

Technological Typologies and Economic Organisation of Silk Workers in Italy, from the XIVth to the XVIIIth Centuries

Paola Massa Piergiovanni
University of Genova

Any study dealing with the organisation of labour and the silk industry in the middle ages and in modern times must start by taking into consideration two established economic facts: the first is that although important in the silk industry, technology did not require large financial investments; the second concerns the effectiveness of entrepreneurial control and the centralised system of supply of raw materials, considering the high costs of the latter, the long circulation of capital and the continued demand for silk on the international market.¹

These objective conditions, which were partly structural and inherent to the productive process (such as the role of technology) and partly conjunctural and dependent on the different circumstances in which the firms operated, combined with more subjective conditions in determining the way the industry was organised; although in general terms we are dealing with a traditional putting-out system, this does not mean that, in specific cases, and in different periods and in different areas of the country, there were not important variations and developments.

We should first point out that this type of labour organisation was in itself an asset for the silk industry, and was an important element in the process of expansion of the market which grew out of its local and

¹ The silk-working process under study regards the manufacture of raw silk (already prepared in skeins, that is in the condition it was normally imported from the East or from other exporting countries) in areas of textile production or in areas where the production of raw materials was — at least at the beginning — purely incidental. This does not mean that certain types of labour organisation connected to silk manufacture such as those to be found in Bologna and Sicily, were not without their own specificity.

restricted context and became international, involving increasing amounts of capital and a corresponding expansion in the scale of business. This justifies the use of the term "industrial" applied to a productive process carried out on a large scale in which the individual artisan was unable to organise production autonomously.

There was, however, an initial phase when a more limited demand was satisfied by centralised production in the workshops of independent artisans who were in direct contact with local markets. Unfortunately economic data about them are somewhat elusive; moreover, it is difficult to establish an acceptable and generalised chronological frame of reference.

Before the emergence of the merchant-entrepreneur, that is, of the person who was to become more commonly known as the *setaiolo* (*seaterius*), we must therefore consider the individual producers. Specialisation in the manufacture of fibres did not develop until later; thus at first the *filatores* spun wool, hemp and silk, (in Genoa, for example, this was still practised at the start of the fifteenth century); the *tinctoros* had differentiated tasks which derived more from the ingredients used in dyeing (woad, madder, indigo, etc.) than from the type of fibre under manufacture, while the *textores* are often mentioned in the lists of Italian town guilds without any qualitative indication of their production.

It is through the latter that we are best able to identify the specificity in manufacture which enables us to consider the group as truly representative of silk workers in later centuries. For example it is argued that in Lucca silk textile workers already operated in the eighth and ninth centuries; silk looms were being used in Palermo and in Catanzaro in the eleventh and twelfth centuries and in Bologna and in Genoa in the thirteenth century; individual artisans (and early forms of textile companies) also operated in Milan and in lower Piedmont during these centuries. These were, of course, only the most important centres in which production was organised outside the control of guilds and spread very quickly².

² The sources reveal that free and sometimes itinerant artisans were engaged in the

The case of Venice is particularly interesting. There, a silk weavers' guild, complete with its own charters, had been in existence since 1256, the members of which produced and sold silk on their own account. In 1347 they were joined by the *vellutai*, that is the silk velvet weavers. The setting up of the Genoese silk weavers' guild occurred in the same period.

Not only did silk weavers organise themselves into guilds much earlier than other silk workers (some of which were never to have guilds, as we shall see) but their organisation also preceded that of the silk merchants: being the first to operate on the markets, they were also the first to recognise the need to safeguard their own interests by uniting their forces.

The subsequent establishment of a more complex form of industrial organisation within the towns took place at different times according to different areas of silk manufacture in Italy, but, by the middle of the fourteenth century, influential associations of silk entrepreneurs had grown up in Florence, Bologna, Lucca, Milan and Venice, to mention only the most important³; the Genoese silk guild was set up at the beginning of the following century (1432); in the sixteenth century silk centres, *Universita' della seta*, existed in Naples, Catanzaro (1519), Siena (1531), Reggio Emilia (1546), Verona (1555) and Messina.

A more clearly marked division of labour became apparent in all these urban centres: merchants with a wide range of business contacts coordinated and linked up the activity of numerous urban artisans who continued to work in their own workshops or homes and with their own means of production. The list of the various stages in the manufacture of raw silk is repetitive but necessary: silk winding, spinning, dyeing, then a second phase of silk winding and weaving followed on from one another in a well-defined technical process.

production of luxury items in the middle ages to satisfy the demand from princely courts and churches which was quantitatively small but qualitatively significant.

³ In Florence the oldest charter of the silk guild dates back to 1335; in Bologna to 1372; in Lucca to 1376. The organisation of Milanese merchants developed a little later, while the *consules* of Venice were set up in 1350.

However it was only through the silk entrepreneur's coordination that the system achieved homogeneity and organisational interdependence, from the market of raw materials right through to the sale of the finished product.

Although this manufacturing process was based on the centrality of the merchant, labour became a factor of production whose influence on the overall cost must not be underestimated. While it is difficult to have figures for the medieval period, for modern times various sources show that labour costs accounted for a third, or more, of the cost of the finished product (30-35%)⁴, even considering the great variety of textiles and colours. This ratio is constant throughout the period under study since, as we have already seen, technological developments did not have significant influence on production costs⁵.

The overall percentage, however, ought to be broken down since in the silk production process the term labour covered different groups of workers each with their own technical specificity (and therefore with diversified earnings). These groups carried out manufacturing tasks of varied duration and — as we shall see — they held composite socio-economic positions in the urban centres where they worked. The complexity of the fragmented manufacturing process was reflected in the different forms of internal organisation and in the levels of autonomy which were by no means homogeneous.

In this context, the textile workers' role emerges yet again, owing to the importance and the duration of the tasks they carried out⁶, and to the share silk weaving had in relative costs (estimated at 22-26% of total production, and as much as 67% of labour costs). The average duration and costs of some of the manufacturing tasks carried out by

⁴ Nearly all the remaining part of the costs derived from the high unitary value of raw materials. In some Genoese manufactures, 2% was calculated for overheads.

⁵ Innovations, when they did occur, were still episodic and were far from having a generalised application. This was the case of the water-driven twisting mill which was introduced in Lucca in 1273 to reduce costs. The diffusion of the Bolognese silk mills, powered by water-driven wheels, was also slow and difficult.

⁶ The cord weavers, for example, only managed to produce 25-30 cms of fabric daily, according to the width of the piece.

the silk workers in Genoa in the middle of the sixteenth century are set out in the following table and are confirmed, on the whole, by partial data concerning Florence, Lucca and Milan (on the basis of 1 piece of fabric)⁷:

worker's category	time needed ⁸ to perform task	% share ⁹ of wage costs	
		out of total costs	out of labour costs
winders	45-60 days	4-4.5	12
spinners	15-30 days	3	8-9
dyers	7-15 days	3-4	9-10
warpers	—	1-1.5	3-4
weavers	80-90 days	22-26	67

It is no coincidence that the weavers were always the most bitter and most bellicose opponents of the entrepreneurs.

In examining the composite nature of silk labour in the old Italian states, one of the most important points concerns the bargaining power that each specialist group exercised vis-à-vis the merchants. Most *Universitates*, or silk guilds, in the various towns of the peninsula, were composed not only of merchants but also of artisans, divided into different categories, and of tool makers (combs, looms, etc.,) and sometimes the skilled workers involved in the manufacture of spun gold¹⁰. As has already been said, this was a system in which

⁷ Although subject to variations depending not only on the town but on the period, we may consider a piece of fabric on average to be 30 m. long.

⁸ These do not refer to an official number of days but to an average number which was influenced by the personal and professional relationship between the merchant and the artisan.

⁹ A notable exception to this general picture was the production of Bolognese veils, an appanage to the *Opera bianca*. In this connection, Carlo Poni notes that pleating was one of the most costly manufacturing processes, next to twisting (20% of total costs) and to the 30% of value added in weaving.

¹⁰ In Milan, for example, where in the fifteenth century the *Universitas mercatorum*

the guilds showed flexibility and broke away from the rigid formula master-apprentice-worker in order to make room for different specialisations. This form of association, which, apart from slight variations, was basically homogeneous, can be traced to Bologna, Florence and Lucca in the fourteenth century, to Milan, Genoa and Verona in the following century, and to Palermo, Naples and Reggio Emilia in the sixteenth century, to mention only the most renowned centres.

Relationships within these institutions, however, were never static or fossilised: there was continual conflict between the silk merchants and the other guilds.

Another aspect shared by all the silk centres was the fact that the economically more vulnerable crafts sought to organise themselves with the ultimate aim of becoming independent guilds. Although guilds alone could not guarantee real socio-political independence for a particular professional group, the existence of an association, albeit weak and subordinated to a stronger economic group, was seen to be more advantageous and to ensure greater bargaining power than mere technical specialisations without any organisation.

The continual increase in the demand for silk products, which was predictable although never certain, did not lessen the risks for the producers and this bore negatively on the relationship between capital and labour. Usually it was the weaker economic groups who were the worst affected: to begin with, the female winders who nearly always worked outside the town¹¹ were sometimes dependent on the same spinners, for whom no kind of guild existed in the period under study, and who continued to operate in a clearly subordinate condition.

For other groups of artisans, who were still dominated by the entrepreneurs, internal relations were much more complex.

The condition of the spinners, whom the silk merchants apparently wanted to turn into wage labourers, was by no means easy. In Genoa,

comprised all the gold and silk guilds, the silk, silver and gold merchants become self-governing in 1461; the gold manufacturers in 1558, and the gold-leaf beaters in 1688.

¹¹ In some centres, such as Florence and Venice, winding was done in convents.

for example, after the silk guild had carried out, in 1432, a stabilisation plan for all activities connected to silk working in the town (which was to last for about a century and a half), the spinners lost the traditional privileges granted to artisans. They defined themselves as masters, took on apprentices in their workshops, formed their own association, but until 1598 they had no charters nor consuls, even though they had begun to request the latter in the 1450s. In Milan, where the *Universitates* were particularly noted for the bitterness of internal conflicts, the situation was the same and was settled only in 1662. In Verona, where separate registrations were required for the various specialisations from the sixteenth century onwards, the spinners achieved autonomy in 1566. In other cities (like Venice and Florence, where they worked in the countryside and in Lucca where the silk industry had been mechanised since the fourteenth century and was carried out within the city-walls), they always had limited and highly compressed organisational autonomy. In Bologna itself, where spinning and silk throwing and twisting were long-established systems of manufacture and where there were mechanised workshops, the spinners only succeeded in becoming autonomous in the middle of the seventeenth century.

The work contracts for silk spinning were affected by the unbalanced relationship between entrepreneurs and artisans. Sometimes the spinner was a simple labourer who worked in the workshop owned by the *seaterius* and who received an annual wage, but more often than not he enjoyed a certain amount of autonomy and was paid according to what he produced, even though the work tools (and sometimes the premises) were owned by the silk entrepreneur who received a rent *in manufacturis*. The most advanced stage was that of the spinner who owned and managed the workshop and was paid on a piece-work basis. This kind of situation became increasingly common in Genoa in the sixteenth century when the ownership of the silk plants passed, in a fair number of cases, into the hands of the spinners¹².

¹² The economic condition of spinners in areas in which the whole cycle of production

The relationship between entrepreneurs and dyers was quite different. The craft of dyeing was long-established and the dyers enjoyed greater institutional autonomy which derived from a long-standing guild organisation.

In Lucca the silk dyers had their own charters in 1255; in Verona their charter dated from 1319 (although in Verona they also dyed wool), while in Venice and Milan they were granted customary rights, but they had no charters. In Genoa, although an independent guild of dyers had existed since the thirteenth century, specialised silk and indigo dye guilds (*Arte dei tintori d'endeghi e sete*) only began to appear at the end of the century¹³. Technological difficulties meant that dyeing was carried out exclusively in the towns and that control was exercised both by the dyers' guild and by the *setaioli*. In Genoa, however, the dyers had to defend their own specificity for a long time because the silk guild claimed that the process of dyeing was to be carried out directly *quando et quomodo ipsis seateriis placebat*.

However the prohibition against working for oneself (that is to manufacture semi-finished articles which had not been supplied by the entrepreneurs) was common to all groups and was a clear indication of the workers' subordinate condition, since it deprived them of any productive autonomy and strengthened the *setaioli's* control. Moreover, the fact that the latter were often owners of the tools and machinery increased the artisans' financial dependence on the merchants, which was already considerable on account of the system of payment: this took the form of periodical advances granted on a fairly regular basis and not always in strict correspondence to the amount of work performed, which placed the artisan in a situation of continuous indebtedness, further reducing his bargaining power¹⁴.

was carried out (often using imported raw materials) differed from that of spinners who operated in areas specialising in the preparatory phases of the silk cycle and in the exportation of spun silk, such as in parts of Friuli and lower Piedmont and in Sicily.

¹³ In the mid-sixteenth century they became known as *tinctores sete et tellarum*, but the reference is to silk velvet warping (*tella*).

¹⁴ Given this situation, fraud and theft was rife among silk workers (almost as a kind of compensation for the low wages, according to workers in Genoa) who sought clandestine work, producing ribbons, floss, silk etc., from remnants, despite its being forbidden.

Once again, the condition of the weavers and the greater complexity of their relationship with the holders of capital emerge. They were defined as "eternal rivals" in Milan, although the concept can be much more widely extended. Given that for these artisans some form of limited guild organisation already pre-existed or was achieved through workers' agitation¹⁵, (as was the case of the weavers in Venice, Florence, Lucca, Milan and Genoa), much of the more bitter conflict was over the question of wages and especially the right to work for oneself. Although the weavers were granted the monopoly to weave silk cloth (no guild members — not even the silk merchants — were allowed to keep silk looms in their homes or workshops¹⁶), they had to fight for the right to work for themselves and to sell the goods they produced. In Genoa, for example, they were granted this right provided they did not possess more than two looms and provided that only family members were engaged in the weaving, and that they did not take on wage labourers or apprentices¹⁷. In Venice, the weavers were granted the right to work for themselves in 1423, although initially they were restricted to using one loom only. In 1554, the restriction was relaxed to allow for two looms. In Lucca the right to work for oneself with one loom was obtained in 1531, following an uprising, while in Milan and Florence a much more rigorous entrepreneurial regime was in force which excluded such a possibility.

Until the end of the sixteenth century silk manufacture was essentially an urban activity, not only because it was carried out in big centres, some of which we have already referred to (this is not the

¹⁵ In Florence the weavers achieved a degree of autonomy between 1378 (the Ciompi uprising) and 1382 (the new oligarchical government), but generally speaking their independence was severely restricted. In Milan they came out of the merchants' guild in 1460; in Lucca they acquired a few rights in 1531 (the revolt of the weavers or "of the ragamuffins").

¹⁶ In the Genoese and Bolognese Charters there were no limits to the number of looms the weavers could operate on behalf of the merchants. In Venice, on the other hand, the number of looms which was unrestricted until 1460, was thence limited to six, although the number was increased to twelve in 1503. In 1559 the number was fixed at twenty to twenty-five looms.

¹⁷ However those wishing to exercise this right had to pay a special tax and to take the name of "weavers ascribed *seaterii* (producers) for two looms".

place to provide an exhaustive list), but also because production in these centres was not always exclusively directed at the international market (such is the case of Racconigi, Moncalieri, Siena, Pavia and several Venetian centres); contacts with the rural world were limited to the early phases of raw material processing.

This locational factor caused difficulties for the use of female labour which had been traditionally shunned by most guilds. Therefore women were only employed in manufacturing tasks which were performed outside the town (like silk throwing) or in particular sectors (for example warping) which were either based in the town centres but which were not protected by any form of group organisation, or — as we shall see — were based in the countryside, as in the seventeenth and eighteenth centuries when several manufacturing groups abandoned towns and guilds in order to carry out domestic activity (like the Genoese velvet weavers).

In previous centuries there had been exceptions to this general rule. In Racconigi in the fifteenth century where there were few guild restrictions, female labour was employed in weaving velvet and ribbons. In Lucca, where there was no weavers' guild, the weavers were often helped by their wives and children. A very special case was that of the "silk industrial district" in Bologna where, as early as the sixteenth century, female labour was used in weaving, with women working looms, although they were forbidden to open workshops. In these cases, it appears that the guilds wanted to relax the prohibition to carry on production outside the city walls by allowing members of weavers' families to work. It was not until the second half of the seventeenth century, however, that there was a formal admission of the women's *Opera tinta* to the silk weavers' guild; the fact that within a short time the number of women registered with the guild exceeded that of the men has been rightly explained by Carlo Poni as a "loss of autonomy and authority on the part of the guild masters."

It is difficult to quantify exactly the importance of silk workers in the main Italian urban centres. Nonetheless, as Ruggero Romano writes, the fact that the figures were often exaggerated, albeit for rhetorical purposes, shows how important silk production was in

these towns. Certain expressions eulogising the silk industry which were used by the governing authorities of the towns should be viewed in the same way (for example, the silk guild in Genoa in the sixteenth century was defined by the Doge and the Elders as "the right eye ... and the soul of our city").

It is useful, nonetheless, to examine some of the figures, which were nearly all recorded by contemporary analysts, as indicative of a general development trend for the whole of the sixteenth century. About twelve thousand people were said to be involved in silk manufacture in Lucca at the beginning of the century; in Milan and Bologna in the same period almost 42% of the population were recorded as silk workers, while in Genoa and Naples around the mid-sixteenth century, this figure was about 60% (that is, on average, 35,000 people).

Beyond the politico-institutional importance of silk guilds (which varied according to the state), the figures show that silk workers were potentially important actors in political life. The disruptive force of spinners and weavers was, in fact, often manipulated: their discontent was often exploited by the merchants and capitalists, as we have already mentioned¹⁸.

At the same time it is symptomatic that city governments were concerned to intervene on behalf of silk workers in particular times of distress through a strategy of social management of the crisis, whether this had been caused by an event of *force majeure* (such as a pestilence) or by a negative phase of the industry's growth cycle.

In the Republic of Genoa such crises occurred at least twice within the space of a hundred years, as a result of two plague outbreaks.

In 1579-80 the Genoese Senate intervened by merely supporting and facilitating all the measures drawn up by the silk guild which organised a centre of purgation (*purgatione*) at its own expense, both

¹⁸ In Genoa, for example, in 1575 the *Nobili Nuovi* exploited for their own ends the weavers' discontent who demanded (and obtained) an increase in wages, which had not risen since 1432. For examples regarding Florence and Lucca, see note 14.

for the raw materials to be distributed among the workers and for the cloths to be exported, with the Genoese government undertaking to obtain "...free passage ... from the neighbouring states ... for the crates of velvet." At the same time laboratories were set up in which silks were manufactured by qualified workers, under surveillance; the poverty of the artisans was such that they accepted the risk of being contaminated rather than stop working altogether.

Almost eight years later, in 1656-57, again during a catastrophic outbreak of plague, the government directly intervened since "thousands of silk workers" were deprived of means of subsistence. It opted for setting up what was virtually a state-run enterprise rather than pay out subsidies to the unemployed. With a capital of two hundred silver escudoes (equal to half the value of silk exports before the plague), for more than a year the "Deputation for the Relief of Silk Workers" organised, despite some difficulty, the production of silk cloths and other articles for the international market.

A few decades earlier (1621), the Grand Duke of Tuscany had taken similar action: at a time of widespread unemployment, he obtained forty thousand escudos from the *Monte di Pietà* in Florence on behalf of the silk guild in order to keep two hundred looms working and to give employment to eight hundred people "among the most rowdy and most needy" of the population. In Bologna, at the end of the eighteenth century, a series of measures was adopted to support enterprise with incentives to production and to encourage artisans to retire from work.

Already in the thirteenth century, the Bologna city council had carried out an interesting "policy of economic development" (the definition is Carlo Cipolla's) to promote textile manufacture in the city, including silk manufacture, and to attract artisans through concessions and privileges.

If such an attempt appears remarkable, considering the period we are dealing with (1213), the size of the investment and the fact that the operation was repeated in 1385, we should not forget that in actual fact it is only one early example of a policy directed at

highly-skilled labour which has been practised in the main Italian silk manufacturing towns for centuries.

The expansion of business and the diffusion of technology in the silk sector came about through the migration of workers, as had occurred in nearly all the other manufacturing sectors of pre-industrial Europe. There may have been various concomitant causes for such migration (wars, famine, excessive taxation, political conflicts, etc.). Nonetheless, while governments were perfectly aware that the emigration of skilled labour could have serious economic consequences in their own states (*Nemo portet artem extra* decrees were widely enforced)¹⁹, they did not hesitate to pursue a deliberate policy to attract artisans.

Within the silk industry, weavers were especially sought after, since their work gave the semi-finished article its highest value added. This is not the place to try and list all the examples quoted in contemporary research on the subject, but we ought just to mention the diaspora of weavers from Lucca which benefited practically all the other silk-manufacturing centres in Italy, and the highly favourable conditions offered to the Genoese velvet weavers (by Pisa, Siena, Mantua, Ferrara, Vicenza, Trento and Reggio Emilia), often with positive results.

In some cases, labour emigration brought about, or helped to bring about, the consolidation of important long-standing practices in production which began to compete with one another. In other cases, it simply led to the exportation and the piecemeal diffusion of productive techniques in smaller centres for which autonomous production had merely the psychological function of vindicating a position of commercial subordination. Such a phenomenon was evident from the thirteenth to the eighteenth centuries, but it was not just restricted to Italy. While Italian textile labour widely contributed to the growth and fortunes of French manufactures, the

¹⁹ Throughout Italy, emigration, the exportation of tools and the revelation of trade secrets were forbidden (to little effect) and punishable as an act of treason by death and the confiscation of property.

contribution of Italian silk workers to silk manufacturing in other countries of central Europe was likewise important.

The high technical skill of Italian silk workers led to the prestige of Italian products on the international market but it was also a safeguard for traditional quality.

In this connection, an episode regarding Genoa is revealing. At the beginning of the eighteenth century, when the supremacy of the more fashionable and diversified French manufactures was already established, the Ligurian silk industry, which had been greatly reduced in scale, was still very active in the specialised sector of plain smooth velvets, and, to a lesser degree, in the production of damasks, which were mostly exported to France. In this context, a case of virtual «industrial espionage» occurred involving an envoy who was sent out to Liguria from Lyons (around 1735) specifically to try and find out more about technical processes and to thereby free the domestic market from its very heavy dependence on Italy²⁰. Not only did the French emissary deem it indispensable to procure “des outils de toutes les façons” to send to Lyons, but his report contains a detailed comparison of the silk workers’ manufacturing systems in the two countries with a plethora of technical details which were perhaps incomprehensible “aux personnes qui ne seront pas parfaitement connoisseuses, mais non aux ouvriers”. But why was it that textiles manufactured in France, with the same raw materials (Piedmontese organzine and silk for weaving from other Italian regions) and roughly the same techniques as those used in Italy, were markedly inferior to Italian silks? The reasons were to be found firstly in the quality of the colours, secondly in the more highly specialised procedures in weaving techniques²¹, thirdly, and

²⁰ His task was clearly defined: “examiner les fabriques de Damas et de Velours, pour pouvoir connoître ce qui a empêché jusques à présent, quelques efforts que l’on ait fait, de fabriquer a Lyon des étoffes de même qualité”.

²¹ The different way of *entaquer* the piece to allow for the smooth performing of work; the greater number of heddles which increased by at least a third the amount of work necessary, but which improved the quality of the final product; the superior technique in removing nap; finally the more efficient way of finishing the cloth.

particularly important, in the exceptional skills of the Genoese silk workers in the choice of raw silks and in their diversified uses²².

This episode occurred at a time when the favourable industrial and commercial situation led workers to fight for better forms of organisation, while still accepting old-established productive processes. Towards the end of the modern era this situation changed considerably.

As we have seen, for a long period (from the thirteenth to the seventeenth centuries) production in most Italian silk-manufacturing regions was based on an integrated manufacturing cycle, beginning with the cultivation of mulberries or, in any case, with raw silk through to the production of the finished article. Afterwards, however, the cycle was broken up: the most important centres of weaving grew up in France while Italy produced mostly for the market in raw and twisted silks.

This tendency was particularly marked in Lombardy, Piedmont, the Veneto, and some parts of Tuscany where the production of finished articles lost its importance following the decision to concentrate on the preparatory phases of producing spun silk; by the end of the eighteenth century more than 95% of European raw or twisted silk requirements was produced in Italy. These were the articles — together with the dyed silks produced mainly in Verona — on which the aforementioned Italian regions depended for their trade balances.

Eventually, the crisis that overcame the traditional productive urban poles and the concomitant decline of the guilds brought to an end an era in which, according to Ruggero Romano “the whole of Italy appeared to be under the banner of a silk culture”.

Henceforth, the destinies of silk workers varied. Silk spinning flourished with the development of new techniques and the centralisation of manufacture in large operating units. The dyers mainly went over to more promising sectors and operated in areas

²² “... trouver l’art d’assortir les soyes de manière qu’elles y produisent le même effet ... qu’à Gènes...”

(such as Como) which were more responsive to new colouring agents and new technologies. Weaving survived as a craft only in a small number of specialised sectors, with weavers seeking to adapt to the new conditions in demand and to markets with new and diversified outlets.

In Milan, Venice, Florence and Piedmont (not just in Turin but in centres such as Mondovi and Racconigi)²³, the weavers acquired a reputation for traditional manufactures which had been the hallmark of old-established town guilds. Yet at the same time, despite government aid, the number of looms and workers declined. Weaving was partly carried on in the Lucca area; in the Kingdom of Naples, silk workers were the object of a policy halfway between benevolence and patronage and operated under royal protection in the San Leucio colony. In Catanzaro, the only centre on the Kingdom's mainland which had been authorised to operate a complete productive cycle in the previous centuries, silk weaving was also in serious difficulty.

In Como, Bologna and Genoa, specific characteristics enabled textile workers to survive the crisis more effectively.

In Como, the production system had partly evolved from the traditional domestic system with the creation of a more efficient and more modern operational structure: the "manufacturers", in contact with the local market but relying on intermediaries for contacts with the international market, had direct control over the dyeing of spun silk which they supplied to the so-called "headweavers"; the latter, often owners of several looms and possessing highly specialised technical knowledge, in turn employed workers who were not always highly skilled to work in monofunctional workshops (often ex-convents). In this way there were fewer changes of hand, the costs

²³ In the Ala Vicariate, for example, in the seventeenth century, a complete production process was organised for silk velvets with small groups of workers from outside the towns connected to single enterprises. The industry, which seems to have been started by emigrant Genoese weavers, developed over more than a century without there being any movement for autonomous sectoral organisation. The velvet workers' guild was set up in 1765.

of semi-finished articles were reduced and production — free from guild restrictions — was varied and competitive.

In the Bologna "silk district", a mixed system of production carried out in homes, workshops and factories had existed since the seventeenth century, even though, as we have already pointed out, a very high level of mechanisation had been reached as early as the fifteenth century especially in the workshops for spinning and twisting silk where dozens of workers were gathered together. Productive specialisation was another reason for the successful growth of the industry. At the end of the seventeenth century, the veils of Bologna's *Opera Bianca* enjoyed a position of virtual monopoly in the international market, and while they had to compete with other producers in the following century, they continued to be competitive, partly through agreements among manufacturers and also by taking on women and children as workers in order to reduce costs. The *Opera tinta* was less fortunate. Producing organzine and cloths in the eighteenth century, as Carlo Poni points out, "it failed both to carve out for itself a niche which was safe from competition with Lyons (as Genoa did with its velvets) and to keep abreast of the annual change in fashions from Lyons with perfect imitation textiles (like Venice)." Thus, even the raw silk produced in the countryside around Bologna began to be exported to other areas.

At the same time, until the definitive crisis of the Napoleonic period, the merchants who, at a juridic level, had always opposed any claims to autonomy put forward by the artisans, now carried out a commercial counter-offensive, buying up or renting silk and dye mills, organising "factories" with scores of looms, "transforming artisans and foremen into salary and wage earners."

For Genoa, as for Bologna, the deindustrialisation of the sector coincided with the Industrial Revolution but, contrary to the situation in the other Italian centres, textile workers had emigrated from the town to the countryside (Riviera di Levante being the case in point) since the seventeenth century, and had secured themselves a highly specialised share of the market.

The phenomenon was unusual and widespread: in the

seventeenth century it involved more than two thousand looms while a 1772 census carried out by the silk guild recorded as many as four thousand five hundred looms working at full rhythm outside the city. Formally, moreover, in the mid-eighteenth century, the ratio between textile labour and industrialists was still the same as it had been in previous decades: artisans still worked for Genoese silk merchants and for the foreign market where demand had started to increase again. Exports consisted solely of damasks and velvets, the latter being all smooth and 90% black.

It was only during the nineteenth century that the social characteristics of labour changed in Liguria. The weavers' detachment from guilds was formalised with the abolition of guilds and with the explicit declaration that "manufacturing is common to men and women alike".

According to a mid-nineteenth century estimate, more than a thousand looms were still in use in Riviera di Levante, even though historians consider the machinery of Liguria to be the most backward of all the Italian regions. The high specialisation in weaving velvets (acknowledged by entrepreneurs in Piedmont and Lombardy) continued and provided additional income to those who for centuries had been used to processing imported raw materials. These workers, who defined themselves as "peasants by birth, velvet weavers by profession", were indifferent to the fact that most of the entrepreneurs and capitalists for whom they were now working were Piedmontese and that the semi-finished articles (dyed and spun) they manufactured came exclusively from beyond the Appenines.

Towards the end of the century, the 1870-74 Industrial Inquiry revealed once again the technological backwardness of the equipment used by silk workers in many areas of the country. There were naturally exceptions, like the areas around Como and Lecco, where spinning had reached the level of "factory production" for many decades. After mechanised spinning and twisting mills came mechanised looms. However, with industrialisation, artisans, once paid "by the piece", were turned into a class of wage earners, in which

women and children played an increasingly important role. But this is a subject for others to investigate.

REFERENCES

- M.V. Ballestrero - R. Levrero, *Genocidio perfetto. Industrializzazione e forza lavoro nel lecchese (1840-1870)*, Milano 1979.
- L. Bianchi, *L'Arte della seta in Siena nei secoli XV e XVI*, Siena 1881.
- M. Belfanti, "Dalla città alla campagna: industrie tessili a Mantova tra carestie ed epidemie (1550-1630)", in *Critica Storica*, 1988, n. 4.
- L. Brenni, *La tessitura serica attraverso i secoli*, Como 1925.
- L. Brenni, *I velluti di seta italiani*, Milano 1927.
- R. Broglio D'Ajano, "L'industria della seta a Venezia", in *Storia dell'economia italiana*, a cura di C.M. Cipolla, vol. I, Torino 1959.
- L. Bulferetti, *Agricoltura, industria e commercio in Piemonte nel secolo XVIII*, Torino 1963.
- M. Bussagli, *La seta in Italia*, Roma 1986.
- B. Caizzi, *Industria e commercio della Repubblica veneta nel XVIII secolo*, Milano 1965.
- B. Caizzi, *Storia del setificio comasco. L'economia*, Como 1957.
- B. Caizzi, *Storia dell'industria italiana dal XVIII secolo ai giorni nostri*, Torino 1965.
- N. Campanini, *Ars Stricea Regii*, Reggio Emilia 1988.
- Capitoli, Ordinamenti e Statuti dell'Arte della seta in Catanzaro*, Catanzaro 1959.
- P. Chierici, "Una città della seta: industrializzazione e trasformazioni urbane in Racconigi tra Sei e Settecento", in *"Storia Umana"*, 1982.
- C.M. Cipolla, "Il declino economico dell'Italia", in *Storia dell'economia italiana*, vol. I, Torino 1959.
- C.M. Cipolla, *Storia economica dell'Europa preindustriale*, Bologna 1990 (4° ed.,).
- R. Comba, *Contadini, signori e mercanti nel Piemonte medievale*, Roma-Bari 1988.
- G. Coniglio, *Agricoltura e artigianato mantovano nel secolo XVI*, in *Studi in onore di A. Fanfani* vol. IV, Milano 1962.
- A. Cova, "L'alternativa manifatturiera", in *Il difficile equilibrio agricolo-manifatturiero (1750-1814); Annali dell'economia comasca*, vol. I., *Da un sistema agricolo a un sistema industriale*, a cura di S. Zaninelli, Como 1987.
- L. Dal Pane, *Storia del lavoro in Italia degli inizi del secolo XVIII al 1815*, Milano 1958.
- A. De Maddalena, "L'industria tessile a Mantova nel '500 e all'inizio del '600. Prime indagini", in *Studi in onore di A. Fanfani*, vol. IV, Milano 1982.
- L. De Rosa, *Orientamenti e problemi in Storia economica*, Torino 1991.
- C. Dorini, *L'Arte della seta in Toscana*, Firenze 1928.

- Economia, istituzioni, cultura in Lombardia nell'età teresiana*, vol. I., *Economia e società*, Bologna 1982.
- F. Edler De Roover, "Andrea Banchi, Florentine Silk Manufacturer and Merchant in the Fifteenth Century", in *Studies in Medieval and Renaissance History*, 1966.
- F. Edler De Roover, "Lucchese Silks", in *Ciba Review*, 1950.
- A. Fanfani, *Storia del lavoro in Italia. Dalla fine del secolo XV agli inizi del XVIII*, Milano 1959.
- G. Federico, "Per una storia dell'industria serica italiana", in *Annali di Storia dell'impresa*, 1988, n. 4.
- G. Felloni, "Crisi economica ed intervento pubblico a Genova: la Deputazione per il sollievo dei manifatturieri (1656-1676)", in *Atti del Seminario La Finanza Pubblica in età di crisi*, Bari, Cacucci 1993.
- G. Gargioli, *L'Arte della seta in Firenze*, Firenze 1868.
- C. Ghiara, "Famiglie e carriere artigiane: il caso dei filatori di seta", in *Quaderni del Centro di Studio sulla Storia della Tecnica del C.N.R. presso l'Università di Genova*, 1991, n. 17.
- C. Ghiara, "L'arte tintoria a Genova tra XV e XVIII secolo", in *Quaderni Storici*, 1983, n. 49.
- A.M. Girelli, *Il setificio veronese nel Settecento*, Milano 1969.
- F. Giusberti, *Impresa e Avventura. L'industria del velo di seta a Bologna nel XVIII secolo*, Milano 1989.
- A. Guenzi, *La tessitura femminile fra città e campagna (Bologna secoli XVII-XVIII)*, Bologna 1988.
- H. Kellenbenz, "Industries rurales en Occident de la fin du Moyen Age au XVIII siècle", in *Annales E.S.C.*, 1963, n. 5.
- H. Kellenbenz, "L'organizzazione della produzione industriale" in *Storia economica Cambridge*, vol. V, *Economia e società in Europa nell'età moderna*, a cura di E.E. Rich e Ch. Wilson, Torino 1978.
- J. Kulischer, *Storia economica del medioevo e dell'epoca moderna*, 2 voll., Firenze 1955.
- L'Arte e l'industria della seta a Reggio Emilia dal secolo XVI al XIX*, Reggio Emilia 1966.
- La manifattura serica in Toscana tra '700 e '800. Il recupero dell'Archivio della "Gran filanda" Scoti di Pescia*, Pisa 1990.
- S. Laudani, *Dai mangani alle filande. Trasformazioni produttive e modificazioni culturali in Sicilia (XVIII-XIX secolo)*, Catania 1991.
- Le corporazioni nella realtà economica e sociale dell'Italia nei secoli dell'Età moderna*, a cura di G. Borelli, Verona 1991.
- M. Lecce, *Vicende dell'industria della lana e della seta a Verona dalle origini al XVI secolo*, Verona 1955.
- Lucca e l'Europa degli affari secoli XV-XVII*, a cura di T. Fanfani e R. Mazzei, Lucca 1990.

- G. Luzzatto, *Storia economica d'Italia. Il Medioevo*, Firenze 1963.
- P. Malanima, *La decadenza di un'economia cittadina. L'industria di Firenze nei secoli XVI-XVIII*, Bologna 1982.
- P. Malanima, *Il lusso dei contadini. Consumi e industrie nelle campagne toscane del Sei e Settecento*, Bologna 1990.
- A. Manikowski, *Il commercio italiano dei tessuti di seta in Polonia nella seconda metà del XVII secolo*, Varsavia 1983.
- P. Massa, "Conseguenze socioeconomiche dei mutamenti di struttura nella tessitura serica ligure (secoli XVI-XIX)", in *Studi in memoria di Mario Abrate*, Torino 1986.
- P. Massa, "I coloranti del Nuovo Mondo e l'industria tessile europea: tra economia e tecnica", in *1492-1992 Animali e piante dalle Americhe all'Europa*, Genova 1992.
- P. Massa, *L'Arte genovese della seta nella normativa del XV e del XVI secolo*, Genova 1970.
- P. Massa, *La 'fabbrica' dei velluti genovesi. Da Genova a Zoagli*, Milano 1981.
- P. Massa, "La liquidazione della 'volta da seta' di Bartolomeo di San Michele: aspetti tecnici ed economici", in *Atti della Società Ligure di Storia Patria*, Genova 1979.
- P. Massa, "La Repubblica di Genova e la crisi dell'ordinamento corporativo: due redazioni settecentesche degli Statuti dell'Arte della seta", in *Atti della Società Ligure di Storia Patria*, Genova 1982.
- P. Massa, "Tipologia industriale e modelli organizzativi: la Liguria in età moderna", in *L'impresa. Industria, Commercio, Banca. Secoli XIII-XVIII*, a cura di S. Cavaciocchi, Firenze 1991.
- P. Massa, *Un'impresa serica genovese della prima metà del Cinquecento*, Milano 1974.
- R. Mazzei, *Pisa medicea. L'economia cittadina da Ferdinando I a Cosimo II*, Firenze 1990.
- M. Montanari, *Il più antico Statuto dell'Arte della seta bolognese*, Bologna 1961.
- R. Morelli, *La seta fiorentina nel Cinquecento*, Milano 1978.
- I. Pastori Bassetto, *Crescita e declino di un'area di frontiera. Sete e mercanti ad Ala nel XVII e XVIII secolo*, Milano 1986.
- C. Poni, "All'origine del sistema di fabbrica: tecnologia e organizzazione produttiva dei mulini da seta nell'Italia settentrionale (secoli XVII e XVIII)", in *Rivista Storica Italiana*, 1976, fasc. III.
- C. Poni, "Archéologie de la fabrique: la diffusion des moulins à soie "alla bolognese" dans les Etats vénitiens du XVI au XVIII siècle", in *Annales E.S.C.*, 1972 nn. 4-5.
- C. Poni, "Misura contro misura: come il filo di seta divenne sottile e rotondo", in *Quaderni Storici*, 1990, n. 47.
- C. Poni, "Per la storia del distretto industriale serico di Bologna (secoli XVI-XIX)", in *Quaderni Storici*, 1990, n. 73.
- D. Roche, *La culture des apparences. Une histoire du vêtement, XVII-XVIII siècles*, Paris 1989.
- R. Romano, *Borghesia industriale in ascesa. Gli imprenditori tessili nell'inchiesta industriale del 1870-74*, Milano 1977.

- R. Romano, "La storia economica. Dal secolo XIV al Settecento", in *Storia d'Italia*, vol. II, *Dalla caduta dell'Impero romano al sec. XVIII*, tomo 2, Torino 1974.
- R. Romano, *Tra due crisi: l'Italia nel Rinascimento*, Torino 1963.
- D. Sella, *L'economia lombarda durante la dominazione spagnola*, Bologna 1982.
- D. Sella, "Le industrie (1500-1700)", in *Storia economica d'Europa*, a cura di C.M. Cipolla, vol. II, *I secoli XVI e XVII*, Torino 1979.
- G. Sivori, "Il tramonto dell'industria serica genovese", in *Rivista Storica Italiana*, 1972, fasc. IV.
- M. Tazartes, "Osservazioni sulle Arti e corporazioni a Lucca nel XIV secolo", in *Actum Luce*, 1982.
- Tecnica e società nell'Italia dei secoli XII-XVI*, Pistoia 1987.
- Torino sul filo della seta*, a cura di G. Bracco, Torino 1992.
- Venezia e la Terraferma attraverso le Relazioni dei Rettori*, Atti del Convegno, Milano 1981.
- E. Verga, "Il Comune di Milano e l'Arte della seta dal secolo decimoquinto al decimottavo", in *Annuario Storico-Statistico del Comune di Milano*, 1917.
- E. Verga, "Le corporazioni delle industrie tessili in Milano, loro rapporti e conflitti nei secoli XVI—XVIII", in *Archivio Storico Lombardo*, 1903.
- G. Zacché, "L'introduzione del filatoio 'alla bolognese' nella città di Mantova (secoli XVI-XVII)", in *Mantova e i Gonzaga nella civiltà del Rinascimento*, Mantova 1987.
- G. Zalin, *Dalla bottega alla fabbrica. La fenomenologia industriale nelle province venete tra '500 e '600*, Verona 1987.
- G. Zalin, "La tradizione e l'innovazione. Setificio e cotonificio in Friuli dalla dominazione veneta al secondo conflitto mondiale", in *Nuova Rivista Storica*, 1986, fasc. V-VI.
- A. Zanon, *L'Arte della seta*, a cura di R. Molesti, Pisa 1986.