Domestic Industry, Manufactory and Early Industrialization in Bohemia

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In recent years the history of early manufacturing and domestic industry has attracted the interest of economic historians in many different countries. New research has emphasized the long term character of industrialization. This was something that J.U. Nef had emphasized when years ago he described Britain's industrialization as a long term process that lasted from the mid-XVIth to the late XIXth century.[1] With reference to W.W. Rostow's theory of the 'Stages of Economic Growth' [2] H. Myint wrote that 'the pre- 'Take- Off' phase... in Western Europe lasted a century or more'.[3] Herbert Kisch also noted that post-war historians like Phyllis Deane [4] and Christopher Hill [5] 'see the initial stage of industrialization as a long timespan' and described the 'preparatory phase' in terms of centuries.[6]

Those who have studied the 'preparatory phase' of modern industrialization have taken as their starting point the conditions existing in Britain and to some extent, in France and the Netherlands as well. Franklin F. Mendels in his essay on 'Proto-

[1] J.U. Nef, "The Progress of Technology and the Growth of Large-Scale Industry in Great Britain 1540-1640" in Economic History Review 5 (1934), p. 22.

[2] W.W. Rostow, "Stages of Economic Growth", Cambridge 1960.

[3] H. Myint, "Social Flexibility, Social Discipline and Economic Growth" in: International Social Science Journal 16, 1964.

[4] Phyllis Deane, "The First Industrial Revolution", Cambridge 1965.

[5] C. Hill, "Reformation and Revolution. The Making of Modern English Society 1530-1780" New York 1967.

[6] Herbert Kisch, "Die hausindustriellen Textilgewerbe am Niederrhein vor der Industriellen Revolution", Göttingen 1981, p. 61.

industrialization: the First Phase of the Industrialization Process' [7] and again ten years later in his paper to the international economic history conference in Budapest argued that proto-industrialization was concerned with the transition to the modern phase of industrialization, or in other words with 'industrialization before the industrial revolution'.[8]

Central Europe has generally been considered as an underdeveloped region, however, and, as a result, has been left out of these debates. The works of Rondo Cameron and David E. Good from the eightienth are an exception.[8a] I intend to argue that Central Europe should not be excluded since its industrial development took place at the same time as in Western European countries. While there were of course differences, there were also many similarities in the processes of industrialization in the two regions that deserve closer study.

Studies of domestic industry frequently refer to the work of Joan Thirsk [9] and Eric L. Jones.[10] Both have argued that domestic industries in England flourished especially in regions of woodland and pasture, whereas on the fertile plains the population was engaged in cereal farming. Jones speaks of a division between areas of cereal growing and others where pasture was combined with rural domestic industries. It is worth bearing in mind therefore that when on 11th January 1656 the Bohemian authorities set about fixing land taxes they stated that the country should be divided into mountainous regions and plain, since they did not believe that the quantity of land was in itself an accurate indicator of income levels. They went on to state that

[7] F. MENDELS, *Proto-Industrialization. The First Phase of the Industrialization Process*, in: Journal of Economic History 32, 1972.

[8] *Ibid., Proto-Industrialization: Theory and Reality*, in: Eighth International Economic History Congress, "A" Themes, Budapest 1982, p. 74.

[8a] RONDO CAMERON, "A new View of European Industrialization" in the Economic History Review, vol. XXXVIII, London 1985, p. 18. DAVID F. GOOD "The Economic Rise of the Habspurg Empire 1750-1914", University of California Press, 1984.

[9] JOAN THIRSK, "Industry in the Countryside", in: Essays in the Economic and Social History of Tudor and Stuart England, in honour of R.H. Tawney.

[10] E.L. JONES, Agricultural Origins of Industry, in: Past and Present 40, 1968.

in the mountain regions there were many more opportunities for earning incomes than on the plain where all were engaged primarily in cereal production, and they referred specifically to the production of linen, wool and glass. It was decided that for assessing tax a unit of land in mountain regions should contribute between 3 or 4 times more than the same land unit on the plain".[11] As early as 1656, in other words, the Bohemian authorities identified the same phenomenon that Thirsk and Jones have described for England in the same period.

It has also been argued that population growth in England and an absence of suitable pastureland led cattle farmers to seek additional earnings from domestic industries.[12] F.F. Mendels also argued that in certain areas of the Netherlands where there was a surplus in the labour supply alternative employment was provided by domestic industries.[13] Looking at the situation in Bohemia in the light of these observations we find that the statistical data from 1764 show that the population density per km^2 was 30% greater than the average for the country as a whole. In 1789 the data reveal that there were 82 people living in every km^2 in the regions of Northern Bohemia where the rural industries were concentrated in contrast to 56 per km^2 in the cereal producing regions.

Why was this? In the plains one important factor was the system by which farm-land was inherited, since this normally went to the youngest son. The other children had to find work as farm labourers, dairy maids or as craftsmen. But it was more difficult to find alternative forms of work capable of supporting a family than in the mountains where there were domestic industries, especially in those regions of Bohemia where linen and wool production or glass-making were established.

[11] A. Klíma, Manufakturní období V Čechách (Die Manufakturperiode in Böhmen), Praha 1955, p. 90.

[12] J. Thirsk, Industry in the Countryside, p. 84.

[13] F. Mendels, Population Pressure and Rural Industrialization in Early Modern Europe, paper read at Purdue Economic History Conference, Jan. 1969, p. 4.

Demographic factors are of the greatest importance for the historian of proto-industry and Hans Medick has argued that the dynamics of population growth were the 'central driving mechanism in proto-industrialization'.[14] Wolfgang Mager similarly defines proto-industrialization as 'a process whereby a region is commercialized through the diffusion of domestic industries that come into being thanks to increases in population'.[15]

Historians have recognized the importance of domestic industry in its various forms of the putting-out system and direct purchase.[16] In the case of the linen producing regions of Northern Bohemia, we find that in the major towns like Frýdlant (Friedland) and Liberec (Reichenberg) there were proportionately fewer looms than in the rural villages from as early as 1601.[17] The progress of these rural industries did not decline thereafter but grew stronger. In one of the most important textile manufactories in Bohemia at Nová Kdyně (Neugedein) 1,400 domestic spinners were employed in 1775, and by 1838 their number had risen to 7,000.[18] The continuation of domestic production should not be seen as something that was particular to Bohemia and certainly not as a sign of economic backwardness and H.J. Habakkuk has demonstrated its scale even in XIXth century England.[19]

[14] Peter Kriedte, Hans Medick, Jürgen Schlumbohm, Industrialisierung vor der Industrialisierung, Göttingen 1978, p. 155.

[15] Wolfgang Mager, Gesellschaftsformation im Übergang: Agrarisch-heimgewerbliche Verflechtung und ökonomisch-soziale Dynamik in Ravensberg während der frühen Neuzeit und dem Vormärz (16. Jahrhundert bis Mitte 19. Jahrhundert), in: "VIII. Congres International d'Histoire Economique, Budapest 16-22 août 1982, Section A2: La protoindustrialisation: théorie et réalité, p. 2.

[16] P. Kriedte, H. Medich, J. Schlumbohm, Industrialisierung vor der Industrialisierung, p. 102.

[17] In the town of Frýdlant 59, in the region 199, in Liberec 27, in the region in 1618 however 184 cf: A. Klíma: "The Role of Rural Domestic Industry in Bohemia in the Eighteenth Century", in: The Economic History Review 27, 1974, s. 48.

[18] A. Klíma, Manufakturní období, p. 374.

[19] H.J. Habakkuk, American and British Technology in the Nineteenth Century, Cambridge 1962, p. 147.

The production of these village spinners and weavers was closely related to the growth of mercantile capital. The domestic spinners and weavers produced yarn and linen cloth at home which they then sold in the market place. Here the yarn was purchased either by the weavers or by merchants, who organized its subsequent manufacture and processing before selling the finished product. This system was widespread in Bohemia. In the linen producing regions of north-eastern Bohemia markets were held every week in three relatively near-by towns: in Trutnov (Trautenau) on Mondays, in Police nad Metuji on Wednesdays and in Broumov (Braunau) on Saturdays. The linen was purchased either by merchants or by buyers from the larger manufactories for further processing. But in Bohemia the putting out system was generally more important than direct purchase (Kaŭfsystem). The linen weavers of Böhmisch Neustadt worked for a merchant named Christian Finke from Zittau, while the domestic spinners worked for other distributors and the linen weavers for a merchant named Loose from Zittau.[20] There were also other local putting-out merchants who collected linen for the major Nuremberg commercial houses like those of the Gewandschneider, the Viatis and Peller.[21] In this way the production of thousands of domestic spinners and weavers was appropriated by mercantile capital for its own interests.

The part played by mercantile capital was critically important in the development of the Bohemian textile industry from the XVIth to the XIXth century. German and English capital played an important part in this, but as well as foreign capital local capital and local merchants were also involved. Although the later often collaborated with the foreigners there were others who operated on their own. But it is remarkable that amongst the linen merchants and putters out in XVIIIth century Bohemia there were quite a number of serfs whose annual commer-

[20] A. Klíma, Manufakturní období, p. 136.
[21] A. Klíma, Manufakturní období, p. 137-142.

cial turn-over was as much as 100,000 guilders and more.[23] This demonstrates how mercantile capital originated in Bohemia and also shows that despite the complicated conditions of serfdom it was still possible for peasants to play an active role not only in domestic industry but also in the entrepreneurial functions of trade and distribution, thereby acquiring incomes comparable to those of the landlords.

The system of distribution was closely dependent on the dispersion of manufacturing in Bohemia. In the case of linen production this is well illustrated by the case of Robert Allason's company in Rumburk (Rumburg). The first reference to this English merchant was in Saxony in 1709.[23] In 1713 he moved to Rumburg, an important linen producing centre in Northern Bohemia. At the time of his arrival there were 30 looms operating in Rumburk, but the number had risen to 580 by the time he died eleven years later.

Before 1713 Allason purchased linen in Saxony and in Northern Bohemia which he then exported to England. He built two commercial bleaching plants which were capable of processing respectively 800 and 600 pieces of linen. He also built a mill in which he installed a dyeworks, a starching shop and a crushing shed in which 18 workers were employed. There were offices for book-keeping and cash transactions, as well as a packing room. Allason's linen cloth was exported to England, but his firm operated on the basis of a typical dispersed manufacturing system. In Rumburk alone he employed 316 master weavers with their journeymen and apprentices as well as others in neighbouring towns like Šluknov (Schluckenau), Chřibska (Kreibitz), Jablonné (Deutsch Gabel), and Jircetin (Georgenthal). Allason's representatives also bought linen in the markets

[22] As e.g. in the Trautenau Business Company. A. Klíma Manufakturní období, s. 312.

[23] Arno Kunze, Die Oberlausitzer Leinenausfuhr nach England, Holland und Spanien im 17. und zu Beginn des 18. Jahrhunderts, in: Zitauer Geschichtsblätter, 7, 1930, n. 2, p. 5.

of the towns in the region and people from local villages were employed in the putting-out system.

Thousands of spinners and weavers worked on Allason's account. In the eleven years of the company's operations it exported more than 157,000 pieces of linen worth over 4,700,000 guilders in sales. During the same period over 1,800,000 guilders were paid for yarn, linen cloth and wages. An average manorial estate with some 20 villages could expect an annual income of about 25,000 guilders, so that Allason's operation was in comparative terms quite remarkable. It also shows that in the early XVIIIth century there were ample opportunities for the development of successful domestic industry in Bohemia which, with the various processes of bleaching, dyeing, fulling and packing, provided the local population with a wide range of employment opportunities, whilst also bringing great profit to the commercial entrepreneur. In this fashion extensive capital accumulation for further economic development could occur.

Allason's operations between 1713 and 1724 also reveal the importance of dispersed manufacturing in Bohemia in the early XVIIIth century. The spinning of flax and the weaving of yarn were carried out by different people working at home in different places. Linen yarn and cloth produced on this dispersed basis was then finished in the enterprise's bleaching shops, its dye works and fulling mills.

The step from this system of dispersed manufacture to the centralized manufactory was not a large one. At the same time that Allason was operating on a dispersed basis, more concentrated forms of cloth production were also coming into being in Bohemia, the first on the estate of the Cistercian monastery at Osek (Osseg) near Duchov (Dux) in 1697 and another in 1715 at Horní Litvinov (Obersleutensdorf) in North-Western Bohemia. The first was run by the monastery and the second by a nobleman, Count Johann Joseph von Waldstein. Both survived for more than a century and so can be said to have been successful enterprises.

When Franklin Mendels described proto-industrialization as the 'transition to the modern phase of industrialization' [24] he was concerned primarly with the systems of supply and distribution that evolved around domestic industries. Although he referred to the different systems of dispersed and centralized production he paid little attention to the later. But the Bohemian example would suggest that the latter was of considerable importance in the transition to modern industrialization, since centralized production was linked to domestic industry and to factory production.

This is demonstrated by developments in Bohemia. In 1715 Count Johann von Waldstein founded his cloth manufactory in Horní Litvinov, which at that time was a small village with only 13 houses. Thanks to the successful expansion of the manufactory sixty years later it had grown to become a town with 300 houses. The manufactory was housed in a number of buildings and specialized in producing light cloths (new draperies) of the type that had previously been imported into Bohemia. Skilled craftsmen from England and the Netherlands were employed, as well as a Franciscan named P. Magaulije from an Irish monastery who acted as translater for the English. An Englishman named Elderton was employed as a master craftsman and his son, a weaver, taught the local workers and apprentices how to make the 'new draperies'. Work in the dye shop was also directed by an Englishman named Aldworth, while the burling shop was also directed by an English woman who taught the skill to local women.

The manufactory employed as many as 401 workers by 1731, more than half of them producing light-weight cloth, as well as many domestic workers. An inventory for 1731 shows that there were 54 weavers and 169 female spinners employed in the manufactory, and since we know that between 8 and 10 spinners were needed to supply one weaver, many more domes-

[24] F. MENDELS, *Proto-Industrialization, Theory and Reality* (S.A. 8), p. 80. "The transition from proto-industrialization to the modern phase of industrialization".

tic spinners must also have been employed by the manufactory and this can be shown from other evidence as well.

In his famous *Inquiry into the Nature and Causes of the Wealth of Nations* Adam Smith drew attention to the importance of the division of labour in the development of the manufacturing process. He argued that this was the source of improved labour productivity, because when a worker was concerned with only one operation his or her skill would increase while the centralization of work in a single locality saved the time that was otherwise lost in moving from site to site. He also claimed that centralization made possible the use of machinery that an individual craftsman would not be able to afford and which would not in any case have a noticeable effect on productivity in a small workshop.

Work in the Horni Litvinov manufactory conformed to these principles and was divided into 45 sections. Individual workers carried out only one of these different operations and some specialized in semi-skilled and even unskilled tasks. This was something that could not occur where production was controlled by a craft guild and in his study of medieval cloth production in Brno (Brünn) František Graus shows that production was organized by eight separate guilds.[25] As the modern factory developed so the division of labour became more specialized, but at the same time the opportunities for employing semi - and unskilled labour increased. This was of considerable economic importance because of the lower wages earned by the latter.

The centralized manufactory was also a forebear of the modern factory in terms of the organization of enterprise and labour. Postwar economic historians have begun to study the development of business management.[26] Jürgen Kocka in par-

[25] F. GRAUS, "Soukenictví o době předhusitské" (Die Tucherzeugung in der vorhusittischen Zeit) in: Sborník pro hospodářské a sociální dějiny, 1, Praha 1946, p. 168-170.

[26] C.f.: POLLARD, "The Genesis of Modern Management", Cambridge, Mass. 1965.

ticular studied the management functions that were entrusted to the general overseers, the role of the master craftsmen in each of the different workshops, and the development of book-keeping and clerical tasks in XIXth century companies.[27] But if we compare the management of the manufactory at Horní Litvinov in 1731 with Jürgen Kocka's description of the organization of management in Werner Siemens's company in the late XIXth century we can see that there were many similarities.

There was a general workshop manager at Horni Litvinov called Cornelius Crammer who received a wage of 500 guilders a year. The foreman of what was called the 'Netherlands spinning shop' received 162 guilders a year, the head book-keeper 150 guilders, the administrative assistant 130 guilders and the clerk 120 guilders. The workers were paid by piece-rate and received their weekly pay from the master craftsmen on Sunday mornings. According to regulations dating from 1723 the master craftsmen calculated the wages owed from tables that listed the different operations involved in processing 34 pounds of wool.[28] Jürgen Kocka shows that employees took part in the management and administration of the Siemens company, and the same occurred at Horní Litvinov. These employees received monthly salaries and were paid more than ordinary workers, who were paid weekly and on a piece-rate basis.

Unfortunately the company ledgers only list piece-rates without recording time worked so we cannot calculate the workers' weekly wages. Other evidence suggests that women spinners earned between 3 and 4 Kreuzer a day which would make 24 Kreuzer for a 6-day week, or 1 1/2 guilders per month. This was about 1/10 of the wage of a master craftsman in the spinning shop. In other words, even in 1731 there was a great difference between the pay of management employees and

[27] JÜRGEN KOCKA, "Management und Angestellte im Unternehmen der Industriellen Revolution", in: Gesellschaft in der Industriellen Revolution, Hg. R.R. Braun, Köln 1973.

[28] A. KLÍMA, Manufakturní období v Čechách, p. 234.

ordinary workers, similar to the situation in the Siemens company described by Kocka. The importance that was placed on management functions in the centralized manufactory was another characteristic that the modern factory would inherit.

There were also manufactories run by the bourgeoisie as well as by noblemen and religious houses in XVIIIth century Bohemia. It is important to bear in mind that the prevalence of feudalism meant that between 80-90% of the Bohemian population were serfs who had no freedom and were bound to the land. This had important consequences for bourgeois entrepreneurs. The Viennese merchant Jacob Matthias Schmidt decided to establish a woollen manufactory on the estate of Count von Stadion at Nová Kdyně (Neugedein) in Southern Bohemia, for example, because he said that there was a plentiful supply of raw materials, food was cheap and wages were highly advantageous.[29] He was obliged to negotiate with the lord of the estate for the right to purchase labour. In the contract that he signed on 30th April 1769, the lord of the estate stipulated that:

> 'We are willing to give our permission for our bonded serfs to be employed in this work for their better sustenance, on the clear understanding that these instructed and well behaved serfs may not be employed by the landowner.[30]

The contract obliged the entrepreneur to pay certain rents and to purchase from the estate all the materials and foodstuffs he required at prices stipulated in the contract. The most important was fire-wood, which was the only fuel then available. The importance of this for the landowners is evident from an account for 1825, which shows that between 12,000-15,000 fathoms of fire-wood were consumed for which the lord received payment of 20,000 guilders. Apart from anything else, the woollen enterprise provided the landowner with a fixed cus-

[29] SÚA/Sátní ústřední archiv Praha (SÚA - Staatliches Zentralarchiv Prag), ČG. com. 1770, A 1.

[30] SÚA, ČG. com. 1770, A 1.

tomer for his forest wood, and the profits from this transaction were commensurate with those from an average sized estate on the plains. As a result it was very much in the landlord's interest to agree to the establishment of the manufactory on his land.

J.M. Schmidt employed 297 people in the manufactory in 1775, as well as another 1,400 domestic spinners scattered amongst 67 neighbouring villages. Spinning wheels were made on the estate and supplied to the domestic workers in the villages, the cost being deducted from their wages in instalments. They were also supplied with sorted wool which they spun into yarn. The yarn was collected by agents who paid the spinners for their work and then distributed it amongst domestic weavers in other towns in the region, who worked their looms at home under the supervision of master-weavers. The manufactory's employment register in 1775 shows that it was mainly engaged in sorting the wool and in combing, fulling, washing and dyeing the finished woollen products. This was a typical system of dispersed production with the preparation of the wool prior to spinning taking place within the manufactory. The wool then went to the village spinners before being passed on to another group of domestic weavers. Finally the woven cloth returned to the manufactory where it was dyed and finished.

As in the case of the enterprise at Horní Litvínov, there was also a well organized management structure here which included a general overseer, a book-keeper, 10 master-craftsmen and a spinning foreman. The figures suggest that production grew ninefold between 1770 and 1774. By 1838 the enterprise employed 540 people within its walls and another 7,000 domestic workers. Shortly afterwards the old manufactory was replaced by a modern factory in 1845 which belonged to a company owned by 29 share-holders.

Amongst those who pioneered manufactories in Bohemia in the XVIIIth century there were also a number of craftsmen. Johann Joseph Leitenberger was born in 1730 in the North Bohemian town of Levín. Here he became a dyer and at the age

of 20 he purchased his freedom in order to travel abroad to complete his apprenticeship. He worked as a journeyman in Switzerland at Zurich, Bern, and Basle before moving on to the great German trading towns of Mannheim, Frankfurt am Main, Nuremberg and Augsburg where he worked with Johann Georg Schüle. He then returned to Bohemia and in 1758 married the daughter of a master dyer in Verneřice (Wernsdorf) in Northern Bohemia. He worked there in his father-in-law's workshop until it became his own on his father-in-law's death in 1764.

Johann Joseph Leitenberger planned to change the dyeworks he had inherited into the type of enterprise that he had seen on his travels. He built a workshop for printing calico which had six printing tables in operation by 1770. He directed work in the dye-shop himself, but he employed a Swiss craftsman as overseer in the printing-shop. Pattern engravers and other skilled craftsmen were also brought from abroad, especially from Alsace, Augsburg and Switzerland. Not wanting to limit himself to calico printing, Leitenberger also moved into cotton weaving. To overcome the difficulty in finding sufficient numbers of spinners owing to the constraints imposed by serfdom, he set up his own spinning mill in Prague where the citizens were free because it was a royal city.

By 1770 he employed 526 workers working under the supervision of a master craftsman in his spinning works in the old town of Prague. But the demand of the calico printingshop at Verneřice quickly outran the capacity of the spinning mill in Prague, and he employed domestic spinners in many parts of the region. At Sorge, near Verneřice he had houses built for carpenters who made equipment for the spinners and looms for the weavers. Later on he built more calico-printing shops. At Zakupy (Reichstadt) he employed 400 people in 1791, and they were supplied with cloth by another 5,000 domestic spinners and weavers. In 1793 he purchased a cotton manufactory at Kosmonsy-Josefuv Dul which he later converted into a modern factory. The enterprise continued in the family for generations

and was finally taken over 1904 by a Viennese bank when the owner Dr Friedrich Leitenberger was involved in a car accident.[31] The company still exists as a modern factory and employs 800 women, providing an excellent example of the ways in which the manufactory of the XVIIIth century developed into a modern factory during the industrial revolution.

Of the XVIIIth century Bohemian manufactories, those run by Count Joseph von Kinsky on his estate at Sloup (Burgstein) are particularly interesting. The Count reorganized his estate farms and leased the land to his serfs in order to devote himself to trade. He purchased linen cloth from domestic weavers and sold it to the English firm of Franklin and Nurse in Rumburk. In the contract he made with them he agreed to deliver 100 *schoks* of linen cloth for the sum of 24,000 *Reichsthaler*. He then built two bleaching works on his estate where he employed master-bleachers and male and female workers. In 1757 he built a weaving shed. To ensure that the yarn produced by the domestic spinners should meet the requirements of the English merchants (he referred to 'English linen cloth') he built spinning shops in each of the villages on his estate so that all the spinners could learn to work in the same way. He also set up weaving shops and in 1768 his annual production was estimated to be 2,400 pieces of linen cloth, and these were exported to England, Spain, Germany and Italy.

In 1756 Kinsky also built a manufactory to produce drawn linen cloth. A master craftsman from Saxony was put in charge of the works, whose products were destined for the domestic markets of the Habsburg monarchy. He also set up a similar manufactory for waxed linen cloth, and he later built his own dye works which was subsequently converted into calico printing works when he embarked on producing cotton cloth as well as linen. By 1764 he was employing 400 people in his *Barchet*

[31] Lubomír Dusil: "220 let textilní továrny v Josefově Dole u Mladé Boleslavi", (220 years of the textile factory in Josefuv Dul near Mladá Boleslav) in: Z dějin textilu, vol. 8, p. 246, Ústí nad Orlicí 1985.

works. But later he decided to give up his manufactories for drawn linen cloth and *barchet* and he put his looms out to domestic weavers instead.

This is an interesting example of a shift back from centralized production in a manufactory to domestic production, the reverse of the normal process. How can this be explained? The change reduced the entrepreneur's outlay since there were no buildings to be maintained and no costs for heating and lighting. When production expanded this did not now necessitate putting up new buildings. This meant that production could increase without increasing commercial costs, thereby giving increased profits. Nor was there any danger that the domestic workers would work for a rival entrepreneur since he was their *Grundherr* and they were bound to him. The extent to which he was able to exploit this feudal power is evident from a report drawn up by Commercial Commissariat of the Bohemian provincial administration in 1774, in which it was stated that Count Joseph von Kinsky employed 2,516 people in the production of linen, cotton cloth and glass. In other words, virtually every household on his *Grundherrschaft* was engaged in this industrial enterprise.

Many of these early manufactories had a short life, and for this reason historians have often considered that it is not a form of production that has much importance in industrial development. There are also examples of Bohemian manufactories that did not make the transition to modern factories but simply disappeared. The reason for this was often that they were badly managed and that their owners showed little ability when faced with difficulties. Some entrepreneurs also ran into difficulties with the guilds that defended their commercial privileges against the new methods of production. Despite the authorities' willingness to support the new manufactories in these disputes, they were not always able to do so. As a result many nobles abandoned their manufactories or else sold them to bourgeois entrepreneurs.

This again indicates that there were others better equipped to manage these concerns. For example, the cloth manufactory owned by Franz von Lothringen in Kladruby first moved to Brno and was then taken over by the merchant L. Köffiller. Another cloth manufactory belonging to Count Christian Christoph Clam-Gallas in Liberec was sold in 1808 to the Prague banker Bellabene. As soon as they came under the direction of bourgeois managers the two enterprises quickly grew into important industrial concerns. Other frequent reasons for decline were the death of an entrepreneur and lack of interest in the enterprise amongst his heirs [32] and military occupation during wartime [33].

We should not take the short life of many of these manufactories as a reason for doubting their contribution in the transition to modern industrial production. The introduction of English spinning machines provides an excellent example of this. Johann Joseph Leitenberger was one of the leading manufacturing entrepreneurs in XVIIIth century Bohemia. By the end of the century he was convinced that it was essential to introduce English spinning machines, and especially the new jennies, water frames and mules. He engaged a Dane named Rigo who had worked in England to build these machines for him in Northern Bohemia and these began working in 1797.

The role played by the manufactories in the introduction of these new English inventions in Bohemia illustrates their importance in the development of the modern factory system. The spinning machines were soon followed by mechanized powerlooms and then by Watt steam engines which were installed in 1814 by the English mechanic Baildon in the Šlapanice iron

[32] See e.g. the manufactories of V. Mundi. See A. Klíma: Na pahu nové společnosti, Praha 1979, s. 124.

[33] E.g. the manufactory of Count Bolza in Kosmonos-Josefsthal in 1778 when, it was occupied by the Prussian army. C.f. H. Hallwich, Firma Franz Leitenberger, Prag 1893, s. 69.

works near Brno for a cloth manufactory belonging to the manufactory owned by Christian Wünsch.

The XVIIIth century manufactories could only develop into modern factories when they adopted the means of production of modern industry. In Bohemia this occurred during the first half of the XIXth century when as well as the introduction of a variety of processing and power machines a machine-building industry was also established. English machine-makers played an important part in these changes. The English engineer Edward Thomas who had earlier worked with Harkott at Wetter founded the first machine-building factory in Bohemia in 1829 in partnership with his brother James and a mechanic named Thomas Bricegirdle from Manchester. David Evans, Joseph Lee, L. Thomas, Park Williams, and Ruston were amongst other Englishmen who followed.

As a result an important machine-building industry had been established in Bohemia in the first half of the XIXth century, and this was run by engineers who were fully acquainted with the latest technological developments in England and elsewhere and then applied them to their own factories. This would confirm what has been said by both Alexander Gerschenkron (in *Economic Backwardness in Historical Perspective*) and by Wolfram Fischer, namely that industrialization was under way in Austria in the mid XIXth century and well before the 'great spurt'.

The period from the XVIth to the mid-XIXth century can therefore be described as a long preparatory phase in the history of modern industrialization in Bohemia too. In this phase an important part was played by domestic industry, centralized manufacture and early industrialization in the early XIXth century. It must be stressed that this process took place in Bohemia during the feudal period, which explains certain differences from processes in other Western European countries. But these changes also contributed to the development of a capitalist society in Bohemia. If the revolutions of 1848/9 played a major role

in this transformation, we can also say that the decades after the revolutions saw the emergence of a capitalist society as well as the rise of modern industry.

Labour was an important factor in these changes. The Bohemian manufactories of the XVIIIth century developed in a society in which serfdom still existed. On 24th January 1723, for example, eight serf cloth-workers who worked in Count J.J. Waldstein's manufactory at Horní Litvinov disappeared. They had been resettled from Třebíc, another estate that belonged to the Count in Moravia, and had been brought to Horní Litvinov to work in the manufactory there. The Count's administrator wrote to the bailiff at Třebíc instructing him to arrest the men should they return there and to send them back to Horní Litvinov. In fact only two of the eight went back to Třebíc, and they were immediately sent back to Horní Litvinov.

Although these workers were bonded serfs, they received pay for working in the manufactory because they were employed all day and had no land of their own. Since most of those who worked in the manufactories run by feudal landowners were serfs they were also subject to the entrepreneur's jurisdiction. But there were also free workers like the foreign craftsmen.

At the manufactory at Nová Kdyně, as we have seen, the entrepreneur J.M. Schmidt required permission from the lord of the estate before he could employ his serfs. Count Waldstein was able to exploit his power over his subjects, whereas the bourgeois entrepreneur could only deploy his economic power over his employees, and for that reason the manufactory played an important role not only in the economic transition to the modern factory, but also in the transition from older feudal relations to capitalism.

The manufactories played an important part in changing social as well as economic relations. Serfdom often caused difficulties for the development of domestic putting-out and spinning in Bohemia, since the putting-out merchant often had to obtain permission from the workers' feudal lord. The huge demand for

cotton spinners in the second half of the XVIIIth century led to new spinning districts coming into being and whole villages often worked for a single manufactory. But if this at first ensured that each manufactory would have a sufficient reserve of spinners, putters-out and agents from other manufactories soon began poaching across these boundaries and tried to lure spinners away to other places with the promise of higher wages. Finally on 15th May 1775 a legal judgement stated that workers engaged in domestic spinning:

> "...should be free to work either on their own account or for another person".[34]

This was the end of compulsion, and the government shared the same view when in 1779 it was decreed that:

> "Vassals should not be subjected to unilateral obligations and... industry must always be as unconstrained as possible".[35]

This demonstrates how the expansion of industrial production in the XVIIIth century helped change the relations between masters and men. Existing feudal relations increasingly obstructed development and so began to be removed even before serfdom was formally abolished in 1781. We must be sure, therefore, that we do not look on the transition to modern industry simply in terms of economic changes — as occurs in some of the literature on proto-industrialization — and we must take full account of the processes of social change that formed an integral part of the transition from feudalism to capitalism.

[34] The court decree of 15. May 1775, c.f. G. Kopetz, Allgemeine österreichische Gewerbe-Gesetzkunde, Wien 1829, II, § 417, p. 174.

[35] A. Klíma, Manufakturní období, p. 405.