

Silk and the European Economy

It is difficult to date precisely the moment silk from the Far East began to play a role in the social and economic life of Europe. The earliest reference discovered is in Pliny the Elder's *Historia Naturalis*. In the course of a diatribe against extravagances of his time, he bemoans the cost of providing women with jewels, scents and silk, saying it was too heavy a burden for the Roman Empire.¹ If we can believe nineteenth-century French economist J. B. Say, silk at that time cost even more than jewels and perfumes, and in the days of the emperors was sold in Rome at the same price as gold.²

The Book of Ezechiel,³ however, suggests that Chinese silk was known and enjoyed in Europe long before Romans began to conquer the continent and lay the base of their empire. Phoenicians had close trading contacts with Asia Minor that expanded rapidly after extension southward to Elana on the Red Sea of the overland route linking the Mediterranean to Central Asia. From Elana the products of the East could make the short sea trip to the Egyptian coast, and from there to Tyre.

"From Tyre," wrote Say, "these merchandises found their way without difficulty along the Mediterranean shores and, in particular, throughout the already flourishing and highly civilized Greek world; thence to the Greek colonies in Sicily and Southern Italy; to the still primitive and unimportant Romans; to Etruria, Carthagina and all its dependencies; to the Greek city of Marseilles, where in all probability the Gauls came to buy silk and cotton cloth".⁴

Yet during the Greek era, as in Roman times and also in the Early Middle Ages, the quantities of silk that were imported into Europe must have been relatively small, which would account for the very high price. Only the wealthiest were able to purchase it,⁵ but, despite the cost, the demand for silk gradually expanded rather than diminished. In his study of trade in the ancient world, Gilbart has shown that the demand for silk increased in Rome at the time of Eliogabalo, when it came to be used not only for luxury vestments for women, but also for men.⁶ "For the first time in Italy, a Roman prince wore costly silk robes like the potentates of the East," wrote one observer.⁷ Even

¹ A. Biamonte, *Le origini mediterranee della seta*. (Venezia: Fantoni 1952), p. 13.

² G. B. Say, "Corso completo di economia politica", in *Biblioteca dell'economista*, 1^o serie, vol. 7^o, part 1a, cap. XIX, (Torino: UTET, 1855), p. 151.

³ Ezechiel, XXVII, 1-25.

⁴ G. B. Say, *op. cit.*, p. 151.

⁵ J. M. Kulischer, *Storia economica del Medioevo e dell'epoca moderna*, II Medioevo, (Florence: Sansoni, 1955), p. 130.

⁶ W. Gilbart, "Lezioni sulla storia e sui principi del commercio presso gli Antichi," in *Biblioteca dell'Economista*, IIa serie, vol. IV, (Turin: UTET, 1864), p. 83.

⁷ C. Barbaglio, *Storia universale*. Roma antica. L'Impero, vol. II, part II, (Turin: UTET, 1964), p. 1447.

though these tastes were not maintained with the same extravagance after the death of Eliogabalo, they did not completely disappear and demand for silk did not decline.

Chinese silk was imported, both as yarn and as woven cloth, but the latter was often unpicked and then reworked with other fibres like wool and linen,⁸ and with silver or gold thread, to make the fabric better wearing and precious at the same time. Thus it was that silk remained a luxury. Along with spices and precious stones, it was one of the consumer goods that pushed Europe's trading balance with Asia toward deficit until the eve of the Industrial Revolution. For that reason, Europe had to export precious metals, silver and gold to Asia to redress the balance.⁹

As Heyd comments: "Of all the goods produced in China, silk was the most precious and the one that Western merchants sought before all others".¹⁰ As Heers has emphasized, it lay at the base of an amazingly rich trade. On the ships that carried it, "the lightest part of the cargo was worth more than ten times the price of pepper".¹¹

It was precisely the prospect of the gains to be made by obtaining it at source that led a small number of merchants to attempt the risks of long and exhausting journeys in search of supplies. Among the first of those who made their way to China to learn about the country and its marvels, and to purchase products – above all raw silk, woven silk fabrics and brocades that cost so much in Europe – were the two brothers Nicolo and Matteo Polo.¹² Yet it remained rare for merchants to obtain their supplies so directly, even though certain Genoese merchants did for a time exploit the difference between the prices in the East and those on European markets by participating in the carrying trade across the Indian Ocean.¹³

In the final phases of the Roman Empire, when the capital of empire was established in Byzantium, the renamed city of Constantinople quickly became the place where the widest varieties of types and colours of silken cloth and yarn could be found. Constantinople thus inherited the oriental trade and thereafter "played the role of intermediary in the trade between West and

⁸ A. Biamonte, *op. cit.*, p. 28.

⁹ A. Attman, *The Bullion Flow Between Europe and the East, 1000-1750*, (Goteborg, 1981), p. 16.

¹⁰ G. Heyd, *Storia del commercio del Levante nel Medioevo*, (Turin: UTET, 1913), p. 820.

¹¹ J. Heers, *L'Occident aux XIV^e et XV^e siècles. Aspects économiques et sociaux*, (Paris: P.U.F., 1966), p. 150.

¹² G. Heyd, *op. cit.*, p. 820; R. S. Lopez, *Su e giù per la storia di Genova*, (Genoa: Università, 1975), pp. 83-128, 171-179; M. Mollat, *Les explorateurs du XIII^e au X^e VI^e siècle*, (Paris: Lattes, 1984), p. 17.

¹³ J. Richards, Les navigations occidentales sur l'Océan indien et la Mer Caspienne (XII e XV^e siècles), in *Sociétés et Compagnies de Commerce en Orient et dans l'Océan indien*. Actes du huitième colloque international d'histoire maritimes, présentés par M. Mollat, (Paris: SEUPEN, 1970), p. 354; E. Ashor, *Levant Trade in the Later Middle Ages*, (Princeton: University Press, 1983), pp. 62-63.

East".¹⁴ Among other things, it also controlled the supply of silk for European markets, from which it drew rich financial and economic advantages. Having previously enriched the Persians, who for centuries had controlled markets and ports where western merchants came to buy silks, the silk trade in turn proved to be excellent business for Byzantines.

It is now generally agreed that the fall of the Roman Empire in the West, attacks by northern barbarians and the political and ethnic redrawing of the European map that followed, did not seriously affect the manner in which Europe was supplied with silk. As has been written: "The economic transition from Antiquity to Middle Ages was not abrupt, and in general both commercial routes and markets remained unchanged over time".¹⁵ China continued as the principal source of supply; silk merchants continued to use the same overland routes as those identified by geographers of the Greek and Roman world; their goods were deposited on traditional Asia Minor markets. Replacement of earlier ruling classes by invaders had not changed European habits and tastes.

Inevitably, though, upheavals that surrounded barbarian invasions and the expansion of Arab powers into the Mediterranean did cause imports of silk to decline. Just as inevitably, with the gradual renewal of the European economy, consumption of silk began to increase once more, first slowly and then rapidly.

Between the tenth and eleventh centuries, as European population began to expand and agriculture became more intensive, trade, too, was undergoing new expansion. As a result, luxury goods like silk again acquired importance.

There was a further factor: along the shores of the Mediterranean, Baltic and North Seas, expansion of trade was accompanied by rapid increase in the size and number of cities, which provided a base for the emergence of new social classes and hierarchies. For the new burghers, clothing worn for public ceremonies and for social events of private and public life constituted important symbols of status and social prestige. Another stimulus for the use of silk and silk fabrics came also from the revival of Christianity, and in particular the construction of churches, chapels and cathedrals for religious functions.

From the tenth to the twelfth century, it was Scandinavians, once they had – in Pirenne's words – given up making war in favour of trade, who supplied merchants of the north with Oriental goods, including silk.¹⁶ This was a result of eastward expansion that had in earlier centuries carried Scandinavians as far as the Crimea, and of communications they had established. Drawing supplies

¹⁴ E. Patzelt, "Les relations entre les Suédois et l'Orient", in *Moneta e Scambi nell'Alto Medioevo*, (Spoleto, 1961), p. 537.

¹⁵ *Ibid.*, p. 536.

¹⁶ H. Pirenne, *Le città del Medioevo*, (Bari: Laterza, 1971), p. 66.

not only from Constantinople and Baghdad, but also through Russia by way of Kiev and Novgorod, Scandinavians were able to provide both for the markets of southeastern Europe and also for those of the Baltic and North Seas, thereby reaching England and Ireland. In this way, silk gradually became a familiar fabric throughout northern Europe. Erna Patzelt recently pointed out that the Arab writer Ibn Fadlan noted the oriental style of their clothes when describing the Vereghi – or Scandinavians – whom he encountered on the Volga in 920 A. D. Patzelt has also demonstrated that the clothing of merchants discovered in tombs at Birka, which date from the tenth century, contain silk fabrics that Geyer described as similar in design and style of weaving to fabrics produced in Han dynasty silk factories in Chinese Turkistan.

It was not only in northern Europe that the demand for silk began to increase during the tenth and twelfth centuries. Once Arab expansion had been checked, and trading restabilized, that general area again provided marketing opportunities for Oriental products. With renewed expansion of trade there, an important role was to be played by Venice, "an isolated outpost of Byzantine civilization",¹⁷ along with Genoa and other cities in present-day Italy.

Among European merchants who purchased silk, Venetians were active along the Syrian coast, especially at Antioch and Tyre,¹⁸ and on the north African coast from Alexandria to Jaffa.¹⁹ Genoese soon joined Venetians as frequent visitors to Byzantium. The Genoese alone then pushed on to find trade in the Black Sea and beyond, where they established outposts at Caffa in the Crimea and at Trebizond and Tana on the Sea of Azov.²⁰ Venice came to control trade with Cyprus and along the Syrian coast, while Genoa became supreme at Chios and at ports of Turkey and in the Black Sea. So it was that, with the gradual withdrawal of Scandinavians from the thirteenth through fifteenth centuries, Venetians and Genoese established two separate spheres of influence in areas around the Mediterranean. Venetian trade revolved around two convoy routes from Beirut and Alexandria that brought spices, especially pepper, over which Venetians exercised a virtual monopoly,²¹ as well as silk.²² It was the Genoese, however, who dealt more widely in silk, which was carried on great galleys together with other goods.²³ In the closing centuries of the Middle Ages, Caffa, Trebizond and Tana became final staging posts for

¹⁷ *Ibid.*, p. 59.

¹⁸ A. Schaube, *Storia del commercio dei popoli Latini del Mediterraneo sino alla fine delle Crociate*, (Turin: UTET, 1915), p. 199.

¹⁹ G. Luzzatto, *Storia economica di Venezia dall'XI al XVI secolo*, (Venice: Centro Internazionale delle Arti e del Costume, 1961), p. 18.

²⁰ J. Heers, *op. cit.*, p. 148.

²¹ *Ibid.*, p. 151.

²² G. Luzzatto, *op. cit.*, p. 54. Among the purchases that Contarini made in Aleppo and elsewhere in Syria, the largest sums were spent on silks; Ashtor, *op. cit.*, p. 370.

²³ J. Heers, *op. cit.*, p. 150.

overland trade with Central Asia. Heers has described them as "the capitals of a real colonial empire". Trebizond was the end of overland routes from Persia, while Tana lay at the beginning of routes that stretched over passes of Afghanistan down into India, as well as those that led across Central Asia to China along the so-called "Mongol Way". These cities constituted principal outlets for silks from the East and gave access to markets of the West. With their mighty mercantile fleets in Black and Caspian seas enabling them to circumvent the intermediation of Muslim powers, the Genoese were in a position to draw rich benefits for their economy.²⁴

Of course, Genoa and Venice were not the only Italian cities engaged in trading silk and other Oriental products, distributing them to wider European markets and hence enriching themselves. Amalfi coast towns also traded with cities of Asia Minor, and Liutprand of Cremona says that, after the Venetians, merchants of Amalfi were the only importers of silk fabrics from Constantinople, where they, too, had a substantial commercial settlement.²⁵ Wealthy Amalfi merchants also traded on the coasts of Syria, Palestine and Egypt,²⁶ where they purchased silk and other products of the East for resale in Europe.²⁷ There were also many traders from Gaeta who took part, as well as merchants from Bari. Primarily for political reasons, though, competition from merchants of Amalfi, Gaeta and Bari was gradually eliminated, leaving Genoese and Venetians as dominant operators in the fourteenth century.

It is worth pointing out that it was not only merchants and sailors who were engaged in these voyages to Egypt, the Black Sea and other shores of Asia Minor. At least in the case of Venice, it was virtually citizens of the whole city.²⁸ "Every section of the Venetian population," Schaube has written, "either took part or had an interest in trade, and above all in sea-borne trade ... It was universal practice to invest capital in trading enterprises."²⁹ Much the same can also be said of Genoa, and Airal di has said that "in virtually every Genoese family clan, whether large or small, whether its wealth was new or ancient, there was always one section of the family that was delegated to travel either overseas or across the Alps either as a merchant or as a banker or as a public official, or even as all these things at once".³⁰

Because silk was a product that came from far away, both quantity and quality of supplies that reached the West were determined by the particular politi-

²⁴ *Ibid.*, p. 148.

²⁵ A. Schaube, *op. cit.*, pp. 45,47.

²⁶ *Ibid.*, pp. 48-49.

²⁷ P. Boissonnade, *Life and Work in Medieval Europe*, (New York: Harper Torchbooks, 1964), p. 53.

²⁸ G. Luzzatto, *op. cit.*, p. 40.

²⁹ A. Schaube, *op. cit.*, pp. 35-36.

³⁰ G. Airal di, "Marinai, etnie, e società, nel Mediterraneo medievale", in *Le genti del Mare Mediterraneo*, a cura di R. Ragosta, (Naples: Lucio Pironti, 1981), vol. I, pp. 62-63.

cal, weather and public-health conditions that existed along transit routes. The mid-fifteenth century collapse of the Mongol Empire threw the great overland routes of Central Asia into chaos and paralyzed trade. The devastating campaigns of Tamerlane at the close of the fourteenth century, and the sack of Beirut in 1403 were disasters for Western trade, and hence for silk. Although Venetians and Genoese resumed trading in silk when the incursions ended, they were forced to accept mediation from Muslim powers. As a result, they reduced their purchases in the Black Sea while concentrating their activities on the Syrian and Egyptian coasts.³¹

Once Genoese and Venetian merchants and sailors acquired silk it was carried back to their respective cities, and sold from there to principal European consumers, including those of Scandinavia,³² so the silk travelled by land as well as by sea. In Italy, the prelates of the church, princes, courtiers and wealthy burghers of the Po Valley, from as far as Milan and as far south as Apulia along the Adriatic coastline obtained their silks from merchants who had purchased them in Venice.³³ Cities and regions that lay on the other side of the peninsula, including Piedmont, gravitated towards silks of Genoa. Central Europe was supplied mainly by land from Venice. With occasional exceptions, it was not Venetians who carried their silk north, but German merchants who had been given permission to establish a factory in Venice.³⁴ Venetian merchants were to be found operating in Hungary in the fourteenth century, however, and sold silk imported from the Orient.³⁵

Genoese sold their silk directly in France, Flanders and England,³⁶ reaching these markets by land and by sea and carrying large supplies to ports of southern France, in particular.

The most common way for distributing European and Oriental products was through trade fairs. Europe was covered by a patchwork of markets and fairs, usually held in the autumn or at the end of winter. Varying in length and importance, some being international in character and others more localized, these fairs brought together widely separated merchants attracted by a variety of incentives and fiscal advantages. Many of these fairs gained such fame, through their variety and multiplicity of goods, that they attracted merchants from across the continent. To France's Champagne Fairs during the thirteenth and fourteenth centuries, Venetian and Genoese merchants thronged in large numbers, sailing in convoys protected by armed galleys and laden with

³¹ J. Heers, *op. cit.*, p. 149.

³² P. Boissonade, *op. cit.*, p. 168.

³³ G. Luzzatto, *op. cit.*, p. 77.

³⁴ A. Schaube, *op. cit.*, pp. 111-113.

³⁵ *Ibid.*, p. 544.

³⁶ *Ibid.*, p. 497.

Oriental spices and silks.³⁷ Goods sold at fairs found their ways into workshops and warehouses of the principal European cities, and from there to their eventual consumers. In this fashion, silk that had been produced, spun and woven in China found its way across Europe and into both great and lesser urban centres, wherever there were families whose means permitted them to purchase it and whose status required the symbolic adornment it provided.³⁸

From what we have said, it is clear that Chinese silk over the centuries played a part in expanding opportunities of employment and social change, thereby contributing directly to the process of economic, social and political expansion in Europe. It should be added that its indirect contribution was scarcely less important. Although first developed and established in China, silk became a European product and in time was to make the economic fortunes of a number of European countries, and, above all, of many Italian states.

As early as the tenth century, Scandinavians searching for refined Chinese silks had discovered in Byzantium, Kiev and elsewhere a more common silk known as "Bisanzio," which Greeks were using to make golden brocades.³⁹ If Procopius of Cesarea is to be believed, by the time of Justinian the Byzantine world had learned the secrets of silk production and was able not only to cultivate silkworms but also to produce silk fabrics and export them West. Over the following centuries, secrets of silk production spread rapidly to a number of European countries. After Byzantium, mulberries and silkworm cultivation spread initially to lands held by Arabs. Sicily was among the first regions to be involved because, as tradition has it, a number of Byzantine silk weavers sought refuge there. Other regions in which Arabs were responsible for the diffusion of silk production were Andalusia and the Kingdom of Granada.⁴⁰

In twelfth-century Sicily, Ruggero II not only protected and encouraged silk production; he built a royal silk factory in Palermo next to the royal palace. When Mezzogiorno was annexed to Sicily, silk production spread there as well.⁴¹ Such was the progress achieved in Sicily that, as Doren wrote: "The

³⁷ *Ibid.*, p. 501.

³⁸ According to Heyd (*op. cit.* p. 1247): "Golden brocades were sought for the tents and pavilions beneath which princes and knights met on days of feasting, for wall hangings in private chapels, for covering princely beds, as well as for flags and civic standards: on the days of civic processions, citizens decorated the streets by hanging decorated Saracen tapestries from their windows. Eastern silk which had once been jealously reserved for use in churches to decorate walls and altars, soon became the standard trapping of princely palaces, knightly castles and even the houses of wealthy burghers: princes, knights, city patricians, together with their wives and children appeared in public dressed in rich golden brocades that had formerly been worn only by priests for special religious ceremonies ..."

³⁹ Patzelt, *op. cit.*, p. 535. Sulla lavorazione della seta in Grecia nel Medioevo, A. Schaube, *op. cit.*, pp. 294, 330.

⁴⁰ J. Heyd, *op. cit.*, p. 1229.

⁴¹ A. Schaube, *op. cit.*, p. 52.

royal silk factory in Palermo and its wonderful products were celebrated in most marveled terms by Edrisi and Ugo Falcando".⁴² In the thirteenth century, Frederick II established a monopoly over silk production in each region of what is now southern Italy to encourage and protect the industry, and entrusted its management to the Jews of Trani.⁴³

During the fourteenth century, production of silk also spread north from Sicily and the Mezzogiorno, particularly to Lucca in Tuscany – although it is not clear from the sources whether the Luccan industry started at that time or had earlier grown out of ninth-century Luccan trade with ports of Syria.⁴⁴ During the fourteenth century, however, Luccan craftsmen set up workshops in other Tuscan cities,⁴⁵ like Arezzo, Siena and Florence and in more northerly cities like Genoa,⁴⁶ Bologna and Venice. Although Luccan craftsmen did not keep the secrets of spinning, weaving and dyeing silk to themselves, transmitting them freely wherever they went, those other cities did not follow production models established at Lucca. Instead they developed their own specialties. Venice, for example, became famous for its heavy brocades, while Lucca and Florence specialized in lighter silk fabrics,⁴⁷ and Genoa in velvets and gilded brocades.⁴⁸ At the end of the fifteenth century, as a result of encouragement by Aragonese rulers, the silk industry was also established in Naples, where the most famous product was to be its black silks.

The silk trade had already set in motion huge sums of capital and stimulated expansion of a variety of forms of employment stretching from workers in shipyards, makers of nails and timbers for shipbuilding and oar-making, sail makers, sailors and shipmasters to capitalists who financed voyages and insured against risks – not to mention all the porters, warehouse keepers and carters who loaded and unloaded vessels. As the silk industry continued to spread, creating new forms of employment directly related to production, it also expanded ancillary functions relating to selling and marketing. The process of producing silk did not end in the workshops, but continued in retail shops and workers' houses.⁴⁹

⁴² A. Doren, *Storia economica dell'Italia nel Medioevo*, (Padua: Cedam, 1937), p. 475; Schaubc, *op. cit.*, p. 569.

⁴³ A. Schaubc, *op. cit.*, p. 618; Doren, *op. cit.*, p. 475.

⁴⁴ A. Doren, *op. cit.*, p. 476.

⁴⁵ In the fourteenth century, silk was the principal economic activity in Lucca. C. Meek, *The Commune of Lucca Under Pisan Rule, 1342–1369*, (Cambridge, Mass.: The Medieval Academy of America, 1980), p. 60.

⁴⁶ On the introduction of the silk industry in Genoa, see J. Heers, *Genova nel Quattrocento*, (Milan: Jaca Book, 1984), p. 158.

⁴⁷ P. Boissonade, *op. cit.*, p. 296.

⁴⁸ J. Heers, *Genova nel Quattrocento*, pp. 159–160.

⁴⁹ *Ibid.*, p. 160.

As in the case of other textile industries, silk workers were gradually organized into guilds. Although created to deal with production problems of artisans in workshops, guilds soon began to play an important role in civic life, and their representatives – the Consuls of the Silk Guilds – exercised great influence in city politics.

Silkworkers' shops, whether engaged in spinning or weaving, also acted as schools where apprentices and journeymen acquired the rank of master only after years of training and passing practical tests of spinning or weaving, demanded by guild officials.⁵⁰ Once established as qualified master, the young silkworker could either go into partnership with another master or open his own workshop, providing the guild gave its consent. Nonetheless, in both northern and southern Italy, as its products became established and sought after, the silk industry quickly became a capitalist industry in the sense that production was organized and directed not by silkworkers but by merchants. It was the merchants who supplied craftsmen with capital in the form of raw materials and spinning wheels and looms needed for production, and who placed orders both in workshops and among domestic and rural spinners.⁵¹ Except in the case of weavers, the corporate structure of production thus gradually declined.

As a result, there were tens of thousands of individuals employed in spinning, weaving and dyeing silk in Genoa, Tuscany, Venice and Naples, not including the land and peasants engaged in cultivating mulberries and silkworms in many regions of the peninsula. It should also be said that many Italian states adopted varying forms of protective measures for their own industries. Venice banned the import of any type of woven silk, except for new types or designs which the native industry wanted to copy.⁵²

The great progress made by the silk industry in Italy meant that its products were widely in demand, and its greatest expansion occurred during the sixteenth and seventeenth centuries. Although less fine than Chinese silk, which continued to be imported mainly in raw or spun form to be woven on Italian looms, Italian silks were exported across Europe in large quantities. Most typical Italian products – velvets, brocades, damasks, light and heavy silks, gold and silver embroidered silk cloths – were widely in demand.

In the late seventeenth century, Italian silk cloth was highly valued and sought after at Cracow in Poland. From there, much of it found its way to fairs of other cities and towns in eastern and northern Europe.⁵³ Yet silks that

⁵⁰ A. Doren, *op. cit.*, p. 478.

⁵¹ J. Heers, *Genova nel Quattrocento*, pp. 160–161.

⁵² H. Scherer, "Storia del commercio di tutte le nazioni", in *Biblioteca dell'economista*, II° serie, vol. IV, (Turin: UTET, 1864), p. 293.

⁵³ A. Manikowski, *Il commercio italiano di tessuti di seta in Polonia nella seconda metà del XVII secolo*, (Varsavia: Università, 1982), p. 154.

reached Poland did not all come from Venice, Florence and Lucca – Mazzei has recently shown that Neapolitan silk was also exported there.⁵⁴ It is worth adding that Italian silk cloth was also exported back to the East; the Portuguese found quantities of damasks from Lucca at Calcutta.⁵⁵

The silk industry also spread to other European countries. As we have seen, Arabs had brought it to Spain. The industry did so well there⁵⁶ that, by the early seventeenth century, the Spanish were forced to adopt protective measures against Neapolitan competition.⁵⁷ The Spanish silk industry disappeared, however, in the general process of decline that overwhelmed the Spanish economy. In France, on the other hand, the silk industry had a different fate. From the early sixteenth century, after the decline of the Champagne Fairs, Lyons became a main centre for trade fairs in France and also the principal market for Italian merchants. As Gascon acknowledged, Lyons became “the port of entry for the silk cloths and raw silk and other luxury goods produced by the Italian cities, which accounted for two-thirds of all imports”.⁵⁸ In 1536, a silk guild was formed in Lyons and production there expanded gradually over the course of the century, giving the city’s silk industry supremacy over the French market. In the seventeenth century, it was ready to conquer European markets.

However, such success was creating its own bad news. A direct consequence of expanding silk production in Italy, France and Spain was that prices began to fall.⁵⁹ “The price of silk fabric,” noted Storch with reference to the seventeenth century, “had already been falling in previous centuries, not so much as a consequence of the increasing perfection of production but rather as result of the fact that raw material was becoming increasingly available in Europe.” France, which during the reign of Henry IV (1589–1610) produced virtually no raw silk, was by the end of the century producing between two and three million *libres* each year. At the same time, imports of raw silk from the East – China, Persia and India – had also increased markedly.⁶⁰

One of the factors that lay behind growth in silk production had been the almost silent, but widespread, adoption of a major technological innovation. The growing use of water-driven spinning machines had brought about a general transformation from manual to mechanical spinning. It is still not

⁵⁴ R. Mazzei, *Traffici e uomini di affari in Polonia nel Seicento*, (Milan: Angeli, 1983), p. 26.

⁵⁵ J. Heyd, *op. cit.*, p. 1261.

⁵⁶ A. Schaube, *op. cit.*, p. 395n; Kulischer, *op. cit.*, vol. I, p. 136.

⁵⁷ L. De Rosa, *I cambi esteri del Regno di Napoli dal 1591 al 1707*, (Naples: Banco di Napoli, 1955), pp. 61–62.

⁵⁸ R. Gascon, *La France du mouvement: les commerces et les villes*; P. Chaunu-R. Gascon, *Histoire économique et sociale*, vol. I (1450–1660), (Paris: P.U.F., 1977), p. 239.

⁵⁹ *Ibid.*

⁶⁰ E. Storch, “Corso di economica politica”, in *Biblioteca dell’economista*, Ia serie, vol. IV, Parte Ia, Libro IV, cap. XV, (Turin: Pomba, 1853), p. 266.

clear when water-powered spinning was introduced and by whom,⁶¹ but mechanical spinning was widely adopted in Tuscany in the seventeenth century and from there spread to Bologna and Venice.

Driven by a mill race, the hydraulic spinning mill performed three revolutions every minute and thereby greatly intensified production of spun silk, simultaneously reducing its cost.⁶² Even more important was the fact that utilization of water power caused the silk industry to move from cities into the countryside, creating supplementary employment for rural populations, and in particular for women. The much lower cost of this rural and female labour,⁶³ especially in the earlier stages of production – silkworm cultivation, and the reeling, throwing and spinning of raw silk – brought a bonus to the burgeoning industry's capitalists.

At the same time – unfortunately for Italians and especially for Venetians – they were increasingly obliged to abandon the final and most profitable phases of silk production because these were proving uncompetitively costly in the face of French competition.⁶⁴ Over the course of the seventeenth century, the silk industries of Naples, Genoa and Tuscany became weaker, while that of Venice turned more and more to the production of spun silk, which was exported unworked to France. The French industry meanwhile was producing great varieties of fabrics and designs, enabling it to gain command of European markets. Silk became France's leading export commodity.

At the start of the century, even England had become a principal customer of France's silk merchants, despite earlier efforts by Elizabeth I to establish a silkweaving industry in her realm.⁶⁵ By the close of the century, however, France was playing an unwitting part in establishing a British silk industry. In 1685, when Louis XIV revoked the Edict of Nantes of 1598, which had given French Huguenots a measure of religious freedom, approximately 400,000 of these Protestants were forced into exile. While many of them went to Holland and Germany, large numbers found their way to London, where eastern districts of the city, particularly Spitalfields, became the base for an important silk industry. The English government quickly freed itself of imports from France: in 1697, it banned all foreign silk imports; in 1700, the same prohibition was extended to Indian and Persian silks.⁶⁶

⁶¹ Cooper says it was adopted in the late thirteenth century, first in Lucca and then in Bologna; Lopez, *op. cit.*, p. 164.

⁶² Storch, *op. cit.*, p. 266.

⁶³ S. Ciriaco, "Lavoro a domicilio e sviluppo economico nelle campagne venete," *Quaderni Storici*, n. 52 (April, 1983), p. 66.

⁶⁴ C. Poni, "All'origine del sistema di fabbrica: tecnologia e organizzazione produttiva dei mulini da seta nell'Italia settentrionale (sec. XVII–XVIII)," *Rivista Storica Italiana*, 1976, p. 496.

⁶⁵ H. Scherer, *op. cit.*, p. 600.

⁶⁶ *Ibid.*

European silk prices continued to fall steadily as silk production rose. In 1801 it was calculated that, in relation to gold, the price of silk was 62 times less than it had been in the days of Ancient Rome.⁶⁷ This fall in prices, of course, served to increase consumption.

During the eighteenth century and the greater part of the nineteenth century, the silk industry went into steady decline in Spain as well as in other European countries. In Britain, it was gradually losing its position to a growing cotton industry. Yet in France it continued to flourish.

As France, and in particular Paris, became the centre of world fashion and luxury industries, the silk industry had ample opportunities for extending the range and type of its products. The general rise in Western European living standards that resulted from the Industrial Revolution also enabled the industry to increase capital investment and employment.

Although the silk industry gradually disappeared from southern and central regions of Italy, it survived into the mid-nineteenth century in Piedmont, Lombardy and the Veneto. Even there it was largely devoted to primary production, and only Lombardy continued to produce silk cloth.

This uneven process of development was seriously interrupted in 1854 when a previously unknown disease began to blight both silkworms and mulberry trees, causing massive damage especially in France.⁶⁸ Later in the

⁶⁷ G. B. Say, "Trattato di economia politica", in *Biblioteca dell'economista*, 1a serie, vol. VI, (Turin: Pomba, 1854), p. 242.

⁶⁸ L. De Lavergne, "Economia rurale della Francia," *Biblioteca dell'economista*, IIa serie, vol. II, (Turin: UTET, 1860), p. 101.

⁶⁹ These are the data: Total silk production in Europe and in Asia (including that of nondomestic silkworms):

	Kilograms
Italy	3,600,000
France	810,000
Austria	350,000
Turkey and Greece	150,000
Spain	90,000
Europe	5,000,000
China	9,300,000
Japan	3,300,000
Indochina	900,000
India	800,000
Central Asia	700,000
Asiatic Turkey	500,000
Persia	350,000
Caucasus	150,000
Asia	16,000,000
Total	21,000,000

Source: P. Pinchetti, *L'industria della seta sul finire del secolo XIX. Statistiche e note*, (Como: Cairol, 1894), pp. 1-2.

nineteenth century, the silk industry began to show new signs of expansion. This growth was particularly marked in Italy. Out of total European production of raw silk estimated at five million kilograms per year, 3.6 million came from Italy. Since world production was estimated at 21 million kilograms, Italy alone was producing one-seventh of the total and, therefore, more than Japan. In short, Italy was second largest silk producer in the world, after China, and the largest in Europe.⁶⁹

This late nineteenth-century recovery was due mainly to the replacement of diseased cocoons with new Japanese "green cocoons". By the end of the century, Italian silks were not only able to withstand French competition but in many sectors were superior in quality and intricacy of design as well as being much cheaper. Silk industries of Europe and North America then became increasingly dependent on Italy, which continued to work, not only its own raw silks but also those imported from China.

In 1890 in Italy, 5,246 towns and villages were engaged in silk production, and more than 600,000 people were employed in the cultivation of silkworms. There were 1,401 workshops engaged in silk reeling alone, using 48,956 steam vats and a further 5,632 fired vats and employing about 100,000 men, women and children. There were also 500 silk-twisting shops, with more than a million and a half spindles and about 50,000 workers. A further 17 workshops were engaged in carding and spinning waste, employing 34,000 more spindles and about 3,500 workers.⁷⁰

Increasingly concentrated around Milan and other northern cities, silk remained the most important industry in Italy. Silk served to stimulate not only agriculture and other forms of industrial production; it supported banking, trade, insurance and transportation.⁷¹ All this happened while European imports of raw silk from China maintained a constant level (between three and four million kilograms per annum). Although France had largely abandoned silkworm cultivation and the primary phases of reeling and twisting raw silk by the end of the century, and showed no sign of attempting to revive "silk cultivation to its former splendours," it still retained its supremacy in the final phases of production. "In the weaving of silk ... it was acknowledged ... France still occupies the first place among all the nations of the world."⁷²

Although we have spoken mainly of increases in the volume of production and in range of products, it should be remembered that the silk industry also shared in technological development that was taking place throughout industry, and especially in textile sectors. From the early nineteenth century the silk industry had begun to employ mechanical spinning mills and looms. Then it

⁷⁰ P. Pinchetti, *op. cit.*, pp. 22-23.

⁷¹ *Ibid.*, p. 13.

⁷² *Ibid.*, p. 28.

moved from waterpowered to steam-powered and finally to electric-powered machinery. Wide use was also made of innovations in the chemical industry, especially in dye stuffs, as well as of new printing and stamping techniques. In both Italy and France, this constant process of technological development had the result that production became increasingly centralized and that women replaced men in the work force. By the time of World War I, the technological revolution in silk production had been completed.

On the eve of that conflagration, Italy was no longer primarily an exporter of spun and raw silk for the finishing industries of France and North America. Its output of silk fabrics had increased to the extent that it exceeded the capacity of domestic production and required growing imports. Whereas in 1890 Italy had exported 14 tons of silk cloth, in 1916 the exports of woven silk amounted to 3,852 tons.⁷⁵ In barely 25 years the Italian silk industry had made giant steps forward, enabling it to contest France's now traditional primacy, despite the developments that had occurred in the same period in Germany and Switzerland.

Through the trade and manufacture of this commodity that originated in China, both Europe in general and Italy in particular had succeeded in creating major opportunities for investment and employment which brought material well-being to a number of different social classes, while serving to elevate the taste for refinement and beauty both in dress and in furnishings - a step forward, in other words, toward a more refined civilization.

⁷⁵ C.F.R.P.I., *L'industria serica italiana: declino o sviluppo?* (Milan, 1972), p. 43.

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