

Sericulture

Silk Route

1. Introduction

The term "Silk Road" was coined in 1877 by the German geographer F. Von Richtofen. It refers to the major trade route linking China with Southwestern and Central Asia and India. Starting during the Han Dynasty 202 BC-220 AD, this route was used to transport a variety of trade goods, of which silk was the most important. The Silk Road originates in the Chinese interior, passes through Northwestern China, and continues West across Asia. Providing links with ancient overland routes to Africa and Europe, the Silk Road paved the way for extensive political, economic, and cultural exchange among widely separated regions and ethnic groups.

China was the first country in the ancient world to cultivate the mulberry plant, raise silkworms, and produce silk items. To the present day, silk remains one of China's greatest offerings to the peoples of the world, surpassing every other Chinese product in the scope of its distribution. Although trade in various other Chinese products was concentrated along roads known the "Jade Road," "Gem Road," "Buddhist Road," and "Porcelain Road," in actuality these routes represented only individual segments of the Silk Road. In the end, this great artery of commerce and exchange will always be known for its most important product, silk.

2. Silk Road: its beginning

Sericulture and silk weaving had been established in the Yellow River and Yangtze River areas of China thousands of years before Christ. Production of silk started in China between perhaps 5000 and 3000 BC. This great Chinese invention began with the ingenious discovery of reeling silk threads off wild silkworm cocoons, followed by the conscious domestication of silkworms.

Although Chinese silk was discovered in Europe as early as 500 BC, well-recorded trading only started in the Han dynasty (202 BC to AD 220). The aggressive sixth emperor of the Han dynasty, Wu-ti, in an imperial effort to expand Chinese territory and influence, sent out his militiaman Zhang Chien on a mission to explore China's western frontier in 138 BC. The knowledge of the environment and nomadic tribes and kingdoms brought back by Zhang Chien aided the Chinese conquest of Western Asia (currently the XinJiang province of China) around 120 BC. The long existing private silk trade saw its first boom when the western frontier came under the control of a single, central, consolidated power – the Western Han dynasty (202 BC – AD). The first recorded through caravans from China arrived in Persia around 106 BC and thereafter the trans-Asian silk trade was regularized.

The Road started out from the capital city of China, Chang-An (now Xian), and crossed into the newly acquired northwest frontier of China. Beyond the sphere of Chinese influence, the route continued on westward, through the elaborate trading networks of the other major Eurasian civilization zones, under the control of the Kushans in Central Asia, the Parthians in Persia, and the Roman empire in Europe. The whole route divides into four sections. (1) as far west as the Pamirs, i.e. to the western boundaries of modern XinJiang (China's western frontier) (2) from the Pamirs to the Merv oasis, i.e. Bactria or Sogdiana (in current Northwest Afghanistan) (3) from Merv to Seleuceia in modern Iraq; (4) from Seleuceia to the Roman frontier.

The high age of overland trading in the era of Tang China and Abassaid Persia

The establishment of the powerful Tang dynasty in China (AD 618-960), which was to see the peak of classical Chinese civilization, heralded the second phase of the overland Silk Trade. The eastward surge of the Islamic power in the 7th and 8th centuries led to its military show-down with the Tang military stationed in China's western frontier in AD 751. The victory of the Muslims over China on the Talas River in northern Turkestan was a major turning point for the history of the overland silk trade. This and the gradual internal weakening of the Tang government led to the partial closing of the overland Silk Road to China for almost four hundred years, until the era of the Mongol empire. By the time of the Sung dynasty (AD 960-1279), the most productive silk centers found their

home in the lower Yangtze River delta, far away from Xian, the starting point of the old Silk Road. This locational shift led to the increasing use of the sea route for silk exchange.

The other significant event, however, was that through the capture of Chinese prisoners in the Talas river, many of whom were skilled technicians, the Arabs obtained access to the rich technological knowledge base of China. The knowledge and the cultivation of silk were widely diffused from China to Persia, Anatolia, and regions controlled by Byzantium. In particular, the Chinese method of obtaining long and unbroken silk threads from whole cocoons by killing the worm inside before it breaks out was widely adopted. The Islamic conquest of Sassanian Persia and parts of the Byzantine empire not only absorbed major silk producing regions, but also eased the spread of sericulture and the silk industry to North Africa and Southern Spain.

3. The age of the Pax Mongolica and after

In the third phase of the silk trade, the entire overland route witnessed a vigorous revival when Mongol tribes, under Genghis Khan (1167-1227), broke out of the Karakorum steppe and built the largest empire across the Eurasian continent the world had ever seen. For the first time in history, the whole of Asia and Eastern Europe, from Shanhaikuan in northeast China to Budapest, and from Canton to Baghdad, was united under one political authority. The expansionary Mongol rulers acted to ensure the safety of the trade routes, building effective post stations and rest stops, introducing the use of paper money and eliminating artificial trade barriers. By 1257 Chinese raw silk appeared in the notarial records in the silk producing area of Italy, Lucca. In the 1330s, a single merchant sold thousands of pounds of Chinese silk in Genoa. Between the 1260s and the 1350s, cheap Chinese raw silk was said to have arrived in Europe in “unlimited amounts”.

The fate of the Silk Road on the western end after the collapse of Pax Mongolica was more favorable, in contrast to the vicissitudes of its eastern end. The quick rise and expansion of the Ottoman empire in the fourteenth century filled the power vacuum left by the collapse of the Mongols and provided crucial protection for the trade. By this time, Persia had clearly emerged as the most important raw silk producer and exporter. The provinces to the south and west of the Caspian Sea – in particular, Shirvan, Karabagh and

above all Gilan – sent out raw silk to important trading centers such as Tabriz, Bursa, Istanbul, Aleppo, Genoa, Venice and later Lyon. Although Mediterranean Europe and Syria were to develop a strong sericultural base in the next couple of centuries, they relied, to a significant degree, on Persian raw materials during this period. This trading pattern, with silk production centers in Southern Europe importing raw materials from Persia, through a largely overland caravan route combined sometimes with the use of the Black Sea, the Persian Gulf and the Red Sea lasted into the mid-eighteenth century, until the disintegration of the Safavid Persian state. The end of the Mongol age in the East coincided with the brewing Commercial Revolution in late Medieval Europe, which marked the beginning of another epochal event in the history of the silk trade: the beginning of the Western European silk weaving industry. Important silk manufacturing towns, such as Lucca in Northern Italy, began to establish themselves in the mid-thirteenth century. The industry and technology quickly diffused across the continent.

Although the Western Europeans had most likely acquired sericultural and silk making technology from the Arabs and East Romans through the crusaders' movement and warfare in the twelfth and thirteenth centuries, contemporary scholars have also emphasized the China connection. Both Dieter Kuhn and Claudier Zanier, in their comparative studies of pre-modern technology, unequivocally noted that the key elements of the early European silk-reeling and throwing equipment could find their origin in earlier Chinese versions. Chinese sericulture and silk production had reached a peak in terms of both quality and productivity in the Song dynasty, immediately before the Mongol rule in China. The opening-up of the Eurasian continent by the Mongols marked the high stage of East-West exchange as symbolized by the famous travels of Marco Polo.

4. Silk Road: the sea route

The sea route, sometimes considered the second Silk Road, linked the South China Sea to the Indian Ocean, and through either the Persian Gulf or the Red Sea, connected to the Mediterranean. It brought out Chinese silk almost as early as the land route. In the early days, primitive ships and navigational tools and lack of geographical knowledge enabled

the seafarers to cover only short distances, staying close to the shore lines. Paralleling the overland route, the sea route served as an effective alternative.

The rise of Islam played a crucial role in the development of the sea route as it did for the land route. During the eighth and ninth centuries the Islamic shipmasters penetrated into the Indian Ocean and Southeast Asia, China and even reached Korea and Japan. As illustrated earlier, pressure from Islamic and other forces on the Northwestern frontier had pushed China's external trade increasingly towards the sea route, to Japan, Southeast Asia and the Indian Ocean.

Towards the end of the 12th century, Chinese traders dominated in the Pacific waters. The Mongol Yuan dynasty pursued an expansionary trade policy and greatly extended Chinese overseas trading into the South China sea and the Indian Ocean. Chinese maritime supremacy culminated in the grandiose expedition led by the Muslim eunuch of the Ming Dynasty, Zheng Ho, during 1400-1431, who sailed sea-going junks to Borneo, the Philippines, Ceylon, Malabar and even East Africa. While the Ming government was actively involved in the official tributary trade, its policy towards the burgeoning private trade was usually restrictive and inconsistent. The rather abrupt withdrawal of the Ming naval presence in the Pacific waters at a time of rapidly growing private trade in the mid-fifteenth century opened the way for the arrival of the first European power: Portugal, which by 1488 found its way to East Asia, by bypassing the mighty Ottoman barrier and rounding the Cape of Good Hope.

Silver for silk

Although, by the time of the Cape Route breakthrough, Chinese silk had long lost its once exclusive appeal, Europeans still managed to play an important role by tapping into the pre-existing trading circuit in the Pacific. This was well-illustrated by Portugal's intermediary involvement in the on-going silver for silk trade between Ming China and Tokugawa Japan. In the 1530s, Ming China ended its century long official tribute trade with Japan because of unresolved disputes and also banned private trade. During that time, the Japanese silk weaving sector relied heavily on the imports of Chinese raw silk. These measures provided powerful incentives for creating a domestic supply of raw silk for the growing silk-weaving sector. With the support of local domains, Japanese farmers

responded vigorously and absorbed Chinese sericultural knowledge through the translation of Chinese texts on agronomic and handicraft technology. These efforts paid off as silkworm rearing was successfully acclimatized to the Japanese environment and raw silk production diffused widely throughout Japan in the next century.

While Chinese silk lost out in the face of successful domestic substitution in the Japanese market, it gained new ground across the Pacific, in the newly colonized South and Central American markets. the Spaniards successfully introduced sericulture and silk industry into Mexico in 1530. The culture and the industry were able to expand quickly.

However, the birth of a Mexican silk sector, the fruit of successful trans-Atlantic migration of European agriculture and technology, turned out to be short-lived. as Europeans continued westward and opened the Pacific for trade, which exposed the young Mexican silk industry to the onslaught of the world's oldest and most competitive silk industry, that of China.

China's huge demand for silver resulted mainly from the Ming government's conversion to a silver standard, which provided significant arbitrage possibilities because of the gold/silver ratio discrepancies between Asia and Europe. China became a huge "suction pump," drawing silver first from Japan, then from Mexico and Peru. According to conservative estimates, fully 75 percent of the 400 million pesos of silver bound for the Philippines during the period 1565-1820 ended up in China. On average, roughly two million pesos of silver were shipped through Manila in the seventeenth century. However, it is important to note that the strength of the "suction power" from China was sustained by silk threads - Chinese silk was the single most important export item to both Japan and Spanish America. In the high stage of the trade, China sent three- or even four-million pesos worth of silk goods a year to New Spain. For example, in 1727, China exported close to one million pounds of raw silk as well as a large amount of finished silk products.

5. Modern Silk Road

The essence of the modern Silk Road era was the evolution of a single global market which unified all the extant regional trading circuits. The global silk trade also seemed to

have come full circle as East Asia regained its predominant position and became the world's most important supplier of raw silk. Raw silk from China and Japan simultaneously went both ways, westward to Europe and eastward to North America.

The era started with the British engagement in the Opium War from 1839 to 1842 which forcibly opened China to foreign trade with the establishment of the treaty ports, where traded commodities could enter and leave free from any restriction or tariff. After a sharp decline during the war period 1838-42, Chinese silk exports recovered and reached close to two million pounds in 1845. The treaty port system was extended to Japan in 1858. The Japanese raw silk industry, with more than a century and half of successful import substitution experience, quickly became another important raw silk exporter. By the early nineteenth century, London had clearly emerged as an important center for the silk trade.

During the 1850s and 60s, the silkworm disease called pebrine broke out in Southern Europe and gradually spread to the Middle East. In its worst years, the sericultural crop in Europe declined by as much as 75 percent. At this critical juncture, the British silk connection at the other end of the Eurasian continent rose to crucial importance. Between 1850 and 1860, Chinese and Japanese exports to Britain roughly quadrupled.

In 1869, the Suez Canal opened. Through the Red Sea route, French silk merchants could import directly from China and Japan. Between the 1880s and the 1930s, more than half of the raw silk used on the looms in Lyon, the world's silk weaving capital, came from East Asia.

Meanwhile, Chinese and Japanese silk crossed the Pacific again, this time to North America. The British colonial government long encouraged the transfer of sericulture and the silk industry to North America. However, scarcity of labor particularly, skilled labor and lack of sericultural traditions severely impeded progress. The American industry benefited significantly from the almost simultaneous decline of the British silk industry, resulting mainly from the British government's abolition of the import tariff - a result of its free trade stand - against the more competitive European particularly French products. By the 1920s and 30s, the production of the U.S. silk industry exceeded that of all European countries combined and doubled that of the Japanese silk industry. The US silk

industry developed a reputation for large-scale, capital intensive production of standardized silk products.

The spectacular growth of the American silk industry created an enormous demand for raw silk. Although imports of Chinese raw silk had begun as early as 1788, substantial amounts of raw silk crossed the North Pacific from China and Japan to San Francisco in 1867 after the establishment of the regular shipping line between China and the U.S. The raw silk was routed through the Continent to the silk-manufacturing centers around New York city through the inter-continental railway system, completed in 1869. And by the 1920s and 30s, Japan supplied 75 to 90 percent of the total world raw silk exports. By then, the bulk of the global silk trade was carried through the Pacific route.

Another distinguishing aspect of the modern silk road era was the massive reverse flow of technology from the West to the East, that is from Europe to Asia. The superior silk-reeling technology developed in southern Europe in the eighteenth and nineteenth centuries went with the European merchants as the traders moved progressively eastward in their search for raw silk. The technology was brought to the Levant, Turkey, and India. And most importantly, European silk-reeling technology and the factory system intruded into the traditional production system of China and Japan in the mid-nineteenth century. By the 1920s, Japanese sericultural and silk-reeling technology captured global leadership. The direction of technological transfer again changed course, this time from Japan, first to China, its long time teacher, then to Italy, its more recent teacher (Ma 1997). If the global silk trade finally came full circle around the globe in the modern era, so did the silk technology. Or to be more exact, the technological leadership of raw silk production in the 20th century returned to the easternmost end of the Silk Road: Japan.

The history of the Silk Road reveals the mysterious and powerful forces may just lie within the process itself - specifically the process of trading not only in goods, but also art, culture and knowledge. It is part of a process where trade induces diffusion of inventions which induces further growth of trade, an accelerating spiral growth of trade and technological exchange.