Intellectual Archive

Volume 12 Number 4

October – December 2023

Intellectual Archive

Volume 12, Number 4

Publisher : Shiny World Corp.
Address : 9200 Dufferin Street
P.O. Box 20097
Concord, Ontario
L4K 0C0
Canada

E-mail : support@IntellectualArchive.com
Web Site : www.IntellectualArchive.com
Series : Journal
Frequency : Every 3 months
Month : October – December 2023
ISSN : 1929-4700
DOI : 10.32370/IA_2023_4
Trademark : **IntellectualArchive™**

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Toronto, October - December 2023

DOI: 10.32370/IA_2023_12_4

Development of the Shipbuilding Industry of Ukraine in the Postwar Period (1946–1965)

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Abstract

The article deals with development of the shipbuilding industry of Ukraine in the postwar period (1946–1965). The author determined that in the postwar period the reconstruction of the entire industrial structure was accomplished, the most important works at releasing the shipbuilding plants from their uncharacteristic functions were carried out, the specialization profile in building of watercrafts of different types was worked out, the watercraft typing, unification of master ship engines and supplementary mechanical devices, standardization and normalization of materials and equipment were developed. All that allowed each enterprise to make a speciality of multiple building of one or two types of ships. The problem of technical reconstruction of production also became of great importance in the postwar years. Increasing requirements for the ship technical characteristics caused radical changes in shipbuilding technology. The pace of reconstruction and development of the Ukrainian shipbuilding industry was largely determined by the replenishment of enterprises in the industry by qualified specialists. The author concludes that in the postwar period shipbuilding turned into a highly developed industry and became the most important part of the shipbuilding complex of the USSR. Ukrainian engineering and work force made a decisive contribution to the formation of the Soviet postwar fleet.

Keywords: shipbuilding, industry, the Ukrainian SSR, modernization, postwar reconstruction

The reforms being carried out in our country today require more and more attention to the past, a broader and deeper penetration into it in order to comprehensively assess the impact of the results and consequences of decisions made on economic development. The article thematic justification and significance are determined by the place and role played by shipbuilding in the economy of Ukraine: being an integral part of mechanical engineering, it was meant to reconstruct the transport and industrial fleet, to provide it with basic means of production. The history of shipbuilding includes a great number of underinvestigated materials, which allow to make general trends of development known and to set out appropriate technical solutions, required for the scientific forecasting effort. In general, investigation of development of the shipbuilding industry of Ukraine is of great both scientific and practical significance. At the same time the history of the shipbuilding industry of Ukraine has been searched insufficiently. The interest in it has grown to some extent over recent years. The works of V. Babych (Babych, V. 2012), O. Bazhan (Bazhan, O. 2005), I. Byshovets (Byshovets, I.

2014), S. Kyslynska (Kyslynska, S. 2014), D. Nefyodov (Nefyodov, D. 2018; Nefyodov, D. 2019) attract attention.

The methodological basis of the research is the principles of historicism, objectivity, systematicity, pluralism and anthropocentrism. Among the general scientific methods we used analysis, synthesis, historical and logical methods as well as the method of classification. Among the special historical methods problem-chronological, comparative-historical methods and a method of contextual interpretation were used.

The aim of the article is to investigate the peculiarities of development of the shipbuilding industry of Ukraine in the postwar period (1946–1965), to determine blunders and achievements.

Even before the Second World War Ukraine took an important place in the shipbuilding complex of the USSR. However, the war dealt a serious blow to the economy of the republic. German occupants left behind ruins and all Ukrainian shipbuilding enterprises were completely destroyed. The program of postwar reconstruction and development of the shipbuilding industry was provided with massive capital financing. Over a period of 1951–1965 three times more investments were implemented than in the years of the 4th Five-Year Plan. Particularly intensive capital construction of new plants and enterprises as well as modernization of existing ones was carried out in 1956–1960. The major part of capital investments in the postwar years was mainly aimed at construction and expansion of industrial facilities, at fitting out the enterprises with all kinds of technological, lifting and transport and other equipment. In the first decade (1946–1955) the share of construction-assemblage, exploration, prospecting, design works and building of a number of new enterprises was relatively high.

In the second decade (1956–1965) the share of expenses on equipment almost doubled. It was contingent on refitting of the shipbuilding technical base. It was during these years that the achievements of science, technology and engineering were most intensively introduced into the industry. At the same time there were significant weak points in the use of capital investments. Due to difficulties with material and technical supply in some years the committed financial resources were not fully absorbed at the plants “Pallada”, “Lenin’s Forge”, “Ocean”, the Black Sea Shipbuilding Plant, the Kherson Shipbuilding Plant. However, in spite of this, as a result of implementation of the program of capital investments in shipbuilding of Ukraine the production and technical facilities were not only renewed but essentially enlarged. It resulted in

the growth of fixed capital assets: in 1985 they amounted to 618% of 1946 total, having increased then more than 5 times (Khoinatska, L. 2003, p. 98).

The development of shipbuilding in the pre-war period was characterized by individual design and ship production. There was no cooperation between enterprises, there was not any specialization of ship yards as for the ship types. Hence in the postwar period the reconstruction of the entire industrial structure was accomplished, the most important works at releasing the shipbuilding plants from their uncharacteristic functions (repair of vessels, production of machinery and equipment) were carried out, and the specialization profile in building of watercrafts of different types was also worked out. Cooperative contacts between departments and enterprises significantly extended. A characteristic peculiarity of the postwar industry development was the realization of the watercraft typing, unification of master ship engines and supplementary mechanical devices, standardization and normalization of materials and equipment. All that allowed each enterprise to make a speciality of multiple building of one or two types of ships (during the simultaneous reasonable production cooperation with other enterprises). An example of that campaign became the Kherson Shipbuilding Plant, which specialized in building the Kazbek type tankers, and in the 1960s – dry cargo motor ships of the Bezhitsa type. The Black Sea Shipbuilding Plant, "Ocean" and the Plant named after 61 Communards made a speciality of different fishing vessels production. The plant "Lenin's Forge" produced tugboats, and since the mid-1950s – medium-sized fishing trawlers. The river shipbuilding enterprises also determinated their specialization profile: the Kyiv Shipbuilding Shiprepairing Plant made a speciality of building the Chaika type cargo ships, the Kherson Shipbuilding Shiprepairing Plant became the largest supplier of the river and lake comfortable passenger ships. The specialization of shipbuilding production mostly caused the reduction of labor intensity and prime cost of ships. Thus, while building a series of tugboats the labor intensity of the main tugboat was taken as 100%, then for the 10^{th} vessel it became just 60%, for the 50^{th} – 41%, for the 100^{th} – 32%, for the 120^{th} – 29%. Accordingly, building costs reduced. As for the production cycle of building, it was reduced by almost three times (Plyushch, M. 2013, p. 154).

The problem of technical reconstruction of production also became of great importance in the postwar years. First of all it concerned assembly and welding production, which accounted for up to 18% of the total labor intensity of shipbuilding and up to 50% of the total

amount of hull construction work. Widespread use of welding allowed to completely abandon the heavy and expensive riveting and proceed to building all-welded ships of all types and classes in the postwar period. Ukrainian shipbuilders had a number of priorities in that area. With the assistance of the Institute of Electric Welding of the Academy of Sciences of the Ukrainian SSR, here for the first time in shipbuilding semi-automatic welding in carbon dioxide environment was explored and put into practice, the method of ultrasonic defectoscopy of welds was developed, and for the first time in shipbuilding practice the strip submerged automatic welding was put into action. The amount of mechanized welding in the industry reached 70% by the mid-1960s. Increasing requirements for the ship technical characteristics caused radical changes in the shipbuilding technology. The main method of shipbuilding was sectional-block. The weight of sections of many ships of the main types increased to 100 tons and above. In the meantime, the weight of the blocks, which consisted of sections, reached 300 and more tons. The use of the sectional method allowed to reduce labor intensity and building time of a ship by 20-30%. (Vetrov, I. 2012, p. 159).

The pace of reconstruction and development of the Ukrainian shipbuilding industry was largely determined by the replenishment of enterprises in the industry by qualified specialists. Extensive renewal of regular labor force in shipbuilding of Ukraine was accompanied by qualitative changes in the structure of the shipbuilding industry: on the one hand, they came to increasing the part of workers of advanced specialties (ship fitters, shipwrights, electric welders); on the other hand, reducing the substantial part of workers of those specialties associated with old manufacturing technology (riveters, caulkers). In the postwar years the development of the shipbuilding production base was accompanied by relative reduction in the use of living labor per unit of production assets, which had a positive effect on job productivity index. So, if we take the ratio between the growth of production assets and the number of workers in 1946 as 1:1, then in 1950 it was 1:0.96, in 1955 – 1:0.72, in 1960 – 1:0.72, in 1965 – 1:0.65. Thus, perfecting of shipbuilding technologies was greatly accelerated through introduction of inventions and labor-saving innovations. In the postwar years innovators, inventors, entire teams of shipbuilders developed and implemented hundreds of new designs of mechanisms and devices, advanced technologies, which allowed to save huge sums of money (Seletsky, A. 2012, p. 35).

The country's needs in the postwar years required to put rapidly into action a large number of various ships. It was driven by a huge range of building work and economical operation of water transport, insertion of the Soviet fleet into the wide open ocean spaces. A new powerful direction in the development of water transport started – building of large-capacity dry-cargo and tanker diesel-engined ships. The main ways of improving them were: enlarging of burden, increasing the motion speed, improving the technical equipment of cargo handling. As a result, in the postwar period a new ocean industrial fleet was essentially built up, medium and large fishing trawlers, whaling factory ships, various special vessels appeared. The increscent deficiency of energy supply made many countries in the period under study to start the exploitation of mineral deposits concentrated in shelf zones. Besides that, knowledge of the processes occurring in the ocean, investigation of its interaction with the atmosphere, the structure of its bottom began to be of profound importance for fundamental sciences of the Earth. To solve new tasks in the World Ocean floating technical crafts, completely different from those made earlier, were in need. In the USSR the first scientific and research ships (SRSh) were designed at the beginning of the 1960s. In Ukraine the expeditionary weather ships "O.I. Voeikov", "Yu.M. Shokalsky" were built. SRSh of the "Academician Knipovich" type became the first ship in the practice of national shipbuilding, which was aimed at exploring new ocean areas to develop fishery resources. Building of ships of this class became an important achievement in development of the shipbuilding in Ukraine. Building of special vessels of other kinds also began: floating docks, hydraulic dredgers, dredging shovels. In the period under study about 600 tug boats, more than 800 barges, about 200 cargo ships, more than 250 passenger crafts were built at the Ukrainian enterprises only for river navigation, ship-building for transport maritime fleet was developed. Dry-cargo ships and tankers built in the postwar years strengthened numerous transport enterprises throughout the USSR. The replenishment of the fleet with domestic ships reduced the dependence of the national transport system on import deliveries. Development and improvement of the shipbuilding production and technical facilities provided steady rates of growth of gross output during the analyzed period. In 1965 they increased approximately 20 times in comparison with 1946. In this respect their highest rates of growth dated from 1951–1965, i.e. after the reconstruction had been completed. In general the shipbuilding of Ukraine in 1951–1965 grew at the rate typical of the entire

industry of the republic, but at the same time much slower than mechanical engineering (Lytvyn, V. and others. 2011, p. 98).

Investigation of other aspects of the issue shows that the shipbuilding of Ukraine developed quite intensively in the postwar period. Accordingly, over 20 years the number of workers of the industry increased 4 times, the production assets – 6 times, and the gross output – 19,9 times. Thus, the growth of the latter took place on the basis of increasing the number of means of production, advances in technological productivity. The intensive orientation of development of the industry was also characterized by the growth of the capital productivity ratio. It was estimated that 1 ruble of production assets in the shipbuilding industry of Ukraine produced products (in rubles): in 1944 – 0.54; in 1950 – 1.12; in 1955 – 1.31; in 1960 – 1.65; in 1965 – 1.72. Therefore, the rates of growth of labor productivity in the industry were generally rather high and dynamic. Production per one employee increased by almost 5 times in the period under study. The most important factor, which ensured the growth of labor productivity, was the formation of a firm shipbuilding technical base by means of implementation of new advanced technologies. The growth of labor productivity was one of the main ways to reduce the production prime cost. The latter, in its turn, was the most important generalizing feature of production efficiency. In the period under study the share of living labor costs in the total sum of production expenses decreased from 59,3% in 1946 to 25% in 1965. Progressive changes occurred under the influence of the scientific and technical revolution. The reduction of the ships prime cost was based on the reduction of labor intensity and, as a consequence, shortening of shipbuilding cycles. So, for example, if labor intensity of the main whaling ship of the "Myrny" type amounted to 351 000 standard hours, then on the 10^{th} it reduced up to 264 000, on the 25^{th} it rose to 224 000 standard hours. As for a building cycle, it started from 1 year and 4 months on the main ship and was lessened to 5 months and 15 days on serial vessels (Vetrov, I. 2012, p. 160).

Thus, we can make a conclusion that in the postwar period the shipbuilding changed into the highly developed industry. The most important integral part of the USSR shipbuilding complex was the shipbuilding of Ukraine, its engineers and regular labor force made a decisive contribution into the formation of the Soviet postwar fleet.

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