in Late Imperial China*, p. 151.

⁶¹ For a brief but informative discussion of this subject as it relates to sixteenth-century Europe, see Harry A. Miskimin, *The Economy of Later Renaissance Europe, 1460-1600* (Cambridge, 1977), pp. 156-7.

precious metals when they are used in commercial transactions.⁶² That this did not happen and certain sectors of the Chinese economy grew with some vigour during the second half of the Ming period would seem to owe more than a little to the maritime trade which, after the mid-sixteenth century at least, the Ming authorities found themselves increasingly unable to control.

SILVER, FOREIGN TRADE AND THE COLLAPSE OF THE MING DYNASTY

Whatever the beneficial effects of that trade, and they were numerous,⁶³ the bullion which poured into China from abroad during the late Ming period could not solve all of the country's economic problems. Indeed, it even helped to create some new ones such as over-rapid urban growth, unbridled business speculation, and severe price inflation.⁶⁴ The economic and social instability which ensued was exacerbated by the fact that many merchants and producers at the time were induced by the inflationary spiral to rely too heavily on a continued expansion of the money economy. As has been suggested, however, that expansion was itself dependent to a very large extent on bullion imports to increase the money supply. Prior to the early decades of the seventeenth century that dependence did not pose a serious problem as Japanese and Spanish-American mines continued to produce prodigious amounts of silver, at least some of which was eagerly exchanged for Chinese goods in Manila, Macao, Canton, Nagasaki, Taiwan and South-East Asia. After that time, however, circumstances in various parts of the world began to change in ways which were to have profound effects not only upon the Ming economy but also on the course of Chinese history.

⁶² On this subject, see C. C. Patterson, "Silver Stocks and Losses in Ancient and Medieval Times", *Econ. Hist. Rev.*, 2nd ser., xxv (1972), pp. 205-35. I am indebted to Professor John F. Richards of Duke University for bringing this article to my attention.

⁶³ It has long been acknowledged, for example, that the reforms of the chief grand secretary Chang Chü-cheng, who dominated Ming government from 1572 to 1582, put the dynasty on a sounder financial footing than it perhaps had ever known. Shortly before Chang's death in 1582 treasuries throughout the country were well stocked and the silver reserves of the T'ai-ts'ang vault alone are said to have been in excess of 6,000,000 taels (225,000 kilograms). Whether such reserves would have been possible without imports of foreign bullion must be regarded as doubtful, particularly since they were accumulated precisely when those imports began to soar during the 1570s and 1580s. For a recent discussion of Chang's reforms, see Huang, *Taxation and Governmental Finance*, pp. 294-301.

⁶⁴ James Geiss, "Peking Under the Ming, 1368-1644" (Princeton Univ. Ph.D. thesis, 1979), pp. 144 ff. See also Peterson, *Bitter Gourd*, pp. 70-3. It is instructive to compare Geiss's description of the impact of inflation on late Ming society and particularly on late Ming government with Omer Lufti Barkan, "The Price Revolution of the Sixteenth Century: A Turning Point in the Economic History of the Near East", trans. Justin McCarthy, *Internat. Jl. Middle East Studies*, vi (1975), pp. 3-28. On p. 26 of this article Barkan explains how silver imports and inflation during the late sixteenth century led to "a period of severe financial and social agitation in the Ottoman Empire . . . By releasing a great passion for luxury, disturbing the public morality, and producing a sentiment of discontent and dislocation among many, the inflation constituted a source of great difficulties for the state".

Of particular importance here is the fact that Sino-Spanish trade in Manila experienced several periods of severe disruption between 1610 and the fall of the Ming dynasty in 1644. Some of this disruption may have been caused by declining silver production in the New World,⁶⁵ but, before 1630 at least, Dutch and English harassment of Chinese and Spanish shipping is likely to have been a much more important factor.⁶⁶ The situation in Manila improved markedly during the early 1630s, but this was followed by the imposition of stringent new trade restrictions by Philip IV in 1634-5, by a government crack-down on corruption in Acapulco in 1636, and by the Spanish massacre of more than 20,000 Chinese in the Philippines during the winter of 1639-40.⁶⁷ The massacre itself was partly the result of economic difficulties between the two communities and, as might be expected, it contributed to a sharp decline in trade between Manila and China during 1640-1.⁶⁸ There appears to have been some recovery in 1642-3, but this may have been offset by the fact that Portuguese merchants from Macao stopped trading in Manila in 1642 when they learned of Portugal's rebellion against the Spanish crown in Europe. Since the Manila-Macao trade is known to have been worth 1,500,000 pesos (43,125 kilograms of silver) in some years during the 1630s,⁶⁹ the economic consequences for both sides and for China were considerable.

Maritime trade in Asia was also affected during these years by Dutch blockades of Goa and Malacca, which virtually isolated Macao from the rest of the Portuguese empire. Then in 1639 the Portuguese lost their very lucrative role as middlemen in Sino-Japanese trade when the Tokugawa authorities refused to allow ships from Macao to trade at Nagasaki. Since those same authorities had prohibited Japanese nationals from trading overseas in 1635, this left only Dutch and Chinese merchants exporting silver from Japan during the early 1640s. And despite their strenuous efforts to maintain business at previous levels, by 1642-3 the total amount of silver leaving the country had apparently dropped to below 1,500,000 taels (56,250 kilograms) annually.⁷⁰ Whatever the exact figure, it was far below Ko-

⁶⁵ Levels of bullion production and economic activity in the New World during the seventeenth century are still subjects of considerable debate. See J. I. Israel, "Mexico and the 'General Crisis' of the Seventeenth Century", *Past and Present*, no. 63 (May 1974), pp. 33-57; John J. TePaske and Herbert S. Klein, "The Seventeenth-Century Crisis in New Spain: Myth or Reality?", *Past and Present*, no. 90 (Feb. 1981), pp. 116-35.

⁶⁶ See, for example, Kobata, *Kingin bōkeshi*, pp. 259-64; Wills, "Maritime China", pp. 216-20.

⁶⁷ I have discussed these matters in more detail in my "Notes on Silver", pp. 10-13.

⁶⁸ "Relation of the Insurrection of the Chinese", in Blair and Robertson (eds.), *The Philippine Islands*, xxix, pp. 208-58; Chaunu, *Les Philippines*, pp. 157-9.

⁶⁹ Boxer, *Great Ship from Amacan*, p. 135 n. 284; Schurz, *Manila Galleon*, p. 132.

⁷⁰ Iwao, *Shuin-sen bōkeshi*, p. 327; Oskar Nachod, *Die Beziehungen der Niederländischen Ostindischen Kompagnie zu Japan im siebzehnten Jahrhundert* (Leipzig, 1897), appendix 63, p. 108.

bata's estimate of four to five million taels (150,000-187,500 kilograms) per year when Sino-Japanese trade was at its peak earlier in the century. Moreover, when this decline is considered in light of the depressed commercial situation in Manila, Macao and Malacca, it is clear that far less silver was even available for importation into China than had been the case just a few years earlier.

The implications of the above for the Ming economy would have been serious at the best of times. As it was, the Ming government had been forced to raise taxes seven times between 1618 and 1636 in response to military threats from the Manchus and from domestic rebels.⁷¹ And although it is now clear that not all of the bullion recorded in Table 2 for the late 1630s and particularly the early 1640s was actually collected,⁷² these tax increases undoubtedly drew silver away from those sectors of the Ming economy upon which much of the dynasty's earlier prosperity had been based.⁷³ Nor were those sectors aided by the fact that during the late 1630s and early 1640s, economic activity in many parts of the country was further reduced by widespread military operations and by a series of devastating natural disasters.⁷⁴ Under the circumstances, it seems reasonable to assume that rather than spend their money on non-essential items or invest it in increasingly risky enterprises, those in a position to do so hoarded even more bullion than usual and waited to see what would develop.⁷⁵

Given the decline in bullion imports, the higher rates of taxation, and the probability of increased hoarding, then, there is reason to suspect that the amount of silver in circulation had been substantially reduced. That suspicion seems confirmed by the figures in Table 6.

⁷¹ Ray Huang, "Fiscal Administration during the Ming Dynasty", in Charles O. Hucker (ed.), *Chinese Government in Ming Times: Seven Studies* (New York, 1969), pp. 117-19.

⁷² By the late 1630s the Ming authorities were unable to collect many of the new taxes they had imposed, and the figures from the T'ai-ts'ang vault for the last decade or so of the dynasty's existence appear to have been projections of possible income rather than actual receipts. Professor Huang believes that tax collections during this period "were considered quite successful if any year's proceeds came close to 70 per cent of the projected quota. It is extremely doubtful that the actual collections in the 1640s ever met half of the assigned volumes": *ibid.*, pp. 121-2.

⁷³ Under ordinary circumstances, of course, a substantial portion of the central government's silver revenues would have been spent on goods and services and would thus have re-entered the economy and the monetary system. During the late Ming period, however, large quantities of silver fell into the hands of powerful political and military figures, many of whom chose to hoard it rather than spend it on national defence. On this point, see Frederic Wakeman Jr., "The Shun Interregnum of 1644", in Spence and Wills (eds.), *From Ming to Ch'ing*, pp. 44-7, 77-8.

⁷⁴ Helen Dunstan, "The Late Ming Epidemics: A Preliminary Survey", *Ch'ing-shih wen-p'i*, iii no. 3 (1975), pp. 1-59.

⁷⁵ Whether the Chinese habitually hoarded a higher percentage of their precious metals than other pre-modern peoples seems questionable. Nevertheless, they were shrewd enough to know when silver was going up or down in value and to act on that information if they possibly could.

The abrupt reversal they illustrate in the long-term trend towards cheaper silver, the timing of which corresponds closely to what is currently known about the sharp decline in bullion imports discussed above,⁷⁶ had disastrous consequences for the late Ming economy. Without access to sufficient supplies of silver because of the rapidly deteriorating copper-silver exchange rate, many people in China were unable to pay their taxes or rents, repay loans, or in some cases even to buy food.⁷⁷ Finding it impossible under these circumstances to adequately pay or equip its military forces,⁷⁸ the Ming court gradually lost control of the northern portion of the empire, first to domestic rebels and then to the invading Manchus. The latter went on to defeat Ming loyalists in the south and to establish their own dynasty, the Ch'ing, which lasted until the revolution of 1911.

TABLE 6
VALUE OF ONE THOUSAND COPPER COINS 1638-1646
(IN TAEIS OF SILVER)*

	Taels
1638	0.90 (+)
1640	0.50 (+)
1643	0.33
1646	0.17

* Note and sources: Yeh Shao-yüan, "Ch'i-chen chi-wen lu" [A Record of Things Remembered from the T'ien-ch'i and Ch'ung-chen Reigns], in *T'ung-shih* [A History of Sorrow] (Shanghai, 1911), 15'e 18, 2/6a; Chang Lü-hsiang, "T'ung-hsiang tsai-i chi" [A Record of Natural and Human Disasters in T'ung-hsiang], in Ch'en Heng-li (ed.), *Pu Nung-shu yen-chiu* [Studies on the Pu Nung-shu] (Peking, 1958), p. 325. The symbol (+) indicates that the figure given for this year in the original source is imprecise and is likely to have been slightly larger than that which appears in the Table.

CONCLUDING REMARKS

The preceding survey has attempted to demonstrate that during the sixteenth and early seventeenth centuries, domestic demand for imported silver and foreign demand for Chinese luxury goods in-

⁷⁶ It might be argued that since at least some foreign silver was still flowing into China during this period, bullion imports were essentially irrelevant to the trend revealed in Table 6. However, this would ignore the impact a sharp decline in those imports could have had on business and consumer confidence, particularly in the all-important south-eastern portion of the country.

⁷⁷ I have discussed these developments in more detail in my "Notes on Silver", pp. 17-21.

⁷⁸ In a recent study, J. A. Trevithick has written that "Governments, in an attempt to squeeze more and more out of a hard-pressed wartime economy, have often taken the easy way out and resorted to the printing presses to provide the requisite finance for the purchase of arms, the payment of soldiers, etc.". The Ming government was no exception, and in 1643-4 it made a desperate attempt to reintroduce paper currency into the monetary system. The failure of that attempt was explained by one high-ranking official in the following words: "The people may be stupid, but who is willing to exchange bullion for paper?". See J. A. Trevithick, *Inflation: A Guide to the Crisis in Economics* (Harmondsworth, 1977), p. 9; Chang T'ing-yü (ed.), *Ming-shih* [Ming Dynastic History], 28 vols. (Peking, 1974), xxi, pp. 6501-2. See also Peterson, *Bitter Gourd*, pp. 74-6.

volved China more directly in world history and particularly world economic history than ever before. The effects of that involvement were of fundamental importance to the subsequent development of Chinese civilization. Indeed, although the statistics currently available on this subject are often less than satisfactory, there is more than sufficient evidence to indicate that many of the economic advances, social changes and even cultural monuments of the late Ming period can be properly understood only in light of the vast amounts of silver which flowed into China from such faraway places as Iwami and the mountains of Upper Peru.

At the same time, however, the enthusiastic participation of many Chinese merchants and producers in international trade helped to cause economic and other problems which the Ming government was never able to satisfactorily resolve. The Ming dynasty did not fall in April 1644 simply because bullion imports had declined sharply from previous levels, but that decline certainly exacerbated its difficulties and helped to undermine its stability. The term "seventeenth-century crisis" may have been overworked in recent years, but there can be no question that China experienced one of major importance.⁷⁹ Moreover, although they did not understand the complexities of the situation, seventeenth-century Chinese writers were themselves aware that the country's economic and political problems were intimately connected with silver and maritime trade.⁸⁰

Of course, neither that century nor its "crisis" lasted forever. Indeed, by the early years of the next century, if not earlier, the Chinese economy was once again expanding rapidly and the country was regaining its deserved reputation as the world's richest and most powerful nation. And, as might be expected, that expansion and reputation were again supported by large-scale imports of foreign silver, particularly from the New World.⁸¹ Unfortunately, that intriguing and important story goes beyond the scope of the present article.

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⁷⁹ On this point, see S. A. M. Adshead, "The Seventeenth-Century General Crisis in China", *Asian Profile*, i no. 2 (1973), pp. 271-80.

⁸⁰ See, for example, Ku Yen-wu, *Jih-chih lu chi-shih* [Collected Commentaries on the Record of Knowledge Gained Day by Day], ed. Huang Ju-ch'eng, 2 vols. (Taipei, 1971), i, p. 258.

⁸¹ Perhaps the best discussion of this subject to date is in Ch'üan, *Chung-kuo ching-chi shih*, ii, pp. 475-508. See also Vilar, *History of Gold and Money*, pp. 253-62; K. N. Chaudhuri, *The Trading World of Asia and the English East India Company, 1660-1760* (Cambridge, 1978), pp. 385-410. It should be noted that improved domestic mining, a much more efficient government, a sounder monetary system and a rapidly growing population meant that silver imports had a far less dramatic effect on the Chinese economy after 1680 than had been the case a century or so earlier. Still, as Ch'üan has convincingly demonstrated, the importance of those imports to the economic expansion which occurred in eighteenth-century China should not be underestimated.