

# Before Stalinism: the Defense Industry of Soviet Russia in the 1920s

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## **Abstract**

Competition and profit-seeking were never strong features of the Russian defense industry before the Revolution. World War I and the Russian Civil War profoundly influenced interwar perspectives on the Soviet defense industry and accentuated this characteristic in the process. The defense industry failed to adapt to market conditions under the New Economic Policy: it produced at a loss, depended heavily on budgetary subsidies, and still failed to meet the demands of the armed forces in virtually every field of armament. The blame, at first laid on those in charge of the defense industry, was directed more and more specifically against its “bourgeois” specialists. In the process the Red Army staff became enthusiastic advocates of forced industrialization under a command system through which they hoped to gain direct influence over defense industry personnel and allocations.

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# Before Stalinism: the Defense Industry of Soviet Russia in the 1920s

Abram Bergson and his colleagues put much effort into estimating the size of the Soviet defense sector. Bergson himself dealt with defense on the basis of officially published budgetary allocations and also by drawing on the research of Oleg Hoeffding, Norman Kaplan, Richard Moorsteen, Nancy Nimitz, Raymond Powell, and others on military prices and procurements.<sup>1</sup> Moorsteen and Powell went on to build the defense industry into their annual series for Soviet GNP by sector of origin from 1928 to 1962.<sup>2</sup> Their pioneering estimate probably overstated Soviet defense production at the start of Stalin's industrialization drive, and so understated its subsequent growth, but otherwise it stood the test of time.<sup>3</sup>

One of the chief obstacles to real research was Soviet secrecy. The Soviet literature on the economics of defense was aimed not at scholarship but at making ordinary Soviet citizens feel secure and making an impression on potential adversaries. Beyond occasional tantalising glimpses such as that afforded by the Soviet 1941 economic plan found after the war in German archives Western scholars had little data on which to base objective study.

Bergson's own best efforts could not overcome the veil of official secrecy. Despite his intense interest in Soviet working arrangements, the index of his treatise on the Soviet economic system contains not one reference to "defense" or "military"; in the text he deals with defense outlays only as a limit on the availability of resources for other uses.<sup>4</sup> But this should not be understood as a lack of interest in the subject. Rather, Bergson's generation lacked the opportunity to engage in more than intelligent guesswork. Moreover, their evidence base was especially fragile for the early period, as the example of Moorsteen and Powell suggests.

With the fall of communism the curtain of secrecy around the defense sector has become easier to penetrate, and work has begun to appear in Russia and the west that is based on new sources and new approaches.<sup>5</sup> Russian scholarly and archival

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<sup>1</sup> Bergson (1961), 362-77 (appendix E, "Real' Defense Outlays").

<sup>2</sup> Moorsteen and Powell (1966), 628-37.

<sup>3</sup> Davies and Harrison (1997), 374.

<sup>4</sup> Bergson (1964), 308-13

<sup>5</sup> Barber and Harrison (2000); Bystrova (2000); Davies (1993); Davies and Harrison (1997); Gregory (2003); Harrison (1996); Harrison (2003); Samuelson (2000); Simonov (1996).

institutions are engaged in preparing a multi-volume documentary publication on the defense industry, which will open up new research opportunities.<sup>6</sup> This paper uses the Soviet state and party archives to discuss the development of the defense industry in the 1920s and its role in preparing the ground for the “Great Breakthrough” of 1929. Subsequent studies will deal with the defense sector in the 1930s and later.

In this paper I will touch only on a few issues. First I consider the influence of historical continuity on Soviet military doctrine and military-industrial production. Specifically, what were the legacies of Tsarism, the events of World War I, the establishment of the Bolshevik dictatorship, and the Civil War that led to Soviet Russia’s isolation in the international arena? Second, how did the defense industry adapt to market conditions under the New Economic Policy (NEP), and how did plan and market interact? This question has obvious importance for Russia today as it devises a military-industrial policy based on market relations between government, state-owned enterprises, and the private sector. Third, what was the real state of the Soviet defense industry and its management on the eve of Stalin’s emergence as dictator, and how did political and military leaders see its future at the time?

Finally, to what extent did the immediate requirements of defense industry contribute to the “Great Breakthrough” that ended NEP and established the Stalinist command system? Most western textbook accounts describe the economic context of this transition in purely civilian terms: the demands of capital construction, the grain crisis, and so on. Military-economic developments, when mentioned, are represented in terms of future needs, not present interests.<sup>7</sup> In fact, the interests of defense industry in the 1920s were a powerful influence that should not be ignored.

## **1. The Legacy of Tsarism and War**

Before 1914 Russia lagged behind the advanced countries in the production of modern weapons. This weakness became clear immediately after the outbreak of World War I in clashes with the better equipped armed forces of Imperial Germany. Allied deliveries compensated for these deficiencies only in part. Consequently the government had to resort to extraordinary mobilization measures in order to modernize and increase production of weapons and munitions. One reaction to wartime difficulties, which soon became a tradition, was the establishment of extraordinary agencies such as the Special Assembly for Defense of the State. The

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<sup>6</sup> *Istoriia OPK* (2003 continuing). Two volumes have appeared so far and cover the first quarter of the twentieth century, effectively the pre-history of the Soviet defense industry: vol. 1, *Voennaia promyshlennost' Rossii v nachale XX v. (1901-1918 gg.)*, and vol. 2, *Sovetskoe voenno-promyshlennoe proizvodstvo (1918-1926 gg.)*. These first two volumes provide the evidence base of the present paper.

war demanded a degree of economic mobilization that was more intense in Russia than elsewhere, and it stimulated progress in aviation, tanks, vehicles, submarines, chemical weapons, and telecommunications. The new documents show considerable progress but with much delay and in quantities far less than needed.

Documents from the Soviet period shows that study of the experiences of World War I was important in forming the Soviet leadership's thinking on military-industrial policy. A characteristic feature of defense industry in pre-revolutionary Russia was the high proportion of state owned enterprises, operating with backward technology and poor labor organization, that were engaged in supplying the armed service departments. Cash limits on spending and higher prices in the private sector hindered the government from switching orders to private and foreign establishments. In wartime sharp clashes developed between the state and the entrepreneurs and many private establishments working for defense underwent sequestration, opening the way for the subsequent Bolshevik nationalization of factories.

Taking power in 1917, the Bolsheviks counted on concluding a peace treaty with Germany and her allies at Brest. Gambling on a lessening of military tensions, they began to demobilise industry and to curtail military programmes. At this time some Bolsheviks debated whether war production was needed at all and, if so, whether for the world revolution or for national defense. However, the Civil War in Russia quickly led to War Communism on the territory controlled by the Bolsheviks. What War Communism meant is well known; in its extreme centralization and suppression of the market, and especially in the enterprises nationalized by the Bolsheviks, it is easy to see features of the Russian state-owned factories before 1917.

War communism created a vast number of extraordinary agencies and commissions dedicated to supplying the five-million strong Red Army. These agencies were subordinated to the Extraordinary Plenipotentiary of the Committee of Defense (CHUSO, Chusosnabarm), the antecedent of the State Defense Committee (GKO), which managed the Soviet defense effort during World War II. Military factories were subordinated in 1919 to the Council for Military Industry (SVP, Voenpromsovet) under CHUSO, and also to the Supreme Council for the National Economy (VSNKh), the ministry for nationalized industry. SVP itself became a special administration under the leadership of the Bolshevik P.A. Bogdanov, whose ideas created the basic concepts of the Soviet VPK.

War Communism bequeathed a lasting legacy to the defense industry. Some contemporary Russian authors fairly describe War Communism as an "economic

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<sup>7</sup> For an honorable exception see Carr and Davies (1969), 454-60.

plague” that released its “bacilli” into subsequent Soviet history.<sup>8</sup> In fact, the history of management of Soviet defense industry in the 1920s reveals strong elements of the influence of War Communism. The NEP reforms, with their denationalizations and establishment of more or less independent trusts operating on commercial accounting principles, had little effect on military factories. Most of them, 62 factories with 100 thousand employees, remained under the management of the chief administration of military industry (GUVP) under VSNKh). These factories became the nucleus of the Soviet defense industry complex. Only a few were handed over to the trusts.

Under War Communism, the Politburo was in charge of general economic and military strategy. It delegated decisions on the strength and structure of the armed forces, the future development of the defense industry, the scale of military equipment purchases, and the nomination of the chief military leaders to the Revolutionary Military Council (RVS, Revvoensovet). Practical questions of defense construction were directed to the Council of People’s Commissars (SNK, Sovnarkom), the defense ministry (NKVM, Narkomvoenmor), and the Red Army Staff. These were responsible for fixing requirements for particular types of armament; the Council for Labor and Defense (STO) operated under Sovnarkom as a specialist commission for practical issues concerning civilian and military production. Under STO Gosplan answered for current and perspective plans, including plans for armament. The actual production of weapons was concentrated under VSNKh which, through its Committee for Military Orders (KVZ VSNKh), allocated equipment orders to enterprises including those subordinated to GUVP.

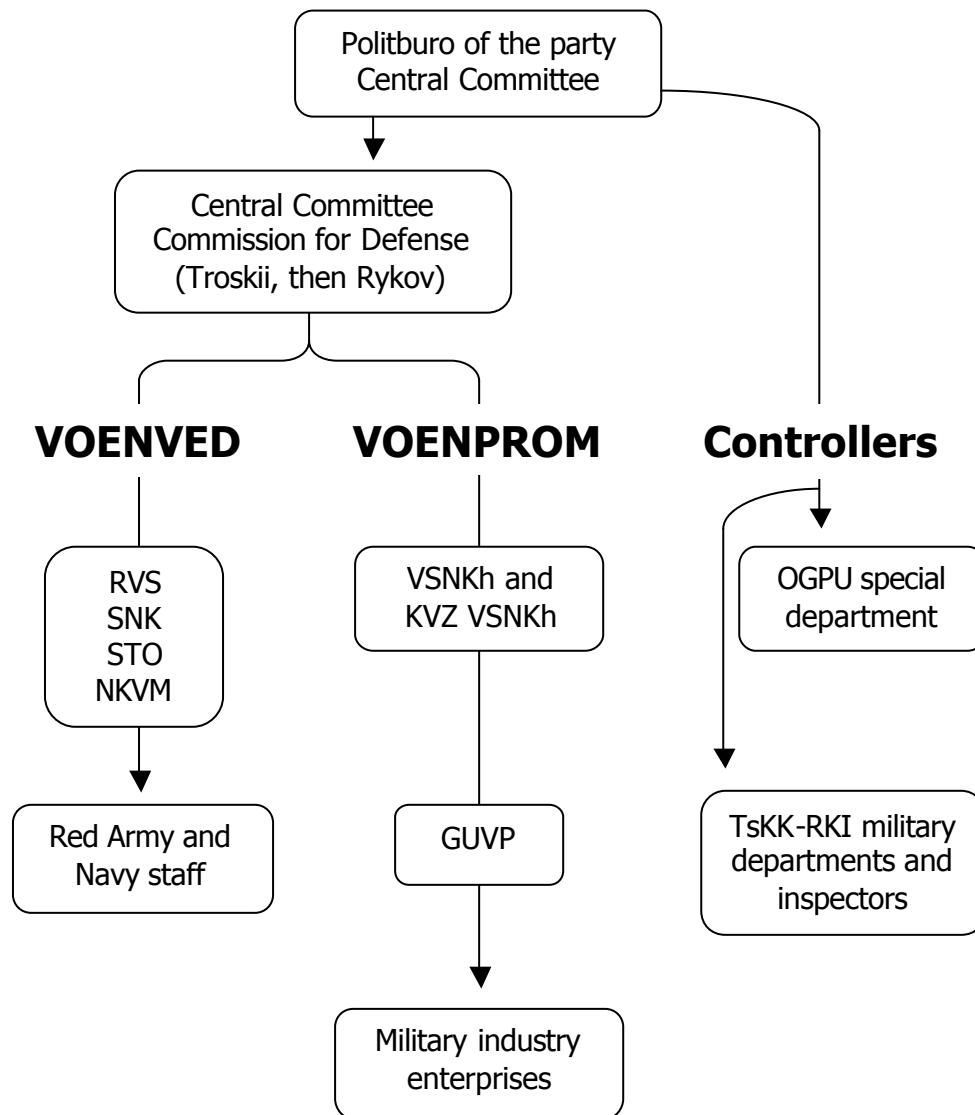
To simplify, the market for weapons consisted of two chief players representing the supply agent and the purchaser or principal. Acting as the supply agent, all enterprises associated with armament and provisioning of the army were subsumed under the concept of **Voenprom**, standing for military industry (*voennaia promyshlennost*). Acting as the purchaser or principal, the army and navy staffs that compiled the production programmes and plans were known collectively as **Voenved**, standing for the military department(s) (*voennoe vedomstvo*).<sup>9</sup> Figure 1 shows these two chief players in relation to the other bodies whose role is discussed in this paper.

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<sup>8</sup> Prisiazhnyi (1994).

<sup>9</sup> This corresponds with the distinction between the *supply departments* and (armed) *service departments* used, for example, by Hancock and Gowing (1949).

Figure 1. Voened and Voeprom

*Key:*

**Voened:** *voennoe vedomstvo*, the service departments purchasing military goods:

NKVM: People's Commissariat for Military and Naval Affairs (the defense ministry).

RVS: Revvoensovet, the Revolutionary Military Council.

SNK: Sovnarkom, the Council of People's Commissars (government ministers).

STO: Council for Labor and Defense.

**Voeprom:** *voennaia promyshlennost'*, the industrial departments supplying military goods:

GUVP: Chief Administration of Military Industry of VSNKh.

KVZ: Committee for Military Orders of VSNKh.

VSNKh: Supreme Council of National Economy (the ministry for state-owned industry).

**Controllers:**

OGPU: Unified Chief Political Administration (the government agency responsible for state security).

TsKK-RKI: the joint party Central Control Commission and state Workers' and Peasants' Inspection.

The conclusion of the Civil War allowed for demobilization and reductions in defense production and in military reforms. In June 1921 Revvoensovet announced a cutback of military equipment orders. Red Army demobilization began; its strength fell to 1.6 million at the end of 1921, then 800 thousand in 1922, and 610 thousand in 1923. In 1924 a special commission of Revvoensovet set about a military reform. Some scholars consider that this reform was based on the ideas of M.V. Frunze about a war of national defense; Frunze replaced L.D. Trotskii, who advocated the export of revolution, as defense minister in 1925.<sup>10</sup> More likely, the Soviet state simply could not afford a large regular army, let alone the production of armaments. In accordance with the reform, military service was reorganized on the lines of a territorial militia. The regular strength of the Red Army, limited to 562,000, was to serve as the basis for training reserves who would remain in civilian employment. The domestic production of armaments was to be based on this much smaller military force.

Military documents of the mid-1920s warn of pacifist and demobilizing sentiments within the country's leadership with which **Voened** had to contend. This was pacifism not as an ideology but as an expression of extreme exhaustion after seven catastrophic years of war. Hence many leaders were reluctant to engage with defense practicalities, despite their own rhetoric concerning the "looming imperialist war against the Soviet republic". The unpleasant issue of preparing for a possible attack associated with border tensions was replaced by an energetic struggle for peace and international recognition. After the Civil War Trotskii ceased to be involved in detailed military issues, being occupied with the power struggle. The central committee defense commission that he headed, the Trotskii commission, became inactive, and in 1924 Trotskii was replaced by A.I. Rykov so it became the Rykov commission. With such sweeping changes, practical concerns relating to the army and its supply were left to the military leaders. Their demands were pushed down the queue; at times they were brushed off like irritating flies.

The leaders of **Voенprom** continued to advocate the concentration of production. There were attempts to delegate this task to KVZ, the VSNKh committee for military equipment orders which allocated orders among the producers. GUVP chief Bogdanov wanted to assign this task to Gosplan or even establish a specialized interdepartmental agency under Sovnarkom or STO analogous to the old CHUSO. Most military leaders favored the idea of defense industry as an autarkic structure. Bogdanov based this on strategic and production considerations. Strategically, given its external isolation, the USSR would have to manufacture military supplies relying solely on domestic resources; it could not count on foreign assistance in the event of

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<sup>10</sup> Simonov (1996), 59.

war, unlike Tsarist Russia.<sup>11</sup> Amongst the military it was increasingly believed that the country ought to be able not only to develop and deploy new types of weapons but also match their cost and quality to the levels achieved by other states.

It was during the mid 1920s that the leaders of **Voenprom** worked out what would become the lasting features of the Soviet VPK: Armaments were classified into three groups of varying technological proximity to civilian industry. The first group, most remote from civilian production, would be allocated to specialized military factories: small arms and ammunition, gunpowder, explosives and poison gas, mortar shells and so on. The second group was closer to civilian industry; it comprised field and naval guns, shipbuilding, aviation, tanks, military optics, and radio communications. Here too it was considered desirable to close the production cycle as far as possible, so this group was also to be allocated to specialized military factories. The third group, comprising electrical equipment, transport and communications equipment, instruments, personal kit and ration stores, was closest to civilian products and could be allocated to civilian producers without detriment to defense interests.<sup>12</sup>

These ideas were subsequently developed into the concept of a peacetime division of production facilities into the military-industrial “cadre” factories or “numbered” factories, and the factories of the reserve.<sup>13</sup> The cadre factories would meet current equipment needs, engage in improvement and innovation, establish mass production, coordinate mobilization measures, and deploy them in the event of war. In peacetime the war production facilities of the reserve would be mothballed. The reserve factories would compile mobilization plans for wartime access to intermediate products and raw materials from domestic, not foreign sources.

World War I had shown that in a protracted war the foundation of defense was no longer the army but the sum of national resources. War required total mobilization, and this took time. Hence the decisive components of the national economy had to be developed beforehand, especially the branches supplying the defense industry such as steel and machinery; these would become the *vector of Stalinist industrialization*.

Mobilization plans were supposed to be based on the role of each enterprise in the wartime mobilization and division of labor, and to set out an order of transition to wartime work. Since military production is intensive in skill, the mobilization plan included a plan for advance training of civilian engineering and technological staff. The largescale enterprises were obliged to develop close links with research and establish design bureaux (KB), while research institutes (NII) were to develop

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<sup>11</sup> RGAE, *fond 2097, opis 1, delo 64*, folios 8-24 (hereafter 2097/1/64, 8-24).

<sup>12</sup> RGAE, 2097/1/64, 8-24.

<sup>13</sup> This corresponds with the Russian distinction between the *kadrovaia armia* (regular army) and the army of the reserve.



military technology. The “cadre” military factories were to be generously endowed with equipment for design and experimentation. Research institutes and design bureaux were to set up experimental production and establish direct links with **Voenprom** enterprises. Discipline, organization, and secrecy were fundamentals.

Meanwhile propaganda promoted the militarization of the civilian population. It claimed that the world bourgeoisie was planning to make war on the USSR. It sought to inspire popular trust in the Red Army and encouraged mass participation in a range of voluntary organizations to assist with both military and civil defense.

## 2. Defense Industry Versus the Market

At the beginning of NEP the Soviet economy was in the deepest crisis. A huge number of tasks were pressing, and as economic priorities were reordered military affairs did not rank high. NEP reintroduced market relations and economic incentives as a matter of practical necessity, in order to nurse an ailing economy back to health. Civilian economic recovery was rapid, though not problem-free; its features are well known, so I turn immediately to the situation of the defense industry.

The management reforms of 1921 to 1923 reorganized industry into incorporated trusts. In the state-owned sector, the largest and best supplied enterprises were subordinated directly to VSNKh. The rest were available for lease or franchise. The VSNKh enterprises were grouped and unified into trusts that operated on a commercial basis. Loss-making or unprofitable enterprises were liable to closure or mothballing. In 1922 to 1924 a financial reform improved the public finances. Monetary management severely cut back the budget deficit. As a result the ruble was strengthened and could be used again for financial accounting. Enterprises that had had come to a standstill, as in the case of the military factories, were assigned special budget credits and subsidies and were also allowed to fix premium (“recovery”) prices for finished output.

Table 1. The Russian State Budget of 1913 and the Soviet State Budgets of 1922/23 to 1926/27, at Comparable Prices

Million gold rubles	
1913	6 836
1922/23	1 463
1923/24	2 298
1924/25	2 956
1925/26	3 959
1926/27	5 155

The problem for defense industry was that, as table 1 shows, state budget revenues in the mid-1920s remained significantly below the 1913 level. In preparing

the financial reform the issue of how to protect defense outlays was considered more than once, but defense industry's credits and subsidies were curtailed along with civilian producers. From 1921 to 1926 defense outlays fell continuously and were reduced to 12.7 percent of budgetary outlays, well below the 1913 level.<sup>14</sup>

**Voenprom** was faced with the impossible task of supplying the Red Army under conditions of extreme fiscal austerity. In 1921 GUVP chief Bogdanov wrote to Lenin that the defense industry was on the brink of disaster. Reserves were exhausted. Some factories would require many years' convalescence. Workshops were cluttered with useless equipment. Repair facilities had disintegrated. Buildings were delapidated. Labor was badly organized; skills and discipline were low and absenteeism was prevalent. Few specialists were left. The quality of output had fallen. Liquidity and credit constraints had brought supplies and services to a standstill. It was stressed repeatedly that defense industry was not like other branches; the restoration of good order would take a long time.<sup>15</sup>

In short, **Voenprom** was being expected to raise efficiency and quality, cut costs, transfer to profit-and-loss accounting, and take on additional non-military orders up to one quarter of the volume of production, all in a period of financial austerity.<sup>16</sup>

Under NEP the military factories were financed partly by selling output at fixed prices and partly from advances, credits, and accounts with **Voened**. "Guide" prices for military goods were based on actual unit costs, but without disclosing cost estimates to the purchaser. In cases of extreme necessity, budget subsidies could be provided, and there was financial support for the "nursing" of enterprises. The central apparatus of **Voenprom** was maintained by the budget. Enterprises that worked only on military orders and experimental factories were fully financed from the budget. Budget allocations to other defense producers were substantially reduced. In factories where military orders accounted for three quarters of the value of finished output funding was cut by one half.

In practice, however, financial accounting between the principal, **Voened**, and the agent, **Voenprom**, did not operate. Military factories were continually under-financed and the financial support provided through advances was inadequate. Some products for military use such as motors, light bulbs, and radio equipment bypassed defense industry entirely.<sup>17</sup> The government lacked the means either to mothball enterprises or nurse them back to health, let alone to rebuild production facilities. Reporting on the fulfilment of the "nursing" programme for factories in 1923, GUVP

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<sup>14</sup> Ob'iasnitel'nye zapiski (1927); Kuznetsov (1927).

<sup>15</sup> APRF, 3/46/330, 7.

<sup>16</sup> RGAE, 2907/5/181, 12-13.

indicated that “at present they are unable to supply armaments to a single army on the western front in the event of war in consequence of their economic and financial weakness ... Stocks of military equipment are insignificant”.<sup>18</sup> During 1921 to 1923 defense industry underwent every possible kind of crises over fuels, materials, consumer goods, and finance.<sup>19</sup>

Unlike light-industry enterprises, which had recovered their prewar output by 1923, the recovery of heavy industry, and particularly of military producers, was more difficult. Their lack of liquidity made it hard for them to pay suppliers. **Voenprom** officials fought to protect centralized allocation of supplies to defense industry. The transfer of enterprises to corporate profit-and-loss accounting did not work well given that the defense industry was not operating in a competitive market, and GUVF turned repeatedly to the Politburo and Sovnarkom to amend the procedures for financing defense industry.<sup>20</sup> But there was little help there. Tasks were being set for defense industry as though it was like other branches while, as Bogdanov wrote, the state remained “deaf” to its needs; he emphasized that defense industry could not emerge from this crisis without help.<sup>21</sup>

The simultaneous curtailment of military equipment orders and supplies forced enterprises, where possible, to turn to producing civilian commodities while selling off remaining material stocks and even equipment to gain a minimum level of working capital. Substantial indebtedness developed across **Voenprom**. The wage bill alone absorbed 88 percent of available funds in place of the planned 33 percent. Despite this, wage arrears were large. Yet wage increases were an indispensable condition for “nursing” factories back to health, given the collapse of real wages in the preceding years. Military factories paid workers in rations and money surrogates. Unlike other branches defense industry could not pay in kind from its own products.

As a rule the authorities tried to link wage increases with productivity gains and rising piece-rate norms, and productivity and wages remained lower in defense industry than in other branches of industry. Increasing norms and wage arrears were the main source of growing worker discontent in the military factories.<sup>22</sup> On this knife-edge enterprises had to utilize every scrap of revenue for wage payments. Wage

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<sup>17</sup> RGAE, 7733/1/2205, 1-2.

<sup>18</sup> GARF, 5446/55/348, 31.

<sup>19</sup> RGAE, 2907/1/949.

<sup>20</sup> GARF, 5446/55/348, 33.

<sup>21</sup> APRF, 3/46/330, 7.

<sup>22</sup> The volumes published so far in the documentary series *Sovershenno sekretno* (2003 continuing) contain many reports of defense factory workers' discontent.

increases led in turn to rising unit costs of military products, the prices of which approximately doubled by comparison with the prewar level.<sup>23</sup>

**Voенprom** requested the government to set prices for military products on a non-commercial basis free of indirect taxes. They justified this by the wide range of products in military equipment orders and the complexity of calculation, and they also argued that the burden of indirect taxes would fall on defense industry.<sup>24</sup> Wishing to extend the NEP reforms the government was reluctant to agree. At the end of 1924 STO adopted a resolution on normalizing the pricing of military equipment on the same basis as for other industrial products, i.e. the unit cost plus duties, excises, and a 3 percent profit tax.<sup>25</sup> In January 1925 a new resolution on trusts was adopted that again deprived defense industry of a further range of concessions and favors. **Voенprom** repeatedly sought to have prices, financing, and the collection of duties and taxes on military production regularized, and where possible to have growing arrears excused or written off.<sup>26</sup>

The problems of defense industry continued into 1925/26. Output and employment continued to rise, but production fell short of the results that **Voенved** hoped for so that the plan fell increasingly into arrears. Productivity lagged and labor discipline deteriorated. “Firm” prices turned out to be below costs, and the financial loss of the defense industry ran to millions of rubles. In short, the “soft budget constraint” that would characterize state-owned industry more generally under the command system, along with the continual renegotiation of prices, taxes, and subsidies, was already clearly visible in Soviet defense industry under NEP.

The immediate causes of the shortfalls were said to be planning deficiencies, late delivery of supplies, and deficient technical documentation. But the fact is that the defense industry was not developing as the Soviet government wished. Moreover, it would now be required to move on from recovery to reconstruction. **Voенprom** was faced with substantial increases in production assignments that went together with funding for new projects.<sup>27</sup>

### 3. Defense Industry and Military Needs

The contraction of defense finance evoked protests from both **Voенved** and **Voенprom**. In mid-1923 deputy GUVP chairman I.I. Smirnov reported to F.E.

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<sup>23</sup> GARF, 374sch/28s/301, 95-98.

<sup>24</sup> GARF, 5446/5?/549, 3-9.

<sup>25</sup> GARF, 5446/5?/549, 69-69ob.

<sup>26</sup> GARF, 574/5/969, 2-3.

<sup>27</sup> RGASPI, 76/2/177, 55-64.

Dzerzhinskii in the latter's capacity as a member of the Trotskii commission that the Red Army had been cut to its minimum size. It was pointless to expect foreign assistance in the event of war. On the contrary, he wrote, if there was a workers' insurrection abroad the Soviet Union would be expected to supply weapons. The 62 factories at the disposal of **Voenprom** were clearly insufficient given Russia's poor industrial mobilization potential and lack of mobilization plans.<sup>28</sup> As for the nursing of military factories GUVP reported that 18 million rubles was not enough.<sup>29</sup>

Reviewing the defense cutbacks Gosplan claimed that if war broke out it would be possible to supply the army with rifles, but machine guns would be in short supply, and the supply of cartridges would be enough for no more than two or three months.<sup>30</sup> And from **Voened** the military inspector S.S. Kamenev, a former army commander, declared that he was against further cutbacks not because of issues like war and world revolution, but just to conserve the army, its regular personnel, and its specialists.<sup>31</sup>

**Voened** was among the first to compile current, long-term, and perspective plans for the Soviet economy. Revvoensovet first debated a five-year plan for military construction in May 1923. In terms of defense industry it set very modest objectives: to return the factories to their prewar level over five years. This would require 2,900 million rubles at current commodity prices over five years with continual year-on-year growth of investment. Beyond that, to raise the army just to the level of Russia's neighbours would take tens of billions of rubles. The first year's task was just to improve living conditions for service personnel, and raise pay and family support for the command staff. The second priority was to be aviation, although artillery was being supplied at only 60 percent of the required level and the cavalry at 75 percent. The plan would do nothing for the tank forces, and provide the navy only with money wages and salaries. Meanwhile defense industry could not be fully supplied from the weak domestic economy so some needs would have to be met from imports. Many products necessary for war production were virtually unobtainable including nickel, tin, zinc, aluminium, lead, nitrogen, saltpeter, arsenic, and bromine.<sup>32</sup>

Table 2 shows an estimate of the productive capacities of GUVP factories relative to requirements at the end of 1923. None were adequate; the situation was entirely unsatisfactory in relation to firearms, flares, and motors, and most threatening in

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<sup>28</sup> RGASPI, 76/2/17, 98-131. An investigation of mobilization plans in 17 of the largest factories in Russia reached uncomfortable conclusions about their true readiness: RGAE, 3429/10/144, 46-81.

<sup>29</sup> RGVA, 33987/2/212, 309.

<sup>30</sup> RGASPI, 325/1/524, 3-7.

<sup>31</sup> RGASPI, 325/1/524, 11-16.

<sup>32</sup> RGASPI, 76/2/17, 78-85.

relation to machine guns, rifles, cartridges, and motor vehicles. Just to undertake the first “nursing” measures it would be necessary to raise purchases abroad.<sup>33</sup> Instead, however, the government curtailed foreign currency allocations to **Voenprom** on the pretext of the improving international situation.<sup>34</sup>

Table 2. Productive Capacities of GUVP  
Factories Relative to Requirements, End-1923  
(percent)

Guns	65
Gun materiel	55
Aircraft	47
Firearms	} 27
Flares	
Motors	
Machine guns	16.5
Rifles	15
Cartridges	9.5
Motor vehicles	1.5

*Firearms.* Soviet conventional firearms lagged behind contemporary models. The condition of artillery was considered satisfactory in general, although weak in relation to materiel.<sup>35</sup> The Red Army chief of staff told defense minister Frunze that firearms did not match up to contemporary requirements for range and rate of fire; gun and firearm factories needed rapid modernization. There were deficiencies in automatic weapons and new models were needed.<sup>36</sup> A military inspector of the state inspection (TsKK-RKI) complained of the backwardness of artillery, its lack of motorized traction, and the need to build up a tractor industry.<sup>37</sup>

*Tanks.* World War I and the Civil War had demonstrated the growing significance of tanks. Revvoensovet compiled a plan for their deployment covering the period 1923 to 1928, based on foreign experience. According to the plan 63 million gold rubles would be required to produce 1,500 units of armored equipment. More modest plans were also compiled. But not one was carried out, since Soviet factories were completely unsuited. A Tankburo was established under GUVP, but its factories were occupied largely with repairing old captured vehicles.<sup>38</sup>

*Aircraft.* Reporting on the aircraft industry in 1925, Red Army air force chief P.I. Baranov gave the figures in table 3, which showed a sharp acceleration in the second

<sup>33</sup> RGVA, 4/1/42, 262-264.

<sup>34</sup> RGASPI, 17/3/431, 16-19.

<sup>35</sup> RGVA, 4/2/46, 2-11.

<sup>36</sup> RGVA, 33988/2/651, 13-16.

<sup>37</sup> RGVA, 4/1/145, 3-8.

<sup>38</sup> RGAE, 3429/10/113, 16-17.

half of 1924/25; output remained well below the level of 1916, however. The aircraft produced were obsolete and relied on imported parts. Baranov stressed the need to accelerate industrialization so as to develop aviation.<sup>39</sup>

Table 3. Russian and Soviet Output of Aircraft and Aeroengines, 1916 and 1921/22 to 1924/25

	Aircraft	Engines
1916	1,764	666
1921/22	43	8
1922/23	143	50
1923/24	173	70
1924/25: first half	79	48
1924/25: second half	348	228

According to the plans of Revvoensovet the country needed 2,500 aircraft.<sup>40</sup> Collegium member A.P. Rozengol'ts, a supporter of developing the air force, stressed the need to get a domestic aeroengine industry going by buying licenses, hiring German specialists, organizing a specialized corporate aviation trust with strengthened party leadership, and recruiting academics to give training in the technological disciplines. A three-year plan was necessary, he wrote, to develop the aviation industry and guarantee credits for it; the central media, *Pravda* and *Izvestiia*, should build up an "air campaign" in the press.<sup>41</sup> Gosplan supported this idea, and the state-owned *Aviatrest* was established under the VSNKh chief administration of the metallurgical industry (GUMP) at the beginning of 1925. Pro-aviation propaganda began to be voiced in the Soviet press.

In the 1920s revolutionary changes were at work in aviation. To support the breakthrough in this field it was envisaged to build a new largescale aeroengine factory in Moscow jointly with the German firm Junkers, and to rebuild ten older and smaller factories, with a modernized domestic aviation industry as the goal. It was in the Politburo that relations with Junkers were most actively debated. Junkers was pioneering the standardized production of all-metal aircraft. The Soviet aircraft industry, however, was little suited to such requirements.

The cost of reconstruction in the numbered aircraft factories were put at 1,219 thousand gold rubles, and 1,183 thousand rubles for reequipment. Another 590 thousand gold rubles were required to buy the necessary equipment abroad.<sup>42</sup> In

<sup>39</sup> RGAE, 3429/10/309, 118-121.

<sup>40</sup> RGASPI, 82/2/802, 2.

<sup>41</sup> RGASPI, 76/2/392, 5-10.

<sup>42</sup> RGASPI, 5/2/55, 132-133.

March 1923 the party Politburo resolved to increase foreign purchases for aviation, overriding the protests of finance minister G.Ia. Sokol'nikov.

*Motor Vehicles.* The Red Army was in severe need of motorization, but its supply of motor vehicles was in a lamentable state. At a time when the Western powers already deployed hundreds of thousands of military vehicles **Voenprom** disposed of between 1,500 and 3,000 obsolete automobiles.<sup>43</sup> **Voenprom** first tackled the centralization of motor vehicle matters and the immediate recommissioning of the Moscow automobile factory AMO with a capacity of 1,500 to 2,000 vehicles a year. But this was not enough. Additionally Revvoensovet charged Gosplan with bringing military vehicles up to higher standards of reliability and mobility.<sup>44</sup> *Avtotrest* of VSNKh was continually occupied with establishing domestic vehicle manufacture in connection with military plans. Associated with motor vehicles was the production of tractors both for mechanical traction and as the line of production closest to tank building. Over the coming years Gosplan envisaged production of 200 thousand tractors including 20 thousand for military use.<sup>45</sup>

*Naval Vessels.* A morbid problem was the renovation of the *navy*. Only one serious shipyard had conserved its equipment, the Baltic. The fleet had shrunk; just to conserve the legacy of old Russia was “costly and beyond our means” as a leader of the state inspection S.I. Gusev remarked in 1924. Gusev referred to the foreign authorities Mitchell and Pershing who were now against including capital ships in the navy of the future. Just to establish the Baltic and Black Sea fleets, Gusev indicated, would require three billion gold rubles, and even this might not be enough. In his view, therefore, there should be no sweeping proposals. The main task of defense industry was to create mobilization reserves and get aeroengine production and the development of chemical weapons going. The navy's task was to seal off the Gulf of Finland and establish coastal security in the Black Sea.<sup>46</sup> Naval equipment orders in 1925 were judged to be more than modest. In the words of one document the perspectives of naval shipbuilding ought to flow not from five-year plans but from actual equipment orders.<sup>47</sup> But even these moderate tasks were not fulfilled.<sup>48</sup>

Nonetheless in 1924 a plan was adopted for building those vessels chosen for construction in old Russia. To close down the projects previously selected, Revvoensovet reported to VSNKh, would threaten unemployment and the loss of

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<sup>43</sup> RGAE, 2097/5/515, 13-17.

<sup>44</sup> RGVA, 4/1/116, 45.

<sup>45</sup> RGAE, 3429/10/201, 48.

<sup>46</sup> RGAVMF, R1483/2/7, 88-95.

<sup>47</sup> RGAVMF, R-1483/2/7, 117-119.



trained cadres. An additional 31 million rubles were allocated to shipbuilding.<sup>49</sup> The navy began to revive. Two cruisers and six destroyers were laid down and the submarine fleet, entirely neglected since 1915, began to receive attention. In this connection the naval staff compiled a noteworthy list of foreign equipment orders in the sum of 9 million gold rubles: batteries, periscopes, special-purpose paints, steel hawsers, linoleum, cable, fine wire, electrical gauges, and other equipment not produced in Soviet Russia.<sup>50</sup> Still, Revvoensovet gave its attention only to the most pressing requirements, and these did not include capital warships.

Even plans like these encountered resistance. The Soviet Bonaparte as M.N. Tukhachevskii is known today, at that time Red Army deputy chief of staff, wanted to cut the naval programme to strengthen the ground and air forces. But in early 1925 minister and Revvoensovet chairman Frunze ordered submarine shipbuilding to be renovated. An eight-year plan was compiled. The Rykov commission, however, revised it down to a more modest three-year plan for shipbuilding and capital repair.

In March 1925 a new five-year plan for strengthening the navy appeared. Under the influence of the ground forces lobby the programme for shipbuilding and naval modernization that was adopted was cut by half.<sup>51</sup> This plan was confined to seeking naval superiority only over the states of Poland, Rumania, Lithuania, Latvia, Estonia, and Finland that had arisen on the territory of the former Russian empire and now neighboured Russia. The plan was adopted in November 1926.<sup>52</sup>

*Other Weapons and Equipment.* The World War had shown the growing importance of chemical weapons. In May 1924 Gosplan reported on the production of chemical agents in the west and suggested the need to organize chemical defense within the country and give training to the population.<sup>53</sup> From 1925 the USSR embarked on the production of poison gas.<sup>54</sup> **Voenprom** repeatedly asked the government to bring electrical components for military use under unified control, pointing to the shortage of electrical equipment, the absence of radio and telegraph links, and the unsatisfactory mobilization readiness of the radio industry.<sup>55</sup> Further, reporting on mobilization plans for communications equipment to the Trotskii commission in November 1923, Smirnov indicated needs for new lines of radio

<sup>48</sup> RGAVMF, R-5/3/99, 15.

<sup>49</sup> RGAVMF, R-1483/2/7, 133-135.

<sup>50</sup> RGAVMF, R-1483/2/7, 33-37.

<sup>51</sup> RGAVMF, R-1483/2/17, 131-131ob.

<sup>52</sup> RGAVMF, R-1483/1/30, 1-2; see also RGAE, 4372/91/25, 1-2.

<sup>53</sup> RGASPI, 325/1/425, 27-28.

<sup>54</sup> RGAE, 3429/10/210, 64-69.

station production and mail and telephone communications. For this purpose he urged STO to make an additional allocation of almost three million gold rubles.<sup>56</sup>

*Summary.* In short, the claims of **Voened** to supplies of armament far exceeded what was possible under NEP. An intense struggle over priorities for the use of limited resources developed. Concerns over the backwardness not just of defense industry but of all production serving defense needs were more sharply voiced. The USSR armed forces lagged behind Russia's neighbours in both quantity and quality; if war broke out the neighbours' armies were expected to be the first wave behind which would inevitably follow the forces of economically more powerful countries.

#### 4. "Who Is To Blame?"

The question arose: who was to blame for the lamentable state of the defense industry? The natural first reaction was to blame those in charge of it. A barrage of criticism aimed at the leaders of **Voенprom** increased from year to year. The latter did not deny the problems and accepted that military production was not up to contemporary requirements. They rested their defense on the dislocation of military and civilian programmes and the lack of means to maintain the defense industry; they sought the establishment of an agency with unified responsibility for its development and a framework of firm plans for the next three to five years.<sup>57</sup> On the side of **Voened**, in 1925 an Revvoensovet resolution laid the main emphasis on faults in the work of **Voенprom**. It described the producers' aims as unchanged since before the war. It complained of the low quality and high cost of military products, continual underperformance, inadequate capacities, lack of communication and coordination, bad planning, and inadequate stockpiling of mobilization reserves.<sup>58</sup> In June 1925 Bogdanov asked Dzerzhinskii as chairman of VSNKh to relieve him, stressing that he could not cope with the problems that **Voенprom** was required to solve.<sup>59</sup>

The official propaganda of the 1920s claimed that the Red Army was acquiring new weapons, artillery materiel was improved, and aviation was advancing in quality as in quantity. It featured new means of chemical defense and military-medical equipment. It asserted that the Red Army was gradually converging on the level of the first-class armies. But the reality was different. The capacities of defense industry were not only less than in 1916 when Russia's war production had attained its

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<sup>55</sup> RGVA, 33988/1/606, 3-9, 95, 222-224.

<sup>56</sup> GARF, 5446/55/265, 7-12.

<sup>57</sup> GARF, 5446/55/747, 8-14.

<sup>58</sup> GARF, 5446/55/747, 5-6.

<sup>59</sup> GARF, 5446/55/747, 39-41.

previous peak; they were also less than in 1913. Not even half the restoration of defense industry had been achieved, and this was especially depressing in the context of continuing advances in military technology in the west. Thus the exceptional secretiveness surrounding defense industry was motivated by a desire not only to conceal new developments, as was claimed, but also by a reluctance to disclose the weakness of defense to the population and to potential adversaries.

Reviewing war readiness in early 1927 Gosplan's defense sector concluded that neither the Red Army nor the country was prepared.<sup>60</sup> A report by deputy defense minister Tukhachevskii concurred and stated that if war broke out "our meagre combat mobilization stocks will scarcely last through the first period of the war ...".<sup>61</sup>

As was usual in Soviet practice, a bad situation drew the attention of the political and control agencies. In December 1924 the OGPU special department reported that the GUVP apparatus was good for nothing; this had created a threatening situation for the country's defensive capability. It was noted that the mobilization preparedness of civilian branches was in an especially bad state. Of the country's 4,200 factories only 75 were included in higher-level mobilization plans and of these only 42 had their own factory-level mobilization plans. Investigation of the military factories had revealed losses, defective output, and low standards. Blame for this was laid on the old specialists who, it was said, were holding out one by one in the factories, cared only for their self-interest, and took no part in solving production problems. It was asserted that the scientific cadres in military enterprises had been contaminated by elements alien to the communists; a first priority had to be to re-staff the apparatus with communists.<sup>62</sup> A further implication was the need for on-the-spot promotion of Bolshevik specialists who had gained leadership experience during the Civil War.

A state inspection commission also reviewed **Voenprom**. It reported that the factories' civilian output amounted to 10 million rubles much of which remained unsold; it was expensive, of low quality, with many defective products. The losses were being covered out of funds assigned to military production. The same report listed irrational labor organization, huge numbers of white collar and auxiliary workers in the military factories, and high unit costs. The inspectors found the chief cause of these deficiencies in the fact that GUVP had maintained the same expensive apparatus unchanged since the Civil War. But special emphasis was also laid on the

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<sup>60</sup> RGAE, 4372/1/24, 1-3.

<sup>61</sup> GARF, 8418/16/3, 335.

<sup>62</sup> RGASPI, 76/3/377, 44, 50, 51-54.

“dominance of the *spetsy*”, meaning the pre-revolutionary specialists, and of the top brass of the old army.<sup>63</sup>

These clearly show a tendency towards the “baiting” of the old specialists (*spetseedstvo*), a desire to heap blame on them and replace them by people who would measure up to the political tasks of the Soviet leadership rather than to professional standards; the prosecutions of specialists, including more than a few staff of **Voenprom**, were already looming.

At first, however, the leadership tried to solve these problems by reorganization. In November 1925 a chief military-industrial administration (GVPU) was established under VSNKh to lead the defense industry by bringing together all the structures of **Voenprom**; subsequently this became the production association of military industry (VPU, also known as “Voenprom”). Thus the branch associations that would characterize industrialization under the ministries of the future were first observed in military production. The new Voenprom comprised four trusts: “Gun-Arsenal”, “Cartridge-Tube”, “Military-Chemical”, and “Rifle-Machine Gun”. But these trusts were not autonomous corporations; rather, each was really a chief administration analogous to the *glavki* of war communism. At the same time the output of Voenprom was brought into a unified economic plan, and this was expressed in the control figures adopted the following year. On 5 October 1926 STO adopted a resolution that obliged VSNKh, representing defense industry, to compile a unified plan for both military and civilian output with the agreement of NKVM, the defense ministry, and to refer it to Gosplan for expert review, then to STO for confirmation.<sup>64</sup>

Revvoensovet member I.S. Unshlikht turned to Stalin’s intimate colleague, the new defense minister and Revvoensovet chairman K.E. Voroshilov, with a call to establish new principles for interaction between **Voenved** and **Voenprom**. The contracts that the army concluded with defense industry, he suggested, should not only guarantee fulfilment but also establish *criminal and material* responsibility for all shortfalls and violation. Revvoensovet should have the right to supervise and verify the progress of equipment orders, research and design work, stocks of materials, cost calculations, and real production capacities, *in peacetime as in wartime*. Reequipment, decommissioning, the transfer of production from one factory to another, and new factory building should be done only with the authority and agreement of Revvoensovet. The presidium of VSNKh should provide Revvoensovet with an exact count of all factories currently working on war-related orders under civilian industrial management; Revvoensovet should come to an agreement with

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<sup>63</sup> APRF, 3/46/330, 79-82, 85-93.

<sup>64</sup> RGVA, 4/1/318, 1.

VSNKh concerning those that should be retained in the core of the defense industry. Unshlikht demanded that military employees should be appointed to reinforce the administrative and technological apparatus. VSNKh should agree nominations to both leading management positions and the specialized technological apparatus with Revvoensovet.<sup>65</sup> Although Unshlikht's proposal fell, it demonstrated the tendency to reinforce the role and influence of the military in the Soviet state.

## Conclusion

An overview of Soviet defense industry in the 1920s must conclude that in principle its problems might have been resolved by more market reforms within NEP; however, neither the political leadership nor the military, holding to their revolutionary ideals and brought up in the spirit of war communism, were ready for this. **Voensprom** demanded bigger budgetary allocations, firm plans, centralized management, the subordination of the civilian branches to its own requirements, the concentration of production in the "cadre" military factories, and the rolling back of market relations. **Voenved** proposed plan targets that far exceeded the possibilities of the economy. Both sides advocated forced industrialization to increase military power. Pressure from the military, kept within reasonable limits for a time, grew stronger. Thus, immediate military-economic considerations contributed to the end of NEP and the transition to directive planning.

In managing priorities for the economy as a whole and for military production in particular an arbiter became necessary to decide matters in favor of the military by an act of will, even when the means and resources were clearly insufficient. The establishment of Stalin's dictatorship matched these tendencies. For a time the political leadership had kept aloof from the business of armaments. The "war scare" of 1927/28, however, impelled Stalin and his circle to become deeply absorbed in military production issues, and this paved the way to further great changes.

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<sup>65</sup> RGVA, 4/2/172, 227-228.

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