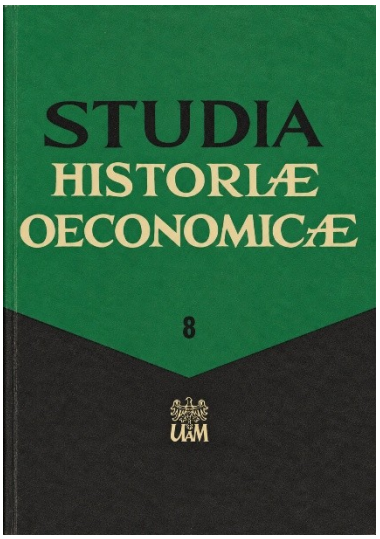


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THE CONDITIONS AND TRENDS OF THE DEVELOPMENT OF SHIP-BUILDING INDUSTRY IN THE POMERANIAN PORTS FROM THE SEVENTEENTH TO THE NINETEENTH CENTURY

The area under discussion, situated between the Odra and Pasłęka rivers, was very differentiated not only from the geographical point of view. It comprised both those territories which were part of Poland after 1466 and were called "The Royal Prussia" and after 1772 "West Prussia" and those which after the extinction of the Dukes of Pomerania (1637) belonged to the Prussian-Brandenburgian state or Sweden (Szczecin, 1648 - 1720). As a result of the territorial expansion of the Prussian state the areas under discussion were all within the frontiers of that state in the eighteenth century and also in its economic system (Szczecin 1720, Elbląg 1772, Gdańsk 1793). They had one feature in common which is important for the present study: the agrarian character of the country which was more and more pronounced until the twentieth century. In such an economic structure industrialization had a clearly „insular" character. This fact is of great consequence for the characterization of the Pomeranian industry, for its specific features.

The history of the maritime shipyards of that region provides us with good opportunities for the scrutiny of those processes from the seventeenth century onwards. It was at that time that the problems emerged that were to be felt also in the nineteenth and twentieth centuries. One must discuss also those problems which conditioned the development of the shipyards, such as: the supply possiblities as far as raw material is concerned, the labour market, the fluctuations of the market for ships and, above all, the problem of capital and the coincident investment potential and technical progress.

The characteristic feature of the ship-building industry in discussed area since the time of the Middle Ages was that the ship-building masters and merchants were in possession of the means of production and only the basic tools were in the possession of the direct producers — carpenters ship-builders who were under a process of transformation

during the seventeenth-eighteenth centuries into nearly capitalist hired labour. According to M. Bogucka, Z. Binerowski, and S. Gierszewski [1] there were two types of ship-building production in Pomerania. As far as labour and capital organization is concerned, the discussed ship-building industry was approaching at the turn of the sixteenth and seventeenth centuries the situation of manufacture, with labour organized in guilds, but with the transformation of the journey-man into a hired labourer, typical for capitalist conditions, but still not a representative of a free labour force. There were in this respect also some non-economic factors at play. Nevertheless, we know on the basis of the example of Gdańsk that the manufacture system which was forming itself in that city as a result of a crisis of the guild system as early as at the turn of the sixteenth and seventeenth centuries, was particularly strong in the ship-building industry. The mercantile capital, always in the forefront in ship-building in all the regions of Pomerania, played an important role in this case. The merchant financed the building of the ship and was responsible for paying all the costs of labour and of the purchase of building materials. It was also the merchant who organized shipping companies, responsible both for the construction and for the exploitation of the ships. This is the source of the accumulation of capital and of the formation, from the middle of the seventeenth century, of individual shipping firms owned by the merchants which invested their money also in the building of those ships, and very numerous in all the centres under discussion in the eighteenth century [2]. It seems that the Szczecin of the end of the eighteenth and the beginning of the nineteenth century is a typical example and evidence of those changes. In that city there was a boom in shipping resulting from the European wars and the capital accumulated in that way was the basis for the later development of manufactures building ships and producing outfit elements for the ships. In that intensive production the richest Szczecin merchants were engaged till 1806 and they made profits up to 15 per cent of the capital invested in production [3].

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[1] Z. Binerowski, *Gdański przemysł okrętowy od XVII do początku XIX wieku* (Gdańsk Ship-Building Industry from the Seventeenth to the Beginning of the Nineteenth Century). Gdańsk 1963; M. Bogucka, *Gdańsk jako ośrodek produkcyjny w XIV - XVII w.* (Gdańsk as a Production Centre in the Fourteenth-Seventeenth Centuries). Warszawa 1962; S. Gierszewski, *Elbląski przemysł okrętowy w latach 1570 - 1815* (The Elbląg Ship-Building Industry in the Years 1570 - 1815). Gdańsk 1961.

[2] Cf. above and also: *Dzieje Szczecina. Wiek X — 1805* (The History of Szczecin. From the Tenth Century to 1805). G. Labuda, Ed. Warszawa 1963, pp. 419, 432, 526.

[3] Cf. ibid. pp. 526, 544, 547.

The turn of the eighteenth and the nineteenth centuries, a period of the collapse of the petrified guild system, was favourable for a stratification of the members of the guilds, i.e. for some of them being very successful and some very impoverished. Another thing is very significant for those changes: shipwrights who were enriched founded their own workshops. The transformation of a master shipwright into a capitalist ship-building enterprise owner was a result. Such ship-building industrialists were: in Szczecin Nüscke, a man from a carpenter-shipwright family noted as early as in the seventeenth century, the owner of a shipyard building at first wooden ships and later (1891) iron ones [4]; in Gdańsk Heine, Grott and in particular Klawitter, the founder in 1827 of a modern shipyard and a representative of a family of master shipwrights well known since 1712 [5]; In Elbląg such enriched master shipwrights were: after 1815 Daniel Fechter and after 1825 Michael Mitzlaff, a representative of a shipwright dynasty known since the beginning of the eighteenth century, the owner of a shipyard founded on the basis of a purchase of two shipwrights' workshops. [6] The lives of those people are typical examples of a rise of a small capitalist in a specific phase of accumulation of means able to give up a direct participation in production and transforming himself into the founder of a small but centralized ship-building workshop.

It must be added that those shipyards, building ships made of wood, could maintain the rank of leading enterprises only till the middle of the nineteenth century, i.e. till the appearance of iron ships with steam engine propulsion. It was at that time that the leading role was taken over by engineering enterprises, as only such factories were able, from investment point of view and in the technological sense, to cope with the construction of modern vessels (the shipyards of the navy in Gdańsk 1844, the "Vulcan" in Szczecin in 1851, the "Stettiner Oderwerke" 1854, Schichau in Elbląg 1855) [7].

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[4] Cf. O. Altenburg, *Geschichte der Firma Nüscke and Co.* Stettin 1915.

[5] Z. Binerowski, *Gdański przemysł okrętowy...*, p. 204; Cf. also *Die Schiffs-Werft und Maschinenfabrik von J. W. Klawitter zu Danzig.* Festschrift, Berlin 1906.

[6] S. Gierszewski, *Elbląski przemysł okrętowy...*, p. 203.

[7] Cz. Wojewódka, *Zmiany w warunkach rozwoju przemysłu okrętowego w XIX i XX wieku ze szczególnym uwzględnieniem Niemiec i Pomorza Gdańskiego* (Changes in the Conditions of Development of the Ship-Building Industry in the Nineteenth and Twentieth Centuries with Special Attention to Germany and Gdańsk Pomerania). Przegląd Zachodnio-Pomorski 1967 (printed) 1968 No 6 p. 108; Cf. also *Die Schichauwerke in Elbing, Danzig und Pillau 1837 - 1912.* Berlin 1912; and W. F. Scheffler, K. Fischer, *Hundert Jahre Danziger Werft 1844 - 1944.* Danzig 1944.

An important factor and stimulus and guarantee of the prosperity of those shipyards were connected with the implementation of the German armaments programme policies, with the expansion of the German navy as an instrument of Prussian-German militarism [8]. The Szczecin "Vulcan" in 1866 launched its first warship ordered by the state and three years later it was in a leading position in this type of production [9]. The relations of the Schichau with the German navy started as early as 1851 (a steam engine for a corvette built in Gdańsk), but continuous ties were established in the seventies. It was that shipyard that got the order for a torpedo boat, designed and launched in the same shipyard in 1877 and inaugurating a long series of ships of that type. Gradually Schichau built also other types of ships, to a large extent for foreign countries (cruisers, battleships etc.), particularly for Eastern markets, but also for the Balcan countries, for Scandinavia and for South and North America. Cruisers and corvettes built by the "Vulcan" of Szczecin were exported to Greece, Russia, Japan and China [10].

The entrance of the Schichau and "Vulcan" shipyards to the leading group of armaments factories and ensuing growth of technical needs required further expansion. But both ports and the waterways leading to those ports were too shallow for deep-sea vessels. That is why F. Schichau in 1892 founded a big branch works in Gdańsk and in 1889 in Piława repair shops with a floating dock. In 1905 a branch works of the "Vulcan" shipyards was founded in Hamburg [11].

Far going committment of capital in ship-building industry was very important for the development of investment and ensuing technological progress, which was, however, successfully opposed by the conservative

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[8] Cf. A. J. Kamiński, *Z dziejów wilhelmińskiej bandery wojennej* (A Note on the History of the Navy of Wilhelm II). Przegląd Zachodni VI: 1950 No 3 - 4; and G. Heidern, *Bemerkungen zur ersten Flottenrüstung und Flottenpropaganda des deutschen Imperialismus.* In: Wissenschaftliche Zeitschrift der Universität Rostock, Geschichtliche und sprachwissenschaftliche Reihe, Jg. 7: 1957 - 1958-No 1, pp. 1 - 14; Cf. also H. Junghänel, *Marinehaushalt und Marineausgabenpolitik in Deutschland (1868 - 1930). Beiträge zur Finanzkunde.* Hrsg. B. Moll and B. Boesler, vol. 8, Leipzig 1932.

[9] B. Dopierała, *Z dziejów przemysłu stoczniowego w Szczecinie* (A Note from the History of the Ship-Building Industry in Szczecin). „Szczecin" 1958, No 11/12, p. 78.

[10] Ibid. p. 78 - 79; and Z. Binerowski, *Materiały statystyczne produkcji okrętowej stoczni Schichau z lat 1855 - 1943* (Statistic Materials Pertaining to the Production of the Schichau Shipyard from the Years 1855 - 1943). Libri Gedanenses 1, for 1967 (printed) 1968, p. 126.

[11] S. Gierszewski, *Elbląg, przeszłość i teraźniejszość* (Elbląg Past and Present). Gdańsk 1970, p. 198; B. Dopierała, op. cit., p. 81.

master shipwrights [12]. But the real industrial revolution in the ship-building industry took place in the nineteenth century. Its first half was a period of a time of eager experimentation and improvement of the new system of propulsion of ships, the steam engine. In the middle of the nineteenth century a new invention became a break-through: the iron hull. Those changes reached the Pomeranian sea-coast with generally very small retardation. As early as in the later twenties first tokens of change could be seen there in the shape of steam ships with wooden hulls bought in Great Britain. Szczecin and Elbląg soon undertook construction of such ships of their own (1826 and 1828), but at first those ships were fitted with steam-engines built in Britain. Those ships, however, were small and built for sea-coast traffic. Steam-engines locally built were fitted in the forties. Thus a ship completely constructed in Szczecin, including the steam-engine, was launched there in 1841. The same happened in 1847 in Elbląg [13]. Steam-ships with iron hulls, vessels of bigger size and power, were first built in the fifties in all those shipyards (Szczecin 1851, Gdańsk and Elbląg 1855). It must be added that this was earlier than in Hamburg [14].

The introduction of iron and steel as material for the construction of hulls was a real progress in shipping. The new vessels were faster, sturdier and lighter and also cheaper in exploitation. This was particularly true about the new ships with hulls made of steel (since 1800). In the seventies of the nineteenth century the majority of shipyards which previously had built wooden ships geared their production totally to the construction of iron hulls [15].

Propulsion was the essential problem for the development of modern shipping based on an optimal steam-ship. Pomeranian shipyards met this requirement rather early. F. Schichau's shipyard in Elbląg was particularly good at it. As early as in 1847 that factory, at that time still active just as engineering works, constructed their first steam-engine of 42 HP. The later F. Schichau shipyards were continually developing that branch of production on a very large scale, thus creating the basis of their European importance. Aiming at economy of fuel in ship pro-

[12] Interesting Data in: Z. Binerowski, *Gdański przemysł okrętowy*..., p. 78.

[13] A. Wielopolski, *Gospodarka Pomorza Zachodniego w latach 1800 - 1918* (The Economy of Western Pomerania in the Years 1800 - 1918). Szczecin 1959, p. 84; *Historia budownictwa okrętowego na Wybrzeżu Gdańskim* (The History of the Ship-Building Industry of the Gdańsk Sea-Coast Region). A Collection of Studies Edited by E. Cieślak. Gdańsk 1972, pp. 175 - 176; The year 1842 is erronously mentioned by B. Th. Satori—Neumann; *Elbing im Biedermeier und Vormärz. Ernstes und Heiteres aus der Guten Alten Zeit (1815 - 1848)*. Elbing 1933, p. 181.

[14] Cz. Wojewódka, op. cit., p. 109.

[15] Cf.: *Historia budownictwa okrętowego na Wybrzeżu Gdańskim*..., p. 231.

pulsion by steam-engines, the high rate of fuel used being one of very serious deficiencies of ships used for transport in the Vistula Bay in the thirties of the nineteenth century [16], and at increasing the speed of the ships by a more economic utilization of steam, they started to construct and improve steam engines with condensing apparatus. After the first world success (1854) the first steam-engine with double expansion produced by Schichau appeared in 1872. A few years later, in 1882, in that shipyard a steam-engine with triple expansion was built. That machine represented the highest world standard and top achievement of the technology of those times in the sphere of piston steam-engines. Those constructions were very popular and were universally applied in European shipyards [17]. Another step in technological progress in ship propulsion was the beginning in the Schichau shipyard of licenced construction of steam turbines at the beginning of the twentieth century. As we know, those turbines were of particular importance for increasing the speed and economy of steam propulsion. That was a development which contributed to a complete elimination of sailing ships from the area under discussion. In 1911 the Schichau shipyard began, on the basis of a Sulzer licence, to build internal combustion engines [18].

The historic changes in the sphere of constructing materials, which were one of the prerequisites of the proper functioning of shipyards, made the problem of a rhythmical supply of those materials vital. In that particular sphere the potential of the various parts of the area under discussion was unequal and differentiated, particularly when still wooden sailing ships were built. In that particular case the raw materials were such as timber and products of forest industry (tar, birch tar) and vegetable raw materials (hamp, flax) and iron. This was true both about shipwrights' workshops and the trades co-operating with the shipyards and organized in separate guild for those making ropes, sails, for ship blacksmiths, anchor producers etc, etc. Those guilds were transforming themselves sometimes into manufactures in the latter half of the eighteenth century [19].

Gdańsk and Elbląg as exporting ports tied strictly with the exports of agricultural and forestry products from a deep hinterland of Poland, also for their construction material relied on the same source. Their de-

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[16] *Wojewódzkie Archiwum Państwowe w Gdańsku* (The Voivodeship State Archives in Gdańsk), quoted by *WAPG* sygn. I/6, 645 p. 93.

[17] Details are supplied by C. Busley, *Die Entwicklung der Schiffsmaschine in den letzten Jahrzehnten.* Berlin 1890.

[18] Cz. Wojewódka, op. cit., pp. 96, 118 - 119.

[19] Data concerning this subject are to be found in: S. Gierszewski, *Elbląski przemysł okrętowy...*, p. 148 and ff.; and *Dzieje Szczecina...*, p. 516.

pendence on Polish hinterland was not the same in all cases, because it shaped by differing from case to case natural conditions and also by the role of each of those centres in the economic system of Poland. Thus, the opportunities of Gdańsk shipyards, situated on the Motława branch of the Vistula estuary, were different from those of Elbląg and Szczecin, which were, unlike Gdańsk, very remote from the sea-coast and having inferior navigation conditions at their disposal in their communication with their hinterland.

As early as in the sixteenth century navigation difficulties on the Odra river were a serious trouble of the Szczecin port. The shallowness of the water in the seventeenth and eighteenth centuries, gradually blocked by sand deposits, made it necessary to limit the size of the vessels entering the harbour or to unloading of a part of their cargoes from sea vessels to harbour ships [20]. The port of Elbląg was connected with its hinterland by means of the shallow Nogat branch of the Vistula estuary and a poor canal to the harbour. With the sea the port of Elbląg was connected by a 10 kilometer waterway leading to the Baltijsk Straits. Thus, the natural situation of the port was best in the case of Gdańsk and that factor played in the feudal age a very important role also in the expansion of the shipyard, in the raw material supply from the Polish hinterland. Vegetable raw materials needed for ship-building were imported by the Elbląg shipyards above all from the near-by hinterland of Warmia and timber was imported from the famous Elbląg plateau region [21]. Near-by forests were also the source of supply for the Szczecin shipyards which were in a particularly difficult situation from the point of view of raw material supply. That became particularly apparent owing to a regress of maritime trade in the sixteenth century. A situation that still deteriorated even more after the thirty years' war. There were periods of complete break-down of supplies [22].

New problems of timber supply were felt in the first half of the nineteenth century. The downfall of Napoleon and the allotment of Gdańsk Pomerania to Prussia caused the cutting off of Gdańsk and Elbląg from their former hinterlands, situated either in the Kingdom of Poland or in the territories of the Russian partition of Poland. This caused difficulties in timber supply, the increase of its price, a factor which was felt in Gdańsk and Elbląg shipyards even in the middle of the nine-

[20] *Dzieje Szczecina* ..., pp. 288, 357.

[21] Cf. S. Gierszewski, *Elbląski przemysł okrętowy* ..., pp. 61, 143; and J. Małecki, *Elbląska galeona Zygmunta Augusta w świetle ostatnich badań* (The Elbląg Galleon of King Sigismund Augustus in the Light of Latest Research). Rocznik Elbląski, vol. V: 1972, fig. 1.

[22] *Dzieje Szczecina* ..., pp. 248, 265, 420.

teenth century [23]. Similar difficulties were felt in the middle of the century also by the shipyards of Szczecin which depended on raw materials from forest areas situated on the banks of the Odra, Warta, Noteć and even partly Vistula rivers. However, there were no big transports from the Odra tributary basin coming to Szczecin. The better navigation conditions on the Elbe river, the better services in Hamburg; the absence of the Sund tariffs and other factors contributed to the fact that transportation on the Elbe river — Hamburg route were more economic for Silesian businessmen than those of Szczecin [24].

The situation in the supply of iron was different. Because there were no sufficient supplies in the home market, iron was imported from Sweden. That import was particularly characteristic for the latter half of the eighteenth century, similarly like the import and processing of hemp imported from Pomerania and from Russia [25]. In Elbląg sailing cloth produced at Rewal, enjoying good reputation, was introduced [26]. This was one of the characteristic features of nineteenth century conditions, namely the processing on the spot of imported raw materials [27].

Steel and iron supply was a vital supply problem in the nineteenth century. This time it was necessary to co-ordinate industrial supply, i.e. of a co-ordination of the expansion of the ship-building industry with the process of development in steel industry. What was needed was not just pig iron or cast iron, but iron sheets and iron profiles, elements still imported from Sweden in the first half of the nineteenth century [28]. It was in the second half of the century that, owing to a gradual development of German steel industry, it was possible to supply the shipyards on the basis of home market resources, produced in the steel works of Silesia and Ruhr basin. However, the transportation of those materials from the latter region made it necessary to introduce a more accessible

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[23] Information about the high prices and shortages of timber in Elbląg and Gdańsk cf. *WAPG*, sygn. I/6, 645 p. 92; *Elbinger Jahres-Bericht pro 1848 ueber den Gang des Handels, der Schiffahrt und Industrie.* Elbing 1849, p. 2; *Bericht über den Gang des Handels, der Gewerbe und der Schiffahrt zu Elbing im Jahre 1858*, p. 8; *Bericht über den Handel und die Schiffahrt zu Danzig:* for the years 1852: p. 12, 1854: p. 14, 1858: pp. 4 - 12.

[24] K. Piotrowski, *Zaplecze portu szczecińskiego w dobie kapitalizmu wolnokonkurencyjnego 1818 - 1890 — w świetle przewozów kolejowych i wodnych* (The Hinterland of the Port of Szczecin in the Times of Free-Competition Capitalism, 1818 - 1890 in the Light of Railway and Waterway Transportation). Szczecin 1969, pp. 73, 77, 82 - 83, 112, 137.

[25] Cf. *Dzieje Szczecina*... pp. 420, 526, 547, 573 - 74; and *Historia budownictwa okrętowego na Wybrzeżu Gdańskim*..., p. 234.

[26] S. Gierszewski, *Elbląski przemysł okrętowy*..., p. 150.

[27] *Dzieje Szczecina*..., p. 420.

[28] K. Piotrowski, op. cit., pp. 47, 80; Cz. Wojewódka, op. cit., p. 114.

railway tariff system for them (1889). The aim was playing down competition, the transportation of iron for 1.7 for one ton per kilometer instead of 3.5 or 4.5 pfennig. In 1898 the rate was lowered to 1.2 pfennig, which meant for the shipyards of Szczecin lowering the costs of transportation of 47 per cent in relation to normal rates. Identical troubles were tied up with the supply of coal and coke from the Ruhr basin to Pomerania [29].

Another important problem for the new ship-building industry was the supply of propulsion engines (boilers and steam-engines and later steam turbines and internal combustion engines). In the first half of the nineteenth century, owing to the lack of local factories, the problem was solved by imports from industrially leading Great Britain. In the second half of the century, as German industry developed, some, particularly the big shipyards, started to build not only the hulls of ships but also boilers and machines and other ship installations. That was the case with the F. Schichau works which originated from an engineering enterprise. This was a good starting point in the technological sense and in personnel. Those were conditions of general industrial production alongside with the shipyard, including production of marine engines, supplied also to other shipyards. The situation in the Royal (Imperial) Shipyard in Gdańsk, founded in 1844 for the need of the navy was similar. It committed its production potential to a large extent to the production of ship propulsion elements and ship fittings. That is how we can characterize Klawitter's shipyard in Gdańsk which apart from the production of iron steam-ships also produced propulsion elements and ship fittings. Thus we can make a generalization that the shipyards of Pomerania were in the nineteenth century closely tied with the supplies from the remonte Silesia and Ruhr basin, but in the construction of propulsion elements and ship fittings were not only self-sufficient, but were supplying other shipyards [30].

The consequences of the underdevelopment of big capitalist industry in Pomerania were far reaching indeed. The lack of near-by industries of other sorts which would compete with the shipyards contributed to cheapness of labour being a continuous feature of that industry. For instance in Szczecin wages were much lower than the average for the Reich: in 1907 the average wages of a worker employed in metallurgy in Essen was 55.8 pfennig an hour and in Szczecin only 42.1 pfennig. It is obvious that if there were other branches of industry in Pomerania, there would be different conditions on the labour market and the structure of wages, too, would be different. One could predict that for the

[29] Cz. Wojewódka, op. cit., pp. 115 - 116.

[30] Ibid., pp. 117 - 118.

ship-building industry this would bring about some difficulties. It must be remembered that this industry represented a high production potential. In the F. Schichau shipyard in Elbląg were employed 1,200 workers in 1881 and in 1912 ca. 8,500, in the shipyards of Szczecin at the beginning of the eighties ca. 3,000 and in 1913 — 8,400. In the "Vulcan" shipyard itself 7,035 workers were employed that year [31].

Those remarkable opportunities of the ship-building industry under discussion were possible owing to a continuous surplus of labour in Pomeranian towns and to the under-development of agriculture, its crises, to the economic weakness of peasantry and to the resulting migration of rural population. Szczecin alone absorbed 15 thousand people from the country-side in the middle eighties. Those were people looking for work and when they found it in shipyards, they contributed one of the main factors of their development, of their attainment of leading position in Germany [32].

The general line of development of the Pomeranian shipyards from the seventeenth to the twentieth century is very irregular. These centres of shipbuilding since the middle of the sixteenth and particularly from the beginning of the seventeenth century removed more and more from the leading group. It is a well known fact that since the end of the fifteenth century symptoms of important later transformations in the Baltic region were at work. Trade routes were changing owing to geographical discoveries and this resulted in the disappearance of central position of the Baltic sea for European trade and shipping. The decline of the Hanza and the take-over of the Baltic sea-routes by the English and particularly the Dutch, all this diminished the importance of the ports situated upon the south coast of the Baltic and also of ship-building and repair workshops. The significance of those ports till the nineteenth century, in comparison with the great centres of Europe was rather small, especially when compared to Dutch, English or French harbours, i.e. the sea-ports of those countries that played a leading role in sea transport in the sixteenth - eighteenth centuries. In the seventeenth century also Scandinavian shipyards attained a high European standard, thus contributing to the military power of Sweden on the sea and to the development of the Swedish companies trading with colonial countries [33].

[31] S. Gierszewski, *Elbląg, przeszłość...*, p. 203; A. Wielopolski, *Gospodarka Pomorza Zachodniego*, p. 170.

[32] A. Wielopolski, *Stosunki gospodarcze i społeczne na Pomorzu Zachodnim w XIX wieku* (Economic and Social Conditions in Western Pomerania in the Nineteenth Century), In: 1000 lat nad Odrą i Bałtykiem. Praca zbiorowa. Szczecin 1966, pp. 164 - 65; B. Dopierała, op. cit., pp. 81 - 82.

[33] Some remarks cf. E. F. Heckscher, *An Economic History of Sweden*. Cam-

At the same time the centres of Southern Baltic sea, including those of Pomerania were gradually diminishing in importance. Gdańsk which after the thirteen years' war continued to maintain its splendid position as a leading ship-building centre, from the middle of the sixteenth century onwards started to suffer a decline in production, in spite of the fact that foreign orders for ship continued to arrive till the middle of the seventeenth century. On the other hand, in Szczecin from the middle of the sixteenth century obstacles of development were in operation to a much larger extent than in Gdańsk region and finally they brought about symptoms of crisis. Highly disputable is the interpretation of the period of the history of Szczecin called "Swedish" (1648 - 1720), which has been recognized as a period of a break-down of the economy of the city, but which was at the same time a period of expansion of its sea shipping and development of production in the local shipwrights' workshops. It is true that all those ships were actually small vessels in most cases [34]. It seems, however, that the latter half of the seventeenth century was a period of profitable conditions for the ship-building industry, conditions that could be observed both in the shipyards of Gdańsk and Elbląg [35].

There were some symptoms of growth in the eighteenth century, particularly in its latter half. There was increased production in Szczecin, Gdańsk and Elbląg, also for foreign markets. This was enhanced not only by more lively trade in the ports, but also by a favourable international economic situation, particularly during the maritime wars and during the United States war of independence [36]. It must also be recalled that in the latter half of the eighteenth century changes in political frontiers contributed to the development of such conditions in which the Pomeranian shipyards were included into the boundaries of a homogeneous home market. The occupation of Gdańsk Pomerania by Prussia in 1772, but the retention of Gdańsk as a Polish port, brought about, because of toll chicanery of Prussia against that city, an economic regress and the decline of ship-building there. The city of Gdańsk was artificially isolated from the uniform economic system of Poland. When Prussia occupied in 1793, owing to the second partition, extensive areas

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bridge, Mass. 1963, pp. 113 - 14; and J. Kretschmer, *Schwedische Handels-Kompanien und Kolonisationsversuche im 16. und 17. Jahrhundert.* Hansische Geschichtsblätter, Jg. 1911, pp. 215 - 46.

[34] *Dzieje Szczecina* ..., pp. 246, 339, 352 - 53, 361.

[35] Z. Binerowski: *Gdański przemysł okrętowy* ..., pp. 148 - 51; and S. Gierszewski, *Elbląski przemysł okrętowy* ..., p. 103 - 04.

[36] *Dzieje Szczecina* ..., pp. 419 - 20, 436 - 37, 449, 570; See also the publications by S. Gierszewski and Z. Binerowski quoted above.

of Poland, those areas, as a hinterland to Gdańsk, were again operating in that function, and gave the city chances of development. The case of Szczecin was similar. After the first partition, via the Noteć and Warta rivers, via the Bydgoszcz canal the city of Szczecin was connected with a former part of the hinterland of Gdańsk and so comprised with a uniform home market. By analogy, after 1772 the role of the port and shipyards of Elbląg increased, as that city was incorporated into the Prussian state and favoured by Frederick the Great as a competitor to Gdańsk. There was a pronounced improvement in all the shipyards at the beginning of the nineteenth century.

It was only when the Napoleonic wars and the continental blockade caused serious disturbances in all the shipyards, disturbances that reflected general economic break-down. The crisis was so serious that a recovery came as late as in the end of the second decade of the nineteenth century. Soon a situation emerged that caused a stimulus in Prussian ports on the Baltic not only for trade and shipping, but also for ship-building production. Perspectives of good development arose. What we mean here is the abolishion of the Sund tariffs in 1857 [37] and the resulting development of sea transportation and the expansion of industry in Prussia and the Reich as a whole in the period of the free-competition capitalism [38].

At that time the ship-building industry of Pomerania developed on the same lines as the industry of Germany as a whole. There were, however, some peculiarities in the Pomeranian ship-building industry. I would recognize as such: (1) the „insular" character of that industry, (2) the cheapness of labour, (3) the ties with the needs of the militarist state, with the expansion of its navy, an expansion which was so intensive in the last quarter of the nineteenth and in the twentieth century.

The last two factors I should recognize as sufficient causes of the fact that the shipyards of Pomerania maintained a leading position in the Prussian and German ship-building industry of the nineteenth century. That role of the Pomeranian shipyards was closely connected with the specific conditions of development of German imperialism and its industry in particular. After a difficult struggle in the first half of the nineteenth century for the liquidation of feudal ties, abolition of tariff barriers, and against economic backwardness, the latter half of the cen-

[37] R. Krauel, *Die Ablösung des Sundzolles und die preußische Politik*. Hansische Geschichtsblätter, Jg. 1907, No. 2, pp. 319 - 41.

[38] Cf. A. Wielopolski, *Rozwój handlu i żeglugi bałtyckiej w XIX i na początku XX wieku — główne rysy* (The Development of Trade and Baltic Shipping in the Nineteenth and at the Beginning of the Twentieth Century — Main Outlines). Zapiski Historyczne, XXXV: 1970, No. 2, pp. 67 - 80.

tury proved to be a period of a speedy development of German industry which even before 1871 was surpassing the size of the industrial production of France and attaining nearly the level of that of England after that date. Such a stormy development of heavy industry and metallurgic industry of the German Reich was to a large extent the result of the militarization of that country's economy and the ensuing ear-marking of a major part of the French contribution for the implementation of government industrial orders. Many such orders were also located in shipyards. As a result the Germany of the close of the nineteenth century was in possession of a perfect production apparatus, a leading technological personnel at the turn of the nineteenth and twentieth centuries. Thus Germany became the second biggest industrial power after the U.S.A. [39]

It is a well known fact that most of those technological and production opportunities of Germany were concentrated in the western part of the state, in the case of ship-building industry in Bremen and Hamburg which were also first rank ports of the Reich [40]. In face of such a competition the Pomeranian ports were the losing side [41]. A lot of this defeat was a share of the Pomeranian shipyards.

Translated by
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[39] Extensive discussion in E. Nabiel, *O specyfice rozwoju imperializmu niemieckiego* (On the Specific Character of German Imperialism). Warszawa 1959, pp. 6, 16, 20, 48 - 49, 66 - 68, 80.

[40] This domination is shown by M. Peters, *Die Entwicklung der deutschen Rhederei seit Beginn des 19. Jahrhunderts bis zur Begründung des deutschen Reichs*. Jena 1899, vol. I, pp. 15 - 16, 183.

[41] See the interesting studies by E. Dobrzycki, *Zaplecze portu szczecińskiego a walka konkurencyjna Szczecina z Hamburgiem na przełomie XIX i XX w.* (The Hinterland of the Port of Szczecin and the Competition Struggle with Hamburg at the Turn of the Nineteenth and the Twentieth Centuries). „Szczecin" 1962, No. 5/6 pp. 33 - 46; and *Problemy ekonomiczne portu szczecińskiego na tle polityki gospodarczej Prus na przełomie XIX i XX wieku* (The Economic Problems of the Port of Szczecin as Seen against the Background of the Economic Policies of Prussia at the Turn of the Nineteenth and the Twentieth Centuries). „Szczecin" 1961, No. 9/10 pp. 5 - 20.