
PROBLEMS

Silk Manufacturing in France and Italy in the XVIIth Century: Two Models Compared

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The XVIIth century closed in France with the crisis of the Lyons silk *fabrique* and of the other two major silk manufacturing towns in the Kingdom, Tours and Nîmes. Henry IV had not overlooked the silk industry when drawing up his economic policies, and it was considered to have a vital role in the economic recovery of France. The production of raw silk was seen as the *sine qua non* for the successful development of the industry, since only this would free it from dependence on costly Italian silk yarns and make its prices competitive. Such views were supported by the agronomist Oliver de Serres and especially by Laffemas who was 'a true monomaniac for mulberries'.¹

Although Sully had repeatedly warned that the climate was unsuitable and that the mulberries would draw sections of the rural population away from more essential tasks, the plan was implemented and was generally a failure. Some

* This paper results from a period of research and participation in various seminars at the *Ecole des Hautes Etudes en Sciences Sociales* in Paris. It would be impossible to mention individually all those who gave me useful advice and suggestions — and there would in any case be a too obvious disproportion between their number and scholarly standing, on one hand, and the nature of my own findings on the other. But I must thank first of all M. Fernand Braudel, whose generous financial assistance enabled me to consult the Lyons' sources: M. Richard Gascon for his quite irreplaceable assistance in using these sources; and Maurice Aymard, for the friendly encouragement and assistance which he has always extended to me.

¹ E. LE ROY LADURIE, *Les paysans de Languedoc*, Paris, Sevpen, 1966, I, p. 439; B. DE LAFFEMAS, *Preuve du plant et profit des meuriers, pour les parroisses des généralités de Paris, Orléans, Tours, et Lyon, pour l'année 1603*, Paris Pautonnier, 1603, pp. 5-7.

140,000 livres were invested in purchasing mulberries and silk-worm eggs, and contracts were made with entrepreneurs who were commissioned to distribute the plants and eggs throughout the Kingdom.² Mulberry cultivation was taken up with great enthusiasm in Touraine,³ but it is well known that the experiments carried out in the Tuileries (!), in Normandy, Brittany, Gâtinais, Chartrain and Blésois led to 'a fiasco, paid for mainly by the tax-payers'.⁴ In fact, with the exceptions of Touraine and Lyons' the real development of silk production in the XVIIth century occurred almost exclusively in the South, in the climatic area which was suited to the silk-worm.⁵ But this development was still limited, even though the silk produced in the South was worth some one million livres Tournois at the end of Henry IV's reign. But the expansion in production was nowhere near keeping step with the growth in consumption of silk cloth, nor was it adequate to reduce the imports of raw silk from abroad (Italy and the Levant). At the same time it did maintain a certain impetus and made it possible to 'overcome without too much difficulty the peak of the XVIIth century inflation in the years following 1660'.

The energetic Henry IV also stimulated the silk industry. Everywhere, from Montpellier⁶ to Rheims, from Orange to Paris, the numbers of silk looms began to increase. In Paris at the close of the XVIth century Godefroy had

² G. FAGNIEZ, *L'économie sociale de la France sous Henri IV, 1589-1610*, Paris, Hachette, 1897, pp. 132-33; P. BOISSONADE, *Le socialisme d'état. L'industrie et les classes sociales en France pendant les deux premiers siècles de l'ère moderne (1453-1661)*, Paris, H. Champion, 1927, pp. 244-45; D. BUISSERET, *Sully and the growth of the centralized government in France, 1598-1610*, London, Eyre & Spottiswood, 1968, pp. 170-72.

³ G. COLLON, *La soierie en Touraine du XV^e au XX^e siècle*, Tours, Arrault, 1933, pp. 5-6; A. M. DE BOISLISLE, *Correspondance des controleurs-généraux de finances avec les intendants des provinces, 1683-1699*, Paris, Impr. Nat., 1874, I, 30 April, 1-14 May 1693, p. 319. The King was persuaded to start mulberry cultivation in the park at Plessis-lès-Tours. It was managed by the Taschereau des Pictières family, who were able to make considerable progress. In 1693 there were 800,000 plants in the pepinière, and in 1730 it received the title *Manufacture Royale du Tirage des Soies* (silk was also spun on the estate).

⁴ LE ROY LADURIE, *op. cit.*, p. 439. Authors like Fagniez and Boissonade emphasised the lack of support for such measures from the clergy, major landowners in the Kingdom, and from the nobility and direct farmers. This is something that needs further study, and should be related to the development of silk production through the century.

⁵ LAFFEMAS, *Reiglement général pour dresser les manufactures et ouvrages en ce royaume...*, Rouen, G. l'Oyselet, 1597, p. 9; LE ROY LADURIE, *op. cit.*, pp. 439-440. The landowners responsible for the diffusion of the 'tree of gold' in Vivarais, Provence, Languedoc at the turn of the century were Saint Privat, Traucat, Jean Bourguet, Jacques Gaubert, Jean Viguier and Guiraud Sabatier.

⁶ H. CLOUZOT, *Le métier de la soie en France (1466-1815)*, Paris, Devambez, 1914, pp. 41-42. See also S. CIRIACONO, *Per una storia dell'industria di lusso in Francia: la concorrenza italiana nei secoli XVI e XVII*, in "Ricerche di storia sociale e religiosa", n. 14, luglio-dicembre 1978.

begun manufacturing 'all kinds of silken cloths, cloths of gold and silver, and is without doubt likely to make finer ones than ever came from foreign countries'.⁷ In 1601, and under royal patronage, Noël Parent and his brothers⁸ began making Bologna crepes, satins and damasks 'in the Italian fashion'. The manufacture of gold and silver cloths, which was eventually to become the Parisian speciality was consolidated by the establishment of the Place Royale Company.⁹ A significant development came in 1604 when the Milanese 'gold throwster', Turato, joined the company. A year earlier he had acquired the monopoly for the production of golden yarns 'in the Milanese Fashion' in France (Milan held the field in this branch of production at the time) with the obligation to provide training for French craftsmen.¹⁰

In Nîmes a similar break with traditional artisan organisation occurred too. Between 1592 and 1610 the number of weavers increased ten-fold (from 16 to 160) and Line Tesscyre has described the operations of Antonio and Luigi Bonfa from Ferrara originally, and to France via Avignon) as an attempt 'to make their workshop a real industrial enterprise'.¹¹ They used piece-work to achieve higher labour productivity, and were able to turn for credit to Italian, Lyonnais and Parisian bankers.

Despite competition from Italy, the French ribbon-making industry still flourished, and was especially prosperous at Lyons (especially Saint-Etienne and Saint-Chamond) and at Toulouse, Paris, Tours (where there were 3000 weavers according to Bosseboeuf's probably exaggerated estimate).¹² And in the case of silk-stockings, from which Italy earned over one million *scudi* from her imports into France in 1614, manufacture was beginning at Hurepoix, Dourdan, Etampes and after 1640 in Nîmes as well, with the Félix and Pastre manufactory of stockings 'in the English and Italian fashions'.

Even from the early XVIIth century, after the disappearance of Richclieu,

⁷ LAFFEMAS, *op. cit.*, p. 16.

⁸ Another member of the Parent family — whose activities would be worth studying further — Etienne, began making Bruges satins and 'damars caffards' at Tours in 1604 with Jehan Sellier.

⁹ Directed by Etienne Sainctot, Nicolas Camus and others.

¹⁰ The Italian interest must have remained strong since in 1615 the banker Lumagna was still directing the company. The limited importance of Parisian output is illustrated by the fact that in 1644 the 'masters and craftsmen' of the Company were still subject to the guilds of Parisian weavers and ribbon-makers 'which would indicate that at that period the production of luxury silks was still subordinated to the lower priced fabrics, particularly ribbons' (BOISSONADE, *Le socialisme d'état, op. cit.*, 248-9).

¹¹ L. TEISSEYRE, *L'industrie lainière à Nîmes au XVII^e siècle: crise conjoncturelle ou crise structurelle?*, in "Annales du Midi", 88, 1976, pp. 396-400; LE ROY LADURIE, *op. cit.*, p. 441.

¹² BOSSEBOEUF (abbé L.), *Histoire de la fabrique de soieries de Tours des origines au XIX^e siècle*, Mém. Soc. archéol. de Touraine, 1900, p. 255.

Tours seems to have made a brilliant recovery from the recession of the late XVth century. Its products were known throughout the Kingdom and probably overshadowed even the textiles of Lyons, since the consuls of that city had no qualms about wearing the famous 'gros de Tours' (plain taffetas).¹³ Tours also produced 'pannes of such beauty that they were sent to be sold in Spain and other foreign countries...'. Their red, violet and *tannés* velvets are more beautiful than those of Genoa: it is also the only place producing silk serges.¹⁴ It was no coincidence that Richelieu made many purchases for the Court in the workshops of Tours.¹⁵ There were also many technical developments occurring, such as the new calender 'à onder' or 'moirer' installed in 1638 by Chomey and which gave the fabrics an iridescent and modulated finish.¹⁶ Bosseboeuf¹⁷ spoke of some 8,000 looms working in Tours at this time, but in the absence of more detailed research to confirm this figure, since the history of silk manufacturing in Tours in the XVIIth century has not yet been fully studied, it may well be rash to conclude that Tours had become the major silk centre in France.

Whatever its relative strength as a centre of manufacture, Tours continued to depend on Lyons for its supplies of milled Italian silks, even though by 1630 it had 700 'moulins à dévider' against only 150 in Lyons.¹⁸ But otherwise, with the exceptions of Touraine, Lyons, Saint-Etienne, Vivarais (Aubenas and Privas), and some smaller centres in provence and Languedoc, silk spinning remained relatively under-developed in France, and Henry IV's efforts to

¹³ O. ZELLER, *L'échevinage et la vie économique lyonnaise, 1625-1660*, Mémoire de Maîtrise dirigé par R. Gascon, Lyon, 1975-76, pp. 48-51.

¹⁴ BOSSEBOEUF, *op. cit.*, pp. 255-56.

¹⁵ For Richelieu's industrial measures see: H. HAUSER, *La pensée et l'action économique du Cardinal de Richelieu*, Paris, PUF, 1944, pp. 19 ss. e 152-54.

¹⁶ The calendar consisted of "rouleaux de cuivre couverts d'une toile, sur lesquels sont entortillez des pièces de taffetas..." (cfr. CLOUZOT, *op. cit.*, p. 49; A. COUDOUTIN, *Recherches sur les métiers de la soie à Tours dans la première moitié du XVI^e siècle*, Thèse de Doctorat dirigée par B. Chevalier, Tours, 1976, pp. 148-49).

¹⁷ BOSSEBOEUF, *op. cit.*, p. 255.

¹⁸ In 1628 the import of spun silks from Lyons was prohibited in an attempt to encourage local spinning and reeling, but five years later a compromise was reached between Tours and Lyons: the latter was allowed to sell its dyed and trimmed silks to Tours, while Tours sold its finished fabrics in Lyons. But this was dropped again in 1635, and purchases of spun silk from Lyons were banned even though Tours was short of supplies. In Colbert's time, although the importing of foreign silks was prohibited, the entry of Bologna organzines and Lyons milled fabrics had to be allowed in order to keep production going (cfr. BOISSONADE, *Le socialisme d'état, op. cit.*, p. 247; IDEM, *Colbert, le triomphe de l'étatisme, la fondation de la suprématie industrielle de la France, la dictature du travail (1661-1683)*, Paris, M. Rivière, 1932, p. 176; BOSSEBOEUF, *op. cit.*, p. 255; *Archives Communales de Lyon*, (Henceforth A.C.L.), Inventaire CHAPPE, VII, fol. 135-36, 2 Sept. 1628, 31 Aug. 1633, 12 Dec. 1635; fol. 141, 23 Feb. 1666).

encourage this activity north of the Loire were to have no lasting results.¹⁹ And in the general picture which we have drawn, there are many rather obscure features. Certain manufactories that had been set up only due to royal intervention, under both Henry IV and Mary de' Medici, were quite uncompetitive and proved unable to hold a market, and so collapsed the moment that royal commissions were withdrawn.²⁰ Although the productivity of the Bonfa company at Nimes was high, for example, it was not until after 1650 that there was any real expansion of silk manufacture such as to supplant woollen cloths.²¹ But French industry continued to be weak, due to frequent agricultural crises and the subsequent collapse in demand, the weaknesses of the financial and monetary system, and the lack of any genuine entrepreneurial class.²² All of these problems can be seen in the case of Lyons.

Claude Dagon's loom, for example, had been perfected by the beginning of the XVIIth century, and should have paved the way to the technological and commercial emancipation of silk manufacturing in Lyons. As historians have often noted, this loom marked an important stage in the evolution of the Lyons textile industry. The improvements introduced in the late XVIIth century and especially those of the early XVIIIth century — in pride of place the Jacquard mechanical loom — were to give it a decisive lead over the Italian textile towns.

Claude Dagon's loom, known as the loom 'à la grande tire', introduced many important modifications to the traditional loom which had been imported from Italy by Jean Le Calabrais in the XIVth century, and which was used for making figured silks.²³ In France at least this loom does not seem to have

¹⁹ J. QUICHERAT, *Histoire du costume en France*, Paris, Hachette, 1875, p. 432; P. LÉON, *La naissance de la grande industrie en Dauphiné (fin du XVII^e siècle-1869)*, Paris, PUF, 1954, I, pp. 46-47.

²⁰ The manufacturers of Bruges satins and 'damars caffards' in Troyes appealed to the King because they could not compete with Flemish prices. (cfr. *Registre des délibérations...*, in *Documents inédits sur l'histoire de France, Mélanges historiques*, IV, ed. Champollion Figeac, Paris, 1848, pp. 190, 232, 236). This is why the manufactory at Etampes, set up in 1618 to produce gold and silver design silk cloths, and the one established by Mary de Medici at Blois both failed. See: BOISSONADE, *Le socialisme d'état, op. cit.*, p. 249.

²¹ TESSYRE, *op. cit.*, p. 398.

²² P. DEYON, *La production manufacturière en France au XVII^e siècle*, in "Le XVII^e siècle", 70-71, 1966, p. 62.

²³ On Jean le Calabrais' loom the 'cordes de lisage, destinées à commander la levée des fils de chaîne' as the woof passed through, were activated directly by the weaver, or 'cassin' by means of the 'boutons' (small wooden handles arranged along a beam in front of the weaver, which gave rise to the name 'button frame'). Dagon's 'métier à la grande tire' or long-twist frame, differed 'par le procédé servant à tirer les lacs et à produire ainsi les effets de façonne... On pouvait sur ce métier placer jusqu'à quatre cassins de 600 cordes chacun, ce qui permettait de porter à 2400 le nombre de cordes. Dans ce dernier cas, on employait un ouvrier tisseur et quatre tireurs de lacs'. Generally, only one *cassin* (i.e. the upper section of the loom which supported the threads which

been changed much in the intervening period, and our knowledge of the looms used in Italian workshops in the XVIth and XVIIth centuries is not sufficient for us to make any comparison. With the fortunate exception of Carlo Poni's study on silk mills,²⁴ this is something which Italian economic historians have overlooked, but for those who are concerned with the causes of Italy's decline, the problem of technological innovation is of special importance, and it was its absence in Italy that determined the fate of our manufactures on the markets of Europe.

Thanks to this new loom France was able for the first time to compete with the best Italian figured silk makers. And it can be seen from the twelve workshops which Dagon set up at his own expense to imitate the fabrics of Italy and the East (although the two were largely the same, since Oriental fabrics were widely imitated in Italy, especially in Venice) and from the inspection made in December 1606 by the 'Provost of the Merchants and Aldermen' of the city Lyons on the orders of the King, who took a direct interest in the enterprise. The report makes it clear that Dagon was capable of making the most complex designs on taffetas, satins and velvets. There are references to 'rissetail' velvets (in all probability the Venetian *rizzi* and *sopra-rizzi* velvets where the pile was left uncut); velvets with a background of red or golden taffeta (with 'figure tirée et coupée verte') or with a background of golden satin; velvets 'à fond d'argent fillé' or 'à ramages' (designs of branches and flowers); satins with designs of 'gardens and dead leaves'.²⁵ Brocades and damasks are not included in the list, but we know from other sources that amongst the 25 fabrics which Dagon exhibited before the Consuls of the city on another occasion there were 'black damasks in the Genoa style, and gold and silver

were to be woven separating them from the woof) was used, even though there was still a large number of 'lacs' — reference was made to as many as 1500 cords, whereas the traditional loom had only 800. (cfr. C. RAZY, *Etude analytique des petits modèles de métiers exposés au Musée historique des tissus*, Lyon, Rey, 1913, pp. 28-42; H. D'HENNEZEL, *Claude Dagon...*, Lyon, Rey, 1926, pp. 11 ss.).

²⁴ C. PONI, *All'origine del sistema di fabbrica: tecnologia e organizzazione produttiva dei mulini da seta nell'Italia settentrionale (sec. XVII-XVIII)*, in "Rivista Storica Italiana", 88, 1976, pp. 444-497.

²⁵ A.C.L., HH 156/1, 1 July. 1606 and 19 Dec. 1606. Colours were equally sought after: 'Spanish incarnadines', 'grass-green', 'zinzolin'. Since we no longer possess any fabrics which can certainly be attributed to Dagon's looms, it is difficult to reach any verdict on their quality. Technical experts also point out that once the fabric had been made up it was virtually impossible to tell whether it had come from the traditional loom or from the new long-twist loom. Even the early XVIIth century fabrics in the *Musée Historique des Tissus* in Lyon pose major problems of dating and provenance. We do not even know for certain that they were French products rather than Italian. I should like to thank M. Gabriel Vial of the Lyon textile Museum who has wide knowledge of these problems for drawing my attention to this document and for the invaluable guidance he gave me.

silk brocatelles', which means that the full repertory of luxury silks was comprehensively covered.²⁶

But Danton's great personal enterprise was to come into conflict with the rigid local guild system and there was no sign of those conditions, such as investment of fixed capital, concentration of the labour force or incentives for production, which might have enabled his invention to spread through the city and so strengthen silk manufacturing generally. And while local capital was able to dominate the small craft producers and to control production, it did so at the cost of exacerbating social tensions,²⁷ and rather than creating any genuine process of independent development the local interests were more concerned to divide the profits from trade in raw and worked silks with the Italian merchants. An inspection of the town's workshops in 1621 showed that there were only 41 looms producing decorated fabrics out of the 943 looms inspected—only 4.3%.²⁸ The regulation of 1619 which authorised manufacture of fabrics made from silk mixed with wool, cotton and yarns also shows that Lyons was still a good way off undertaking the very costly business of manufacturing a wide variety of high cost fabrics.²⁹ Even in 1632, production was based on low costs in comparison with the Italian fabrics, or else relied on quite impossible protective measures which worked against the needs of the market for high quality textiles, which centred on Paris.³⁰ The final factor was the

²⁶ HENNEZEL, *op. cit.*, p. 22: In September 1610 there were 19 looms working in Danton's workshop, and 7 more in other manufactories in the city. The following year Danton, in a fit of excessive optimism, offered to install 200 looms in various workshops in Lyons within 3 months. The royal licence which he had obtained for the production of figured silks caused obstinate and resentful opposition from the silk guilds who believed that the invention would damage them.

²⁷ J.-G. DA SILVA, *Banque et crédit en Italie au XVII^e siècle*, Paris, Klincksieck, 1969, I, p. 711.

²⁸ A.C.L., HH 159/5-9, 11-13 giugno 1621. The *façonées* covered only the simplest fabrics — satins and taffetas, but no velvets, damasks or brocades (I should like to express my thanks to O. Zeller for this information and for other points arising from his research on Lyons before the period of Colbert). The looms covered by the survey numbered 1187, but the type of fabric produced was not always recorded. Other sources indicate 1698 looms, whereas in 1610 there had been only 1500. The number of 'masters and craftsmen' had also risen from 207 (in 1598) to 578 (in 1621). (cf. J. GODART, *L'ouvrier en soie*, Lyon, Nicolas, 1899, p. 26; E. LEROUDIER, *Histoire de la fabrique lyonnaise des étoffes de soie*, in "Annales Franco-Chinoises", 1934, no. 28, p. 3; R. GASCON, *La France du mouvement: les commerces et les villes*, in *Histoire économique et sociale de la France, 1450-1660*, Paris, PUF, 1977, I, p. 330).

²⁹ CLOUZOT, *op. cit.*, p. 52.

³⁰ A.C.L., CC 4006/25, 14 ag. 1632. It was protested that if export duties were raised the products would cease to be competitive on foreign markets (Flanders, Spain, Germany, England, Piedmont and the Levant) with Italian fabrics.

national and local economic situation, which did not help the Lyons silk industry. Epidemic and dearth followed one after the other throughout the first half of the XVIIth Century -- there were plagues in 1628/9, rising prices in 1630/1, and then in 1634-44, and again between 1651-53.³¹

The Italians in Lyons deserve to be considered separately. It is generally accepted that the city was dependent on marchants and bankers from Italy and that 'it was not until after Mazarin's death that the French Tuscany could come into being'.³² However, in the second half of the XVIIth century the Italian colony did experience a steady decline in its economic power and prestige, and the main beneficiaries of this were the Swiss (especially the powerful Soli-coffre family from St. Gall) the Germans and the Lyonnais themselves. After the collapse of the Bonvisi company in 1629, and the disappearance of the Arnolfini and the Guinigi, the great Italian families resident in Lyons were reduced in number and their influence in the city councils began to wane and dwindle, as R. Gascon has shown in his brilliant study.³³ It is more difficult to quantify their economic role, although the tax registers for 1640 (which covered the 238 leading contributors in the city divided into 8 different classes) show that only about a dozen Italian families remained within the first three tax band³⁴ out of some 65 families in all. Further research on other Lyons source will provide more information on this, and while the records of the *Consolato*

³¹ Price rises and uneven exchange rates (highest in Paris) causes good currency to be drawn away from Lyons towards the capital so damaging the local economy. (See: R. GASCON C. LATTA, *Une crise urbaine au XVII^e siècle. La crise de 1693-94 à Lyon: quelques aspects démographiques et sociaux*, in "Cahiers d'histoire", 8, 1963, pp. 371-73; A.C.L., BB 190, fol. 60v-61, 13 March 1636; A.C.L., BB 206, fol. 75-77, 11 Jan. 1652; attention drawn to this by O. Zeller).

³² F. BRAUDEL, *Introduction all'Hist. éc. et soc. de la France*, I. *op. cit.*, pp. 5-6. Lyons remained the pivot of the French financial system up to Law's bankruptcy. On the role of the Italian cities in Lyons -- in 1689 for example Genoa provided a loan of 340,000 *livres* see: ACL CC 4222, 29 Dec. 1698. On the risk capacity of the Italians, especially the Florentines, in the XVIIIth century, even though their importance was then less than the Swiss and Germans, see: *Bibliothèque Mazarine de Paris*, Ms 1850 (3050) VI, fol. 3r-4r, ca 1731.

³³ This is demonstrated by the fact that they tended to become naturalised and assimilated into the wealthy Lyons bourgeoisie -- by 1648 there was only a handful of Italian stragglers like the Cenami, Burlamachi and Michaeli still active, See: R. GASCON, *Gran commerce et vie urbaine au XVI^e siècle. Lyon et ses marchands (environs de 1520 -- environs de 1580)*, Paris, Mouton, 1971, I, p. 204; ZELLER, *op. cit.*, pp. 75-83 c 87-89; R. MAZZEI, *La società lucchese del Seicento*, Lucca, Pacini, 1977, p. 78).

³⁴ A.C.L., CC 328, *Taxe de 1640* (Provided by O. ZELLER): Lumagna, Pianelli, Orlandini, Bernico, Dorati, Mei, Benedetti, Burlamachi, Cittadelli, Sanminiati, Mascarani, Bulozon. Inexplicable there is no mention of Cenami.

and the *Comptes de la Ville* have been studied, those of the *Tribunal de la Conservation des Foires* and of the notaries still need to be examined.³⁵

The days when some ten Italian houses had controlled over three-quarters of all the silk imported into Lyons were now far off, but this was the sector where the Italian presence remained predominant.³⁶ There are good figures available on the imports of raw and spun silks for the period between 1st October 1637 and 31st December 1639.³⁷ These confirm, first, that imports were still controlled by a small number of merchants. Two companies alone accounted for 31.5% of total imports; seven together controlled a further 22.2%, 8 controlled 19.5%. In other words, 17 houses (13% of those operating at the time) controlled 73.2% of the silk imported into the city. The smaller merchants, who formed 54% of the total, had an interest in only 5.4% of the imports. And while the 25 Italian merchants out of a total of 130 formed only 20% of the total, they controlled the bulk of the imports. Both the two leading companies were Italian — the Joue company which imported 1134 bales of silk³⁸ and the Bulozon company (which was associated with the Lyonnais house of Lemaitre) which imported 1019 bales. Of the seven companies which imported between 200 and 250 bales four were Italian.³⁹ Among the eight purchasing between 150 and 200 bales, three more were Italian.⁴⁰ Of the 14 houses importing between 50 and 100 bales, two were Italian⁴¹.

It should be emphasised that the leading traders in raw silks were not amongst the wealthiest merchants in the town, or at least they were not among the most highly taxed in 1640. In the top tax band there was only Lumaga, who did not specialise in silk (he paid 7,000 *livres*); Joue was taxed at 3,500 *livres*, Bulzon at 4,900, and Rigioli (who was the third most important importer) paid only 1400 *livres*.⁴² In the case of Italian *gran commerce* in Lyons, then, silk and

³⁵ The notaries Pierre Bégule and his son Jean-Pierre Bégule who were active from 1582-1626 and from 1626-1645 were the ones who kept the widest range of records on the activities of the Italian merchants in Lyon. See, e.g.: *Archives départementales du Rhône*, 3E 2710, 1611: Deeds referring to the Dorati, from Lucca, Orlandini (Florence) Costa (Genoa) Pianelli, Lumagna, Bertolini etc.; Claude Dagon signed a document with Paolo Mascarani and Giovanni Andrea Lumagna; cfr. in the same Series (3E) the protocols and minutes 252-272 e 273-281, on the composition at the Italian colony at the end of the century—which was very small, A.C.L., CC 333/3, 7 Dec. 1698.

³⁶ GASCON, *La France du mouvement*, *op. cit.*, p. 307.

³⁷ A.C.L., CC 4349/3.

³⁸ A bale weighed on average 180-200 *libbre*. The Lyons *libbra* was equivalent to 418.75 gr, and was lighter than the Parisian *libbra* of 489 gr. But a bale could weigh as much as 212-213 *libbre* and as little as 185 Lyons *libbre*: GASCON, *Gran Commerce...*, *op. cit.*, p. 44.

³⁹ Rigioli, Lauro, Ferrari, Cittadelli-Sanminiati.

⁴⁰ Vansciorre, Burlamachi-Cenami, Osio.

⁴¹ Lumagna-Mascarani e Benedetti.

⁴² CC 328, *Taxe de 1640*, *cit.*

wealth were not synonymous. But there can be no question about the national specialization of the importers. The silk brought by the Italians came mainly from Messina, Milan and other parts of the peninsula. The Lyons merchants tended to deal more in silks from the region around the city or from the South of France and in the 'sea silks' which came from Marseilles (in other words, Levantine silk: this also came in large quantities from Italy, where it was unloaded in Italian ports and carried overland to France).⁴³

French historians have generally argued that it was in the 1660s and as a result of the activities of Colbert that the economic situation began to change. At a regional level and in terms of the principal branches of the economy (industry, agriculture and trade) this 'turning point' has yet to be proved, even though there are examples of real economic expansion which should not be dismissed.⁴⁴ But as far as industry is concerned, and the silk industry in particular, it seems clear that a new cycle began either with Colbert or possibly even some five years earlier, which brought to an end that *cul de sac* in which the industry had been trapped in the earlier part of the century. Colbert's role in bringing about economic change has frequently been studied, and often exaggerated, and attention has been given to the excessive importance given to his actions, the nature of the political and family interest groups which limited the effectiveness of his policies, the centralised and interventionist character of his policies at a time when private enterprise was growing.⁴⁵ Yet it cannot be denied that he exercised a decisive influence on France's industrialization and on the diffusion of the technical knowledge, even if the ultimate cause of this were to lie in the changing structure of socio-economic forces within the Kingdom.

Colbert was keen to increase the production of silk as of all the other luxury industries, and the industry was the object of a series of regulations issued in Paris, Tours and Lyons in 1667 and Nîmes in 1682. Their purpose was to give coherence to the generally neglected statutes of earlier times - those of Lyons, for example, dated from 1551. Stricter standards were adopted for selecting,

⁴³ A.C.L. CC 4020: Imports between 17th Feb. and 31st March. 1637. The trade with Spain was also controlled by 'men of the Kingdom' (ZELLER, *op. cit.*, p. 79). On the purchase of several bales of Milanese silks by 'Joachim Vanschore, marchand banquier à Lyon' through Arrigo Panizzol see: *Arch Depart* 3E 282, 5/9/1645; *Ibid* 17/4/1645 for reference to bales from Messina sent to Jean Thomas and Jean Paul Giovo, again through Panizzol.

⁴⁴ E. LABROUSSE, *Introduction all'Hist. éc. et soc. de la France, 1660-1789*, 1970, II, p. VII.

⁴⁵ T. J. MARKOVITCH, *Le triple tricentenaire de Colbert: l'enquête, les règlements, les inspecteurs*, in "Revue d'hist. éc. et soc.", 49, 1971, p. 314; J. L. BOURGEON, *Les Colberts avant Colbert. Destin d'une famille marchande*, Paris, PUF, 1973, p. 13; P. GOUBERT, *Le "tragique" XVII^e siècle*, in *Hist. éc. et soc.*, II, *op. cit.*, pp. 220, 237, 351; D. DESSERT, J. L. JOURNET, *Le lobby Colbert. Un royaume, ou une affaire de famille*, in "Annales. E.S.C.", 30, 1975, pp. 1303-1336.

and only the 'boiled silk' were to be accepted.⁴⁶ To protect the public, different kinds of selvages were laid down for different fabrics, with fabrics made of materials other than silk having only one selvedge, and firm standards were set for the measurement of gold and silver silk cloths, as well as stipulating the number of threads to be used.⁴⁷

Such strict regulations and the corporate controls that accompanied them naturally gave rise to objections, and it was claimed that the resulting increases in the production costs made French fabrics less competitive on foreign markets, at a time when the cost of replacing looms and using larger quantities of raw materials was in any case forcing costs up.⁴⁸ Colbert also took a direct interest in the dyeing industry, since faulty workmanship caused loss of prestige for national fabrics. But although various regulations and statutes were issued, the situation remained precarious throughout the XVIIIth century, and it was only in the XVIIIth century that any effective changes can be detected.⁴⁹ The cultivation of mulberries expanded, sometimes as a result of 'authoritarian directives' but more often because incentives were provided, prizes were handed out, and cuttings were supplied free of charge from the royal nurseries.⁵⁰

But there was one aspect of silk production that proved difficult to change. Although it might have been a good move to impede the imports of raw Italian silks by customs duties, it was impossible to give up this source of raw materials. In June 1670, for example, it was announced in Paris that the decree of the previous March had been intended only to stop the importing of spun gold, velvet, damask and satin cloths from Milan and Genoa, but was not

⁴⁶ Raw silk came straight from the cocoons: crude silk was 'prepared by being thrown and rethrown (en le tordant et retordant)', while 'boiled' silk was boiled for three to four hours: PAULET, *L'Art du Fabriquant d'Etoffes de Soie*, Paris Delatour 1773, Parts 1 & 2. p. IV.

⁴⁷ *Recueil, supplement et suite du recueil des réglemens généraux... du royaume*, Paris, Imp. royale, 1730, I, pp. 173 ss.; II, pp. 25-30 e 41-45.

⁴⁸ C. COLE, *Colbert and a Century of French Mercantilism*, New York, Columbia University Press, 1939, II, pp. 397-401. In Tours in 1685, two years after Colbert's death, it proved necessary to return to the practice of producing silk cloths of 11/24 *auna* width (about 1.20m) as well as the 23/48 *auna* widths established by the edict of 1667. Similarly, even fabrics which were not of pure silk were permitted to have two selvages rather than one, in order to avoid giving the Tours silks an obvious mark of inferiority, particularly on foreign markets. But there was no change in the regulations on the number of threads.

⁴⁹ *Archives Nationales de Paris* (Henceforth A.N.P.) G7 355, 1686: the Nîmes dyers were blamed for not giving silks a good colour, and so damaging trade. See H. WESCHER, *Les grands maîtres dans l'art de la teinture en France*, in "Cahiers Ciba", 1, 1946, p. 52.

⁵⁰ A. DEVILLIERS, *Nouveau manuel complet de la soierie*, Paris, De Roret, 1839, I, p. 66; BOISSONADE, *Colbert, op. cit.*, pp. 175-76. Following the example of Henry IV at the start of the century, attempts were made to encourage cultivation in Normandy, Poitou, Burgundy etc.

directed at the import of raw silk, although that was how the Tax Farming Company of Lyons had interpreted the decree with the result that supplies vanished.⁵¹

To understand the development of the French silk industry in this period, one must first look at the structure of the market, which was expanding under the stimulus of the splendour of Louis XIV's Court. Perhaps neither Colbert nor the French entrepreneurs were fully aware of the close connection between fashion and the demand for silk, since they did not explicitly rely on the former to stimulate the latter. But 'there can be little doubt that Colbert and the French silk-industry did everything possible to stimulate the demand for fresh patterns 'and also' the tradition of introducing them each year was firmly established'.⁵² The process that had been under way since the XVIIth century now reached its conclusion —although it may have been overlooked that even at the Court of Henry IV 'a man is not much esteemed if he has not twenty-five or thirty garments of different patterns which he changes every day'.⁵³ But it was only at the end of the XVIIth century that French fashion was to take on that European predominance which it retained throughout the XVIIIth, quite decisively overcoming any Italian resistance in this field too. Yet the luxury of the court of Louis XIV also posed problems of a social and monetary nature. The imitation of rich aristocratic apparel by the 'bourgeoisie' made the nobles of Paris tremble lest their formerly undisputed prestige be lost.⁵⁴ For this reason in 1660 Louis XIV limited 'the right to bring brocades and gold and silver haberdashery to those members of the Court issued with special patents which determine the form and the colours of these same costumes'.⁵⁵ Earlier in 1656, in accordance with all sumptuary legislation, an edict drastically restricted the use of ornamentation, lance trimmings, beaver skin hats, carriages and 'golden barouches'.⁵⁶

But to stem the production of luxury goods proved difficult, even if the intention was genuine. Among other sectors, the ribbon-making industry expanded rapidly (especially the branch specialising in silver and gold ribbons), particularly in Paris and Lyons. The ribbons of Paris were more highly prized than those of Lyons, and silk ribbon continued to be manufactured also at Nîmes, Montpellier, Marseilles and Rouen, as well as at Saint-Etienne, Saint-Chamond and Tours. In Paris in 1666 Hindret re-introduced the English sto-

⁵¹ A.C.L., CC 4349/4, 18 June 1670.

⁵² P. THORNTON, *Baroque and Rococo Silks*, London, Faber and Faber, 1965, p. 21.

⁵³ F. BRAUDEL, *Civilisation matérielle et capitalisme (XV^e-XVIII^e siècle)*, Paris, A. Colin, 1967, p. 237.

⁵⁴ *Bibliothèque de l'Arsenal de Paris*, Ms. 6544, fol. 321r.-331r., s.d., *Plaintes des dames de la cour contre les marchandes ou bourgeoises de Paris... présentées à M. Colbert*.

⁵⁵ O. GAILLARD, *Le rôle de la soie dans l'évolution du costume*, in "La soierie de Lyon", 10, 1927, p. 789.

⁵⁶ *Bibliothèque Nationale de Paris* (Henceforth B.N.P.), *Cinq Cents Colbert*, Ms. 254, fol. 234r.-239r., 26 Oct. 1656.

cking frame for silk stockings, so putting the resistance to the overwhelming imports from Britain and Italy on a new footing. Simultaneously Colbert tripled import duties, so giving further incentives to manufacturing in Paris, Lyons and Marseilles.⁵⁷ In the traditional areas, and also in Lyons as we shall see shortly, silk spinning became well consolidated.

As far as textiles proper were concerned, the production of gold and silver cloths in Paris, which had first entered the international market at the beginning of the century, grew in volume and prestige. New workshops sprang up in the Ruc-Sainte-Avoyc and at St-Maur-des-Fossés, the latter under the successful management of Marcellin Charlier.⁵⁸ Production rose everywhere: at Rheims there were 20 looms at work on crepe yarns which were old throughout Flanders; Troyes produced 'mixed satins' Rouen 'poplins' and '*ferrandines*'; Montpellier, Montauban, Alais, Uzès made 'taffetas in the Avignon style, tabby, crepons, *burates*', velvets and satins.⁵⁹ In 1669 craftsmen from Tours were taken to Toulouse to help set up a small taffeta factory on the island of Tounis.⁶⁰ And it was to be these smaller centres which proved best able to survive after the Revocation of the Edict of Nantes, which was deeply to affect the great centres of Lyons, Tours and Nîmes.

In the wake of this general expansion, Tours also experienced a surge forward of no less importance. Bossambeouf praised the quality and variety of its products which included: every kind of '*velours raz, figurés, coupés et tirés*'; every kind of satin, damask, Venetian designs, little damasks, *luquoize, valoise* and generally every type of design and fabric.. whatever their diverse names may be'. He also put the number of workers at 6,000— on occasion even 12,000: but these figures need to be checked— during the favourable period of the boom.⁶¹

Traditionally it has always been argued that the success of the Nîmes silk industry was due to Colbert's protectionist measures which by banning foreign silks, and those of Avignon in particular, destroyed the silk industry in the Venassin. The collapse of its neighbour made Nîmes' fortune: the workers

⁵⁷ CLOUZOT, *Le métier de la soie*, *op. cit.*, p. 68; P. BOISSONADE, *Colbert*, *op. cit.*, p. 179; P. LÉON, *La réponse de l'industrie*, in *Hist. éc. et soc.*, *op. cit.*, II, p. 237. Deshayes installed a new loom for making ribbons, galloons and silk cords in the royal factory in Paris in 1668: from 1670 'machine made' ribbons were produced at Chevreuse'. At Lyons a manufacturer, Fournier, in 1664 set up a royal factory for 'silk stockings in the English style'; three years later at Marseilles other workshops for the same purpose were set up by a naturalised English craftsman named Champucon.

⁵⁸ Certain fabrics from the Charlier factory fetched 1000 *livres* per *anna*, and Colbert alone purchased furnishing silks there to the record value of 200,000 *livres*.

⁵⁹ CLOUZOT, *op. cit.*, pp. 62-68.

⁶⁰ B.N.P., *Mélanges Colbert*, Ms. 151, fol. 1r.-2r., March 1669.

⁶¹ BOSSEBOEUF, *op. cit.*, pp. 269-70; BOISLISLE, *Correspondance*, *op. cit.*, I, 6 March 1691, p. 236; *Ibid.*, 1699-1708, Paris, 1883, II, 4 March 1701, p. 493.

and craftsmen of Avignon poured into Nîmes, bringing with them their labour and skill. Line Teisseyre, however, has argued that there were signs from as early as 1650-60 that the expansion of the silk industry in Nîmes was underpinned by a process of rapid development in the regional economy as well. By 1681 the number of silk-mills had risen from 14 in 1664-65 to 132 — and this increase was encouraged by the increase in the local production of raw silk which maintained fairly low prices, while the shortage of wool increasingly encouraged local capital to move into silk, which came to be considered more profitable than the traditional woollen industry.⁶² In 1681 there were 1100 looms producing taffetas which employed 4,000 workers and providing trade, channelled mainly through the fair of Beaucaire, valued at 2 million *livres*. By 1698 the production of raw and worked silks greatly exceeded exports of grain, wine and oil from the region.⁶³

But the most dynamic and important factor in the development of the French silk industry in the second half of the XVIIth century was still Lyons. Although it had been weakened and at a stand-still in the first decades of the century, silk production was still able to consolidate its position in anticipation of the great boom in the age of Colbert. The inquiry of 1660 revealed that the number of masters and men risen from 716 in 1621 to 841, so that the number of looms must have increased somewhat as well.⁶⁴ The city Consuls had not failed to encourage certain initiatives, although the necessity of obtaining royal licences, which were not always forthcoming, made the local authorities often powerless. However, in 1641 the 'masters and craftsmen' were authorised to manufacture 'taffetas in the Genoese style' and the guild regulations were changed for this purpose. Eight years later Claude Blanchat set up a work shop to produce 'crepes in the Bologna style, organzines, Neapolitan silk cloths and silk *estamines*'.⁶⁵ Nor should we forget the introduction of the process of 'lustring' taffetas by the Italian born Octavio Mey, who discovered by chance that when the silk was soaked it became lustrous.⁶⁶ Whether this was a lucky

⁶² TEISSEYRE, *op. cit.*, pp. 398-99.

⁶³ LE ROY LADURIE, *op. cit.*, p. 441.

⁶⁴ There is not much agreement on the number of looms in Lyons. Clouzot speaks of 300-3500 'métiers' at that time, while Garden probably rightly brings the figure down to under 2000. See: CLOUZOT, *op. cit.*, p. 55; M. GARDEN, *Le Lyonnais, première région industrielle de France*, in *Histoire de Lyon et du Lyonnais*, ed. A. Latreille, Toulouse, Privat, 1975, p. 234).

⁶⁵ ZELLER, *op. cit.*, pp. 92-93.

⁶⁶ Although Mey's patent remained a jealously guarded secret, it was imported to Venice and Milan in 1682 by Antoine Boisset, and Anselme Questant had already introduced it to Florence in 1670. See: Inv. CHAPPE, *cit.*, VII, fol. 212, 3 Oct. 1668; B. N.P., *Mélanges Colbert*, Ms. 155, fol. 276r.-281r., 8 Oct. 1670; A.N.P., B1, 1158, fol. 43r.-45v., 9 Jan. 1683).

or an ingenious discovery, the innovation gave Lyons an unchallenged superiority in the production of 'taffetas lustrés', especially black ones, which was widely established over the European markets in the XVIIth and XVIIIth centuries.⁶⁷

The technical and industrial development of the classical 'fabrique'— which according to Garden dates from 1665, but can probably be back earlier, at least to 1656— took another step in 1663 when James Fournier received a twenty year franchise to manufacture 'silk stockings in the English style'.⁶⁸ The enterprise was crowned with success, and in 1670 he was making huge exports to Spain and French silk stockings had virtually reached the same quality as the English (permission for exemption from the heavy export duties had however to be obtained).⁶⁹ The great thrust forward initiated by Colbert to combat Italian supremacy in silk manufacture began to show results. The 'Provost of Merchants' in Lyons claimed that any Italian fabric could be copied and improved on in the workshops of his city. This, as we shall see, was not entirely true.⁷⁰ But the number of hitherto Italian specialities now being produced along the Saone did not cease to grow. In 1666 a new manufactory producing Bolognese style voiles was opened, and according to Bosseboeuf's rather suspect figures achieved sales of about 180,000 *livres* a year in France.⁷¹ The franchise was for fifteen years, and was granted to Antoine Bourgey⁷² with the obligation of employing 2000 looms. In fact he only managed to set up 45 looms: 12 at Saint-Chamond and Saint-Etienne, and the rest at Lyons, for both plain and decorated crepes— even the measurements of the Bolognese voiles were imitated. But the enterprise had a chequered history.⁷³ Since the terms of the franchise had not been respected, it was revoked in 1679, and the fabric was allowed to be produced anywhere in the city. The original company was reor-

⁶⁷ *Bibliothèque Mazarine*, Ms. 1850, ca. 1731, *cit.*

⁶⁸ *Bibliothèque de la Chambre des députés*, Ms. 342, t. V, fol. 362r.-364r., 17 July 1663.

⁶⁹ A.N.P., B7 489, fol. 244r.-246r., *Mémoire concernant le commerce qui se pourroit faire en Espagne de bas de soye de la manufacture de France facon d'Angleterre*, 1670. The production of silk stocking expanded greatly in the XVIIth century. (See *Inv. CHAPPE*, *cit.*, VII, fol. 93 ss.).

⁷⁰ The fact that wholesale merchants in Paris still insisted on putting Genoese, Milanese and Florentine marks on Lyons fabrics is probably proof of this. (See: *CLOUZOT*, *op. cit.*, p. 56).

⁷¹ *BOISSONADE*, *Colbert*, *op. cit.*, p. 177.

⁷² Originally the licence was registered in the names of Bouillet and Aymond, but they sold it to Bourgey who was an agent of Dupuy. (See: *Bibl. de la Ch. des députés*, Ms. 345, t. VIII, fol. 76r.-77r., 20 March 1666; *Inv. CHAPPE*, *cit.*, VII, fol. 211-12, 14 Feb. 1666; *cfr.* also fol. 564, 579, 581).

⁷³ The Bologna *crêpes* caused even greater consternation in 1681 when the Lyons manufacturers begged for a ban on imports— or, at the very least, that there should be no reduction in duties. (*Inv. CHAPPE*, *cit.*, VII, fol. 583, 10th, Dec. 1681).

ganised under the direction of Dejanet, Liotaud and Rambaud, but it was not until 1704 that they were employing a large work-force (1700— and it was the only such manufactory in France).

So this was not an easy child to rear, and it was not the only one: in 1668 Couturie began producing silk gauzes; in 1682/3 the Dutchman Cuyper started producing 'burats crépés et crépons in the Zurich and Bergamo styles' both from silk and wool and from wool alone.⁷⁴ In 1669 Clautriers started a manufactory for spun gold 'in the Milanese stile', but although he received considerable assistance the factory was unable to meet domestic demand.⁷⁵ It was not without reason that the manufacturers of gold and silver silk cloths in Lyons complained in 1670 about the obstacles preventing the import of Milan gold spun yarn which was still the best quality.⁷⁶ There were frequent declarations about gold spun yarns from Milan, Genova and Chambery being smuggled into the region.⁷⁷ In 1683 Clautrier's successors (at this time 11 Milanese workers were still being employed as against 2 Frenchmen) claimed that they had sold 3,000 gold marks worth of yarns every year in Paris and Germany, but the Intendant D'Ormesson believed that for 1682 the figure was only 1654 gold marks, worth 50,000 *livres*. But since consumption in the area far exceeded this it is clear that the imports from Milan, whether legal or contraband, were still considerable.⁷⁸ And in 1692 the attempt to escape from the Milan golden yarns met with failure when Clautrier's enterprise closed down.⁷⁹

Milling met with similar problems. In 1656 Claude Deschavannes began making Bolognese style organzines, by virtue of a twenty year monopoly and

⁷⁴ BOISSONADE, *Colbert, op. cit.*, p. 177; CHAPPE, VII, fol. 587, 16th Feb. 1682. Silk had been woven at Zurich at least since 1250, thanks mainly to refugees from Milan and Como, and Italian labour was to remain vitally important. For a long time the most prosperous branch of the Zurich industry lay in the production of *buratto* and wool *crêpes*. During the XVIIth century production of silk *crêpes* and *crépons* began as well (the warp of the latter being of raw silk). By the second half of the XVIIth century the Zurich silks had succeeded in overshadowing those of Geneva, which relied on 'gilding' and trade in finished cloths. *Crêpe* production reached a peak between 1670 and 1690, with consumption of 300 bales of raw silk by 16 *crêpe* manufacturers employing 1500 looms. (See *Aperçu historique de l'industrie zuricoise de la soie*, in "Cahiers Ciba", 7, December 1975, pp. 6-9; A.-M. PIUZ, *Affaires et politiques. Recherches sur le commerce de Genève au XVII^e siècle*, Genève, Kundig, 1964, pp. 369-80).

⁷⁵ CHAPPE, VII, fol. 557, 5 Feb. 1669; fol. 566, 3 Aug. 1683; fol. 567, 1692.

⁷⁶ A.N.P., B7 52, fol. 716v.-717v., 26 Dec. 1670.

⁷⁷ A.N.P., G7 356, 19 July 1688.

⁷⁸ Production that could be achieved equalled 73,000 *livres*, the value of the manufactured goods being 45,000 *livres*. And Geneva was considered no less dangerous than Milan as a competitor, due to the spun yarns it produced and the fact that it offered many Lyons merchants with a clandestine 'entrepot'. See: (A.N.P., G7 355, D'Ormesson from Lyons, 8, 16 e 23 Feb. 1683).

⁷⁹ CHAPPE, VII, fol. 567, 1692.

he attracted a vast horde of craftsmen from Avignon who were specialised in milling and weaving.⁸⁰ In September 1670 a more substantial spinning shop was set up at Neufville, close by the city. By 1683 there were 24 mules at work employing 120 spindles for simple yarns, and 8 Bolognese mules with 108 spindles for organzine yarns. Between 15 and 20 bales of organzine yarns (1 bale = 200 *libbre* in weight), but the yarn contained only two filaments,⁸¹ while those of 3 and 4 filaments were preferred on the French and international markets.⁸² But although silk-reeling spread to many new areas — and, according to at least one XVIIIth century source, brought about a neglect of mulberry cultivation and silk-worm rearing⁸³ — production, especially that of organzines, was well below domestic demand.⁸⁴

The bases of the industry remained sound, however, and it has been claimed that prior to the crisis of the 1690s there were some 18,000 silk looms at work,⁸⁵ but this is certainly an exaggerated figure. Gascon is nearer the mark with 8-10,000 looms in action at the end of the XVIIIth century,⁸⁶ and Garden holds that between 1665 and 1690 the volume of activity probably tripled — although this again leaves a number of quantitative aspects somewhat unclear.⁸⁷

There were many efforts to improve the standard of weaving too, and prizes and incentives were offered to attract the best workers in the Lyons region and those of Avignon.⁸⁸ And it is probably fair to say that at this time France's technical level was equal to that of any other European country, Britain included (89). Two new looms were added to the arsenal of the Lyons manufacturers: the 'mechanical frame' invented by the sea-captain Degenne and the 'button or short twist frame' invented by Galantier and Blanche of Avignon (Galantier also invented over a 100 new fabric designs).⁹⁰ Degenne's loom wove taffetas and was powered by a wind-mill — a rather curious idea, and in fact

⁸⁰ ZELLER, *op. cit.*, p. 93.

⁸¹ A.N.P., B7 54, fol. 154v.-155r., 6 Nov. 1671; G7 355, 8 Feb. e 18 March 1683; CHAPPE, VII, fol. 562, 30 Sept. 1670.

⁸² PONI, *All'origine del sistema di fabbrica*, *op. cit.*, p. 450n.

⁸³ A.N.P., B7 493/5, ca. 1768.

⁸⁴ A.N.P., B7 63, fol. 88, 12 June 1693.

⁸⁵ It is probably exaggerated to put the Lyons consumption at 3000 gages: other evidence for the mid XVIIIth century would suggest that the city industries consumed half this amount. (See BOISSONADE, *Colbert*, *op. cit.*, p. 177).

⁸⁶ GASCON, *Une crise urbaine*, *op. cit.*, pp. 371-73.

⁸⁷ GARDEN, *Le Lyonnais*, *op. cit.*, pp. 235-36.

⁸⁸ *Bibliothèque de la Chambre des députés*, Ms. 1137, fol. 290-303, *Rémarques sur le commerce de la ville de Lyon, XVIII^e siècle*.

⁸⁹ N.F.R. CRAFTS, *Industrial Revolution in England and France: Some Thoughts on the Question, "Why was England First"*, in "The Economic History Review", 30, 1977, p. 439.

⁹⁰ *Bibl. de la Ch. des députés*, Ms. 1137, *cit.*

there is no evidence that it was ever applied in practice.⁹¹ But 'the short twist mule' — probably so-called to distinguish it from Danton's 'long-twist' frame — differed in important ways from Jean le Calabrais' traditional 'button frame': the 'branches' — that is the beams on the upper part of the loom which supported the cables from which the warp was suspended — were arranged diagonally rather than lengthwise; and the '*planche à boutons*' was no longer placed in front of the operator, but on the side of the loom. This new location of the '*boutons*' (which moved the threads of yarn to create patterns) meant that as well as the weaver a second workman could now be employed as well. This made the process both faster and more complex in the designs it could produce than the old Jean le Calabrais loom. But only some 400 'lacs' (the cables holding the threads of the warp) were used, which was much less than on the Danton loom, even though the new 'mule' was faster and more practical in operation.⁹²

Fully to understand the rise of the Lyons silk industry it is not sufficient to study only its quantitative and technical aspects — one must also use that wider approach typical of the art historian to appreciate many aspects of the development of a French fabric industry which was able to achieve a degree of independence, even though Italian influence continued to be felt. And in Lyons' bid for success, design proved the winning card. Although Avignon could boast good technical expertise and a large output of finished silks and fabrics, the creation of a group of designers whose task was to bridge the gap between painting and weaving was entirely the work of Lyons. We do not know precisely when it was that a distinction began to be made between the weaver and the designer in preparing a new fabric, nor about how the division of labour was organised.⁹³ The employment of professional designers was all the more necessary since a

⁹¹ RAZY, *op. cit.*, pp. 45-51.

⁹² *Ibid.*, p. 53. Technical and organizational development continued in the XVIIIth century and needs to be studied more closely. Once Basile Vouchon had for the first time in France introduced the practice of using 'paper punched with holes' for composing designs — and so eliminating many complex components of the loom — and the inventions of Falcon and Vaucanson were taken up, things were moving very close to what is still now considered to be the basic mechanical loom, the Jacquard loom. (cf. A. DOYON-L. LIAIGRE, *Jacques Vaucanson, mécanicien de génie*, Paris, PUF, 1967 e *Bibl. Municipale de Lyon*, Mss. 1007, *État des ouvriers et artistes qui se sont distingués dans le travail des manufactures d'étoffes de soye de la ville de Lyon*, c. 1780).

⁹³ The "*mise en carte*", "*traduction en sorte de langage conventionnel, du dessin en ses différentes particularités, par son report sur le papier dit "reglé" (carreaux)*", marked another step in the division of labour but was adapted only after the development of Bouchon's loom (cf. H. ALGOU, *Le décor des soieries françaises de l'origine à 1815*, Paris, Van Oest, 1931, p. 19). For the employment of "*dipintori*" in composing designs in Florence as early as XVth century, even if the practice was only occasional see the well known, *L'arte della seta in Firenze. Trattato del secolo XV e Dialoghi*, ed: Girolamo Gargioli, Firenze, Barbèra, 1868, p. 197).

whole range of artists, including some of the most famous of their time, took a direct interest in applied art.⁹⁴ The influence of painting on textile design brought with it quite new styles which differed from the traditional Italian decorations—and even though the fame of the latter had reached its peak in the XVIIth century, they still remained the basis for all luxury fabric designs.⁹⁵ The most important contribution of the Lyons industry lay in the introduction of new motifs and new ways of representing nature. The passion for pomp and splendour flourished under the absolute monarchy, floral motifs were eagerly taken up, with branches and foliage that were larger than life.⁹⁶ The naturalist craze was just beginning, and with it the predominance of French design in silk textiles—a predominance which was to remain unchallenged throughout the XVIIIth century. The designers also looked to the technical aspects of weaving, and if they did not all invent new technical methods of weaving, as has been claimed for Revel (1684-1751), they had certainly many new suggestions and ideas to put forward. This was certainly the case with the great XVIIIth century designers, Philippe de la Salle and Joubert de l'Hiberderie.⁹⁷ Lyons, in fact, provided an excellent and rewarding meeting-place for technical and economic development, on one hand, and artistic innovation on the other.

But it would be wrong to conclude that by the second half of the XVIIIth century Italy's importance in the field of textile design had entirely passed. Although its output was falling in quantitative terms, the Italian silk industry was still able to strike back by drawing on its long experience and the imagination of its craftsmen. The best example of this was the new 'lampas' or flowered cloths produced at the end of the XVIIIth century—these new Genoese

⁹⁴ E. G. The case of Le Brun, director of the Gobelins factory, who imposed his own taste on most of the craft and artistic output. Nor should one forget the ornamental designers and 'peintres-graveurs' like Jean Berain, Daniel Marot, Androuet du Cerceau.

⁹⁵ The main feature was the lotus flower which gradually changed into the pomegranate, using a juxtaposition of modulating colours, with highly stylised symmetrical branches and flowers: (See TUCHSCHERER-VIAL, *op. cit.*, e P. T. DECHAZELLE, *De l'influence de la peinture sur les arts d'industrie commerciale*, Paris, De Crapelet, 1804, pp. 11-14).

⁹⁶ A. VARRON, *La soie lyonnaise et la mode*, in "Les Cahiers Ciba", 1, 1946, pp. 9-11: Together with the natural silks there were also heavy brocades with highly complex backgrounds which appealed to the tastes of the age of the Sun King.

⁹⁷ The new weaving process known as 'point rentré' was attributed to Revel—this enabled a single thread to cover different dyes so giving the designs more distinct contours and more delicate tones. It is more likely that Revel thought of the "point rentré" and that it was the weaver Degailler who developed the technical process. (cfr. P. THORNTON, *Jean Revel, dessinateur de la grande fabrique*, in "La Gazette des Beaux Arts", 56, juillet-août 1960, p. 86n.; inoltre, E. LEROUQUIER, *Les dessinateurs de la fabrique lyonnaise au XVIII^e siècle*, Lyon, Revue d'histoire de Lyon, 1908. On the use of designers (1 per ca. 10 looms), the best of whom were sent to Paris to learn the latest innovations, see. *Bibl. de la Ch. des députés*, Ms. 1137, *cit.*).

fabrics had a smooth, shiny yet still polychrome finish which derived from the so-called 'chiselled' or 'garden style' traditional Genoese velvets.⁹⁸ And the so-called 'bizarre silks' which crop up all over the place at the end of the XVIIth century probably also came from Italian weavers.⁹⁹ So the French could not ignore Italian designs, particularly those of Venice, the subjects, their composition and the choices of fabrics used, but they began to absorb this experience and to copy in a much more original and independent manner than in the past. The Italian influence also remained unchallenged in designing furniture fabrics — here the Italian dictates were always adhered to, using 'symmetrical motifs' with 'large and well defined bunches of foliage' as ornamentation (100). And in the XVIIIth century, which was the great moment of triumph for French silk designs, the Italian weavers were the last to come round to the new styles pioneered by their transalpine neighbours.

In quantitative terms, the French silk industry began to make very rapid headway. The inventories of royal furnishings included huge stocks of sumptuous velvets and brocades manufactured in Lyons by merchants who had found an entrée to the Court: Sylvio, Reynon, Duc, Marsollier, Charlier and others.¹⁰¹ Textile production began now to look to export markets as well as domestic needs. Although at the end of the century Italy was still selling silks worth 10 million francs in France, the traditional situation had been reversed — France had acquired a well developed export market, and the Italian peninsula was now a part of this:¹⁰² French exports more than balanced her imports from Italy.¹⁰³

The various silk-producing centres in Italy offered increasingly less resistance and became overtaken by lethargy. For some time the Milanese silk industry had been in crisis.¹⁰⁴ As in Venice, Lucca, Genoa and Florence, so in Milan

⁹⁸ M. BEAULIEU, *Les tissus d'art*, Paris, PUF, 1965, p. 78; ALGOU, *op. cit.*, p. 16; G. SIVORI, *Il tramonto dell'industria serica genovese*, in "Rivista Storica Italiana", 84, 1972, p. 930: By a decree of 1651 the Genoese authorities encouraged the development of new textiles.

⁹⁹ P. THORNTON, *The bizarre silks*, in "The Burlington Magazine", 100, 1958, p. 266.

¹⁰⁰ TUCHSCHERER-VIAL, *op. cit.*, p. 28. The principal furnishing fabrics were damasks and broccatelles, the preferred colours being red and green.

¹⁰¹ ALGOU, *op. cit.*, p. 17.

¹⁰² Savary noted that while the Italians had the finest workshops for gold and silver silk cloths in the world, the Italians still prized and purchased French fabrics simply because they were at the French court. (J. SAVARY, *Le parfait négociant ou instruction générale pour ce qui regarde le commerce*, Paris, L. Billaine, 1675, Livre second, p. 64).

¹⁰³ Silks worth 3 million francs were sold to England, 1.5 million francs to Germany, 5 million francs to Spain and 5 million francs to Holland (BOISSONADE, *Colbert, op. cit.*, p. 177).

¹⁰⁴ Especially between 1640 and 1662, according to Cipolla. But there is no detailed study of this long process of decline. A similar falling parabola was evident at Como, which had 30 looms in 1600 but only 2 by 1650. At Pavia, as well, the 50

there was 'no technological innovation, no change in the process of production, no proper analysis of rapidly and radically changing market conditions either at home or abroad'.¹⁰⁵ As on the rest of the peninsula, the merchants of Milan continued to produce high quality and high cost fabrics, and, as has been noted with regard to Lucca, they insisted on 'producing in the traditional styles and in the traditional ways the same things that they had always done'.¹⁰⁶ In Venice the output of pure silk fabrics fell from a level of about 6,000 pieces in 1662 to between 3 to 4,000 at the end of the century—yet in the same period the most expensive gold threaded fabrics increased from some 1000 pieces to about 2000.¹⁰⁷ The high quality of these cloths meant that in 1655 Venice was still exporting to France tabby, Turkish velvets, brocatelles, and other coloured fabrics which were still considered amongst the finest in Europe.¹⁰⁸ Also, Venetian exports in the Levant remained much higher than those of France in terms of quality, and were made up of 'cloths of those colours most sought after by the Turks, Armenians, and Persians, who love scarlets, olive greens, purples, dark reds and fiery reds, and azure blues'.¹⁰⁹ In 1685 an attempt was made to set up a silk works at Marsilles to compete with the Venetians, but did not prove very successful.¹¹⁰

master silk-workers registered in 1630 had dropped to 15 by 1650 to 10 by 1700. (C.M. CIPOLLA, *Aspetti e problemi dell'economia milanese e lombarda nei secoli XVI e XVII*, in *Storia di Milano*, Milano, Treccani, 1958, parte VI, p. 394).

¹⁰⁵ A. DE MADDALENA, *A Milano nei secoli XVI e XVII: da ricchezza "reale" a ricchezza "nominale"*, in "Rivista Storica Italiana", 89, 1977, pp. 549-550: between 1679 and 1711 the number of looms fell from 809 to 283; and the silk mills from 600 to 130 (between 1672 and 1712).

¹⁰⁶ MAZZEI, *op. cit.*, p. 25. The Lucca oligarchy had always opposed the artisans' attempts to go back to producing lower quality and cheaper fabrics. For the situation in Genoa see: SIVORI, *op. cit.*, p. 940.

¹⁰⁷ D. SELLA, *Commerci e industrie a Venezia nel secolo XVII*, Venezia-Roma, Ist. per la collaborazione culturale, 1961, pp. 130-31. On the operations of the Venetian Federici company in Poland in the late XVIIIth century and on the Italian and the central European markets, where they were still a force to be reckoned with, see: A. MANIKOWSKI, *Les soieries italiennes et l'activité des commerçants italiens de soieries en Pologne au XVII^e siècle. (Marginalité des échanges ou permanence des relations économiques entre les deux pays en période de recession)*, in "Mélanges de l'école française de Rome", 88, 1976, pp. 823-43 e M. TASZYCKA, *Les soieries italiennes à Cracovie dans la seconde moitié du XVII^e siècle*, in "Kwartalnik Historii Kultury Materialnej", 1978, no. 2, pp. 152-153.

¹⁰⁸ *Archives du Ministère des Affaires Étrangères, Correspondance politique*, Venice, vol. 79, fol. 64r.-83v., *Relation du commerce de Venise*, 1655.

¹⁰⁹ A.N.P., B7 499, fol. 38r.-39r., 1694. On the export of the valuable Venetian "velours à ramages" in France, see: A.N.P., B1, *Correspondance consulaire*, 1158, fol. 17r.-21r., 1 nov. 1681. Reg. 1160, also refers to Franco-Venetian trade.

¹¹⁰ Commercial management was entrusted to Joseph Fabre, and technical organization to two Italians Belluzo of Messina and the Genoese Manfredini (*Les Bouches-du-Rhône*.

Genoese production had from about 1565 begun to describe a long falling parabola, which became more rapid between 1660 and 1700/05.¹¹¹ Velvets were the first to be hit — in 1578 some 1770 pieces were exported to France, but in 1639 the number had fallen to 777, and had become a secondary commodity in Genoese export trade. And although in 1639 sales of damasks, satins and other inferior silk cloths to France had increased (and Genoese damasks were to be found at Lyons throughout the second half of the century), this 'good result... only in small part compensated the collapse in the market for the more prized fabrics'.

The terrible, if intermittent, crisis which struck silk production in Lucca in the XVIIth century can be captured in the following figures: at the start of the century there were a maximum of 2000 looms working in the city — by 1695 the number had fallen to 500. The traditional industry of damasks and ermesines lingered on until the end of the century, since the Luccan merchants failed to adapt to the new patterns of international demand.¹¹² While a great deal of work still remains to be done on the Florentine silk-industry in the XVIIth century, it was clearly part of the general picture we have drawn.¹¹³ For Bologna, Carlo Poni's studies of the output of Bolognese *orsogli*, cloths and satins from 1670 to the end of the century clearly show the downward trend. Production and sales of the traditional Bolognese voiles were rather more stable, both at the end of the XVIIth century and in the following century, although the imitation of these items in Lyons drastically reduced the imports of the still prized Bolognese 'mourning' crepes'.¹¹⁴

Statistics from the Naval archives show clearly how Italian imports contracted while French exports expanded (see Table 1).

Nearly all the fabrics from Lucca, Venice and Avignon (whose decline benefited Lyons no less than Nîmes) lost ground in France. The hardest hit seem to have been the Venetian brocatelles (falling from 990 *libre* in 1674 to

Encyclopédie départementale. Les temps modernes (1482-1789), Paris-Marseille, Archives Départementales, 1921, III, pp. 198-199; cfr. for other information on this Company, A.N.P., B7 61-62 e 64-66).

¹¹¹ "Sales outside Genoa fell by about 31% between 1565 and 1590, and by about 52% between 1660-65 and 1700-1705", amounting to some, 83% of the export figure achieved in 1565. (SIVORI, *op. cit.*, pp. 936-39).

¹¹² MAZZEI, *op. cit.*, pp. 31, 111-12.

¹¹³ L. BRENNI, *La tessitura serica attraverso i secoli*, Como, Ostinelli, 1925, pp. 54-57.

¹¹⁴ SAVARY, *op. cit.*, pp. 62-63; C. PONI, *Un processo secolare di deindustrializzazione: Bologna dal XVI al XVIII secolo*, Relazione presentata alla X Settimana di Studio dell'Ist. Intern. "Francesco Datini", Prato, 8 aprile 1978, pp. 3 ss.

TABLE I

IMPORTS OF FABRICS OF PURE SILK, SILVER AND SILK,
AND SILKEN MIXTURES FROM FOREIGN LANDS IN FRANCE ¹¹⁵

		1674	1681	1692	1694
Damask from Lucca	libbre	4292	775	1068	2007
Damask from Genoa	"	—	2299	5662	3558
Gauze from Venice	"	—	81	—	—
Satins from Florence	"	47	1180	299	80
Taffetas from Avignon	"	52917	32347	37965	28034
Chinese satins	"	—	506	—	—
Silk cloth	"	1904	5666	12	—
Silk stuffs	"	348.2	1236	294	240
Silk ribbons	"	246.14	784	9	25
Silk 'toiles'	"	15.4	—	—	—
Silk lace	"	13.4	254	—	—
Velvets	pièces	772	267	257	140
<i>Cloths articles in silk, gold and fine silver</i>					
Gold and silver lace	libbre	41.4	—	—	—
Gold and fine silver cloths	"	—	22	—	—
Gold and silver silk fabrics	"	5	2390	34	40
<i>Mixtures of silk, yarn, wool</i>					
Venetian Brocatelles	libbre	990.8	4831	1093	124
Silk and thread yarns	"	2382	3156	30	— ¹¹⁶

124 in 1694,¹¹⁷ and Luccan damasks which were halved during this period (falling from 4292 *libbre* to 2007). As we shall see below, 1693/4 saw the beginning of a change in the economic climate which was to hit the Lyons industry. Genoese damasks held their place,¹¹⁸ but the Avignon taffetas fell heavily. Lyons was clearly producing large quantities of quality fabrics, such as gold and silver silk cloths, and lace as well - and by this date these seem to have done away with the need for imports. Looking at French exports, we see that the earlier situation had been reversed (see Table 2). 'Garden's conclusions that the exports

¹¹⁵ For 1674 and 1681, from 1st Jan to 31 Dec.; for 1693 and 1694, from 1st Oct. of the previous year to 30 Sept. of 1694.

¹¹⁶ A.N.P., B7 497, fol. 401, s.d.

¹¹⁷ On the purchase in Venice in 1684 of 36.625 *lire tornesi* of brocades, cf. J. GUYFREY, *Comptes des bâtiments du roi sous le règne de Louis XIV*, Paris, 1887, II, p. 558.

¹¹⁸ On the production of Genoese damasks in Lyons by Saugé, cf. A.N.P., B7 53, fol. 24v., 9 Jan. 1671.

FRENCH EXPORTS (in libbre) ¹¹⁹

	1676	1677	1693	1694
Cloths & fabrics of pure silk ¹²⁰	61,961	52,711	158,728	195,089
Fabrics and materials of silk and gold ¹²¹	84,102	82,597	99,856	70,884
Mixed silk and woollen fabrics ¹²²	30,520	35,740	104,927	104,650

of silk cloths and fabrics tripled between 1676 and 1694 seem then to be confirmed. And although their value was modest, the exports of mixed wool and silk cloths, and of silk and yarn, also increased at least therefold as well. The development of gold-worked silks was less impressive, and here the Milanese golden threaded silks probably maintained their position on the European markets and held their place against the French.

Although we have warned against making too clear-cut a break between the years of Colbert's ministry and those that followed, the period 1683-1726 marked a major down-swing for the French economy and for the luxury trades in particular, the consequences of which should not be under-estimated.¹²³ The causes for the slump are well known: the revocation of the Edict of Nantes, the famines of 1693 and 1709, the wars of the turn of the century. To these one must also add the protectionist tariffs which characterised France's economic policy and which damaged many of the silk centres of the Kingdom. The obligation of purchasing raw and spun silk from Lyons heavily penalised other silk towns, especially Tours and Nîmes. As a result of unremitting efforts which became increasingly acrimonious as the century progressed, Tours and Nîmes finally in 1670 obtained recognition of their more than legitimate claim for exemption from payments of duty to the Lyons 'ferme' for the silk produced in their own region. But the obligation of paying duty in Lyons on all other foreign silks, which constituted the largest proportion of those used in France, remain-

¹¹⁹ A.N.P., B7 497, fol. 401, cit.

¹²⁰ In the text: "oüate, boutons de soye, draps toile et etoffes de soye, estrasse de soye, masques de velours, ouvrages d'or et d'argent faux, tubans et ouvrages de soye, vestes de femmes de taffetas, velours, tovajoles de soye".

¹²¹ "Ouvrages et draps de soye or et argent, argent en oeuvre et pierres fausses".

¹²² "Brocatelle fil et soye, burate ou etamine laine et soye, robes de chambre".

¹²³ P. GOUBERT, *Le "tragique" XVII^e siècle*, in *Histoire éc. et soc. de la France*, II, *op. cit.*, p. 359; P. LÉON, *La crise de l'économie française à la fin du règne de Louis XIV (1685-1715)*, in "L'information historique", 18, 1956, p. 129. In addition to the long agrarian and financial crises, the prolonged wars caused markets to be closed so that the cost of raw materials (silks and dyes) rose too. The lace and carpet-marking industries lost their traditional markets and survived thanks only to government orders and subsidies.

ned.¹²⁴ Tours continued to claim that it could draw all its supplies directly from Nantes, the main port for supplying the whole Touraine region.¹²⁵ In 1701 a complaint was made that for 20 years Toulouse had been avoiding the obligation that all silk purchased in Spain should pass through Narbonne, and that these reached the city by other routes which were deemed to be more economical.¹²⁶ The Lille silk industry, which expanded after the French conquest of the city,¹²⁷ refused to purchase Italian organzines from Lyons where heavy duties had to be paid. It forcefully defended the right, and at times successfully, as in 1694, to purchase directly from Antwerp where Italian silks arrived at lower prices via Germany.¹²⁸ And the protests made by Lyons, Tours and Paris against the favours granted the Flemish town showed that they were still far from accepting any notions of free industrial competition.

Taken together, these adverse factors could not but harm the leading silk manufacturing centres. In Lyons the prolonged depression reduced the purchasing power of the nobility and so decreased demand, causing the impoverishment of the mass of the workers and exacerbating social tensions. In 1689 40,000 workers were in a state of penury, and ten years later there were only 4,000 still in employment — and of the 8 to 10,000 looms operating in better times only some 2,500-3,500 were still at work in 1690.¹²⁹ With the onset of the Dutch wars and the closure of those markets, Tours experienced a series of violent booms and slumps from which it never fully recovered.¹³⁰ By 1679 the number of looms had fallen to 1800, although a slight recovery in the following year brought the total again to 2200.¹³¹ But silk milling, a traditional activity in the region, suffered deep crisis, and the collapse of the system of production led to a fall in quality and growing neglect of regulations, such as those governing fabric widths.¹³² In the spring of 1691 there was a slight recovery, and the number of looms increased by 500 from the previous autumn and reached

¹²⁴ L. GUENEAU, *Lyon et le commerce de la soie*, Lyon, Bascon, 1933, p. 63.

¹²⁵ A.N.P., B7 = 500, fol. 177v.-179r., 1701; *Bibl. de l' Arsenal*, Ms. 4097, fol. 24, *Mémoire sur la province de Tours*, 1703.

¹²⁶ A.C.L., CC 4349/8, 1 Feb. 1701.

¹²⁷ The principal factory, belonging to Delamoy, had started producing flowered velvets 'with a satin background' and golden backgrounds, as well as plain velvets from 1687. (CLOUZOT, *op. cit.*, pp. 67-68).

¹²⁸ A.N.P., B7 63, fol. 54v.-57v., 12 Feb. 1693; fol. 194r.-v., 19 May 1694. At times the city obtained raw silk from England and Holland, via Rouen (B7 499, fol. 370r.-372v., 8 Nov. 1699).

¹²⁹ GASCON, *Une crise urbaine*, *op. cit.*, pp. 371-73.

¹³⁰ BOSSEBOEUF, *op. cit.*, pp. 274-75.

¹³¹ A.N.P., G7 518, 30 Nov. 1680.

¹³² G7 1685 (1685-1699), fol. 68 ss., *Mémoire touchant le commerce des soyes à Tours*, s.d.; BOISLISLE, *Correspondance*, I, *op. cit.*, 17 March 1697, p. 445.

3,000, giving rise to fears of labour shortage due to the war that was in progress.¹³³ But the unfavourable economic situation at the end of the century which damaged all of the French silk manufacturing centres threw the silk-mills of Tours into ever deeper crisis.¹³⁴ In 1700 observers wrote that the town was in a state of decay, the mills had broken down and fallen in number, and there were no jobs for the workers — and by then there were only some 1,200 frames in action, some 70 mills working and only 3,000 craftsmen at work.¹³⁵

After the revocation of the Edict of Nantes, the reduction in the number of taffeta and ribbon looms and in the number of silk mills at Nîmes was no less drastic (the former fell to 200, the second to 300 and the latter to 80). But although the situation remained uncertain, in 1698 the 'silk-mills seemed to be recovering'. By 1700 there were 800 looms at work employing 3,000 people. This increase continued into the XVIIIth century, with various stops and starts up to 1750, and more positively thereafter.¹³⁶

Further damage was caused by the emigration of large numbers of Protestants from the silk manufacturing zones.¹³⁷ And in Lyons, for example, the 'master-craftsmen' had always been hostile to the Huguenots (although in 1667 a decree by the municipal council had obliged them to admit Protestants), so that when the Edict was revoked there were only 250 of them.¹³⁸ But in the case of the industrial activities of the *Ancien Régime*, certain kinds of technical knowledge and manufacturing secrets held by a small number of workshops only could play a decisive part in determining competitiveness in international markets. Rather than the simple number of exiles, therefore, one should take account of the consequences of the diffusion of technical knowledge of a type that many European nations were keen to acquire. One cannot then ignore the fact that as a result of the revocation of the Edict of Nantes many aspects of silk production became known in Holland, Spain, Germany, and Switzerland, as various studies have demonstrated.

Montgeorge from Lyons, for example, introduced the process of 'lustring'

¹³³ G7 520, 6 March 1691.

¹³⁴ It was no longer sufficient merely to reduce the export tax of 14 *soldi per libbra* to 7 *soldi* to revive the city's industry. (BOISLISLE, *Correspondance*, II, *op. cit.*, 8 Avr. 1701, p. 502).

¹³⁵ BOISLISLE, *Correspondance*, II, *op. cit.*, 16 Nov. 1699, 24 March 1700, 11 June 1700, pp. 12, 32, 41.

¹³⁶ *Ibid.*, 8 March 1700, p. 30; L. DUTIL, *L'industrie de la soie à Nîmes jusqu'en 1789* in "Revue d'histoire moderne et contemporaine", 10, 1908, pp. 320 s..

¹³⁷ J. J. HERMANDIQUER, *Les conséquences de la révocation de l'édit de Nantes: une révision*, in "Annales E.S.C.", 16, 1961, pp. 1212-17.

¹³⁸ GARDEN, *Le Lyonnais*, *op. cit.*, p. 235. Throughout the XVIIIth century it was forbidden to use patterns of the reformed religion in Lyons workshops (LEROUDIER, *Les dessinateurs de la fabrique*, *op. cit.*, p. 7 n.).

taffetas into Britain, and many other Lyons craftsmen emigrated there as well — with the result that whereas 'Perfidious Albion' in 1685 had imported French silk goods to the value of 200,000 *livres* in 1698 it was able to prohibit the entry of French taffetas.¹³⁹ In addition, lusted taffeta, silk stockings, 'gold and silver edgings', braids, 'plain and fancy gauzes' were being produced in Zurich by the end of the XVIIIth century thanks to the presence of French craftsmen. Among the refugees arriving there were not only craftsmen and merchants, but entrepreneurs as well, like Gabriel Bruguier from Nîmes (who set up a manufactory for lusted taffetas) and the Bourguet brothers and Pierre Jerussien of Sommières in the Gard.¹⁴⁰ And the uniformity of styles achieved among many textiles produced in England, Germany and Lyons at this time seems to provide further proof of the influence exercised by the forced emigration of French workmen.¹⁴¹ By the mid-XVIIIth century one could argue that they had made a fundamental contribution to the development of many manufactures throughout Europe, and that they had decisively replaced the traditional emigrés from Genoa and Piedmont.¹⁴²

The crisis of the end of the century, which was to continue and culminate in the years 1713/14, also confronted Lyons, which retained its place as the principal centre for the silk trade in France, with revived and threatening competition from Italian textiles and from the fabrics of Zurich and Avignon. The situation

¹³⁹ LÉON, *La crise de l'économie française, op. cit.*, p. 129. Some Protestant weavers had reached England in 1629 (their main centre being Spitalfields in London). The expansion of the English silk industry continued through the XVIIIth century, reaching a high degree of perfection and specialisation. By the mid-century London alone had some 8,000 looms (see: TUCHSCHERER-VIAL, *op. cit.*, p. 29; *Bibl. de la Chambre des Députés*, Ms 1137, cit).

¹⁴⁰ One Lausanne factory was composed entirely of craftsmen from Nîmes: in London they were a separate group: at Amsterdam they made ribbons like those of Nîmes (*Aperçu historique, op. cit.*, p. 9; DUTIL, *op. cit.*, p. 320).

¹⁴¹ VARRON, *op. cit.*, pp. 9-11.

¹⁴² In the first half of the XVIIIth century — according to a not entirely impartial contemporary account — some 15,000 looms were set up abroad by Lyons weavers — 1000 of these being at Berlin where silk production had yet not begun. Vienna also benefited, and its 200 looms run by Genoese and Piedmontese rose to nearly 2,500. Lyons workers also launched the silk industry at Talavera in Spain and helped perfect Dutch velvet manufacture. Even the Italian manufacturers, who were by now in serious difficulties, turned to the Lyons masters in an attempt to renovate their workshops. (*Bibl. Chambre des députés*, Ms 1137). For the development of the silk industry in Germany, where the XVIIIth century witnessed the collapse of Cologne and the rise of Krefeld see: cfr. *Prussian Mercantilism and the Rise of the Krefeld silk industry: variations upon an Eighteenth-Century theme*, in "Transactions of the American Philosophical Society", New Series, 58, 1968, Part. 7, p. 3; on Italian silks at the fairs in the XVIIIth century see: GÜNTHER MEINERT, *Handelsbeziehungen zwischen Sachsen und Italien. Eine Quellenveröffentlichung*, Weimar, Nachfolger, 1974, pp. 71-75.

is amply revealed by the city's customs registers for the years 1705-1714.¹⁴³ 'ordinary coloured' damasks from Turin rose from 200 *libbre* in 1705 to 7,507 *libbre* in 1714; while crimson damasks increased from 50 to 1,568 *libbre*. There was a similar increase in Turin taffetas (from 95 to 1,846 *libbre*), as well as satins which tripled in volume. Genoese and Milanese damasks, velvets, and taffetas greatly consolidated their positions, both the 'ordinary colours' and the crimsons, while the presence of the older manufacturing centres (Venice and Lucca) was also felt again, although to lesser degree. And although this decade was without doubt exceptional, it does demonstrate that Italian production still constituted a force to be reckoned with, especially in times of economic difficulties, both because French textile production remained insufficiently large in volume and because the Italian fabrics retained their high quality.

An important factor was the change in the hierarchy of the Italian cities active on the French markets. In these first decades the top position was now held by Turin: in 1714 it exported damasks, taffetas, broccatelles, velvets and silk handkerchieves to the value of 963,581 *livres* — as Lyons' total imports were valued at 4,546,083 *livres* this gave Turin a share of about 20% of all fabric entering the city.¹⁴⁴ The only opposition was from Genoese velvets, which together with damasks and taffetas were valued at 631,770 *livres*. But Avignon was still a competitor to be feared by both the Lyonnais and the Italians, and in 1714 the French market was literally inundated with its 'taffetas, estamines, broccatelles, and best quality stockings'.¹⁴⁵ These commodities reached a value of 2.5 million *livres* — 50% of the total imports in Lyons. When added to those of Turin, they amounted to 75% — a fact which was noted with alarm on the Lyons market.¹⁴⁶

Despite the progress made by the Lyons '*fabrique*' in the second half of the XVIIth century, it still lagged behind many other French and Italian cities in the production of certain textiles. An interesting report on 'The State of silk and gold merchandises manufactured in Lyons' drawn up in 1715 examined fabric by fabric the advantages (in terms of cost and quality) of the products of the city on the Saone, comparing them with those of other French

¹⁴³ A.C.L., CC 4352/9, 1705-1714, *Estat général des soyes... qui ont été acquittées à la doane de Lyon depuis l'année 1705*. For some inexplicable reason Bologna *crêpes* were put in another list and were not included here (4352/45).

¹⁴⁴ ACL CC 4352/45 1714. Trudaine, the Intendent of Lyons, was concerned in 1706 that the Dukes of Savoy had abandoned their traditional policy of concentrating on the production of silk worms to encourage spinning and throwing in order to increase the production of finished cloths, making them dangerous competitors for the Lyons manufacturers (BOISLISLE, *Correspondance*, 11, *op. cit.*, 1st July 1706, p. 355).

¹⁴⁵ *Fleuret* or 'silk ferret' was produced from spun '*bourre*' and '*déchets de soie*'. Zurich was a major exporter of *fleurets* to Lyons, and had produced them since the late XVIth century. (*Aperçu historique, op. cit.*, pp. 7-8).

¹⁴⁶ A.C.L., CC 4349/34, 1715.

and Italian cities. Since the analysis was conducted objectively, many of its findings can be accepted as valid.¹⁴⁷ For brocades, gold and silver interlaced brocades and for lustered silks Lyons offered high quality and relatively low prices. But for pure silk damasks, both decorated and plain (the latter being used for clothing and furnishings) Turin was the more competitive, producing high quality fabrics at 15% lower prices. Genoa on the other hand produced finer furnishing damasks although at higher prices.¹⁴⁸ Also the satins of Amsterdam and Turin proved to be 15% cheaper. But Lyons again held the lead with its famous 'lustered black taffetas',¹⁴⁹ but fell behind Genova, Turin and Holland for many other velvets. In fact 'flowered' velvets only began to be produced (whether or not without interruption is not known) in 1718.¹⁵⁰ Also Bologna *crepes* remained highly prized and feared, even though they were subject to an import duty of 30%. The same was true of other light fabrics: the gauzes of Paris continued to be preferred to those of Lyons,¹⁵¹ Lyons produced few silk 'estamines' and they continued to be imported mainly from Avignon and then redistributed on home and foreign markets. For the smaller silk and yarn or silk and woollen fabrics like 'satinet', brocatelles, 'grizettes' and poplins Turin and Avignon offered lower prices and better quality. The smaller decorated fabrics of Paris and Tours remained famous, particularly for their variegated colours which Lyons was unable to emulate.¹⁵²

Nor did this situation change quickly. A survey conducted in the mid-XVIIIth century on the state of the Lyons 'fabrique' concluded that its 'glossy black taffetas' and its gold and silver brocades were the finest in Europe, especially where design was concerned, and constituted the principal export commodity, revealing too that production had become further diversified.¹⁵³ But competition

¹⁴⁷ A.C.L., CC 4352/23, 1715.

¹⁴⁸ The production of damasks in Holland was good and cheap—those of Tours were of poorer quality.

¹⁴⁹ Both Turin and Avignon produced taffetas of similar colour and at better prices.

¹⁵⁰ ACL Inv. CHAPPE, *cit.*, VII fol. 214. Contract between Quinson and Laurent to start a manufacture of velvets 'à ramages et cizelés in imitation of those of Venice.

¹⁵¹ On the expansion of the production of 'gauzes' in Paris in the XVIIIth century (which was greater than for any other fabric, with 1500 gauze looms as against only 600 looms producing other fabrics) see: *Bibl. Chambre de Députés*, Ms 1137, *cit.* In addition, Paris also possessed an unchallenged production of gilded cloth, while the Tours 'pannes' were also of the highest quality (CLOUZOT, *op. cit.*, p. 61).

¹⁵² Avignon and Nîmes continued to produce silk stockings of higher quality and in greater number than Lyons. And although the best 'rubans' came from Saint-Etienne and Saint Chamond, they were still woven in Italy and Holland, (*Bibl. Mazzarine*, Ms 1850 fol. 10r-11v, *cit.*; ACL CC 4352/23 *cit.*).

¹⁵³ *Bibl. Mazarine*, Ms 1850, *cit.* These articles, to a value of 800,000 *livres*, were exported to Holland at a time when the total exports to that country did not exceed 1 million *livres*. But thanks to the exports from Lyons, the commercial balance with England and Germany was in surplus.

from Italy had not ceased, even though it was beginning to take new forms which barely concealed the subordinate and secondary role now enjoyed by the peninsula on the European silk markets. In this sense, the significance of the huge exports of raw and semi-worked Italian silks has been correctly interpreted.

Although the expansion of sericulture in Languedoc,¹⁵⁴ the Lyons region, Dauphiné, Forez and the lower Vivarais was real (especially after the encouragement given by Colbert, and at least until 1680), but this did not in any way change the structural demands of the national silk industry. The raw and semi-worked silks entering Lyons and produced in the surrounding region rose from 264,300 *libbre* in 1676 to 922,880 *libbre* in 1685, and were used in the production of 'taffetas and quality fabrics'.¹⁵⁵ But by the end of the XVIIth century domestic supplies (totalling around 1200 bales of raw silk) met less than 20% of the needs of the Lyon manufacturers.¹⁵⁶ And the century also closed with a series of bad harvests, and in 1699 that of Languedoc was completely lost.¹⁵⁷

The result was that in the first two decades of the XVIIIth century Lyons' dependence on the raw silks not only of Italy but also of the Levant and Persia increased.¹⁵⁸ Out of the total 1,369,573 *libbre* of raw silk entering Lyons in 1714, over 90% came from abroad (1,236,900 *libbre*), even though this figure would include silks from Avignon as well as from Italy. Certainly 1714 was an exceptional year, but it conformed to the pattern of the previous decade (which was exceptional too, as we have stressed, but still indicative of certain basic tendencies) when the Italian share in the supply of silks never fell below 75%.¹⁵⁹

It was the Genoese above all who held a virtual monopoly over the export into France of raw Italian silks: it was they who set the price and regulated the volume even when production in Italy was abundant.¹⁶⁰ In an attempt to break the Genoese hold and to diversify the sources of supply by favouring direct provision from the Levant, a duty of 20% was added in 1670 to all Levantine silk shipped via Genoa, Livorno and other Italian ports and Marseilles (which had been made a free port in the previous year) was identified as the transit place for silks entering by sea, while Pont Beauvoisin had the same function for overland entries.¹⁶¹ But in order to evade this duty which obviously favoured Marseilles, the Italian merchants who dealt in both national and Levantine silks passed the latter off at Pont Beauvoisin as Italian, taking them

¹⁵⁴ LE ROY LADURIE, *op. cit.*, pp. 440-441.

¹⁵⁵ A.N.P., B7 497, fol. 441v.-442v., 1696.

¹⁵⁶ BOISSONADE, Colbert, *op. cit.*, p. 176.

¹⁵⁷ BOISLISLE, *Correspondance*, I, *op. cit.*, 14 June 1699, p. 527.

¹⁵⁸ A.N.P., G7 359, 24 Oct. 1703.

¹⁵⁹ A.C.L., CC 4352/9, *cit.* In 1714 over 300,000 *libbre* of "soie de mer" were imported via Marseilles.

¹⁶⁰ A.N.P., B7 500, fol. 177v.-179r., 1701.

¹⁶¹ A.C.L., CC 4349/5, 9 Aug. 1670.

through in open bales and disposing of them in the same way as those from Turin.¹⁶²

To break out of a centuries old pattern and to create a genuine alternative source of supply was then a difficult task which required much time. But was there ever any real intention to do so? How else can one interpret the repeated obstacles put in the way of the East India Company's efforts to import Indian and Chinese silks into France?¹⁶³ These were of much lower price than those of Italy, the Levant and France herself. But clearly the commercial and industrial position of Lyons, which received the duties levied at Pont Beauvoisin — and which would not have applied to the Oriental silks — and the huge web of interests which had built up around this traditional commercial organisation, were too strong for it to be possible to attempt some new strategy which would be based on criteria of diminishing costs and a cautious commercial liberalism.¹⁶⁴

In conclusion, then, by 1750 more than half the total volume of raw and spun silk certainly came from Italy — some 3,100 bales out of an annual average of 6,000 bales imported.¹⁶⁵ And unlike those of Spain and the Levant, the silks of northern Italy came mainly in the form of organzines and woof. The most sought after were the organzines of Piedmont, which had decisively displaced the Bologna *orsogli*,¹⁶⁶ and this also encouraged the development of a yarn spinning industry which became diffused throughout northern Italy (and as well as in Piedmont the organzines were produced in Milan, Modena, Bergamo Vicenza, Bassano, as well of course as Bologna, although here the volume had

¹⁶² A.N.P., B7 58, fol. 569-571, 31 July 1687.

¹⁶³ In 1697 and in 1714 the Indies Company was refused permission to sell a stock of Oriental silks at Nantes on the grounds that this would have harmed domestic production and undermined French influence over European fashions. (See ANP, B7 498, fol. 212r-214v, 1697).

¹⁶⁴ ACL, CC 4320 13th March 1714.

¹⁶⁵ *Bibl. Mazarine*, Ms 1850, fol. 9v-10r cit. Each bale of '160 livres poids de marc net' was made up as follows: 1,400 from the Levant, 300 from Spain, 1,200 from Languedoc, Provence and Dauphiné, 3,100 from Italy (1,600 of which from Sicily alone). Since one *libbra* 'poids de marc' was equivalent to 489 gr, this would give a figure of 4772 ql — in other words less than in 1768, when there was reference to 6,000 quintals of worked silk and 3,000 quintals of raw silk being imported each year into France (if these figures are reliable) — at the same time France was estimated to produce at maximum 3,000 quintals, a figure based on the calculation that there were 1.5 million mulberry trees in the Kingdom (See M. AYMARD, 'Commerce et production de la soie sicilienne aux XVI^e-XVII^es' in *Mélanges d'archéologie et d'histoire*, 77, 1965, p. 610; GASCON, *Grand Commerce*, op. cit., 1, p. 44; A.N.P., B7 493/5, *Mémoire sur les soies*, (1768).

¹⁶⁶ In 1703 the Bologna organzines were still said to be better than those of Bergamo, Milan and France. But there is reference to a Bolognese manufacturer who moved to Turin and began producing *orsogli* which were as fine, not better, than those made in Bologna (A.N.P., G7 359, 24th Oct. 1703).

fallen).¹⁶⁷ Neapolitan silks came mainly in the form of woof, although a large part was unworked: those of Sicily as woof or organzine; while those of Reggio Calabria and Messina were mainly raw.

Reeling had made considerable progress in France, as we have said, and there were many 'throwsters', even though they lacked local supplies of raw silk for spinning. As was noted, a single mill could process the silk output of 150 villages, but when the number of mills increased out of proportion the yarn produced was dearer and less sought after than the Italian.¹⁶⁸

The problem of how these imports were distributed within the French market has still to be settled. We need to clarify many aspects of the effective part played by Lyons in total production in the XVIIIth century.¹⁶⁹ According to one Parisian source, only 1,300 of the 6,000 bales imported annually into Lyons were consumed by the city's mills (2/3 of this went to gold and silver fabrics, the rest was turned into yarns).¹⁷⁰ There could be no better illustration of the need to look more carefully at the role played by the golden cloths, the gauzes, and the 'galons' produced in Paris, not to mention the 'gros', the 'pannes' and the smaller fabrics of Tours.

The availability of abundant supplies of raw material and cheap labour — which came mainly from the countryside and therefore differed from the

¹⁶⁷ ACL CC 4353 *Mémoire anonime* (early XVIIIth century). Some of the Milan silks were produced in the form of woof. As early as 1670 worked and spun silks constituted the basis of the exports of the Milanese state. By 1752 we learn that spun silk and organzines made up between 70-80% of Piedmont's exports. No less spectacular was the increase in the production of raw silk for export in the Venetian Republic, which rose from 450,000 *libbre* at the end of the XVIIth century to over one million in the mid XVIIIth century and more than 2 million by its close (cfr. G. LEVI, *La seta e l'economia piemontese del Settecento. A proposito di un saggio inedito di Dalmazzo Francesco Vasco*, in "Rivista Storica Italiana", 79, 1967, p. 805; D. SELLA, *Contributo alla storia delle fonti: i filatoi idraulici nella Valle Padana durante il sec. XVII*, in *Studi in onore di A. Fanfani*, Milano, Giuffrè, 1962, V, pp. 629-31; IDEM., *Commerci e industrie, op. cit.*, p. 88; PONI, *All'origine del sistema di fabbrica, op. cit.*, p. 497.

¹⁶⁸ Although the key factor was increasing the production of raw silk, there were also improvements in silk-throwing due to the adoption of new techniques such as the 'tour à filer la soye de Vaucanson' (Sec ANP, B7, 493/5, c. 1768; ACL, CC 4236, June 1758).

¹⁶⁹ On the Lyons silk industry in the XVIIIth century see the forthcoming study by Jean Peyrot, part of which is published in *Les techniques du commerce des soies au XVIII^e siècle à travers les documents commerciaux et comptables des fabricants de soieries*, in "Bulletin du centre d'histoire économique et sociale de la région lyonnaise", 1, 1973, pp. 29-48; cfr. also *Papiers d'industriels et de commerçants lyonnais. Lyon et le grand commerce au XVIII^e siècle*, ed: Pierre Léon, Lyon, Centre d'hist. éc. et soc. de la région lyonnaise, 1976.

¹⁷⁰ *Bibl. Mazarine*, Ms. 1850, fol. 9v.-10r., cit. 200 bales were sent to Rouen, and as many to Piccardy, another 500 (almost all silk "à coudre") were distributed on the domestic market.

'*canuts*' of Lyons who were concentrated within the city boundaries and therefore tended to push production costs up — made it possible for the Italians, and the Genoese in particular, to carry on exporting to France all the way through the XVIIIth century not only spun yarns but also finished cloths. But the roles had been reversed: whereas in the early XVIIth century France had met the overwhelming superiority of the Italians by producing medium quality cloths at low cost, within a century the Italians were forced to follow the same path. The most convincing demonstration of this is to be found in the flooding of the Paris market with cheap Genoese plain velvets at the time of the Austrian War of Succession, when 75% of the Lyons looms were forced to stop operating. But by that time the 'variegated, chiselled and figured velvets' of Lyons which thirty years earlier had not stood comparison with those of Italy were second to none.¹⁷¹ Coming back then to Cipolla's discussion of Italy's 'decadence', which Wallerstein has recently re-examined in more general terms, the struggle to achieve competitiveness in quality and cost in Italian silk production can be seen as an important feature of the peninsula's battle to avoid relegation from the centre to the periphery which the international development of the silk industry threatened to impose on it.

¹⁷¹ A.C.L., CC 4353, *Mémoire anonyme*, cit.

¹⁷² I. WALLERSTEIN, *The Modern World System...*, New York-London, Academic Press, 1974; PONI, *All'origine del sistema di fabbrica*, op. cit., p. 496.

