

AUTOMOBILE INDUSTRY FORMATION IN RUSSIA (1896-1914)

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The article of E.Y. Prokofyeva "Automobile industry formation in Russia (1896-1914)" examines the issues of the beginning and developing of automobile industry in the system of domestic social and economic relations of the end of XIX - beginning of XX century in comparison with the Western European tendencies. The author distinguishes prerequisites of automobile industry formation, provides a historical retrospective review of economic basis for the industry, and states the role of an incipient industrial vector in an overall economic structure of the country.

Automobile industry is a leading branch of mechanical engineering effecting the process of economic and social development of the country and participating in its national security system development. The stated branch unites 250 large-scale and medium enterprises providing employment for more than 800 thousand people. Automobile machinery production is carried out in close cooperation with enterprises of electrical, metal manufacturing, chemical, electronic and light industries. This totally provides approximately 5 million work places for able-bodied citizens¹. During the first half of 2007 there were produced 775,9 thousand vehicles in Russia, that is 10,8 % more than during the corresponding period of time last year. The increase of motor-car production is observed in the 3 main motor-car construction sectors: cargo transport, passenger car and motor-bus spheres². In general, positive trends in development within the branch of the automobile industry can be established.

Emphasizing the importance of automobile industry in the social and economic development of the country we would like to consider procedures which took place in the course of formation of the stated Russian economics branch, its organization in the system of social and economic relations in the end of XIX century-beginning of XX century if compared with the west European trends.

It is significant that the amount of works devoted to the history of home automobile industry is extremely limited. Analyzing their content we can distinguish two groups, or two chronologically consecutive stages which have special approaches and specific character. These periods are: 60-80s of the XX century (after

the publication of 36 volume All-Union topical collection "History of USSR industrialization in 1926-1941") and 90s of the XX century - beginning of the XXI century).

Considering the first stage we can note the attempt to integrate the history of home automobile industry and distinguish definite stages in its development³; reveal the branch importance in the course of the home industry development in general as well as adjoining sectors in particular⁴; and wide application of statistics⁵. At the same time the role of pre-Soviet period in home motor-car construction branch was diminished in some works⁶; the issues of cooperation with foreign partners were covered only partially. The next period of historical works in the sphere of home motor-car construction industry undoubtedly has reflected all the changes which affected historical science in the course of reforming the Russian society. Alteration of the subject vector is typical for the works of the period in question: authors carry out economic researches⁷, study the history of single periods of the branch development⁸ or the local aspect of the automobile industry formation⁹. The aspect concerning historical and economic formation of the stated industry has not received a significant coverage.

If a reference point in the world history of automobile industry can be considered in 1886 when Karl Benz received a patent for a 3-wheeled vehicle (tricycle) and Hotlib Daimler gained one for a 4-wheeled vehicle, motor-car construction industry as it is understood nowadays - with internal combustion engine working on oil extracted fuel - has been generally existing for 120 years. The appearing of automobile industry

Elena Y. Prokofyeva, PhD in Historical Sciences, associate Professor, head of the Department of History, Director of Humanitarian Institute of Togliatti State University.

in Western Europe was predetermined with the following facts: 1) developed diversified industry including mechanical engineering (various machinery, vehicle, bicycle and fixed internal combustion engines production); 2) territorial closeness of cities, so-called constellations, which made the process of complete units and details supply easier); 3) extensive net of roads (appearing of goudron and the genius idea of Dr. Hyglynetti concerning the conversion of block-stone into asphalt road by casting the former with goudron allowed to begin the building of thoroughfares firstly in Italy, later in France and then all over Europe and America).

The birthday of the domestic motor-car construction is traditionally regarded the year of 1896 when P.A. Frese and E.A. Jakovlev invented a two-seater vehicle (the domestic motor-car construction is 10 younger than the world automobile industry).

Home automobile industry formation took place during one of the most significant periods of the Russia's economics rise. The country was on the first place in the world according to industrial growth rate and its concentration. In 1898 it gained the 4th place in the world by iron melting, the 7th place by coal production and the 1st one by oil production. In 1913 according to gross output Russia was on the 5th place throughout the world and on the 4th one in Europe, entering the group of countries which were characterized by the medium development rate of industrial production¹⁰. At that time large-scale mechanical engineering was supported by the State through the system of government contractual work. As a specialist in the sphere of car history V.I. Dubovskoy says, demand for railway wagons was met by the domestic plants for 98%, steam locomotives - for 95% and "big" internal combustion engines - for 48%.¹¹ His conclusion can be proved by a well-known economist L.B. Kafenhau. "The total cost of boiler plants production in 1900 was estimated up to 14646 thousand rubles in USSR and 24600 thousand rubles in the former empire. Steam boilers production increased in the territory of the whole Russian empire from 3667 thousand rubles in 1888 up to 13351 thousand rubles in 1900. Drive units and drive unit details manufacturing considerably developed and reached the amount of 4542 thousand rubles in 1900. Steam engine output by the end of century

achieved significant scale and could meet more than a half of the home demand. Thus 6011,6 tons of steam engines to the sum of 3288 thousand rubles were manufactured in 1900, at the same time the import of the stated engines was at the level of 3909 thousand rubles in 1899 and 2475 thousand rubles in 1900¹²".

Undoubtedly, positive trends were observed in certain branches which were expressly or by implication connected with mechanical engineering: oil-refining industry (petrol, diesel oil, motor oil and lubricant production), chemical industry (varnish, paint, glass, tire and plastics production), metal manufacturing (special steel production), textile industry etc. Meanwhile, in spite of developed economic basis as the presence of large-scale mechanical engineering, medium-scale engineering industry, which includes motor-car construction, was under-developed. Thus "the cost of internal combustion engines (both gas and kerosene ones) production in 1900 reached the amount of 83,9 thousand rubles, meanwhile their import was at the level 778,9 thousand rubles in 1889 and 780,0 thousand rubles in 1900.

The production of special industrial tools was also developing in a small extent.

Considerable distances between cities and the absence of road net with hard surface also did not favour intensive automobile industry development.

Thus, the whole aggregate of conditions (late car "invention", lack of the State support due to the specific economic relations in Russian empire, geographical peculiarities, shortage of road-transport infrastructure) initially determined the tendencies of automobile industry development as a new branch of Russia's economics. They are as follows:

- 1) Slow growth rate (in comparison with Europe and the USA);
- 2) Attention to phenomena which had been already created - car models, equipment, organization and technological process of production;
- 3) Concentration of car plants in the capitals of Russia;
- 4) Competition with Western manufacturers' production.

Let us look into the chronicle of the first Russian motor-car plants. The first manufacturer of Russian automobiles was the company of Petr Alexandrovich Frese (1844-1918) "Frese

Home manufacturing and import of industrial machines (thousands rubles)*

Machines	Import		Home manufacturing in 1900 on the territory of the former Russian empire
	1899	1900	
Dynamos and electric machines	3957	2683	801

* *Dorofeyuk A.A.* The history of car transport of Russia before 1917 // The issues of history. 1996.

and Co.”. It produced vehicles and the company’s production was in demand in the capital. In June 1893 the firm exhibited its vehicles at the World’s fair in Chicago, where they won a bronze medal and certificate of honour. P.A. Frese met there Evgeny Alexandrovich Jakovlev (1857-1898) who exhibited at the fair the engines of his own design and also won a bronze medal and was awarded with a certificate of honour. P.A. Frese and E.A. Jakovlev were extremely interested in an experimental exhibit of Karl Benz’s car - the model “Velo”. The engineers decided to unite the efforts and make a Russian automobile.

It took them about 3 years to make a project and assemble the first Russian petroleum self-moving mechanism. In May 1896 they began to carry out roadmance trial of the “motor” (as a car was called at that time). It stood the test brilliantly and, as specialists testified, did not yield to the foreign models.

The basis of invention of Jakovlev and Frese was a two-seater carriage. An engine with capacity 1.5 l/s (1000 revo) was mounted under the driver’s and the passenger’s seats. Rotational moment was transmitted by the chain drive to the driving-axle. The car had a speed up to 20 verst/hour (21 km/h). Shortly after the roadmance trial, the first Russian motor-car was exhibited at the All-Russian art and industry exhibition in 1896 in Nizhniy Novgorod and aroused much interest proving the capability of home automobile industry development.

In 1902 “Frese and Co.” joint-stock company (organized by P.A. Frese in 1899) produced the first trolley-bus and omnibus (bus) in Russia and executed the only order of a military department for building 8 mechanical vehicles for military manoeuvres near Kursk. Successful heavy trials of the cars designed by Russian inventor P.A. Frese was a good advertisement for his manufacturing company.

In 1903 by request of the post department P.A. Frese produced 14 automobiles for

Petersburg Post-office. Metropolitans got used to yellow post vans, which unfortunately did not serve long: as a result of the fire in the night of 26th to 27th, March 1904, the self-propelled vehicles burnt down.

In October, 1904, joint-stock company “Frese and Co.” sold its 5 cars to the trade company “George Borman” owned by Grigory Borman, a consul of Romania at court of the Russian emperor. In 1905 P.A. Frese made a road train with active trailers: internal combustion engine was mounted at the prime mover. The engine put in action the electric generator, current went to the engines of the prime mover and all 6 trailers. P.A. Frese suggested that the road train should be used for passenger traffic, but the town council rejected the suggestion. The road train was sold to a French company “De Dion-Buton”.

“The first International motor-car, engine, bicycle and sport exhibition” took place May 19 - June 4, 1907 (according to Old Style) in Petersburg. “Frese and Co.” was awarded with the Great Gold Medal for car body manufacturing and distributing of automobiles in Russia.

Making a road train with active trailers was a swan-song of the “Frese and Co.” firm and its owner, the creator of the first haulage contractor in Russia. In 1910 P.A. Frese sold his company to Automobile department of Russian-Baltic wagon plant.

Among the first automobile enterprises there was the plant of G.A. Lessner. Back in 1852 in Petersburg (Vyborg, Sampson embankment, 3) the “Machine-building, iron and boiler plant G. A. Lessner” was built. Its cooperation with B.G. Lutsky provided a basis for automobile manufacturing in Russia. In 1901 the enterprise stopped manufacturing steam-engines and boilers which became an unprofitable business and initiated the negotiations with a German company “Daimler” concerning manufacture (upon providing the license) of internal combustion engines and automobiles.

They were not “Mercedes” models produced by “Daimler” in Bad-Kanshtatt and Stuttgart, but the ones designed by B.G. Lutsky at the “Marienfelde Motorenfabric” in Berlin. The latter became a “Daimler” subsidiary in 1902, and B.G. Lutsky became a member of the board of directors. The negotiations were finished in 1902 with the signing of a contract between “Lesner” and “Daimler” concerning the right of the former to produce engines and automobiles of “Daimler-Lutsky system” in Russia.

According to technical issues Lessner’s plant had a good reputation. In 1905 the works received the first large order to build a series of cars for post-office department. The first car was manufactured in May, 26. Later other 12 automobiles were assembled. That made 13 motor-cars for a year.

Since 1906 until 1910 “Lessner” plant extended the range of the products and at The I International fair in Petersburg exhibited a lorry and 2 passenger cars along with a post-van.

Evaluating the role of the plant in the process of Russian automobile industry development, a Petersburg’s journal “Motorist” (“Avtomobilist”), № 4, 1908, said, ‘The only plant manufacturing cars of the modern type in Russia is the one of G.A. Lessner... The plant does manufacture their motor-cars and not only assembles them out of foreign components¹⁴’.

Along with the enterprises of P.A. Frese and G.A. Lessner, the Russian-Baltic wagon plant in Riga was far-famed. Automobile manufacturing at this plant was established later than at the G.A. Lessner works; that is in 1909. In the course of production the plant produced approximately one thousand passenger, cargo and special cars¹⁵. According to the scale of output, organization and technological process as well as machinery construction, the plant was among similar European enterprises. The Russian-Baltic cars were much more reliable in comparison with modern models. Thus, a car of a well-known at that time motorist, journalist and auto sportsman Andrey Platonovich Nagel for less than 4 years had run 80 000 km in Russia, Europe and even North Africa without a serious repair.

It is significant that “Russian-Baltic wagon plant” was the first enterprise in Russia to begin fully serial output of automobiles. As Trade and Industry Ministry testifies, the amount of the

assembled cars was as follows: in 1910 there were 24 automobiles manufactured, in 1911 the parameter reached 46 automobiles, and in 1912 the number of assembled cars achieved 95¹⁶.

Besides the above-mentioned enterprises, such automobile companies as the ones of P.P. Ilyin, I.P. Puzyrev functioned in our country. Motorcycles were manufactured at the bicycle factory of Y. A. Meller “Duks” which later became the country’s leading aircraft works. Russia imported motor-cars; 4 international automobile exhibitions were successfully held in the country (in 1907, 1908, 1910 and 1913)¹⁷.

It is interesting to compare production volume in Russia and other countries.

The world’s largest automobile manufacturer from the beginning of 90s of the XIX century until 1899 was the “Benz” company. The dynamics of the automobile output is as follows: 1890-1893 there were 69 automobiles manufactured, in 1894 - 67, in 1896 - 181, in 1897 - 256, in 1898 - 234, in 1899 - 572, and in 1900 - 603 motor-cars. During this time period of time other German and foreign companies began to build the cars of the “Benz system”. In 1901 the demand for Benz automobiles fell dramatically: 385 cars were produced, and in 1902 only 226¹⁸.

In 1899 France came out to the first place according to car output. The company “De Dion-Buton” contributed much to this fact, having constructed “high-speed” (for those times) engines for their motor tricycles. In 1900 it manufactured 400 cars and 3200 engines, which were used by automobile companies all over the world. Another French firm “Panar-Levassor” the same year assembled 300 automobiles.

At the same time there existed such manufacturers in Europe which could be compared with the Russian ones according to the volume of output. Thus, in 1905 the plant called “Nesselsdorfer” (later “Tatra”) produced 15 cars, and the year before such well-known enterprises as “Buick” and “Horh” built 37 and 18 automobiles respectively¹⁹.

Dependence of Russian automobile building and economics in general on European manufacturers is proved by L.B. Kafenhau’s financial calculations. “In 1912 the total value of assembled automobiles, aero planes and their details achieved 615,5 thousand rubles on our territory and 1314,7 thousand rubles on the

territory of the withdrawn provinces. The production output is still tiny in comparison with the total demand in cars which is satisfied mainly by imported automobiles. Thus, from 1908 till 1913 the import rate increased from 879 motor-cars to the sum of 3368 thousand rubles up to 5416 to the sum of 17381 thousand rubles²⁰.

V.I. Dubovskoy states that Russian automobile and tricycle manufacturers used mainly engines and details produced by "De Dion-Buton" and "Panar-Levassor" companies. Among all the motor-cars in Russia, only 5 per cent of them were of domestic production, and only 2 per cent of the cars were built entirely in Russia.

As a conclusion we can note the beginning of single and short -run production²¹ in the automobile industry of the Russian empire during the period of 1896-1914. It was historically determined that the home automobile industry formation originally was accomplished in competition with a more developed European motor-car industry. Neither in Europe nor in Russia by that moment the automobile industry became one of the leading branches of mechanical engineering. Automobiles were seldom used for solving economical problems. Science intensive, high-tech and innovational potential of the stated branch did not become apparent yet; strategic importance of the sphere, its role in employment was not realized. The World War I was to begin, that is, the whole political and economic situation was to change

in order to stimulate the industry for achieving leading positions in the world's economics.

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