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## *Glassmaking Industry and Trade in Bohemia in the XVIIth and XVIIIth Centuries*

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Alongside textile production, glassmaking was the most important form of industrial production in XVIIth and XVIIIth century Bohemia. The products of the Bohemian glassmakers were well-known not just in various European countries but in America as well. The making of glass goods had a long tradition in Bohemia: as early as 1348 mention was made of the existence of glass and mirror makers in Prague, and so we can assume that glassworks must have been present in Bohemia in the XIVth century.<sup>1</sup> But the heyday of Bohemian glass production did not come until the second half of the XVIIth and until the XVIIIth centuries. The Bohemian historian of the second half of the XVIIth century, Bohuslav Balbín, stated in 1679 that "there were so many workshops plying this trade in the Bohemian forests that Bohemia was assured of superiority in this not only to neighbouring lands but also to more far-off countries... and who could count them all, for it is known that new ones come into being every day".<sup>2</sup>

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<sup>1</sup> F. MAREŠ: *České sklo — Příspěvky k dějinám jeho až do konce 18. stol.* ("Bohemian glass — contributions to its history up to the end of the 18th century"). Prague 1893, p. 10.

<sup>2</sup> B. BALBÍN: *Miscellanea historica regni Bohemiae*, Prague 1679, I, p. 57.

And in another passage he tells us that in the region of Chrudim four glassworks were working day and night.

The glassworks sprang up in deep woods. The local lords gave the glassworks owners permission to build in their woods a glassworks and houses for the workers. Thus new settlements grew up in the area around the glassworks, and everything was on hand here. And so Prince Johann Christian of Eggenberg accorded to the glassworks owner Michael Müller on 23rd April 1688 the privilege of building a glassworks on his estate of Vimperk in southern Bohemia. He received permission to take wood both for burning and for construction from the woods and was given an area for making ashes. He was given permission both to graze his cattle in his lord's woods and to use freely any quartz necessary for producing glass. He and his heirs were further allowed to produce any kinds of glass; and besides all this, all the glaziers who came to work as craftsmen in his works were allowed hereditary freedom and, just like Michael Müller and his successors, they had the right to leave the lord's estate with their wives and children as free people and to go off somewhere else. They were also absolved of their feudal duties and their successors received a hereditary right to their houses. Nor did glassworks have to billet soldiers. For all this the glassworks owner had to pay his lord annual interest of 155 guilders and had to draw all the beer used in the settlement from his lord's brewery.

How did a glassworks start up? If a master glazier wished to build a new glassworks, the local lord would place some of the woods at his disposal. He had to clear them in order to be able to build the glassworks and the houses for himself and for his workers and be able to reclaim enough land for planting.

The master glazier oversaw the building of the glassworks. The wooden structure of the building was built by a carpenter employed by each glassworks not just to erect the structure but also to make the chests used for transporting the finished glass-ware. Moist clay was placed on the structure, while inside

the heating had begun in order to dry it out. Inside, work began. In the middle of the workshop was a furnace heated by logs. The furnace was oval-shaped and on two sides were openings through which the fire was fed. On one side was a tunnel; through this led a clay pipe from the melting-furnace, which took the excess heat into a room which was used as a cool room. The finished glass objects were put into large clay jars and brought here to cool down. Through an opening flowed warm air which dried out the wood. In smaller workshops this room was also used for burning the quartz and for getting the sand ready for glassmaking. When the glass was being melted in the furnace, this room was filled with quartz which had glowed during the melting, and which was then put into a tank of cold water to shatter.

Usually four workers were busy melting the glass. The work was supervised by a melter who had with him a mate and two stokers. The melter was one of the most important people in the works. Under his supervision the mate weighed and blended the materials used in melting. One of the stokers had to continually feed the furnace with logs while the other piled up wood in the drying room. So that there was always enough dry wood, the drying room was separated into several compartments. The stoker took the wood from one compartment to the next and took away that which was dry. Enough wood was always brought into the glassworks so that the fire did not go out. The second stoker went from one compartment of the drying room, where he piled up damp wood, to the next, where he threw down dry wood for the first stoker to put on the fire. It was heavy work in the fierce heat. The stoker who put the wood on the furnace had also to take out the ashes, which were necessary in the preparation of the flux (potash). All these tasks were carried out under the supervision of the melter. As soon as the glass was molten, the stoker stopped feeding the fire and fetched the glaziers, whose work now began. They and their helpers brought with them the moulds, which were of wood or

clay. The glass would be blown from the tanks into these moulds; usually there were seven tanks in the workshop. At each tank there worked a craftsman and his helpers. It was usually boys who carried the finished glassware into the drying room, where they then put them into clay pots. This was the end of the process. In the old huts melting went on five times per week, and each process lasted between sixteen and eighteen hours. During the first part of the process it was generally the melter, his mate and the stokers who worked, during the second part the glazier and his helpers; the master glazier supervised the whole process. He gave the work to craftsmen sometimes for a few days, often for weeks. During this time a given number of glass objects had to be produced. The craftsman therefore had to arrange the work so that this task was completed, and he was paid for this — he was paid piecework, not hourly. From this he paid his helpers who generally received a daily rate from him, the level of which was set in advance and they were usually paid fortnightly.

One important person in the works was the moulder. He hollowed out the moulds and then turned them on a lathe, and his wife and children would help him turn the wheel. The glaziers blew out their objects in the moulds which he made. The moulder could usually read and write and he kept the books for the glassworks owner on the progress of the work. As most glaziers could neither read nor write, the moulder enjoyed considerable importance.

The best-paid workers were the glaziers. Every glassworks employed many helpers who took part in different stages, in melting, in the production of the various glass objects and in producing the clay tanks for the melting and glass polishing. Women too worked here: they were either the wives of the helpers or the widows of the craftsmen, and they normally worked on packing the glass, which was packed in straw so that it would not break in transit. Young people worked here too: the girls

cleaned and packed the glass, the boys worked with the craftsmen. They carried the finished glassware into the cool room, and, after some time had elapsed, they had the possibility of working as helpers to the craftsmen, and they often did this work for years. When a place fell vacant, the young man then had the chance of working there as a craftsman. As a helper, in addition to his melting work, he had to carry the finished products into the cool room and assist the women in packing the products in straw, storing them in the store room and loading them on to the wagons. In the room where the tanks were made he also had to trample down the clay which went to make them. The helper was paid by the craftsman he worked with. The helpers often complained of low wages or insufficient fare from the craftsmen.

And so a settlement grew, with an inn which sold beer and spirits from the brewery and distillery of the local lord. The glassworks owner often had considerable income from farm and cattle. This we discover from a letter sent to Prince Schwarzenberg on 8th November 1720: the glassworks owners on his estate had a good deal of land, kept many cattle, employed several workers on a daily basis in their glassworks or on their land. For example, the master glazier Müller had in 1713 2 horses, 22 oxen, 16 cows and 7 young cattle. In 1710 he sold in his inn 90 barrels of beer. But he was no exception. Another master glazier, Balthazar Prambhoffer, had along with his glassworks in Planá 10 cows, 22 oxen, and 10 young cattle; the master glazier Stegbauer had in 1722 at his glassworks in Volary 5 horses, 35 oxen, 14 cows and 12 young cattle. Thus many combined their glassworks with agriculture. It often happened after the wood was cleared that there was insufficient wood for glass production, and so they turned to agriculture or tried building a new glassworks elsewhere where there was still enough wood. The agricultural interests of the master glazier often comprised a fine farmyard with many fields and a large stock of animals.

In the history of Bohemian glassmaking there is the family Schürer, which formed a whole line of glassmakers. In 1530 Paul Schürer came from Saxony to Bohemia, and one of his successors, Valentin Schürer, who had a glassworks in Krombach in northern Bohemia near Jablonné (in German: Gabel), was ennobled by Rudolf II in 1592 and took the title "von Waldheim".<sup>3</sup> The many Schürer sons settled in various places and founded glassworks. We find them in northern Bohemia in Rokytnice nad Jizerou (Rochlitz), in central Bohemia in Broumy (Broum), in the region of Rakovník (Rakonitz), in southern Bohemia in Seewiesen in the region of Sušice, in Grünwald near Jablonec nad Nisou (Gablonz), but also in other places.

In 1658 the adviser to the Bohemian Chamber, Matthias Karl Kunz, said the following about Krystoff Schürer, who had his glassworks in Broumy on the estate of Zbiroh: "The craftsman Krystoff Schürer has no peer in Bohemia. He knows how to produce fine glass, lazulite and many things which one finds only seldom in Bohemia".<sup>4</sup> Besides this he describes him as a simple man who generally went around barefoot; but he wrote of his wife that she was a heavy drinker and had a sharp tongue.

At the same time Johann Schürer had a glassworks in Grünwald near Jablonec nad Nisou (Gablonz). This had been built by the master glazier Franz Kunz in 1548 and was taken over by Bartolomeus Schürer in 1615. Fifty years later — in 1665 — Johann Schürer took over the glassworks from the local lord. With all that appertained to it, it was valued at 16,000 score Meissner Groschen = (3,110 florins) — this included one area of wood, a mill, a plank saw, thirty tracts of field, four draught cattle, forty cows and twelve heifers. For this sum Johann Schürer took this estate into his possession from the local lord on 22nd January 1666.<sup>5</sup>

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<sup>3</sup> KARL F. FISHER: *Die Schürer von Waldheim*. Prague 1924, p. 18.

<sup>4</sup> *Ibid.*, p. 60.

<sup>5</sup> *Ibid.*, p. 71.

In 1734 this glassworks burned down and was not rebuilt. This means that it had stood for almost 200 years, 100 of which it was in the possession of the Schürer family.

The settlements around the glassworks was one unit. All the people who lived there either worked in the glassworks or for it. The son took over the father's occupation and the accumulated experience and knowledge of the old craftsmen was transferred from one generation to the next. If a young man got married, it was often to a girl who had worked alongside him in the glassworks or who had grown up in the settlement. The settlements were hidden deep in the woods and were often several kilometres away from the nearest village. The inhabitants here led an independent life: they produced glassware which was then sold in the distant markets of towns in western and eastern Europe.

When I stated that these settlements formed a unit, this does not mean that there was never any internal strife in such settlements. According to data from 1752 there were 52 glassworks in Bohemia. To get an idea of the size of a glassworks in Bohemia at that time, we can look at the evidence of the Commissar for Commerce of the region of Prácheň from the year 1774. He states that at that time in the region of Prácheň there were 12 glassworks run by 12 master glazier and contractors. With them worked 141 workers and 12 apprentices.<sup>6</sup> That means that in glassworks run by one master glazier there were 11 workers and one apprentice. At the same time Schätz, Commissar for Commerce in the region of Mladá Boleslav, stated that there were three glassworks in his region employing 18 craftsmen and 98 other workers. This means that here, besides the master glazier, 39 people worked in a glassworks.<sup>7</sup> Sources also tell us of the turnover of such a glassworks. The 12 glassworks in the region

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<sup>6</sup> Státní Ústřední Archiv Praha (SÚA) — National Central Archives Prague, ČG. com. 1773-1783, A 1/2, vom 12.4.1774.

<sup>7</sup> SÚA Praha, ČG. com. 1773-1783, A 1/2, vom 21.4.1774.

of Prácheň produced glassware which was sold for 84,000 guilders. 80% of this went abroad, to Turkey, Spain, Hamburg and Nuremberg for 76,400 guilders.<sup>8</sup> One glassworks had on average an annual turnover of 7,000 guilders. The glassworks in the region of Mladá Boleslav produced annually glass to the value of 25,654 guilders. Thus one glassworks produced glass annually to the value of 8,551 guilders, of which 65% went abroad. The Commissar for Commerce Schätz declared that the 116 workers in these glassworks earned annually 2,480 guilders.<sup>9</sup> This means a yearly average for one worker of roughly 21 guilders: this was really the bare minimum for subsistence. The owner had no doubt taken into account that his glassworkers had a patch of ground with their houses where they planted potatoes and vegetables, and thus their wages could be pegged lower. This contributed to the competitive prices abroad of Bohemian glass and linen products.

The Commissar for Manufacturing in the region of Mladá Boleslav declared in 1754 that the glass polishers on the estate of Rohozec were treated so badly that they preferred to work in spinning or as daily-paid labourers.<sup>10</sup> In 1767 the Bohemian Governorship dealt with complaints from the glassworkers. It was stated that there were workshops where the glassworkers were paid irregularly. In some cases they were not paid their wages for four weeks; in others, they were paid in debased coinage, or the proprietors forced them to buy clothing and other goods from them — and their prices were often higher than the market value. It was also stated that all year no clear account was given to the workers and that they were not treated well.<sup>11</sup> And further, it is stated, the master glaziers continually employed

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<sup>8</sup> SÚA Praha, ČG. com. 1773-1783, A 1/2, vom 12.4.1774.

<sup>9</sup> SÚA Praha, ČG. com. 1773-1783, A 1/2, vom 21.4.1774.

<sup>10</sup> SÚA Praha, ČG. com. 1754, R. 10.

<sup>11</sup> "That they were treated with blows, like dogs". Report of the Commission of

more and more apprentices, and the craftsmen were often dismissed at insufficient notice, leaving them along with their wives and children without prospect of employment. It was also ascertained that certain glassworks were not well run, and often the necessary raw materials were not present in sufficient quantity, thus stopping production sometimes for several weeks.<sup>12</sup>

A range of materials were necessary for glass production. Many were produced in the glassworks.<sup>13</sup> The most important was sand which was made by the burning of quartz. Every sizeable glassworks had an apparatus for burning quartz in a furnace. Large chunks of quartz — this was how it was quarried — were put into the furnace. They were placed in such a way that the flames could get at them from all sides. The furnace was then closed and the heating begun, which lasted a few days, as the quartz had to glow until it was red. The furnace was then opened on the other side where there was a tank containing cold water; water flowed into this from one side and out through the other, and so it was constantly cold. The glowing quartz dug out of the furnace fell into this tank. The sudden drop in temperature split it into smaller pieces. It was now soft, and various elements harmful to the glass, such as veins of iron, could be removed. It was mostly women who did this work, removing the veins of iron with a hammer. The quartz was then sorted according to quality. The best was put aside for crystal glass, the more inferior for polished and common glass. The polishers then received the rest. The quartz to be used for the production of glass was then beaten into sand. This work, which went on day and night, was supervised by a crafts-

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the Bohemian Governorship of 31.3.1767, published in E. SCHEBEK: *Böhmens Glasindustrie und Glashandel, Quellen zu ihrer Geschichte*, Prague 1878, pp. 371-382.

<sup>12</sup> From the report of the Bohemian Governorship of 31.3.1767. Reprinted in E. SCHEBEK: *Böhmens Glasindustrie...*, pp. 371-382.

<sup>13</sup> "In Bohemian glassworks almost exclusively Bohemian products were used". T. PIESLANT: *Nationalökonomische Briefe aus dem nordöstlichen Böhmen*, Prague 1856, p. 25.

man. Water power was used for this, and the craftsman and his mates worked in shifts.<sup>14</sup>

Another important raw material was the flux (potash), which was produced from wood ash, of which the ash of beechwood was the most suitable. Wood consumption was very high: 1000 kg. of wood were needed to produce 1 kg. of flux. The great consumption of wood ash led the serfs to exploit the situation, and so they burned wood in their lord's forests to produce flux. The overlords were against this activity of the serfs. Thus, for example, in 1714 the lord of Vimperk in southern Bohemia stated that the serfs were taking wood from his forests without permission, burning it to ashes and selling it to workshops not only on his estate but elsewhere as well. And so the lord called all the master glaziers and all the flux makers to his castle. It was decided that each works was to adopt one flux maker to supply it.<sup>15</sup> At the same time the lord decreed that a master glazier who bought flux from one of his unauthorised subjects would be liable to a fine of 10 marks; and further, a glazier could not buy flux from a producer designated to another workshop. If he did so, the fine was 10 marks. The lord would keep half of this, and the other half would go to the glazier who should have received the flux. Moreover, neither the glazier nor the flux maker could pay more than 3 kreuzer for a portion of ash from a subject of the lord. Anyone not keeping to these conditions was to be fined 10 marks. Without the permission of the overlord, no-one was allowed to burn wood to ashes in his forests — this with a fine of 5 marks. And it was finally decided that, if a producer had his own boiler, a hundredweight of flux was to be sold for 4 guilders and 30 kreuzer. If he had to use

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<sup>14</sup> J. BÁRTA: *Život na Staré huti* ("Life in the old glassworks"), Prague 1935, p. 29.

<sup>15</sup> The resolution of the estate of Vimperk on the allocation of flux producers to given glassworks of 12th October 1714 was printed in F. MAREŠ: *České sklo...* (see note 1), pp. 214-216.

the workshop's boiler, the price was to be 4 guilders per hundredweight.

How was the flux produced? The wood ash was brought into the workshop by those who had burnt it. It was put in large tubs which were full of water. After a certain amount of time this became lye, which was then transferred to large pots which were then heated in order to boil down the lye. This took a long time, and the pots had to be heated all the way through. When the lye had cooled down there remained the damp mother-lye, which was put into an oven to calcify. Through this method so-called 'blue' flux came into being, which could be used in the production of ordinary glass. To produce crystal glass, this had to be put back into the water and boiled in the pot again; once boiled down it produced the so-called white or refined flux used for the production of crystal glass.

Along with sand and flux, chalk was another raw material used in the glassworks. Where the glassworks was some distance removed from the chalk quarry, the chalk was burnt at source. For this purpose a long deep ditch was dug, into which were put large pieces of chalk, and a cover was erected over the ditch to form an open space inside in which a fire could be laid. The wood was put in through a hole in the cover and the flames burned out the chalk.

In the XVIIIth century an important manufacturing entrepreneur in textiles, Count Josef Kinsky, took part in producing glassware. He turned to Maria Theresia for help and requested that the village of Bor (Haida) on his estate Sloup (Bürgstein) be raised to the status of a town where weekly and annual markets would be held. He pointed out that all the towns in the area were more than a league away from Bor and that many glass dealers lived in the area who, when returning from their journeys abroad, could bring the goods they had brought with them for sale in Bor. His petition was granted on 26th February 1757,

and in the following years Bor became the centre of glass production and trade in northern Bohemia.

Already in 1756 Count Josef Kinsky had decided to found two mirror factories on his estate. He brought in experts from Nuremberg, Fürth and also from Naples and Ferrara. They were employed not only to supervise production but also to instruct the indigenous workers. The building of a mirror factory in Lindava was started straight away and finished in 1760. Production was controlled here by the Nuremberg mirror maker Christian Stöhr and in Velenice by his son Antonín.

In 1761 Count Kinsky turned for help to the government in Vienna with a petition to forbid the import of mirrors, as his own mirror factories were able to satisfy the market. At this time he also had two glass polishing workshops employing in total about 180 people.<sup>16</sup> The Chamber of Commerce came to the conclusion on the basis of their investigations that the mirror factories of Count Kinsky could satisfactorily supply the lands of the Habsburg monarchy and so on 23rd December 1761 they imposed a ban on the import of mirrors from Nuremberg.<sup>17</sup> In the Count's two mirror factories there worked at least 185 people, and the turnover in 1767 was 40,000 guilders. Half of the products were exported to Silesia, Danzig, Hamburg, Denmark, Poland, Moscow, Holland, Spain, Portugal and Turkey.<sup>18</sup> In 1770 the Trieste merchant Hirschl visited the mirror factories and said that their products were the match of those of Venice.<sup>19</sup>

Along with mirrors Count Kinsky also produced glass beads. 120 people worked in his factory, and 30 were engaged in the production of glass beads at home.<sup>20</sup> It was said that these people

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<sup>16</sup> SÚA Praha, ČG. com. 1761, I, 10.

<sup>17</sup> SÚA Praha, ČG. com. 1761, I, 10.

<sup>18</sup> A. PAUDIER: *Graf Josef Kinsky, Herr auf Bürgsten und Schwoyka*, Leipa 1885, p. 25.

<sup>19</sup> SÚA Praha, ČG. com. 1771, A. 1.

<sup>20</sup> On this A. SALZ: *Geschichte der böhmischen Industrie in der Neuzeit*, Munich 1913,

could do their work well enough without supervision. And as soon as the 120 engaged in manufacturing were skilled, they were to work on at home. The home workers received the necessary means of production from the factory, the price of which was then taken from their wages.

The Bohemian glassmakers had an international reputation in the second half of the XVIIth century. And so, for example, the glassware from the workshop of Michael Müller in southern Bohemia was sold in many European towns. In the 1680s he began to produce the new chalk glass, which had been unknown until then and which had aroused great interest. Glasses made of this were sold in Vienna, but also in Moscow and in the Italian cities. Müller's crystal and chalk glass products, which at that time were not produced in other glassworks, had been brought into southern Bohemia by merchants from Spain, Italy, the Netherlands and various other countries. All the well-known Bohemian glass dealers of the time, who sold Bohemian glassware all over Europe had close economic relations with Michael Müller. In 1699 his glassworks was visited by the northern Bohemian glass dealer G.F. Kreybich, who in his capacity as a dealer had visited the whole of Europe. A number of well-known dealers kept contact with M. Müller, and so the following firms bought in glassware from him: Kittel, Janke from Česká Skalice, Preysslner from Česká Kamenice, Hölzel from Kamenický Šenov and also Rudolf Kregl from Amsterdam, Pietro Charigari from Venice, P. Lemus and M. Kraus from Vienna. Müller told no-one of the production secrets of chalk glass, which he wanted to keep for his own glassworks. He also produced red ruby glass. Praun, the chief official of the estate of Vimperk, said in 1683 that through the production of chalk glass Müller "had brought many thousand guilders into the country and on to the estate and that he

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p. 343; and K. PRIBRAM: *Geschichte der österreichischen Gewerbepolitik von 1740-1850*, Vol. I, p. 122; Leipzig 1907.

had employed many serfs in the production of these kinds of glass".<sup>21</sup> This contributed to the granting of a privilege to him by the estate in 1688 which is mentioned above.

a. It often happened that the master glazier did not acquaint his helpers with the innovations — Michael Müller handed the secrets over only to his son. Theophil Piesling wrote about one of these master glazier: "Old Egermann, who had achieved European fame as the Nestor of our national glass industry discovered the most varied coloured glasses. His catalogue displays over 100 different types. But his silence over his production methods is as unshakeable as a cliff".<sup>22</sup> In larger workshops there were also polishing shops for the glass and workshops where the glass products were painted. Smaller glassworks did not possess these workshops: here the glass was packed in straw and dispatched to the glass dealers, who had the wares processed by polishers mainly in northern Bohemia so that they could send it to market afterwards. Glass polishing was conducted either in the larger workshops under the supervision of a craftsman or it was done in the homes of the glass polishers, where a workroom was situated next to the living room. In the villages around Bor (Haida) there were grinding mills by almost every brook, which harnessed the water to turn the grindstone. His wife and children helped the glass polisher to grind the buttons or beads, which he received unprocessed. If he polished 40-50 dozen buttons in a day, he would receive 18 crowns. For polishing 40 strings of venetian beads he would receive 1 florin 20 kreuzer. On average one family, a husband, wife and child, earned 24 kreuzer per day. That was more than the family of a weaver would earn and they enjoyed a better standard of living than their counterparts in weaving.

Along with glassmakers in the Bohemia of the second half

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<sup>21</sup> F. MAREŠ: *České sklo...*, p. 87.

<sup>22</sup> T. PIESLING: *Nationalökonomische Briefe...*, p. 29.

of the XVIIth century, we also find glass dealers, many of whom started as shopkeepers. They bought glass at the glassworks and took it about in a wheelbarrow from place to place, village to village, town to town, selling it as they went. Those of them who did well soon swapped their wheelbarrow for one or even for several carts. They no longer limited themselves to the immediate proximity, journeying far beyond the borders of Bohemia. Many large businessmen started as shopkeepers. For example Georg F. Kreybich of Kamenický Šenov in northern Bohemia, who had acquired the craft of glass cutting, was involved from 1682 in glass trading. In his travelogues he described his journeys up to 1721.<sup>23</sup> His first journey was to Bavaria, Salzburg, Kärnten, Krain and Laibach. He went at first with his barrow, then with a cart and finally with two carts. From 1688 his journeys took him to London, Denmark, Sweden, Moscow,<sup>24</sup> Hungary, Transylvania and Wallachia. In 1691 it was to Spain, in 1700 to Constantinople and Italy. Georg F. Kreybich was no exception: many Bohemian glass dealers travelled as he did, for example Christoph Pilz, Palme or Hiecke. G. F. Kreybich in his account of his journey to Spain in 1691 describes how he earned 500 guilders in 8 weeks.<sup>25</sup> The spread of the glass trade from Bohemia into various lands showed that it was not enough to send out one or two carts full of glassware; and so a few glass dealers decided to form trading companies with their own trading posts and depots abroad. It is interesting that glaziers were not alone among the members of these trading companies. Some people of means, some of them even serfs or those who had only recently

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<sup>23</sup> L. SCHLESINGER: *Reisebeschreibungen eines deutschböhmischen Glasschneiders*, in: "Mitteilungen des Vereins für Geschichte der Deutschen in Böhmen", henceforth MVGDB), 8, pp. 220-235.

<sup>24</sup> "I made the sixth journey to Moscow, and set out from home with two carts through Silesia, Poland and Weissrussen to Königsberg, through Lithuania to Vilna, through Schwarzrussen to Minsk and Smolensk and then to Moscow", MVGDB 8, p. 225.

<sup>25</sup> *Ibid.*, p. 226.

bought their freedom, formed such trading companies. Among their members we find for example a well-to-do village butcher<sup>26</sup> alongside a former employee of a glass depot abroad, who with his experience — and with his savings — returned home to begin his career as member of a trading company.<sup>27</sup> Usually one member of the glass trading company stayed behind in Bohemia to look after the buying of glassware and its dispatch to foreign depots; the others ran these depots abroad. Between the XVIIth and XVIIIth centuries these companies from Bohemia had depots in St. Petersburg, Reval, Riga, Copenhagen, Lübeck, Hamburg, Bremen, Amsterdam, Leyden, The Hague, Rotterdam, Dordrecht, Middlesborough, Bordeaux, San Sebastian, Bilbao, Santander, Ferrol, La Coruña, St. Jago, Vigo, Oporto, Lisbon, Seville, Cadiz, Malaga, Valencia, Alicante, Barcelona, Marseille, Livorno, Naples, Palermo, Ancona, Trieste, Constantinople. They also supplied the markets of Madrid, Valladolid, Milan, Lyon, Paris, Nancy, Strasbourg, Brussels, Utrecht and Frankfurt am Main. Some companies from Bohemia also had depots in Beirut, Cairo, Mexico, Baltimore and New York. In 1704 a Rotterdam Jesuit called Michael Sabel, who had been a missionary in India for many years, approached Prince Schwarzenberg — on whose estate, Vimperk, was one of the best-known glassworks — with the information that an important Dutch businessman and friend of the Society of Jesus, Johannes van der Meulen, was keen on taking part in the trade of glassware from the district of Vimperk to overseas Markets. Sabel indicated in writing which types of glass he considered most appropriate to trade in Spain and India.<sup>28</sup>

The growth of the glass trade led in Bohemia to an upturn

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<sup>26</sup> Thus for example Vaclav Ostritz, a participant in the firm of Ostritz, Gerthner and Hanzel. On this E. SCHEBEK: *Böhmens Glasindustrie...*, pp. 415-418.

<sup>27</sup> Thus for example A. Palme from Pecky, who previously worked in a glass warehouse in Amsterdam. SCHEBEK, pp. 415-418.

<sup>28</sup> A. SALZ: *Geschichte der böhmischen Industrie in der Neuzeit*, p. 246.

for carriers as well. The carts which had up to then been used for freight had to be replaced by larger ones drawn by 4 or 6 horses. The rich farmers decided to hold some capacity in common, of which a part was always abroad transporting glassware. These carts took the glassware to previously determined destinations where it was then further distributed. Such a depot for Italy and Turkey was Trieste, for the north Hamburg, Bremen and Stettin.

In time the Bohemian glass trading companies sold on more distant markets not only Bohemian glass: in their depots they also had Bavarian table glass, and glassware which had been produced in England, the Netherlands, France or Thuringia. But Bohemian glassware was still the main line of these depots. In Bohemia in the XVIIIth century there were many glass trading companies. One of these entrepreneurs in northern Bohemia, F.S. Zahn wrote that such companies existed in many places in this region, for example in Kamenichý Šenov, Polevsko, Prácheň. According to him, only the glass dealers from Skalice had depots in Copenhagen, Hamburg, Bremen, Amsterdam, The Hague, Rotterdam, Trieste, Ancona, Naples, Palermo, Lisbon, Oporto, Vigo, Cadiz, Seville, Malaga, Alicante, Valencia and Barcelona.<sup>29</sup>

Up to 15 people worked in this kind of depot.<sup>30</sup> They took in the goods, did their business and sent the money they had made to Bohemia. Apart from one of the entrepreneurs who looked after the depot, most of them were the sons of the entrepreneurs, but alongside them sometimes were young men from the glass regions in Bohemia, who often came from the villages or from the smaller towns. They worked for years in the glass depots in the large towns of Spain, Portugal or the Netherlands, which were amongst the countries which took most of the Bohemian glassware. After 12-14 years<sup>31</sup> they returned

<sup>29</sup> F. S. ZAHN: *Unseres Glashandels Anfang und Verlauf*, in SCHEBEK, pp. 134-138.

<sup>30</sup> J. A. HEGENBART: *Zur Geschichte des böhmischen Glashandels*, MVGDB 4, p. 144.

<sup>31</sup> J. A. HEGENBART, MVGDB 4, p. 146.

again to Bohemia, taking back their experience with them. But while they had been abroad they had become different people from the normal inhabitants of Bohemian villages and small towns. After a few years in Bohemia, they went back to their travels around the world.

The history of the Bohemian glass trade shows that "trade transformed the product into saleable goods in that it found a market for it".<sup>32</sup> And by the fact that trade controlled production in precapitalist society, it also made whole branches of production dependant on it. The less production had developed, the more the money became concentrated in the hands of the traders, "whose wealth always existed in the form of money, which has the function of capital".<sup>33</sup>

In the development of the Bohemian glass trade we can point to great profits. Salz declared that a glass trading company from Skalice in the space of 15 years managed a turnover of 203,156 guilders and 12 kreuzer. This corresponds to an annual turnover of 13,543 guilders, of which the average annual profit was over 27%, but in some years as high as 36.2%.<sup>34</sup>

The Bohemian glass dealers demanded that the glassmakers be forbidden to export unworked glass abroad; it should be sold to local glass dealers. Further they demanded that all works connected with the further working of the glass — for example cutting, polishing, painting, gilding etc. — be carried out away from the glassworks.<sup>25</sup> In this way they wanted to subordinate glass production to themselves. Neither the Chamber of Commerce nor the *Directorium in publicis et cameralibus* supported the demands of the glass dealers. They were aware that this would lead to a monopoly for the dealers who could then dictate

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<sup>32</sup> K. MARK: *Das Kapital*, III, 1949, pp. 368-369.

<sup>33</sup> *Ibid.*, p. 357.

<sup>34</sup> A. SALZ, p. 268 (see note 28).

<sup>35</sup> J. KLEPL: *Rozmach leského skla* ("The development of Bohemian glass") in: "Co daly naše země Evropě a lidstvu" ("What our countries have given to Europe and to the world"), I, 1940, p. 208.

the prices to the producers of glassware. Both authorities though were against the export of unworked glass from Bohemia for further processing in Silesia and in Saxony. They pointed out that there were enough craftsmen to do this work in their own country.<sup>36</sup>

A bulletin of the Commerce Collegium of 6th July 1735 describes the great wealth of the Bohemian glass dealers, who had lent money to many envoys of the Habsburg monarchy. Among the debtors were the ambassador in London, Count Gallas, the ambassador in Moscow, Count Vratislav, and the ambassador in Lisbon, Count Khienburg, who had borrowed 75,000 guilders. Among the debtors of the Bohemian glass dealers was even the King of Spain with a sum of 250,000 guilders.<sup>37</sup> They did not only export glass from Bohemia: on the way back they loaded their carts with products from western and southern Europe. And so, for example, they brought in tobacco from Spain and Portugal, fine cloths from England and the Netherlands, and from other countries such goods as would find markets in the countries of the Habsburg monarchy. This activity of the dealers did not correspond to the aims of the government of the time which, in mercantilist spirit, was trying to limit the import of foreign goods. It therefore demanded a higher duty for foreign goods, which was once more against the interests of the dealers. In 1735 the dealers of Kamenice, Sloup, and Horní Libchava, who exported goods to Spain, Portugal, England, the Netherlands, Russia and Turkey, approached the authorities with a plea that the goods which they imported from these countries should not be subject to such high duties as those which foreign traders brought in. They demanded that trade policies be fundamentally changed and they demanded free trade for export as

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<sup>36</sup> Protocolum directorii in publicis et cameralibus de dato Augusti 1750; in: SCHEBEK, p. 365.

<sup>37</sup> Ex cons. Reg. Coll. Commercio, Pragae 6.VII.1735. Printed in SCHEBEK, pp 169-173.

well as for import.<sup>38</sup> Here obviously the interests of business capital and those of the woollen goods industry parted. The latter called for a ban on the import of woollen goods to protect them against foreign competition.

In this half of the XVIIIth century glassworks were built in many countries which up to then had been considerable consumers of Bohemian glass, for example Switzerland, Italy, Portugal, Spain and Lorraine. In nearly all of these glassworks there worked glaziers from Bohemia.<sup>39</sup> The dealers of Česká Kamenice stated that the Milan trader Ciojo managed in 1752 to take some glaziers' apprentices from Bohemia to Switzerland; they then worked in his factory in Bellinzona. His business sold the goods in many Italian towns, and he thus had the advantage of lower transport costs and of lower customs duties. In 1752 the government in Vienna did impose a ban on the emigration of glaziers from Bohemia, but it was probably largely unsuccessful because of the repeated complaints against it. The captain of the region of Litoměřice (Leitmeritz) even suggested to the highest authorities in the country that he let it be known that he would reward with 3 ducats anyone who would inform on a glazier intending to emigrate.<sup>40</sup> On 5th April 1767 a royal decree was issued saying that the reward for the apprehension of anyone seeking to persuade a glazier to emigrate was to be raised to 100 guilders. And two years later, on 5th December 1769, a decree was issued in which glassmakers were called to take the necessary measures to stem the emigration of Bohemian glass workers.<sup>41</sup>

In 1739 the Bohemian glass dealers complained that Sweden, Brandenburg and Portugal had banned the import of Bohemian glass.<sup>42</sup> In the second half of the XVIIIth century many more

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<sup>38</sup> SCHEBEK, pp. 169-173.

<sup>39</sup> SÚA Praha, ČG. com. 1773-1783, A. 1/10.

<sup>40</sup> SÚA Praha, ČG. com. 1775, A/Z.

<sup>41</sup> B. STIESS: *Kapitoly z emigrace sklářských dělníků* ("Chapters from the emigration of the glass workers") in: "Časopis Přátel starožitnosti", 60, Prague, No. 4.

<sup>42</sup> SÚA Praha, Bohemica Kinských, II., fol. 105-108.

bans followed. In 1772 the firm of J.F. Palme complained to the Chamber of Commerce in Prague that they had been stopped from exporting glass to Piedmont and Savoy. They called on the government in Vienna to take counter-measures and in return to withdraw permission for the import of glass into the Italian provinces of the Habsburg monarchy, for example Livorno, Florence, Tuscany, Mantua and Milan.<sup>43</sup>

When we examine the statistics of glass export from Bohemia in the XVIIIth century, we see the significance of glass production in the economic life of the country. According to records of 1732 the export of glass from Bohemia ran to 97,724 guilders.<sup>44</sup> From the records of the Commerce Commission of the Bohemian Government, which are made on the basis of the customs register for the years 1752, 1768 and 1771, we discover that glass, mirrors and fine products were exported from Bohemia to a total of 282,342 guilders in 1752, 388,938 guilders in 1768 and 375,558 guilders in 1771.<sup>45</sup>

From what I have put forward we can see that business capital was very significant in Bohemian glassmaking. This capital was particular to that country and it developed from small beginnings — the shopkeeper going around with his barrow — to a very advanced form where large trading companies were formed which had their own depots in distant lands, even outside Europe. Business capital played an important role in this area. In the second half of the XVIIIth century the Bohemian glass trading companies had a more difficult position than before. After Prussia and Sweden<sup>46</sup> the import of Bohemian glass was banned in Portugal, France and Spain, followed by Poland and Russia.<sup>47</sup>

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<sup>43</sup> SÚA Praha, ČG. com. 1772, H/28.

<sup>44</sup> SÚA Praha, Bohemica Kinskych, IV., folg. 661.

<sup>45</sup> SÚA Praha, ČG. com. 1773-1783, A 1/33.

<sup>46</sup> J. A. RIEGGER: *Entwurf einer Statistik von Böhmen*, in: "Materialien zur alten und neuen Statistik von Böhmen", Leipzig 1794, p. 189.

<sup>47</sup> J. A. RIEGGER: *Materialien...*, II, Leipzig 1788, p. 22.

But Bohemian glass remained a much sought-after product. The Trieste businessman Hirschl spoke of Bohemian glass in the highest terms in his report on his visit to Bohemia. He had done business with the glass dealers of Bor (Haida) and had asked them to send the glass destined for southwest Europe via Trieste and not via Hamburg. Thus we discover that in 1769 40,000 hundredweight of glass was sent to Spain from Bohemia.<sup>48</sup>

A document from the end of the XVIIIth century shows us what glass export meant for some regions of Bohemia. During the American War of Independence trade in Bohemian glass in this part of the world diminished. The successful resolution of the war was celebrated by a great feast in one of the centres of Bohemian glass production, Bor (Haida). A pig was roasted and distributed among those present.<sup>49</sup>

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<sup>48</sup> SÚA Praha, ČG. com. 1771, A/1.

<sup>49</sup> E. STRAUSS: *Die Entstehung der deutsch-böhmischen Arbeiterbewegung*, Prague 1929, p. 16