

SOVIET FORDISM IN PRACTICE – Building and operating the Soviet River Rouge, 1927-1945

The technical processes and production methods of Ford's factory should form the basis of Avtostroi's planning.

– Stepan Dybets, 1930¹

Giancarlo Camerana was secretary of the Fiat board of directors and second-in-command at the Italian carmaker when he made his first trip to the United States in September 1936. His destination was Detroit, where Charles Sorensen, head of operations at Ford Motor Company, received him personally and showed him around the Rouge factory. At the time of Camerana's voyage, Fiat was projecting the construction of a new production complex at Mirafiori. The new factory's layout was to be based on River Rouge.²

One month later, in October 1936, Ferdinand Porsche was in Detroit. The engineer-in-chief of the Nazi *Volkswagen* plant, then in the planning phase, visited Ford Motor Company to keep abreast with the latest American production technology. The new German factory, after all, was to be modeled on River Rouge.³

After traveling on to New York, Camerana paid the obligatory homage to Sorensen ("I am speechless in admiration of the Ford factories and organization") before asking for advice. How could the new plant at Mirafiori most

¹ TsANO (Central Archive of the Nizhnii Novgorod Oblast'), f. 2431, o.4, d.11a, l. 21.

² Camerana to Sorensen, 28 Sep 1936, BFRC, Acc. 38, Box 80. Duccio Bigazzi, *La Grande Fabbrica. Organizzazione Industriale E Modello Americano Alla Fiat Dal Lingotto a Mirafiori* (Milano: Feltrinelli, 2000), 73-75.

³ Ghislaine Kaes, "Vortrag über die Nordamerikareise des Herrn Dr. Ing. H.c. Ferdinand Porsche im Jahre 1936," VWA.

comprehensively profit from Ford's experience and unparalleled productive successes? Sorensen replied:

It is my understanding that you want to put in modern methods and reorganize your plant in Italy. [...] To get the benefit of each of the various kinds of machinery, conveyor systems, and plant organization in general that you see around our factory, you first of all have to have a competent engineer who would come over here, establish an office, and then contact with different companies who make a specialty of fitting out plants.⁴

Camerana heeded Sorensen's counsel and in November sent R. Bruschi, Fiat engineer-in-chief, to Detroit. What Camerana could not know, and Sorensen did not say, was that the recommended procedure exactly followed a precedent that had been set almost a decade earlier. In the summer of 1929 a commission headed by Stepan Dybets set up shop at Ford Motor Company at the behest of the Supreme Economic Council of the Soviet Union (*Vesenkha*). The Dybets commission stayed for the better part of two years, supervising the transfer of blueprints, engineering know-how, and production technology from Detroit to Nizhnii Novgorod, where as part of the First Five Year Plan the Soviet Union was building a "River Rouge on the Oka."

Stepan Dybets was not an aristocrat like Fiat's Camerana, nor was he an in-the-wool engineer like Ferdinand Porsche. Dybets was born into a Ukrainian working-class family in 1887 and as a twenty-year-old emigrated to the United States, where he picked up work in New Jersey metalworking plants. Active first as an anarcho-syndicalist, he eventually joined the IWW and was deported to a war-torn Ukraine in the wake of the Espionage Act of 1917. Dybets joined the Bolshevik Party in 1918,

⁴ BFRC (Benson Ford Research Center, Dearborn, Michigan), Acc. 38, Box 80, Sorensen to Camerana, 2 Oct 1936.

escaped a death sentence by Nestor Makhno in the Civil War, and made his career in the 1920s in the management of the powerful Soviet Southern Steel trust. In 1929, he was appointed to the head of *Avtostroi*, the Soviet agency responsible for the construction of the Nizhnii factory. In 1934, he was put in charge of the entire Soviet automobile and tractor industry.⁵

When Dybets arrived at Ford Motor Company in the summer of 1929, he was no longer a radical immigrant laborer but a leading Bolshevik functionary at the helm of one of the prestige projects of Soviet industrialization. Dybets's Detroit commission marked the beginning of a remarkable proliferation of "River Rouges" across the authoritarian modernizing regimes of the 1930s. In this decade, illiberal modernism turned from intellectual conceit to practical action. Bolstered by the industrial growth agenda of their totalitarian leaderships, engineers and industrial managers took the illustrated pages from Ford's playbook – flow production, assembly lines, and the mobilization of unskilled labor – and adapted them to their own ends. Mass production became an illiberal panacea: whether it was the Nazi promise to "raise the standard of living" of Germans by offering them an affordable mass-produced people's car or the Soviet vision to overcome the curse of Russian backwardness through motorizing industry and agriculture – the idol was Ford, and the model was River Rouge. Even as nations withdrew from economic cooperation and sought refuge in protectionism and autarchy, transatlantic traffic did not seem

⁵ RGAE (Russian State Archive of the Economy), f. 7622, o.3, d.68; Aleksandr Bek, "Takova Dolzhnost' (Vospominaniia Dybetsa)" *Novyi Mir* 7 (1969), 106-168.

to slacken. In 1936 alone, the year of Camerana's sortie, River Rouge attracted more than 4,000 foreign visitors.⁶

This chapter traces the origin, construction, and operation of the prestige of object of Soviet Fordism: the automobile factory at Nizhnii Novgorod, officially named Gaz (*Gor'kovskii Avtomobilnyi Zavod*) in 1933 after the city's namesake, Maxim Gorky. The chapter follows four phases in the rise of Soviet Fordism, and the men who represented them. First Nikolai Osinskii, Bolshevik economist and USA-traveler, burst forth as the most vocal proponent of mass motorization during the industrialization debates of 1927/28. In conflict with a cautious state-planning agency (*Gosplan*), Osinskii pushed through an ambitious agenda for Soviet motorization that included the foreign technical assistance contract with Ford Motor Company of May 1929. In fulfillment of the agreement, Stepan Dybets traveled to Detroit at the behest of the Chief Economic Council (*Vesenkha*). As chairman of a small commission of Soviet engineers, Dybets was in charge of the practical side of transferring Ford technology and know-how from the Midwest to central Russia during the years of the First Five-Year Plan. As director of Gaz after 1932, Sergei D'iakonov oversaw the uneven and troubled implementation of Fordism during the Second Plan. In this period, persistent problems of supply coordination, as well as Soviet policies of labor mobilization, obstructed the smooth functioning of Fordism at Gaz. Finally Ivan Loskutov, finally, was at the helm of Gaz when the factory complex witnessed a revival of Fordism during World War II.

⁶ BFRC, Acc. 38, Box 90, "Visitors to the Rouge Plant"

Osinskii, Dybets, D'iakonov, and Loskutov were Soviet illiberal modernizers. Of these four men, only one never shook hands with Charles Sorensen.

Nikolai Osinskii and Soviet Motorization

When the Bolsheviks took power in 1917, Russia had not automobile industry to speak of. 4000 cars and 8378 trucks were registered in Russia in July 1917, all of them imports.⁷ Although the military pushed preparations for an indigenous Russian automobile production, Russian soldiers during World War I continued to travel to combat by foot or mount, a situation that did not much change during the Civil War (1918-21). The first genuinely Soviet-built automobiles, armored vehicles and trucks modeled on a Fiat type, left Moscow factories in 1922.⁸

Soviet automobile output did not exceed a few hundred per year before 1928.

Table 3.1 – Automobile output in Germany and the Soviet Union (in thousands).
Source: Mitchell, Historical Statistics, 2005.

| | GERMANY | | | SOVIET UNION | | |
|-------------|----------------|---------------------|-------|----------------|---------------------|-------|
| | Passenger cars | Commercial vehicles | Total | Passenger cars | Commercial vehicles | Total |
| 1924 | 97 | | 97 | | | |
| 1925 | 39 | 10 | 49 | | | |
| 1926 | 32 | 5 | 37 | | | |
| 1927 | 85 | 12 | 97 | | | |
| 1928 | 102 | 21 | 123 | .1 | 1 | 1.1 |
| 1929 | 96 | 32 | 128 | .2 | 2 | 2.2 |
| 1930 | 77 | 19 | 96 | .2 | 4 | 4.2 |
| 1931 | 63 | 15 | 78 | | 4 | 4 |
| 1932 | 43 | 8 | 51 | | 24 | 24 |

⁷ Boris Shpotov, "Ford in Russia, from 1909 to World War II," in *Ford. The European History 1903-2003*, ed. Hubert Bonin, Yannick Lung, and Steven Tolliday (Paris: PLAGÉ, 2003), 508.

⁸ Lewis H. Siegelbaum, *Cars for Comrades : The Life of the Soviet Automobile* (Ithaca: Cornell University Press, 2008), 15.

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|-------------|-----|----|-----|----|-----|-----|
| 1933 | 92 | 13 | 105 | 10 | 39 | 49 |
| 1934 | 147 | 27 | 174 | 17 | 55 | 72 |
| 1935 | 205 | 42 | 247 | 19 | 78 | 97 |
| 1936 | 244 | 57 | 301 | 4 | 132 | 136 |
| 1937 | 269 | 62 | 331 | 18 | 182 | 200 |
| 1938 | 275 | 63 | 338 | 27 | 184 | 211 |
| 1939 | | | | 20 | 182 | 202 |
| 1940 | | | | 6 | 140 | 146 |

Quite surprising, then, is the fact that automobile construction was initially not earmarked in the Five-Year Plan. The draft of the plan announced by *Gosplan* in June 1927 mentioned automobile construction only in passing, focusing instead on machine tools, coal mining, steel, and the railroads. Automobiles may have had a significantly smaller role than they eventually did during Soviet industrialization had it not been for the relentless lobbying of motorization booster Nikolai Osinskii (1887-1938). Osinskii crisscrossed the USA in a Model T for several months in 1925/6. In July 1927, Osinskii published a series of articles in *Pravda* lobbying for the inclusion in Gosplan's projections of a large-scale automotive plant.⁹

Osinskii's constant point of reference, and his best argument, was – America. Presenting numbers from 1925, he showed that automobile production contributed the largest share of all industrial sectors to overall American GDP. This showed, Osinskii argued, that “in the technologically most advanced country in the world automobile construction is not only one of the most important, but *the* most important branch of industry.” In contrast, Osinskii pointed out, Gosplan's draft contained “not a single word, not a single table” on automobile construction. Russia

⁹ Alec Nove, *An Economic History of the Ussr, 1917-1991*, 3rd ed. (London ; New York, N.Y.: Penguin Books, 1992), 142, Siegelbaum, *Cars for Comrades : The Life of the Soviet Automobile*, 38f.

was producing less than 1000 motor vehicles a year, and Gosplan intended to enhance this amount to between three and five thousand – a figure Osinskii considered “shameful” in comparison to Ford’s million-plus factory.

Perhaps, Osinskii submitted, a prejudice held sway that the automobile was a “bourgeois vehicle” not suited to the Soviet workers’ and peasants’ state. Against this, he pointed out that “every American farmer owns a car (they need them to travel to the city), and a great number of workers own Fords.” Even “semi-proletarian” traveling farm hands drove their own Fords, and unsurprisingly so – it was possible to acquire a used Model T for “25-50 dollars,” or the price of a bicycle. And what explained the cheap price of American cars? The answer was clear: “serial mass production.”

The Soviet Union could not industrialize without providing the foundations of mass motorization. Cars would soon be needed by “a large mass” of peasant collectives and cooperatives. Cars were indispensable in connecting the future Soviet agricultural countryside to the cities. What was more, motorization was a precondition of the country’s defense. “If in a future war we make use of the Russian cart against the American or European automobile the result will be disproportionately heavy casualties – the inevitable consequence of technological weakness.” Osinskii stipulated the goal of “putting every worker and peasant family” in a car within “around 15 years” and called for a factory capable of producing 100000 motor vehicles a year “in the near future.”

But the “cultural significance” of the automobile was “equally colossal.” Referencing Marx, Osinskii wrote: “Nothing will better break the proverbial ‘idiocy

of rural life' than when the Russian, Ukrainian, Belorussian and Tartar peasants exchange the antediluvian Russian cart for the American automobile."¹⁰

Osinskii's ideas met with considerable skepticism among the economists at Gosplan. Stanislav Strumilin, head of Gosplan's commission for developing the Five Year Plan, put forth the obvious objections. The Soviet Union lacked any market that could absorb an output of 100000 vehicles a year. No significant demand for passenger cars was to be expected from the workers living in the cities in the near future, Strumilin said. Osinskii had correctly determined that it was agriculture that needed vehicles. But peasants would need to finance these trucks on 80% credit, as they were doing with tractors, which would "amount to supplying the peasant with automobiles at the state's expense." Strumilin considered the idea of "competing with Ford" illusory in the short run and recommended that the Plan emphasize development in the machine tool industry instead. A gradual increase in domestic production was to accompany a steady flow of imported vehicles, as had been the case with the tractor. No large factory of the kind Osinskii envisioned was to be included in the Plan; perhaps an American carmaker could be attracted to open a concession in Russia. In any case, full-scale motorization was premature in the Soviet Union, Gosplan submitted, as the Soviet Union was too "technologically backward" compared to the rest of the world.¹¹

¹⁰ N. Osinskii, "Amerikanskaia Avtomobil' ili Rossiskaia Telega," in Nikolai Osinskii, *Avtomobilizatsiia Sssr. Stat'i, Ocherki, Rechi* (Moscow: Gosizdat, 1930), 5-23.

¹¹ "Rabotniki Gosplana i VSNKh o predlozheniakh t. Osinskogo," in N. Osinskii, *Amerikanskaia Avtomobil' ili Rossiskaia Telega* (Moscow: Pravda/Bednota, 1927), p. 63-70.

To Osinskii, that was precisely the point. The country needed to abolish its backwardness, which meant it needed to industrialize, which in turn required cars. In a spirited second series of *Pravda* articles in August of 1927, Osinskii responded to the criticisms. He charged Strumilin of “tailism” (*khvostizm*) – that failure of revolutionary leadership to press forward regardless of the circumstances. Mass production would lower prices, Osinskii repeated. This would happen even faster in the Soviet Union, where prices did not need to reflect the need for massive profits, as in the USA. The task in planning a large-scale production facility was lowering production costs to American levels, or slightly above them. Osinskii was not on principle opposed to Gosplan’s idea of attracting a Western concessionary for a mass-production facility. “The main thing is its inclusion in the Five Year Plan... If a concessionary can be found, fine; if not, we have to build [the plant] ourselves.”¹²

The disagreement between Osinskii and Gosplan on motorization resonated with general concerns of 1927. Osinskii and his *Pravda* editors were “showered with letters” from readers. The issue reflected the larger disagreement between the “genetic” and “teleological” strands among planners of Soviet industrialization.¹³ The former emphasized that plans for economic growth needed to take into consideration the limitations of existing Soviet conditions. The latter approach, in contrast, emphasized ambitious economic goals regardless of circumstances. Adopting a genetic argument, Strumilin pointed out that an abrupt expansion in automobile production would strain the Soviet market, and advised a gradual

¹² N. Osinskii, *Avtomobilizatsiia SSSR. Stat'i, ocherki, rechi* (Moscow: Gosizdat, 1930), 24-27.

¹³ Nove, *An Economic History of the Ussr, 1917-1991*, 129.

approach. Osinskii in turn adopted a typical teleological stance. What mattered was that motorization was the marker of a modern economy; an industrializing Soviet Union would not do without it. To modernizers like Osinskii, the automobile was a measure of the distance that separated Russia's infamous backwardness from modern-day industrial efficiency. Osinskii's juxtaposition of "the American automobile and the Russian horse-cart" struck that very note: to Osinskii, motorization was not only a question of economic development, but a symbol of modernization.

In September 1927, shortly after the debate between Osinskii and Gosplan played out in the pages of *Pravda*, a Moscow-based interest group, the "Society for Cooperation in the Development of Automobilm and Road Improvement" (*Avtodor*) held its founding convention. Chairman of *Avtodor* was Nikolai Osinskii, who later claimed that Stalin, too, was a founding member.¹⁴ The group bolstered the cause through highly publicized rallies, a journal, radio broadcasts, and lotteries. In order to keep abreast of the latest in Western automotive developments, *Avtodor* maintained branches in New York, Paris, and Berlin. The group automatically enrolled every Soviet citizen working abroad as a member. A series of *Avtodor* radio broadcasts in March 1928 illustrated the arguments of the Soviet automobile lobby. In drawing the countryside closer to the cultural centers of the city, and allowing broader access to countryside schools, "the broad diffusion of the automobile, effecting a revolution in the transportation of goods and people, will also transform our life." The car presented a "powerful factor in raising the cultural level." It had

¹⁴ Osinskii, *Avtomobilizatsiia Sssr. Stat'i, Ocherki, Rechi*, 110.

particular significance in the collectivization of agriculture. *Avtodor* subjected the 1-ton Ford truck to a series of tests to establish the cost of operation under Soviet agricultural conditions: 1 kilometer of operation cost the peasant little more than 17 kopeks, a conclusion that *Avtodor* took as proof that a Soviet-produced American model would be both affordable and serviceable to Russian peasants.¹⁵

In the summer of 1928, a delegation from the Moscow Soviet traveled to Detroit to sound out whether an American automaker would show interest in setting up a concession in the Russian capital. The delegation talked to Chrysler, General Motors, and Ford, but the negotiations yielded no concrete results. Charles Sorensen remembered finding the group “very difficult to deal with”¹⁶ The reason was that during the delegation’s sojourn in the USA Osinskii’s proposals benefited from the inexorably increasing aspirations of Soviet planners. In November 1928, *Sovnarkom* – the highest governmental executive organ of the Soviet Union – approved Osinskii’s demand to include a factory with a yearly production capacity of 100,000 in the Five-Year Plan. In consequence, motorization suddenly became a matter of Soviet-wide importance, prompting *Vesenkha* to send its vice-chairman Valerii Mezhlauk to the United States. By early 1929, negotiations with GM and Ford were underway. General Motors offered a large export agreement but was not interested in helping the Soviets develop an indigenous automobile industry. Mezhlauk found Ford Motor Company more forthcoming and more congenial to the increasingly ambitious Soviet plans. In April of that year, the idea of a joint venture with an American partner was dropped in favor of the plan to build the projected

¹⁵ GARF, f. 4426, o.1, d. 88; o.1, d. 411, ll. 14-29.

¹⁶ Charles E. Sorensen, *My Forty Years with Ford* (New York: Collier, 1962), 182.

factory under Soviet auspices with American technical assistance. In Dearborn in late May, Henry Ford and Valerii Mezhlauk put their signatures to the technical assistance agreement between *Vesenkha* and Ford Motor Company.¹⁷

The agreement granted the Soviet side the right to use all licenses, patents, and blueprints associated with the production, use, and distribution of the Ford Model A and the Model AA light truck, including all technical improvements that Ford conducted within the projected 9-year span of the treaty. Ford agreed to furnish *Vesenkha* with “a complete plant lay-out and working project together with schedules and specifications of machinery and equipment” for constructing and outfitting “an assembly plant and body shop of sufficient size and capacity to assemble one hundred thousand automobiles per year” in “two daily seven-hour shifts”. Further, the treaty stipulated an exchange of personnel. It required Ford Motor Company to send “experienced and competent personnel” to the Soviet Union to supervise layout and installation of equipment. Vice versa, Ford accepted up to fifty Soviet engineers and skilled workers into its factories every year “for the purpose of learning the methods and practice of manufacture and assembly in the Company’s plant.” In return for these services, *Vesenkha* agreed to pay all expenses and costs involved in the transfer of blueprints, technology, and personnel. The treaty also obligated *Vesenkha* to import 72,000 knocked-down Model-A’s over a period of four years at factory prices plus a surcharge of 15%. Soviet-produced Fords were barred from export outside of the Soviet Union.¹⁸

¹⁷ Osinskii, *Avtomobilizatsiia Sssr. Stat'i, Ocherki, Rechi*, 108-12.

¹⁸ BFRC, Acc. 572, Box 17, folder 11.14, “Agreement” [between Ford Motor Company and *Vesenkha*, 31 May 1929].

The technical assistance agreement with Ford was one of many that *Vesenkha* concluded with American and European firms in the years of Soviet industrialization. This was the standard course; there was hardly an industrialization project during the First Plan that did not rely on Western technology and expertise. In March 1932, *Vesenkha* was bound into 118 treaties with foreign firms, the great majority of them American and German. Many of the big names were involved: Krupp had signed a ten-year treaty on the development of the Soviet machine tool industry. Other agreements include big firms such as Borsig, Deitz, AEG, Telefunken, IG Farben on the German side; General Electric, RCA, and Albert Kahn on the American side. The Soviet automobile industry operated with three technical assistance agreements with foreign firms: Ford, which was the source of blueprints and production technology; Austin, the Cleveland construction company that supervised the building of the automobile factory in Nizhnii Novgorod; and the Italian firm RIV, which assisted with a ball-bearing factory.¹⁹

The agreement with Ford was a major coup for Osinskii and the modernist faction among Soviet industrializers. Not only did it seal the deal on the construction of a large-scale automobile factory, it also meant the repudiation of NEP-style Western concessions in favor of the import of Western technology and expertise, to be used on the Soviet's own terms. It was also a remarkably generous treaty. By agreeing to pass on the entire technology surrounding the Models A and AA at expenses, Ford charged no profit for patents and licenses; in return Ford simply got an export guarantee at fair conditions. In a triumphant *Pravda* article Osinskii

¹⁹ RGAE, f. 7620, o.1, d.776, "Reference book on foreign technical assistance agreements."

celebrated the agreement with Ford, “the firm which was not only the first to introduce the conveyor system in production but also laid the foundation for a general revolution in the automobile production methods.” The treaty combined the advantages of American assistance with complete freedom of action. On the one hand, it allowed the Soviet Union “to take the matter of automobile construction into our own hands” while, on the other hand, it secured “continuous contact with American technology on the highest levels of development” in future years. Gleefully, Osinskii pointed out that the new factory would exceed in capacity all other European ones save the new Ford plant in Dagenham, England (yet to be built). The agreement signified “the beginning of a transformation in the country’s physiognomy,” Osinskii said. “The Russian cart will slowly die out. In its place will follow the American automobile.”²⁰

While the agreement with Ford of May 1929 was a major milestone, Soviet motorization plans remained in considerable flux. In particular, Osinskii kept pushing for higher targets. In a report to Gosplan on June 8, 1929 Osinskii stipulated that the future Soviet economy required the yearly production of 450,000 automobiles, 75% of them light trucks, at a price target of 1300 rubles (which, assuming the then-valid exchange rate, translated into \$650). He conceded to a still skeptical Strumilin that the price tag would depend on the availability of cheap raw material and on whether “we can achieve American speeds in making use of the machinery.” Only three months later, in his speech to the 16th party conference in September 1929, Osinskii pressed home Soviet backwardness in the automobile

²⁰ “Dogovor s Fordom” [*Pravda*, 7 Jun 1929], in Osinskii, *Avtomobilizatsiia Sssr. Stat’i, Ocherki, Rechi*, 82-86.

sector with constant comparisons to the United States. American farmers in 1925 owned 473,000 tractors and 479,000 trucks, Osinskii informed the conference. "Consequently, if you want to produce 100,000 tractors a year, as is entirely correctly projected for the end of the Five Year Plan, then simultaneously you have to produce 100,000 trucks for agriculture." Osinskii suggested that only one "100,000-factory" – the one under construction in Nizhnii Novgorod – may not be sufficient. The plan should perhaps include a second plant, designed to put out up to 500,000 vehicles a year. Only in such a fashion would the Soviet Union be able to catch up with the West. To make his point, Osinskii cited the distressing figures: while the Soviet Union possessed one car for roughly every seven thousand people in 1929, the current plan would reduce that figure to one car for every 1070 heads. This was a strong improvement, but still worlds apart from America's one-to-five ratio, England's 1-to-38, and even Rumania's one car per 350 people. Under the present Plan, the Soviet Union would overtake only Poland; with a second large-scale automotive factory in place, Soviet's could advance at least closely to the heels of the Rumanians.²¹

In December 1929, one year into the First Five Year Plan, the radical modernizers of the Workers' and Peasants' Inspectorate (*Rabkrin*) under Sergo Ordzhonikidze effected a complete overhaul of the administrative structure of the Soviet command economy. The Soviet command economy was reorganized along functional lines, with a central unified organ (*ob"edinenie*) governing over each industry branch. The overhaul, bolstering the authority of *Vesenkha* and reinforcing

²¹ "Doklad na zasedanii prezidiuma Gosplana," and "Rech' na XIV vsesoiuznoi konferentsii VKP(b)," in *Ibid.*, 78f./159f.

centralized economic decision-making through Moscow, came against the resistance of the powerful regional production trusts in heavy industry. (All but exacerbating the bureaucratic frictions it was designed to resolve, the new administrative system was short-lived: it lasted less than three years and was superseded by yet another restructuring in 1932, which created a central planning administration that dominated the industrialized Soviet economy of the 1930s.)²²

For Osinskii and Soviet motorization, however, the institutional overhaul was a boon, as it created a powerful administrative framework for the new Soviet motor industry. In the new administration, Osinskii assumed the chairmanship of *Vato* (“All-union automobile and tractor association”). Under the direction of *Vato* and its 1932 successor organization *Gutap* (“Main administration of the tractor and automobile industry”) the Soviet motor industry, still in its infancy in 1928, grew to one of the key sectors of the Soviet economy. During the time of Osinskii’s chairmanship, *Vato* held under administration the old automobile factory in Moscow (AMO), which in 1929 was undergoing significant expansion and overhaul. *Vato* also supervised six construction sites of the First Plan: the Stalingrad tractor factory, built by Albert Kahn; the tractor factory in Cheliabinsk, which became the nucleus of the T-34 forge later known as *Tankograd*; a tractor factory in Kharkov, Ukraine; a new automobile factory in Iaroslavl’; and the *avtogigant* (“auto giant”) in Nizhnii Novgorod, built with the technical assistance of Ford Motor Company.²³

²² On the 1929 administrative overhaul of Vesenkha see David R. Shearer, *Industry, State, and Society in Stalin's Russia, 1926-1934* (Ithaca, N.Y.: Cornell University Press, 1996), 111-33.

²³ RGAE, f. 7620, o.1, d.1

Ascending to the helm of Vato, Osinskii had reached the pinnacle of his career. Under his chairmanship, the automobile industry fortified its position in the turf wars about scarce resources during the Plan. Osinskii strongly advocated the adoption of American technology and could claim a leading role in bringing the technical assistance agreement with Ford Motor Company into existence. Yet, his position of power within the Soviet planning apparatus lasted no more than a year. In December of 1930, Ordzhonikidze and his faction took the helm of Vesenkha. In his new capacity as boss of Soviet industry, Ordzhonikidze fired Osinskii in January 1931 and replaced him with A. Mikhailov. It was left to others to build on the foundations that Osinskii had laid.

The Dybets commission at Ford Motor Company

A significant part of the agreement between Vesenkha and Ford Motor Company was the exchange of personnel. Vesenkha sent its first technical commission to Ford Motor Company in July, and Charles Sorensen arrived in Russia in early August. Sorensen's recollections do not record details, but it appears he enjoyed a permanent escort during his trips in Russia, the most prominent members of which were Nikolai Osinskii and Valerii Mezhlauk. Sorensen was taken to the Kremlin, where Anastas Mikoian (the People's Commissar for foreign trade) joined the group for talks. Ford's chief of production then visited the site chosen for the automotive plant on the Oka in Nizhnii Novgorod before inspecting the Putilov plant

in Leningrad, where he was surprised to encounter a large number of former Ford employees working on the assembly of the Fordson tractor.²⁴

While Sorensen was traveling in Russia, Stepan Dybets and his commission arrived in Detroit and set up shop at Ford Motor Company. Dybets had concrete instructions:

1. To place 50 engineers, technicians, and workers at Ford Motor Company
2. To determine the operative structure of the new factory, including its auxiliary departments and workshops
3. To determine a timeline for the construction of the complete auto factory
4. To determine a timeline for receiving parts and their specifications from Ford
5. To determine a timeline for outfitting the factory with machinery
6. To determine the volume of foreign exchange outlays and the dates of payment
7. To determine the total number of technical personnel needed
8. To finalize the project for the factory in close consultation with Ford and other firms.²⁵

The commission soon discovered that technology transfer by observation and imitation proved more difficult than expected. Dybets and his people encountered numerous obstacles. The first was a question of personnel, as the arrival of qualified technicians was no more than a trickle by late summer of 1929. When Vesenkha moved the projected date of the factory's completion forward from

²⁴ Sorensen, *My Forty Years with Ford*, 183-91.

²⁵ TsANO, f.2431, o.2, d.6, ll. 7/8; 57-59; op.4, d.2, l.1.

January 1932 to August 1931, this put Dybets's commission "in a desperate position." Recruiting American engineers for the task would take too long and ran up against budget constraints. Dybets turned to Ford vice-president PE Martin for help, who, "after consulting on this question with the old Ford, promised to take upon him the preparation of the technical processes." But when oversight was passed on to Charles Sorensen, who was busy otherwise, the Soviets felt themselves left in the cold. "By the end of September it had become clear to us that in order to complete the technical design draft of the factory within the allotted time we would have to rely exclusively on our own strengths and take planning into our hands," Dybets wrote. Consequently, the commission hired translators and bilingual technical personnel ("with difficulty," as Dybets noted, because "a significant number of people from the White emigration have come here"). Dybets told his staff to work "14-16 hours a day" with the task of determining the structure of the future plant by January 1930 and specifying the necessary machinery to be ordered by April of that year. There were problems, however: in drafting the design, Dybets and his team had to substitute Ford's first-rate machine-tools for "less complex and expensive" ones. The matter was complicated by the fact that Ford was changing key specifications of the Model-A at the beginning of 1930, and that Ford's calculation for capital depletion of machine tools did not necessarily apply to Soviet conditions. Finally, Dybets sighed, difficulties arose from the fact that Ford received 25-30% of parts from outside suppliers.²⁶

²⁶ Dybets report to Vesenkha [Jan 1930], TsANO, f. 2431, o.2, d.10, ll. 1-27.

Vesenkha's "frequent changes in plans" complicated matters further; Osinskii's consistent upward revisions for the capacity of the auto giant made Dybets' life difficult. First the task was to draft the design for an output of 100,000 vehicles per year, a figure which not shortly afterwards was tripled to 300,000. "And then the commission received a telegram about the change-up to 500,000," Dybets complained. Consistent work was hardly possible under such conditions. "The unplanned character" of the endeavor "has plagued not only Ford's employees, but also our commission, and is reflected in our rapport with Ford."²⁷

Despite all obstacles, Dybets was able to relay the design draft on January 1st, 1930. "After the commission had made itself familiar with the production in Ford's plants, and after consulting with engineers and workers of Ford's company," Dybets wrote home, "we determined the structure of the auto factory to consist of the following departments: steel foundry, press works, mechanical and assembly shops, tool and die shop, body shop, laboratory, heat treatment and a school." This was followed by a detailed description of technical specifications. Dybets put the total outlay for machinery at over \$42 million, and determined that construction of the plant would require a total of 12,650 workers and other employees.

Once the layout plans for factory construction were finalized, an even more daunting task faced the commission. Over the course of 1930, Dybets and his engineers took on the laborious task of determining, copying, and transferring the specifications of tens of thousands of machine-tools, production operations, and

²⁷ TsANO, f. 2431, o.2, d.10, l.52.

blueprints in use at River Rouge. In a classified report directed to Ordzhonikidze personally, Dybets described the work of the commission:

The entire technical process was designed on the basis of the methods used at Ford's plants. Where some production method was not in use at Ford, we used the technical methods of his suppliers. We adopted production norms and selected machinery after reviewing the practice at Ford's plants in Dearborn and in Windsor [Canada]. Still, we introduced a number of changes in the process, mainly in connection with the fact that the production program of *Avtostroi* consisted of 132 thousand vehicles against the 3-5 million vehicles put out by Ford's factory in Dearborn. Under these conditions our planners confronted an extremely difficult task – to preserve the principles of flow production and Ford's fundamental methods while adapting individual operations.²⁸

Dybets's engineers created a complete inventory of all machinery in Ford's shops. Where Ford could not provide blueprints, *Avtostroi*'s technicians composed their own. For all dies and automobile parts produced at River Rouge, the Russians copied out the process of production, the materials, and their composition, and relayed those to Nizhnii in extensive reports. For example, engineer A.E. Sankov submitted an 80-page typewritten report on the tool and die shop at the Rouge, replete with technical details, tables of specifications, and including hand-drawn sketches of dies and machinery. Nizhnii received equally bulky reports on cold steel pressing and paint work. The work was complicated by the fact that Ford's engineers kept changing details in the production process. Nevertheless, the date at which Soviet industry completed its technology transfer from Ford can be given

²⁸ TsANO, f. 2431, o.4, d.11a, l. 21: report of Dybets to Ordzhonikidze [Dec 1930]

with precision: Dybets fixed the 15th of October, 1930, as the date when *Avtostroi* would cease adapting to Ford's system, regardless of whether it evolved after that.²⁹

Building the Auto Giant

In accordance with the agreement of May 1929 Ford Motor Company granted Dybets's commission open access to its plants and machinery. But Ford's obligations did not extend to the actual construction of the factory complex in Russia. (FMC was not a construction company – Ford had hired Albert Kahn for building his own factories.) For this task *Vesenkha* contracted another American company: Austin & Co. of Cleveland, a medium-sized construction firm whose largest project to date had been an assembly plant for General Motors. After *Vesenkha* had approved of Nizhnii Novgorod as construction location in July 1929, the agreement with Austin was signed and ratified on August 23. For Austin, the *Vesenkha* contract was the biggest coup in the firm's history; for *Vesenkha*, it was a controversial choice that nearly ended in termination when the factory was not halfway finished.³⁰

From the outset, the relationship between Austin and the Soviets was riddled with tension. Dybets was fiercely critical of the choice. "I repeatedly informed *Vesenkha* [...that Austin] is not the best construction firm in the USA," Dybets wrote from Dearborn. "During my stay in the USA our statements about this firm were confirmed at Ford and Chevrolet. These objections notwithstanding, the contract

²⁹ TsANO, f. 2431, o.4, d.11a, *ibid.*; individual reports are in f. 2431, o.1, d.15.

³⁰ *Vesenkha* resolution on Nizhnii Novgorod, RGAE, f. 5735, o.1, d. 788, l. 25. Contract with Austin: TsANO, f. 2431, o.1, d.75. A collection of letters from one of Austin's engineers to Cleveland during the construction phase is in Richard Cartwright Austin, *Building Utopia : Erecting Russia's First Modern City, 1930* (Kent Ohio: Kent State University Press, 2004).

with Vesenkha was signed.” Soon problems emerged. “The first steps in drawing up the foundry showed that this firm does not have the experience nor personnel appropriately qualified to complete this work.” Worried that “the design draft would not be presented on time,” Dybets felt compelled to intervene and order his team already burdened commission to support Austin in drafting the design of the foundry.³¹ In consequence, the contract with Austin was modified in Detroit on October 30, 1929.³²

Construction of the new plant on the banks of the Oka in Nizhnii Novgorod began in earnest in January of 1930. From the outset, the project was steeped in problems, and work proceeded under difficult conditions until the production complex was officially declared finished on November 1st, 1931.³³ The difficulties stemmed from two major causes. First, Austin’s engineers found themselves in the middle of a turf war between competing Soviet economic authorities in the wake of the administrative shake-up of December 1929. Before the Soviet motor industry came under the purview of Osinskii’s newly founded auto-tractor association (*Vato*), automobile manufacture had been an administrative branch of the metalworking industry. After the re-organization of late 1929, the officials of the metalworking administration were loath to cede control of policies and access to extremely limited resources to Osinskii’s branch. During the auto plant’s construction phase, then, *Avtostroi* (*Vato*’s department in Nizhnii Novgorod) embarked on a war of mutual

³¹ Dybets report to Vesenkha from Detroit [Jan 1930], TsANO, f. 2431, o.2, d.10, ll.21-22.

³² Supplemental agreement between Avtostroi and Austin, signed by Dybets, RGAE, f. 7620, o.1, d. 708, ll. 32-34.

³³ “Nizhegorodskii avtogigant postroen,” *Pravda*, 1 Nov 1931.

obstruction with the local branch of the metalworking industry – a conflict never fully resolved even after the factory began operations.³⁴

Second, the construction site at Nizhnii struggled with difficulties common to all Soviet industrialization projects. Suppliers of essential construction material were tardy in their deliveries or refused to deliver at all, despite *Vesenkha's* interventions; the resulting delay in construction in turn thwarted the installation of machinery. Cranes for excavation work were missing. High-quality steel was impossible to come by from Soviet suppliers but prohibitively expensive to import. Housing construction for the tens of thousands of workers was slow in keeping up, and while *Vesenkha* had allotted funds for the provision of housing for 15,000 workers, *Avtostroi* needed to accommodate at least 25,000.³⁵ Austin's chief engineer on site, H.F. Miter, expressed that he was hardly able to do his job for lack of basic material supplies such as concrete and steel, lack of qualified personnel both in construction and administration, and the dismal housing conditions afforded not only to the Americans but to the mass of construction workers. Miter complained that *Avtostroi* "was continually requesting major changes" and that his team was experiencing great difficulties to get plans approved "when the men in your organization do not have layouts of machines and equipment planned." By June

³⁴ Kurt S. Schultz, "Building the 'Soviet Detroit': The Construction of the Nizhny Novgorod Automobile Factory, 1927-1932," *Slavic Review* 49, no. 2 (1990), Boris Shpotov, "Businessmen and Bureaucrats: The American Technical Assistance in Building the Nizhny Novgorod Automobile Factory," in *Ekonomicheskaiia Istoriiia, Ezhegodnik* (Moscow: ROSSPEN, 2003).

³⁵ TsANO, f. 2431, o.4, d.11a.

1930 Avtostroi and Austin were deliberating the cancellation of the contract. Work proceeded only after renewed negotiations between Dybets and Austin in Detroit.³⁶

On January 31, 1931, six months before the auto giant was scheduled to start up operations, Vato put the “factual completion” of the factory at “only 30%.” At fault were “complete insecurity in the timely delivery of machinery, [...] insufficient planning in housing construction, poor supply of construction material, the unfavorable state of power and heat supply, the alarming situation among the cadres, an unsatisfactory state of affairs of foreign technical assistance.” Vato’s response to these ills – characteristic of the dynamic of Soviet industrialization – was not to change tack, but to increase demands. It was necessary to “strengthen the *Avtostroi* cadres” with “30 young engineers” graduating from the auto-tractor academy in Leningrad and to make it the duty of *Avtostroi* to expedite the delivery of Western machinery. In February Vato fired two chief administrators at *Avtostroi*, and in March the presidium deliberated an upward revision of the new factory’s output targets for the years 1932 to 1934.³⁷

American Machinery and the Foreign-Exchange Crisis of 1931

Importing Western machinery, know-how, and personnel in exchange for food and grain was the heart of the Soviet industrialization strategy. It is the link that connected the lethal collectivization of Soviet agriculture to the simultaneous massive buildup of heavy industry. Forced collectivization not only destroyed

³⁶ RGAE, f.7620, o.1, d. 709. Supplemental agreement between Avtostroi and Austin, 18 Jul 1930, RGAE, f.7620, o.1, d.708, ll. 25-31.

³⁷ RGAE, f.7620, o.1, d.30, ll.202ff.

Russian peasant culture, uprooted millions, and exposed millions more to death by starvation. Through collectivization the Stalinist leadership extracted the grain necessary to raise abroad the foreign exchange with which to purchase Western machinery.

In 1930, the construction sites of Soviet industrialization bought the bulk of its lathes, tools, conveyors, furnaces, special-purpose machines, and steel in the United States, with Germany a distant second. The automobile industry was no exception. In the last quarter of 1930, for example, Vesenkha granted *Avtostroi* 34 million convertible rubles for equipping the Nizhnii factory with machinery. That November, *Avtostroi* spent \$13.5m on American machinery, \$4m on orders from Europe, and the equivalent of \$9.66m on orders from within the Soviet Union.³⁸ For the last six months of 1930, the assembly shop alone was granted orders totaling \$7.58m, of which \$7.1 went to the USA.³⁹

Coinciding with deepening Depression in the West, however, the Soviet strategy of relying on food exports to finance high-tech imports soon hit a wall. With grain prices on the world market in free fall in 1931 and interest rates on commercial loans steeply rising in the West, Soviet terms of trade rapidly deteriorated. In the summer of 1931, the dual problem of insufficient grain procurements and a dwindling reserve of foreign exchange was the single most vexing issue on the Politburo's agenda and the cause of sharp conflicts among the

³⁸ Merts to Dybets, 25 Nov 1930, TsANO, f.2431, o.4, d.14, ll. 137-139.

³⁹ TsANO, f.2435, o.1, d.56, l.17.

Soviet leadership.⁴⁰ The problem became so severe that Stalin decided to abruptly terminate the practice of importing machinery from the USA. "In view of the hard-currency problems and the unacceptable credit terms in America, I am opposed to placing any new orders whatsoever in America," Stalin informed the Politburo in late August. He also recommended winding down existing contracts and, wherever possible, transferring orders to Europe.⁴¹

The turnaround regarding imports from the USA not only caused Ordzhonikidze to throw a tantrum in front of the Politburo.⁴² It also embarrassed his subordinates in the *Vesenkha* system, especially those among the maximalist faction who had consistently advocated the adoption of American technology. What Stalin demanded was in fact impossible: in 1931, the Soviet machine-tool industry was in no position to replace the much-needed equipment from the USA, and an abrupt changeover to European firms was fraught with technical difficulties. Nevertheless, Stalin's decision was immediately transmitted down the hierarchy. "In connection with the decision to transfer orders for machinery placed in the USA to Europe," Dybets wrote to the board of *Vato* in September of 1931, "it is necessary to quickly command abroad three *Avtostroi* engineers." The group was charged with "replacing American equipment with European one under partial reworking of the technical

⁴⁰ It is the paramount issue in the reports of Lazar Kaganovich to Stalin in August and September 1931: Joseph Stalin, L. M. Kaganovich, and R. W. Davies, *The Stalin-Kaganovich Correspondence, 1931-36*, Annals of Communism (New Haven: Yale University Press, 2003), 49-103.

⁴¹ Ibid., 66.

⁴² Ibid., 63.

specifications." The changes considerably delayed equipment deliveries to the construction site in Nizhnii.⁴³

Personnel: East to West

On the basis of the agreement with Ford Motor Company several hundred Soviet workers and engineers came to Detroit in the years between 1929-35. A group of Soviets sent on a sojourn abroad to aid in the technology transfer from West to East was known as *komandirovka*. *Vesenkha* did not take lightly the decision to dispatch such *komandirovki*, since they drained the foreign exchange pool as much as expensive machinery did. But the modernizers in charge of Soviet industrialization were convinced that first-hand technical experience gained in the West was a prerequisite for Soviet technological development.

The process of putting together a *komandirovka* was cumbersome and bureaucratic. When *Avtostroi* suggested a delegation, the party section at Nizhnii Novgorod first screened candidates for political reliability and technical competence. Foreign language skills were generally expected, which meant that workers who had spent time abroad previously were most likely to be selected. The local party section then drew up detailed characteristics of the candidates and passed them on to Vato. But final approval lay with the foreign sector of *Vesenkha*, which controlled the necessary foreign exchange outlays. Upon *Vesenkha's* confirmation, *Vato* petitioned for American visas.

⁴³ Dybets to Vato board, 23 Sep 1931, RGAE, f.7620, o.1, d.786, l.139. On the Soviet retreat from international trade in the early 1930s cf. Michael R. Dohan, "The Economic Origins of Soviet Autarky 1927/28-1934," *Slavic Review* 35, no. 4 (1976).

For example, in May 1931 *Avtostroi* sent fifteen workers to Ford Motor Company “to study the construction of automobiles, according to the treaty on technical assistance.” Their sojourn was set for six months. All of them were considered politically reliable, most of them were listed as “metal-workers.” They differed mostly in age. Ivan Rykov, electrician, was born in 1888; Antonii Privalov, metal-worker, was born in 1901; German Piskarev, metal worker, was born in 1910.⁴⁴

The privileged access to America through Dybets’s representation in Dearborn made word around *Vato*’s departments. Delegations soon began showing up in Detroit unannounced, much to the frustration of Dybets and his commission. “Almost from the very moment of the founding of the Detroit department of *Avtostroi*,” wrote Bondarchik, one of Dybets’s engineers, from Detroit, “technical commissions and delegations consisting of many men began to come to us, who considered it necessary to visit and attentively inspect Ford’s factory, and some of them, to occupy themselves with learning the methods of production practiced in the factory. Of these visits we had an unending stream, of which our visitor registration is evidence.” Around 300 people had come and gone by October 1930, which clearly exceeded the maximum number of 50 annual visitors as stipulated by the May 1929 agreement. “Although we know about the possible value of such visits,” the letter continued, “they not only have occupied and are occupying our own administration, meddling with its efficiency, but they also burden the administration of Ford Motor Company.” What is more, Dybets’s section began

⁴⁴ RGAE, f.7620, o.1, d.785, l.33.

receiving visitors from other Vato departments like the Stalingrad tractor plant and the auto factory in Cheliabinsk, as well as from *Vato's* ball-bearing plant. "All of which we had to fix up with a practicum at Ford's factory," Bondarchik complained.⁴⁵

Table 3.1 – Vesenkha/NKTP personnel dispatched abroad, 1930-1933. Source: Khromov (1999), 262.

| | Sent abroad (total) | To Europe | To USA | Engineers | Workers | Planning personnel |
|-------|---------------------|-----------|--------|-----------|---------|--------------------|
| 1930 | 1390 | 752 | 638 | 923 | 344 | 123 |
| 1931 | 485 | 327 | 158 | 235 | 195 | 55 |
| 1932 | 312 | 291 | 21 | 215 | 74 | 23 |
| 1933* | 385 | 282 | 103 | 272 | 93 | 20 |

* for 11 months

Table 3.1 gives an overview of the numbers of personnel sent abroad between 1930 and 1933. It points to the significance of the connection established with Ford Motor Company that roughly half of those sent to the USA over the course of 1930 were headed to Dearborn. Nizhnii Novgorod kept sending workers and engineers to the USA even after 1933, though the expectations of political reliability became higher. Only party members were now eligible.⁴⁶ In 1935, for example, Gaz recommended sending to Detroit Comrade Zhdanovich, foreman on the main conveyor, in preparation for his promotion to head foreman on the passenger car assembly line. Zhdanov had enjoyed middle technical education, was a party member and had joined the factory at its inception in 1932. Joining him were Comrades Zubalia, to be conferred to the position of inspector at the main assembly

⁴⁵ Bondarchik to Amtorg, 10 Oct 1930, RGAE, f.7620, o.1, d.785, ll.220-21.

⁴⁶ TsANO, f. 2435, o.8, d.2.

line, and Kuznetsov, to study machinery maintenance. Both were party members.⁴⁷

One typical young engineer sent from Nizhnii to Detroit in the mid-1930s was A.M. Kriger. Born in 1910, educated during the Cultural Revolution, and embarking on his career immediately after the First Five-Year Plan, Kriger was an exemplary “promotee” – a beneficiary of Stalin’s social revolution. Kriger was born in Kramatorsk in the Donetsk region of Eastern Ukraine as the son of a metallurgical worker. In 1928, at 18, he enrolled at the Kharkov Technological Institute, from where he transferred to *Vato’s* Auto-Tractor Institute in Moscow two years later. He graduated in 1932 and began working at the newly finished Gaz as construction engineer. In December of 1933 Gaz glowingly recommended Kriger for a six-month sojourn in Detroit. Kriger had “shown himself to be a knowledgeable and energetic worker with initiative” who had “delivered in comparatively short time a number of constructions” improving the models that Gaz was producing. “With the goal of his further improvement we consider it necessary to send him abroad.” In 1935, when Gaz was working on its first indigenous model (the Molotov-1), Kriger was again sent to the United States to purchase machinery. Kriger’s career steadily continued upwards throughout the 1930s and the war years. By 1942 he was deputy chief of construction and design at Gaz. In this capacity he supervised the development of the Gaz-51 truck, which became a Soviet export bestseller well into the 1970s. For the Gaz-51 Kriger received the Stalin prize in 1947. (Kriger later was head of

⁴⁷ TsANO, f. 2435, o.2, d.55, l.20.

construction and design at the auto factory in Moscow – the former AMO – for nearly thirty years, 1954-1982. He died in 1984.)⁴⁸

Personnel: West to East

The stream of technicians, workers, and engineers did not only flow from Russia to the West. Through representatives in New York City and Berlin, *Vato* actively recruited skilled personnel at all levels of qualification and expertise. It was the task of every enterprise under *Vato*'s jurisdiction to place foreign specialists in "clearly determined positions" where they should be matched with "young Soviet engineers, who, if possible, know foreign languages." It was *Vato*'s rationale that the Western specialists working in Soviet automotive enterprises would "train our worker youth in practical questions." *Vato* threw its weight behind foreign technical assistance:

The board of Vato makes it the responsibility of all workers in the Vato system to exercise an especially attentive attitude towards the utilization of foreign technical assistance and the foreign specialists. The Soviet state expends great means on foreign technical assistance in order to accelerate the transfer of the experience of leading technology into socialist industry. All kinds of 'theories' and talk that 'Americans are good in America,' or 'we can manage by ourselves' and so on, is economically and politically harmful. All actions that interfere with us making use of foreign technology must be decisively stopped.⁴⁹

Table 3.2 – Foreign specialists in Soviet Heavy Industry. Source: Khromov (1999), 263-277.

| [present on Jan 1 st of...] | Engineers and technicians | Workers | Total |
|--|---------------------------|---------|-------|
| 1929 | 400 | | 400 |
| 1930 | 600 | 512 | 1112 |
| 1931 | 1631 | 1267 | 2989 |

⁴⁸ Kriger files, TsMAMLS, f.86, o.1. RGAE, f.7622, o.2, d.52.

⁴⁹ Protocol of Vato board meeting, 5 Dec 1930, RGAE, f.7620, o.1, d.756, ll.45-47.

| | | | |
|------|------|------|------|
| 1932 | 2050 | 4008 | 6058 |
| 1933 | 2429 | 4131 | 6550 |
| 1934 | 2031 | 3118 | 5149 |
| 1935 | 1635 | 3175 | 4810 |

With the Depression raging in the West, *Vato* had little trouble finding candidates willing to try their luck in the Soviet Union. Hundreds of applications from American and German skilled workers and engineers filled *Vato's* mailboxes in Moscow. To be sure, some applicants were Communist Party members, fellow socialists, or at least workers who, thrown into unemployment, rediscovered their sympathies for the Soviet cause. Engineer Richard Lindenmayer from Stuttgart, a specialist in roll bearings, wished to relocate because “here in Germany I am unhappy in these bourgeois conditions which do not allow me to participate in the construction of the communist state of the future.”⁵⁰ Others were impressed by the Soviet advance for reasons none other than illiberal modernism. An Austrian engineer applied because he wanted “to offer my services to the state which has made it its task to expand industry in the most productive fashion.” Like no other country, Russia had “adopted the creed of methodically abolishing the flaws of the current economic system.”⁵¹ Others again were highly experienced engineers with impeccable résumés who saw participating in Soviet industrialization as an opportunity to advance their career. Osinskii’s headhunter in the USA, Sorokin, particularly recommended R.A. DeVlieg, Vice President of Cirrus Engines, a manufacturer of airplane motors, and formerly Factory Manager of Chrysler’s

⁵⁰ RGAE, f.7620, o.1, d.802, l.113.

⁵¹ RGAE, f.7620, o.1, d.816, l.75.

Highland Park plant. Equipped with gleaming letters from Walter Chrysler and other leading Chrysler executives, DeVlieg demanded \$30,000 per year from *Vato* for his services and indicated that despite his current employment at Cirrus, “I am quite sure I that by mutual agreement I can be released because of general business conditions in the aircraft industry.” The documentation is silent on whether *Vato* reached an agreement with DeVlieg.⁵²

Many applied through *Avtostroi's* representation at Ford Motor Company. Among them was Harry M. Reynolds, who had worked for Ford since 1911 and was laid off in early 1932. Reynolds was married with two kids, and requested, according to the application form “Application for Avtostroy – at Dearborn, Michigan” 600 rubles plus \$50 per month.⁵³ While the foreign sector at *Vato* scrutinized all submissions, it rejected the majority of applicants. This was not for lack of expertise or for want of open positions. It was a matter of *Vesenkha's* stringently controlled foreign exchange budget. In late 1930, *Vato* discontinued the practice of hiring Western specialists for foreign exchange except in the highest management and engineering positions.⁵⁴ *Vato* increasingly demanded that applicants pay their own fare to the Soviet Union and accept remuneration in rubles. As the Soviet trade representation in Sydney succinctly put it to one Australian applicant:

⁵² RGAE, f.7620, o.1, d.747, ll.111ff.

⁵³ RGAE, f.7620, o.1, d. 802, l.149.

⁵⁴ Protocol of Vato board meeting, 5 Dec 1930, RGAE, f.7620, o.1, d.756, l. 46.

We may mention that there is an enormous number of applications similar to yours, people who cannot afford to pay their own traveling expenses, received by various enterprises in the USSR from qualified persons and workers of all countries. It is physically impossible for the USSR to comply with such requests [...] This is explained by the fact that the USSR requires an enormous quantity of imported goods, but with the narrowing of markets and the fall in prices due to the world crisis accordingly diminishing proceeds from exports, the USSR is compelled to economize in foreign currency.⁵⁵

Table 3.3 – Foreign specialists requested by Vato for 1931. Source: RGAE, f.7620, o.1, d.760, l.49.

| Enterprise | Engineers (paid in dollars) | Foremen (paid in dollars) | Skilled workers (paid in rubles) | Total |
|--|---------------------------------------|-------------------------------------|--|--------------|
| Avtostroi, Nizhnii | 30 | 35 | 468 | 533 |
| Khar'kov Tractor | 20 | 60 | 300 | 380 |
| Stalingrad Tractor | 10 | 20 | 110 | 140 |
| Gospodshipnikstroi (ball-bearing plant) | 28 | 18 | 25 | 71 |
| AMO Moscow | 17 | 37 | 10 | 64 |
| Cheliabinsk Tractor | 6 | 1 | | 7 |
| NAMI | 4 | | | 4 |
| Other | 18 | | | 18 |
| TOTAL | 133 | 171 | 913 | 1217 |

Despite the foreign-exchange crisis, the number of foreign specialists and workers active in Soviet industry peaked in 1932 and 1933 and decreased somewhat after that (table 3.2). By virtue of its high-profile contact with Ford Motor Company, the automobile and tractor industry under the purview of *Vato* had a

⁵⁵ RGAE, f. 7620, o.1, d.803, l.144.

substantial share in attracting foreigners in 1931 (table 3.3). In 1932, when the Nizhnii factory slowly assumed operations and produced some 7500 cars and trucks, the construction site shed foreign workers. Over the course of that year, there were between 150 and 250 foreign specialists and skilled workers on site on any given day. Of 181 foreign specialists and skilled workers present in November 1932 “around 50% were emigrants of the old Russia” who had lived and worked in the United States for several years. Another 25% were Germans (a number of which again had lived in America). The rest were “ethnic Americans,” Austrians, and Hungarians. The highly skilled foreigners in Nizhnii were by no means just fellow travelers. Of the 77 foreign engineers and foremen listed present in July 1932, only seven were Communist party members. Rather, working for the Soviet’s was well-paid: most of the foreigners worked on a one-year contract and earned around 400 rubles plus \$200 per month. In comparison, the average wage of a Russian worker was 178 rubles. The highest earner among the Americans was the engineer Herbert Ludwig, a specialist in body work, who made 1200 rubles plus \$500 per month.⁵⁶

Factory management expected the foreigners to instruct Russian workers in the operation and maintenance of Western machinery. A group of Russian workers would be assigned to work with a foreign foreman or specialist, a practice called “patronage.” For example, line foreman Kosobutskii, a returnee from America, had thirty-three Russian workers operating fifty machine tools under his supervision. Kosobutskii’s brigade over-fulfilled the control figures by 197% in February 1932,

⁵⁶ Z.K. Zvezdin and N.I. Kuprianova, eds., *Istoriia Industrializatsii Nizhegorodskogo-Gor'kovskogo Kraia (1926-1941)* (Gorky: Volgo-Viatskoe Knizhnoe Izdatel'stvo, 1968), 183-87. RGAE, f.7620, o.1, d.774, ll.1-15.

and by 154% in March. Foreman Walter, skilled at the cutting press but not proficient in Russian, was named a shock worker for the success of his brigade. Foreman Gorondon instructed 26 Russian workers at the heat press.⁵⁷

The work of foreign specialists needs to be put in perspective. In 1932, the few hundred foreigners at the new Nizhnii plant were only a drop in a sea of roughly 20,000 workers. Vato's expectations that the foreigners provide a guiding light to inexperienced and unskilled Soviet workers did not always materialize. Critical reports charged waste and miscommunication. "A systematic work to adopt and assimilate the knowledge and experience of the foreign foremen is not being conducted," stated one such report. It was unclear which factory department was responsible for the foreign specialists, so they were often left alone. Since no one felt responsible, it was up to the foreigners' own initiative to work for the often considerable salaries they earned. Precious foreign exchange was thus wasted.

For example, engineer Brandt from the firm Industrial Furnace, the report continued, received around \$1000 per month in foreign exchange and had been hired in three months earlier to aid in putting up a blast furnace. Brandt, who "repeatedly complained to his firm that he did not earn enough ... has already cost us around \$3500 in hard currency but not one blast furnace has been erected" for various reasons "such as the failure to prepare construction works in a timely fashion, lack of tools, loss of boxes with parts and so on." Unfortunately, now Brandt's term of contract was already over, and it was necessary to ask him to extend his stay. "The price of one furnace is \$45000, Brandt's services, if he is free to

⁵⁷ Ibid.

stay to May 1 will cost us \$6000,” the report calculated. But that was not all: “Under the impression that the furnaces were ready, Industrial Furnace sent a young metallurgic engineer whose qualifications are useless for the time being because the furnaces are not yet operational.” In this manner, another \$1,260 was “wasted without any use.”⁵⁸

For the Western engineers and workers, in turn, poor housing conditions, unclear assignments, and bureaucratic obstacles often out-weighed the monetary benefits of a Soviet sojourn. In 1932 almost 1000 foreign specialists terminated their contracts early and left the Soviet Union, followed by another 700 in early 1933. Nizhnii lost 30 foreign specialists in 1932. In light of these difficulties, the Commissariat for Heavy Industry angrily underscored the significance it assigned to the presence of Western specialists. The Commissariat pronounced that “the overwhelming majority of foreign workers and engineers” was “rendering essential assistance” in the construction and operation of the Soviet Union’s heavy industrial plants. “No less a significant assistance do the foreign cadres render in the education of our personnel and in servicing costly imported machinery.” The Commissariat pressurized the factory directors to radically improve working conditions for the Westerners. In the future, all dismissals had to be confirmed by the Commissariat. If skilled workers wanted to leave of their own accord, plant directors had to report to the Commissariat about the exact circumstances.⁵⁹

Thousands of Western workers moved to the construction sites of the First Five-Year Plan. In doing so, hundreds took advantage of *Avtostroi’s* representation at

⁵⁸ RGAE, f.7620, o.1, d.768, ll.3-7.

⁵⁹ NKTP order of 23 May 1933, RGAE, f.7622, o.4, d.1, ll.33-36.

Ford. In contrast, only one of Ford's leading engineers – Frank Bennett – was in Russia for an extended stay. Over the course of 1930, Bennett helped put the assembly shops in Moscow and Nizhnii in operation that put together the knocked-down vehicles imported from Ford on the basis of the agreement. The fact that only a single specialist from Ford Motor Company was in Russia prompted Dybets to report that the technical assistance agreement was “factually being fulfilled in Detroit, USA” by his own people.⁶⁰

The Auto Giant at work

Sergei Sergeevich D'iakonov was appointed general manager of the new factory in Nizhnii in July 1932. Born near Moscow, D'iakonov had been a party member since 1918 and held an engineering diploma from the Leningrad Polytechnical Institute. At 33, D'iakonov was a few years too old to be one of Stalin's promotees; rather, he was of the youngest generation to be swept up in the purges of 1938. But that lay in the future. At the time of his arrival in Nizhnii D'iakonov was at the apex of his career; before that, he served in engineering positions in Moscow and was Osinskii's deputy chairman on the board of *Vato*. D'iakonov replaced Stepan Dybets, whose stint at the helm of the Nizhnii factory had lasted but six months (January to June, 1930). Dybets moved back to Moscow and held various posts in Ordzhonikidze's People's Commissariat of Heavy Industry before assuming the chairmanship of Gutap (the “Main Administration of the Auto-tractor Industry,” *Vato's* successor organization) in 1934. Within the hierarchy of the Soviet command

⁶⁰ TsANO, f.2435, o.1, d.75.

economy Dybets was now D'iakonov's boss, while the former head of the standing commission at Ford in turn reported directly to Ordzhonikidze.

Under D'iakonov's leadership, the "auto giant" in Nizhnii developed into the linchpin of Soviet car and truck production. In 1933, the new factory complex took on the name Gaz (Gor'kovskii Avtomobil'nyi Zavod) after Nizhnii Novgorod was named after Maxim Gorky, the city's famous scion. Supplying roughly two-thirds of total Soviet output after 1934, Gaz was at the center of the remarkable boom of the new indigenous Soviet automobile industry (table 3.4). During the Second Plan, Gaz made steady progress. The factory complex underwent two major phases of expansion in 1935 and 1938. In 1935, D'iakonov announced the factory's "liberation from import dependence, in particular, from Ford's technical assistance."⁶¹ In 1936, Gaz discontinued the Ford Model-A and presented the first Soviet-designed small car, the Molotov-1.⁶²

Table 3.4 – Share of Gaz in total Soviet automobile production, 1932-1940 (thousands, percent). Source: TsANO, f. 2435, o.2, d.8;

| | Total Soviet | Gaz | Percent of total |
|-------------|--------------|-------|------------------|
| 1932 | 24 | 7.5 | 31.25 |
| 1933 | 49 | 26.6 | 54.29 |
| 1934 | 72 | 49.3 | 68.47 |
| 1935 | 97 | 63.6 | 65.56 |
| 1936 | 136 | 86.3 | 63.46 |
| 1937 | 200 | 135.7 | 67.85 |
| 1938 | 211 | 145.6 | 69.00 |
| 1939 | 202 | | |
| 1940 | 146 | 87.1 | 59.66 |

⁶¹ Zvezdin and Kuprianova, eds., *Istoriia Industrializatsii Nizhegorodskogo-Gor'kovskogo Kraia (1926-1941)*, 296.

⁶² V.Ia. Dobrokhov, *Gor'kovskii Avtomobil'nyi* (Moscow: Mysl', 1981), 39f.

But severe problems continued to plague the Soviet River Rouge. These problems were not restricted to Gaz. Reflecting the difficulties of Soviet industry at large, Gaz struggled with a largely unskilled work force, a structural labor shortage and high turnover, severe problems of managerial co-ordination, and pervasive bottlenecks in the supply of parts and raw materials. In a factory built on flow production principles and equipped with assembly lines these problems often proved debilitating. Complicating matters, the Soviet labor regime of the 1930s batted on mobilization strategies that militated against Fordism. Norm-setting, piece-rate incentives, and Stakhanovism emphasized individual work performance and were difficult to reconcile with the strategies of coordinated cooperation expressed in assembly line work. In an ironic turn of events, Fordism largely disappeared as a guiding principle of productivity during the Second Five-Year Plan at the very factory which had most emphatically embraced flow production during its construction under the First Plan. Only in World War II, faced with an acute shortage of skilled labor and operating under an increasingly repressive labor regime, did Gaz re-discover Fordism as a powerful tool of labor mobilization.

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Amid ongoing delays in supply deliveries, an unabated housing shortage, and general disarray, the newly completed factory complex started up production in January 1932. The first Ford-AA light truck made entirely of Soviet-produced parts rolled off the assembly line on January 29th. By March, production was halted for

several weeks for lack of supplies. (Ordzhonkidze blamed the breakdown the presence of wreckers.) In the first six months of 1932, the giant factory turned out a meager 1,008 vehicles. Production picked up considerably during the last quarter of 1932, with an output of 3,721 AA light trucks. The first 34 Soviet-produced Model-As were finished in December of 1932. But all in all, the Soviet River Rouge missed the planning targets for 1932 spectacularly, producing only two thirds of the requested number of trucks, and 5% of the requested number of Model-As.

Apart from the fact that “many construction and assembly factors remained incomplete,” the poor showing for that year was owed to the difficulty which the Soviet workers and engineers faced in operating their brand-new factory, equipped with state-of-the art Western machine-tools. “Familiarization with the technology has not only not concluded, but barely begun,” stated the director’s annual report. The low skill level among workers was particularly vexing to management, since incorrect operation was a menace to machinery. Surveying the composition of the workforce, the report concluded with these “distressing results:” 54% of workers hired at the factory were peasants; 63% were younger than 25; labor turnover for the entire year was 133%. This meant that in order to arrive at a workforce of 22,475 by the end of 1932, factory management had had to hire close to 30,000 people. The reasons why workers bolted on a mass scale, however, lay not in the drudgery of the assembly shop. Rather, dismal living conditions at the factory, where housing and even food supply was insufficient, was a major reason for the instability. Labor turnover varied markedly among the skills ranks: almost half of

the unskilled workers who arrived at the factory left within the year, while only one out of twenty highly skilled workers quit.⁶³

The problems continued into 1933. Four out of five Gaz workers in December of 1933 were younger than 30 years old. More than half had a peasant background, and almost one in five was illiterate or possessed only rudimentary reading skills.⁶⁴ The typical worker at Gaz, as in other Soviet factories in the machine tool and metalworking industries, was a young man in his early twenties who had just recently left the village where his family had lived in for generations. He had no skills or education to speak of. He was joined by a large number of young women (roughly one third of Gaz workers were women throughout the 1930s) of similar background.

This predominant characteristic – young, unskilled, and from peasant families – distinguished the work force at Gaz from that in industry branches and factories that had existed before the First Plan. In the older industries, workers experienced the decline in living standards and the erosion of labor autonomy during the First Plan as a catastrophic disruption of their working class traditions. The workers of the textile industry, for example, organized a number of strikes in 1932 that caused considerable exasperation among the highest echelons of the Communist Party.⁶⁵ The work force at Gaz, however, was entirely different in composition and outlook. No working class culture had existed where there was no

⁶³ "Survey on production at Gaz in 1932," TsANO, f. 2435, o.2, d.6.

⁶⁴ Gaz labor force census, TsANO, f. 2435, o.2, d. 26, ll. 26-27.

⁶⁵ Jeffrey J. Rossman, *Worker Resistance under Stalin : Class and Revolution on the Shop Floor*, Russian Research Center Studies (Cambridge, Mass.: Harvard University Press, 2005).

factory. The young peasant-workers flooding into the Gaz shops in 1932 had no working class tradition to defend. More often than not violently uprooted by the dislocations of agricultural collectivization, many of them led peripatetic existences, drifting back and forth between the countryside and the shop floor, often abandoning one factory position for another in the hope of better conditions. The fundamental problem facing Soviet managers of labor in the 1930s was the mobilization of this unskilled work force.

Table 3.4 - Gaz production figures, 1932-1938. Sources: TsANO, f. 2435: o.1, d.171, ll.3-7; o.2, dd. 6/8.

| | Output of vehicles | Number of employees (average figures) | Labor Productivity (vehicles/employees) | Unit production cost of one Gaz-AA, in rubles |
|-------------|--------------------|---------------------------------------|---|---|
| 1932 | 7559 | 22475 | .33 | 9714 |
| 1933 | 26661 | 26695 | .99 | 4926 |
| 1934 | 49300 | 29936 | 1.65 | 3935 |
| 1935 | 63642 | 30239 | 2.10 | 3536 |
| 1936 | 86267 | 40365 | 2.14 | 3894 |
| 1937 | 135718 | 46312 | 2.93 | 3928 |
| 1938 | 145601** | 48138* | 3.02 | 3907* |

* First quarter

** Only AA and M-1; TsANO, f. 2435, o.1, d.169.

The declared goal, repeated like a mantra in the quarterly and annual reports, was twofold: to raise labor productivity, and to lower production costs. These goals were obviously interrelated: higher labor productivity would tend to lower unit costs. In turn, however, lower unit costs did not solely stem from higher labor productivity, but depended on a whole host of factors, such as cost of raw

materials, supplies, and the depreciation of machinery and fixed capital. But with supply costs largely out of their control, and the decision for renewal of capital stock arrogated by the higher echelons of the Commissariat for Heavy Industry, D'iakonov's management at Gaz (as elsewhere in Soviet industry) focused on labor.

To counter turnover, raise the general skill-level among workers, and improve labor efficiency, management at Gaz followed three strategies. First, workers were encouraged to attend three-month technical training programs (so called "technical minimums") at factory schools. This education measure affected roughly one-third of the workforce during the Second Five-Year Plan. In 1935, for example, 10,500 Gaz workers absolved the technical minimum, out of a workforce of 30,000.⁶⁶ Second, Gaz gradually adopted incentive payment (progressive piece-rates and bonuses for over-fulfilling work norms) in almost all factory departments – even in the assembly shops that did not easily lend themselves to these methods. Finally, Gaz, like every branch of Soviet industry, was swept up in the Stakhanovite movement.

Stakhanovism was born in the Donbass coal-mining industry with Aleksei Stakhanov's record shift. But Stakhanovism's most prominent emulator in the metalworking industries was a machinist at Gaz. On September 10, 1935, Aleksandr Busygin, a graduate of the technical minimum, turned out 966 crankshafts in a shift that, according to the "American" norm, should yield 675. By the end of 1935, 2,000 workers at Gaz had reportedly over-fulfilled their norms by more than 140%.⁶⁷

⁶⁶ Zvezdin and Kuprianova, eds., *Istoriia Industrializatsii Nizhegorodskogo-Gor'kovskogo Kraia (1926-1941)*, 325.

⁶⁷ Dobrokhoto, *Gor'kovskii Avtomobil'nyi*, 41.

On the one hand, Stakhanovism was a continuation of the populist strand of the Soviet rationalization movement. Stakhanovism pitted grass-roots worker initiative against technical experts and factory middle management. According to the party committee of the Gorky region, the successes of the Busyginites at Gaz “sharply disclosed the ills and shortcomings of the leadership apparatus of the factory management,” who failed to adjust work norms and supply schedules to the demands of the record-setters.⁶⁸ On the other hand, Stakhanovism was quickly co-opted by the party leadership, who after some hesitation used the movement to push through a comprehensive revision of industrial work norms across the entirety of Soviet industry.⁶⁹ The automobile industry was no exception. In February and March 1936, a branch conference of the auto-tractor industry convened Stakhanovites, factory management, *Gutap* leadership, and union and party members in Khar’kov, Ukraine to assess the impact of Stakhanovism on productivity.

The conference revealed that Stakhanovism caused considerable disruption in factories based on flow production. While officiously lauding the “significance of Stakhanovism” for the auto-tractor industry, the conference report noted that “the development of the Stakhanovite movement led to a great splintering of norms [...] As a consequence in the instrumental and repair shop of each factory there were more than fifty thousand norms.” The confusion surrounding the accurate norms led

⁶⁸ Zvezdin and Kuprianova, eds., *Istoriia Industrializatsii Nizhegorodskogo-Gor'kovskogo Kraia (1926-1941)*, 298.

⁶⁹ Lewis H. Siegelbaum, *Stakhanovism and the Politics of Productivity in the Ussr, 1935-1941*, Soviet and East European Studies (Cambridge: Cambridge University Press, 1988), 158-61.

to “frictions between workers and the norm-setting staff and the shop administrations, and led to superfluous revisions of norms and waste of work time.” True, the report submitted, “everywhere the army of Stakhanovites reache[d] new heights of socialist technique,” Nevertheless, one could not “ignore the fact that a significant number of workers did not fulfill the norms.” The main reasons lay in “the significant number of inner-factory defects” such as “the poor realization of organizational-technical measures [...], the low skill level of newly hired workers and the poor participation of the engineering and technical staff in helping the workers master the new norms.”⁷⁰ Regardless of the excitement surrounding Stakhanovism, the movement could do little to remedy the underlying structural problems limiting productivity growth: supply bottlenecks that inhibited effective co-ordination, made a mockery of work schedules, and caused seize-ups throughout the entire production process. The output records achieved by Busygin and his followers could sharply raise productivity at certain points, but they could not evade the problems of bottlenecks, sometimes even exacerbating them.

Machinery, the conference recognized, stood idle for reasons outside of the control of the workers operating them, such as “missing materials and parts at the workplace, interruptions in feeding the instruments, and power-outs.” Gaz was singled out as a negative example in the *Gutap* system. The situation at Gaz was so bad in the summer of 1936 that the motor assembly line stood still for entire shifts. On thirteen days in June 1936, the main assembly line at Gaz was idle for an average

⁷⁰ RGAE, f. 7622, o.1, d.58, ll. 1-63. Report on the *Gutap* branch conference in Kharkov, Feb/March 1936.

of almost one and three quarters of an hour in a workday of two seven-hour shifts (Table 3.5).

Table 3.5 – Assembly line downtimes at Gaz, June 1936. Hours/day. Source: RGAE, f. 7622, o.1, d.58, ll. 18/19. Numbers in the first line indicate days of the month.

| June... | 1 | 2 | 3 | 4 | 5 | 7 | 8 | 9 | 10 | 11 | 13 | avg |
|------------------|-----|-----|-----|------|------|------|-----|------|------|------|------|------|
| Main ass'y line | 1.6 | 7.6 | 1.6 | 2.6 | 0.25 | 1.75 | 1.4 | 2.85 | 0.5 | 1.75 | .5 | 1.72 |
| Body ass'y line | 4.1 | 3.4 | 4.1 | 2.85 | 3.4 | 4.35 | 5.2 | 3.75 | 5.35 | 4.15 | 6.25 | 4.26 |
| Motor ass'y line | 7.0 | 3.5 | 3.9 | 5.3 | 5.7 | 7.5 | 6.8 | 7.1 | 5.6 | 5.9 | 5.8 | 5.83 |

In the wake of the Khar'kov conference, more than 32,000 production norms at Gaz were revised upwards over the course of several months. As a result, norms were increased by an average of 28.7%. Piece-rate systems and other “stimulating” wage-systems, which had dominated close to 60% of operations at Gaz in early 1936, were introduced more broadly after the conference, which decided that they should eventually cover 90% of workers.⁷¹

The conference concluded that the responsibility for the problems in *Gutap's* factories lay with the engineering-technical staff and the factory administration. It was their task to help Stakhanovism penetrate the production sites even more pervasively. What the report did not spell out was that the injunction to abet record-chasing in the production process confronted factory management with a “cruel

⁷¹ RGAE, f. 7622, o.1, d.58, ll.33-37.

dilemma:"⁷² either support Stakhanovism and accept the attendant disruption of production flow, or discourage Stakhnovism and antagonize party activists and the leadership in the higher rungs of administration.

It was a dilemma D'iakonov could not solve. Ongoing difficulties made his position at the helm of Gaz ever more precarious. For three days at the end of March 1937, Gaz party activists convened with middle management, shop superintendents, foremen, and Stakhanovites to air grievances and lay blame. The minutes of the conference provide a jarring insight into the production realities at Gaz in the last year of the Second Plan.⁷³ The proud Soviet River Rouge operated on a basis far removed from the ideas of Fordist flow production. "In our auto factory technological thought operates poorly," complained Gaz's chief mechanic. "Many decisions are made on the go, unplanned and without sufficient preparation, causing very many blunders and errors and crippling rationalization." Engineer Belogub was responsible for intra-factory transport, one of the key component of flow production. Belogub complained that the conveyor connecting the foundry with the mechanical shop had to be re-built after the expansion of the foundry, because the planners had not considered the problem. "In January 1936," Belogub continued, "we planned the so-called Busygin conveyor. But the conveyor is idle until this day." What was worse, Belogub reported that there were auxiliary shops on the factory premises where the level of mechanization was so low that they practically worked with "handicraft methods."

⁷² Siegelbaum, *Stakhanovism and the Politics of Productivity in the Ussr, 1935-1941*, 86.

⁷³ The following quotes are from RGAE, f. 7622, o.1, d.97, ll.2-14.

Particularly damning were the reports from the vaunted assembly lines. The foreman on the main conveyor complained about “the poor work of the supply shops, which send unsuitable and defective parts to the assembly line.” As a consequence, entirely defeating the purpose of flow production, “a whole range of parts in the already assembled cars [had] to be exchanged.” In March alone, of 1300 finished cars in inventory, roughly one third had to have their motors replaced after final assembly, “very negatively” affecting quality. The factory leadership, charged the foreman, “sits out these deficiencies, and nobody presently cares about the daily struggle to fulfill the schedule.”

The superintendent of the all-important Ford-AA assembly shop, Pirogov, concurred. “Only some 10 to 15 parts” were defective, but this systematically so. Of course, this was “entirely sufficient to upset work at the assembly line. Hence: many stoppages and high labor turnover.” Since work on the line was subject to collective piece-rates, downtimes significantly lowered wages. Pirogov reported that during the month of February unskilled and semi-skilled workers “earned 120-130 rubles” – this compared to an average wage of close to 300 rubles. As a consequence, workers could not be persuaded to stay on the line. “Discharge applications began to arrive in bundles.” Pirogov concluded: “On the assembly line there is little culture. People come and go. The dirt prevents us from putting out a quality car.”

Aleshin, a Stakhanovite from the assembly line of the Molotov-1, vented that “a year already they are assembling the M-1, and still they haven’t learnt how to work properly: they torment us with downtimes. In three months the conveyor has

stood idle for 375 hours. The workers work piece-rates, they earn little, and run. The workshop supplies useless parts. On the conveyor they have to saw them off.”

In the conference minutes, D’iakonov came across as a negligent and feeble director. The party activists blamed D’iakonov, his technical staff, and the shop superintendents for carelessness, disinterest, and lack of leadership initiative. But in reality, D’iakonov and his staff possessed neither the necessary authority among the workers nor the power to influence crucial supply and scheduling decisions. Lack of coordination and technical inefficiency was systemic, not owed to personal or political shortcomings. In this respect, Gaz remained representative of the structural difficulties of Soviet industry in the 1930s. These difficulties militated against the logic of flow production and made the heady celebrations of Fordism of only ten years earlier largely academic.

Without comment, D’iakonov passed the report of the March 1937 conference to his boss Dybets in Moscow. Dybets left marginalia in red pencil – heavy underlining, exclamation marks – on every page of the report. While it is unlikely that Dybets was surprised by the findings of the conference, it is safe to assume they caused him considerable alarm. The conference took place only two weeks after Sergo Ordzhonikidze, Dybets’s political sponsor, committed suicide – an event that adumbrated the perilous political atmosphere of the Great Terror. Dybets was arrested in October 1937. On November 26, the Russian-American former Wobbly, who as head of *Vesenkha*’s standing commission in Detroit had personally supervised the transfer of Ford automotive and production technology to central Russia, was executed. Sergei D’iakonov outlasted his boss by several months. But on

April 22, 1938, D'iakonov, his 1934 Lenin award "for the organization and mastery of assembly line mass production" notwithstanding, was fired as Gaz director. He was arrested in July, and executed on September 7.⁷⁴

Arrests and executions of factory management, of course, did not solve the underlying systemic problems of automobile production at the Soviet River Rouge. In 1938, Gaz, for the first time since 1933, did not meet the plan. Gaz's new director Ivan Loskutov delivered a voluminous and frank explanation for this failure to the newly re-structured Head Administration of Auto-Tractor Industries. Loskutov noted "the sharp disproportion in productivity between the supply and manufacturing shops." In all of 1938, Loskutov elaborated, the main assembly line lay idle for 16,46% of the time, or a daily average of two hours and twenty minutes, mostly "for lack of metal and supply parts." Loskutov got to the heart of the matter: "Since the fundamental character of the factory is flow-mass production, stoppages in the main operations stall the work of all flow lines. The uneven supply of metal and parts" coming from the supply shops "caused the interruptions in the assembly shops." Labor turnover hardly improved. Gaz lost 17,581 workers in 1938 while hiring 20,247. Loskutov noted that it took a newly hired worker roughly two months to get within 80% of the work norms, and that that necessarily slowed down everyone else on the production lines.⁷⁵

Equally worrying was the fact that, for all its vaunted flow production principles, Gaz continued to rely on an army of auxiliary workers who carried parts

⁷⁴ Zvezdin and Kuprianova, eds., *Istoriia Industrializatsii Nizhegorodskogo-Gor'kovskogo Kraia (1926-1941)*, 546. TsANO, f. 2435, o.1, d. 171. Arrests and executions: "Zhertvy politicheskogo terrora SSSR," <http://lists.memo.ru/index2.htm>

⁷⁵ Report on Gaz 1938, TsANO, f. 2435, o.1, d. 169.

and supplies from shop to shop. Loskutov noted that “storage spaces, as usual, remain strewn about the factory compounds, loading and unloading works are not mechanized.” In consequence, the number of workers in auxiliary crews (loaders, carriers, and so on) rose from 18,431 to 20,878 over the course of 1938 – a staggering 40% of the overall labor force. “The increase in the number of auxiliary workers, the large amount of defective output, downtimes, labor turnover, poor labor discipline, the slow implementation of measures to liquidate the remains of wrecking” – this list of shortcomings hampered any attempt to increase productivity and meet the plan.⁷⁶

Undeterred by the recalcitrant operational problems at Gaz, the new administration of the Soviet auto and tractor industry embarked on a new plan of expansion. In March of 1939, the 18th Party Congress officially adopted the Third Five Year Plan, notionally encompassing the years from 1938 to 1942. In doing so, the Congress reiterated the goal to “catch up and overtake” the most advanced capitalist countries. In the parlance of 1939, the Third Plan would complete “socialist construction” and bridge the way for the introduction Communism. In distinction to the Second Plan, which had emphasized operations, the Third Plan again projected huge programs to expand the Soviet industrial base. The auto industry was no exception. Just as River Rouge was the central node in a large network of Ford assembly plants spanning the American landmass, Gaz was now to figure as the supplier for knocked-down AA’s to be assembled on location in the Caucasus, Central Asia, and Siberia. According to the scheme, Gaz was to deliver

⁷⁶ TsANO, f. 2435, o.1, d.169, l.105.

190,000 sets of parts yearly to future assembly shops in Rostov-na-Donu, Tbilisi, Ufa, Omsk, Irkutsk, and Tashkent. Sovnarkom allotted one billion rubles (roughly 2% of the 1939 budget) to the scheme, confirming a completion schedule that coincided with the end of the Third Plan in December 1942.⁷⁷ By late 1940, Gosplan put the factual capacity of Gaz at 180,000 vehicles. The Omsk assembly branch was under construction, and Rostov had begun operations. Tashkent and Irkutsk were still in the planning phase.⁷⁸

The German attack on the Soviet Union in June 1941 made these plans obsolete. For several weeks, Soviet industry was in disarray; the automobile branch was intermittently cut off from all-important resources such as steel. But as the German advance forced the Soviets to relocate entire production facilities to the east, Gaz, which lay safely beyond the reach of the front, returned to the attention of production planners. In consequence, the city of Gorky benefited from the preferential supply of resources and raw materials. Over the course of the war, the half-dozen large factories of Gorky contributed substantial amounts to overall Soviet arms production: 37% of tanks and armored vehicles, 24% of guns and artillery, and 16% of shells came from the city on the confluence of Oka and Volga.⁷⁹

At Gaz, war production triggered a surprising comeback of Fordism. Faced with the peculiar conditions of war production, a severe shortage of skilled labor and clear preference of quantity over quality, the Gaz engineers returned to mechanized flow. As men left for the front, women in increasing numbers took their

⁷⁷ TsANO, f. 2435, o.1, d. 180, ll.1-8a.

⁷⁸ A. V. Mitrofanova, ed., *Industrializatsiia Sssr: 1938-1941. Dokumenty I Materialy* (Moscow: Nauka, 1973), 68.

⁷⁹ GOPANO, f. 3, o.1, d.5316, ll. 23-24.

places on the Gaz shop floor; already by the end of 1941, the fraction of women in the overall workforce was projected to increase to almost two thirds (64.3%).⁸⁰ The women moving into the factory were unskilled and had little production experience. The renewed emphasis on assembly lines made it possible “to achieve full efficiency from newly received workers within two weeks after they begin work at the factory.”⁸¹

In June 1943, a German air attack (the last one to push this far east of the front) targeted the industrial plants at Gor’kii and bombed Gaz for three consecutive days. 5900 units of machinery and almost 10 kilometers of conveyors were smashed; the main assembly shop lay in rubble. The engineers at Gaz used the opportunity handed to them by the Luftwaffe to rebuild, expand, and systematically refashion the factory along flow production principles. When reconstruction was completed in November 1943, the main assembly shop was considerably larger. By putting the previously independent foundry, forge, press and body shops under the same roof with the main conveyor, the engineers hoped to get rid of the endemic mis-coordination that had plagued Gaz. The new product was the Su-76, a light tank. Production lasted from late 1943 to March 1945, during which time Gaz turned out between 320 and 460 tanks every month. “Gaz was able to transfer the most advanced methods of automobile manufacture to war production, organizing the overwhelmingly greater part of it along the method of continuous flow.” The factory

⁸⁰ TsANO, f. 2435, o.1, d. 177, l. 38.

⁸¹ “Organizatsiia potochnogo proizvodstva na GAZ imena Molotova v dni velikoi otechestvennoi voyny,” [The organization of flow production at Gaz during WWII] TsANO, f. 2435, o.1, d. 178, l. 149.

“was the first one in the USSR to organize mass assembly of tanks through continuous flow,” Gaz management claimed in 1945.⁸²

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In 1927, the Soviet Union possessed no indigenous automobile industry; a decade later, it had established a complex system of plants for car and truck production. At the center of this system was Gaz, the “auto giant” that owed its existence to the technical assistance agreement between Ford Motor Company and the Supreme Economic Council of May 1929. On the basis of this agreement, Soviet engineers copied the entirety of Ford’s production processes on location at River Rouge and recreated them in central Russia. Construction and operation of the Soviet River Rouge, however, was riddled with problems. As production realities at Gaz made clear, two major factors created problems for Fordism under Soviet conditions. One was the continuing difficulty of the Soviet command economy to allocate resources. Laments of Gaz management and technical staff about tardy, incomplete, or defective deliveries of steel, machine-tools, and raw materials dominated the accounting and plan fulfillment reports of the 1930s like a *cantus firmus*.

The second problem was less obvious and more difficult for management to articulate, because that would have amounted to questioning the tenets of Soviet labor policies in the 1930s. These policies were geared towards worker

⁸² TsANO, f. 2435, o.1, d. 178, l. 112.

performance, not technological efficiency. Stakhanovism and progressive piece-rates encouraged un-coordinated performance records, but did little to assuage the fundamental problem of production coordination in a giant factory built on flow principles. It was no surprise that Busygin, Gaz's poster-boy Stakhanovite, achieved his crankshaft record in the supply shop and not on the assembly line. The emphasis on worker performance left engineers and management on the defensive. In the 1920s the most radical Soviet rationalizers claimed that Taylorism, with its obsession over individual performance, was superseded by Fordism, with its emphasis on mechanization and flow. The 1930s, then, saw an ironic turn of events. At Gaz during the Second Plan, Taylorism trumped Fordism, defeating the purpose of the vast technological transfer from Detroit during the First Plan.

And yet, efforts to increase efficiency in the 1930s were not entirely in vain. Despite supply bottlenecks, incongruous labor policies, and the self-lacerating removal of technical personnel during the purges, Gaz did increase output and even (by some measures) labor productivity. In 1937, Gaz produced over 135,000 vehicles, or on average three cars per worker employed. That was below Ford Motor Company's post-Depression average of 8.7 cars per worker (in 1933), but a big improvement over the .33 cars/worker Gaz put out in 1932.

World War II re-instated the prerogative of management and technical staff to implement productivity-raising measures at Gaz. The return to flow production also marked the resurgence of the technical-modernist discourse of the engineers. One Gaz engineer described the tank assembly shop of 1943 in these terms:

Every mechanical shop is divided into sections on the basis of the part it produces [...] Every section puts out its finished part, which goes to the main assembly line. Each section, in turn, consists of individual assembly lines, laid out on the basis of processing parts and the sequence of assembly; it is where the individual parts flow, where they are processed, and whence they move to the main conveyor [...] The assembly lines are laid out according to the sequence of processing parts [...] The entire design of the assembly lines, the shop, and the building is based on the principle of the shortest passage of parts and optimal conditions of transportation. Hence, all assembly lines transverse the building from the south, feeding the assembled parts to the north, where the factory's main conveyor is located.⁸³

Similarly, Giovanni Agnelli, Fiat's chief executive, described flow production at the brandnew Mirafiori in a mixture of engineering jargon and organizational dream:

Organic sequence of production phases on a single floor; organization of the factory into sectors devoted to the production of individual groups and completed parts; lateral positioning of the production sectors next to the assembly lines according to the sequence of parts into assembly; positioning of the production lines in every sector according to the sequence of parts in sector production; systematic positioning of every element of production in a line of machine tools, corresponding to the sequence that occurs in executing the individual phases of production; result of the rational layout: elimination of material transports in the course of production.⁸⁴

Agnelli, of course, could have been talking about the layout that Gaz's chief engineers brought from Detroit, made the basis of factory construction, and

⁸³ TsANO, f. 2435, o.1, d.178, l.92.

⁸⁴ Quoted in Bigazzi, *La Grande Fabbrica. Organizzazione Industriale E Modello Americano Alla Fiat Dal Lingotto a Mirafiori*, 74.

rediscovered under the conditions of war. And in a sense, Agnelli was talking about Gaz. Based on the operation of Ford's River Rouge, flow principles had become the universal grammar of mass production in the 1930s.

Printed and Secondary Sources

- Austin, Richard Cartwright. *Building Utopia : Erecting Russia's First Modern City, 1930*. Kent Ohio: Kent State University Press, 2004.
- Bigazzi, Duccio. *La Grande Fabbrica. Organizzazione Industriale E Modello Americano Alla Fiat Dal Lingotto a Mirafiori*. Milano: Feltrinelli, 2000.
- Dobrokhoto, V.Ia. *Gor'kovskii Avtomobil'nyi*. Moscow: Mysl', 1981.
- Dohan, Michael R. "The Economic Origins of Soviet Autarky 1927/28-1934." *Slavic Review* 35, no. 4 (1976): 603-35.
- Khromov, S. S., ed. *Industrializatsiia Sovetskogo Soiuz. Novye Dokumenty, Novye Fakty, Novye Podkhody*. 2 vols. Vol. 2. Moscow: RAN, 1999.
- Mitrofanova, A. V., ed. *Industrializatsiia Sssr: 1938-1941. Dokumenty I Materialy*. Moscow: Nauka, 1973.
- Nove, Alec. *An Economic History of the Ussr, 1917-1991*. 3rd ed. London ; New York, N.Y.: Penguin Books, 1992.
- Osinskii, Nikolai. *Avtomobilizatsiia Sssr. Stat'i, Ocherki, Rechi*. Moscow: Gosizdat, 1930.
- Rossmann, Jeffrey J. *Worker Resistance under Stalin : Class and Revolution on the Shop Floor*, Russian Research Center Studies. Cambridge, Mass.: Harvard University Press, 2005.
- Schultz, Kurt S. "Building the 'Soviet Detroit': The Construction of the Nizhny Novgorod Automobile Factory, 1927-1932." *Slavic Review* 49, no. 2 (1990): 200-12.
- Shearer, David R. *Industry, State, and Society in Stalin's Russia, 1926-1934*. Ithaca, N.Y.: Cornell University Press, 1996.
- Shpotov, Boris. "Businessmen and Bureaucrats: The American Technical Assistance in Building the Nizhny Novgorod Automobile Factory." In *Ekonomicheskaiia Istoriiia, Ezhegodnik*. Moscow: ROSSPEN, 2003.
- . "Ford in Russia, from 1909 to World War II." In *Ford. The European History 1903-2003*, edited by Hubert Bonin, Yannick Lung and Steven Tolliday, 505-30. Paris: PLAGUE, 2003.
- Siegelbaum, Lewis H. *Cars for Comrades : The Life of the Soviet Automobile*. Ithaca: Cornell University Press, 2008.
- . *Stakhanovism and the Politics of Productivity in the Ussr, 1935-1941*, Soviet and East European Studies. Cambridge: Cambridge University Press, 1988.
- Sorensen, Charles E. *My Forty Years with Ford*. New York: Collier, 1962.

- Stalin, Joseph, L. M. Kaganovich, and R. W. Davies. *The Stalin-Kaganovich Correspondence, 1931-36*, Annals of Communism. New Haven: Yale University Press, 2003.
- Zvezdin, Z.K., and N.I. Kuprianova, eds. *Istoriia Industrializatsii Nizhegorodskogo-Gor'kovskogo Kraia (1926-1941)*. Gorky: Volgo-Viatskoe Knizhnoe Izdatel'stvo, 1968.