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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

13 April 1978

MEMORANDUM FOR: The Director of Central Intelligence
FROM : John N. McMahon
Deputy Director for Operations
SUBJECT : MILITARY THOUGHT (USSR): Certain Problems
of Military Economic Planning

[Redacted]

1. The enclosed Intelligence Information Special Report is part of a series now in preparation based on the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal 'Military Thought'. This article discusses some problems confronting military economic planning stemming from the two possible variants of nuclear war: fast-moving and protracted. The author lists measures to be taken to prevent the breakdown of production in time of war based on the fact that to produce complex articles of war materiel parts will be delivered from numerous subcontracting factories. The need for the economic assessment of the production of weapons systems is also stressed. In addition, the author cites some military economic work done in the US which could be applied to the Soviet system. This article appeared in Issue No. 1 (77) for 1966.

2. Because the source of this report is extremely sensitive, this document should be handled on a strict need-to-know basis within recipient agencies. For ease of reference, reports from this publication have been assigned [Redacted]

[Redacted]

John N. McMahon

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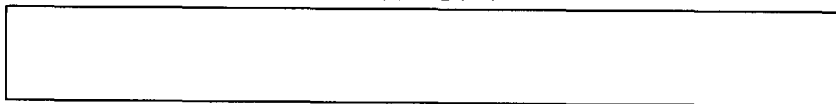
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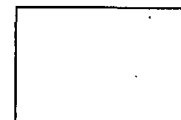
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Intelligence Information Special Report

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COUNTRY USSR

DATE OF
INFO

Early 1966

DATE 13 April 1978

SUBJECT

MILITARY THOUGHT (USSR): Certain Problems of Military Economic Planning

SOURCE Documentary

Summary:

The following report is a translation from Russian of an article which appeared in Issue No. 1 (77) for 1966 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal 'Military Thought'. The authors of this article are General-Leytenant of Engineer-Technical Service I. Tsygankov and Engineer Colonel A. Stebakov. This article discusses some problems confronting military economic planning stemming from the two possible variants of nuclear war: fast-moving and protracted. In contrast to a swift nuclear war which is supported by peacetime stockpiling, a protracted nuclear war will be supported by mobilization productive capacities. The author lists measures to be taken to prevent the breakdown of production in time of war based on the fact that to produce complex articles of war materiel parts will be delivered from numerous subcontracting factories. The need for the economic assessment of the production of weapons systems is also stressed. In addition, the author cites some military economic work done in the US which could be applied to the Soviet system. End of Summary

[Redacted] Comment:

The SECRET version of Military Thought was published three times annually and was distributed down to the level of division commander. It reportedly ceased publication at the end of 1970. [Redacted]

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Certain Problems of Military Economic Planning

by

General-Leytenant of Engineer-Technical Service I. TSYGANKOV
Engineer Colonel A. STERAKOV

The economy exerts an influence on the combat might of the armed forces mainly through the production of military equipment, which requires the coordination and the specific development of interdependent branches of heavy industry: chemical, energy, ferrous and non-ferrous metallurgy, machine-tool manufacturing, and others.

However, it would be a mistake to suppose that the availability of adequate productive capacities in the industries cited above and in the machine building branches of industry by itself guarantees a high level of production of war materiel. Calculations show that at present the raw material and other supply branches of the USSR national economy, with slight exception, have productive capacities significantly exceeding the needs of the defense branches of industry, not only with regard to the requirements of current peacetime production, but also with regard to the production of arms and materiel in accordance with war mobilization plans. For example, during all-out production of war materiel in wartime, no more than ten percent of the country's total resources of rolled ferrous metals will be needed; while, as is known, for the current production of war materiel only three percent of the amount rolled in the country is used.

In addition, it should be noted that our country's economy also has weak spots in providing raw materials and materials for defense production. This primarily applies to individual types of non-ferrous and rare metals, as well as chemical products (titanium, fire-resistant alloys, magnesium, tantalum, expanded plastics, fluoroplastics, and several others). True, these imbalances are steadily being eliminated, since a great deal of attention is being given to these developing branches of industry.

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On the whole, it can be assumed that the volume of production of war materiel now depends mainly on the dimensions of the specialized productive capacities of industry, since, as a rule, war materiel is not produced at nonspecialized civilian enterprises.

What then are the means to provide materiel-technical support of the armed forces in modern warfare? Will not the expected employment of atomic weapons against the rear areas of the warring nations alter the earlier established interconnection between the course and outcome of the war on the one hand, and the economy on the other hand? Will there not again be created a situation characteristic of the wars of past centuries, when their outcome was determined primarily by the size of the reserves stockpiled during peacetime and not by the level of the deliveries of arms, materiel, and equipment during combat operations?

It is known that Soviet military doctrine assumes two variants of nuclear war: a fast-moving variant and a protracted variant, when a long and maximum effort will be required of the army and the country as a whole.

Of course, our economy must make provision for both the first and second versions of possible war.

The materiel-technical support of a fast-moving nuclear war must be based on reserves stockpiled in advance, especially missile/nuclear weapons. Our probable enemies also understand this. The command of the aggressive NATO bloc, for example, has created in the European Theater of Military Operations materiel-technical reserves calculated to satisfy a three-month requirement in wartime, and dispersed among 1,500 depots throughout Western Europe.

Considerable reserves of arms and war materiel have also been created in the Soviet Armed Forces. However, these reserves will be sufficient only in the event that the enemy's resistance is quickly broken. An advance stockpiling of reserves sufficient to support a protracted war is out of the question. This can be explained by a number of reasons.

First, stockpiled reserves age rapidly physically, and also become obsolete.

Secondly, in stockpiling materiel in peacetime, it is necessary to curtail civilian production, to divert from the national economy huge material resources to support the arms industry, and to spend very large sums on storing reserves and maintaining equipment in combat-effective

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condition. Meanwhile, the amounts of money and material resources allocated for war production, though they may vary considerably depending on the circumstances, are still limited within a certain framework.

Thus, in expectation of a difficult and bitter armed conflict, it would be a mistake to think only in terms of the advance stockpiling of reserves and to neglect the possibility of using the resources of the national economy in the course of the war itself. In a protracted war, the successful support of an army operating with all types of arms, materiel, and equipment can be achieved only by having established in peacetime the necessary mobilization productive capacities in industry and by carrying out the mobilization readiness of the entire national economy. In our view, it would be dangerous to refrain from the expenditure of funds for the development of the mobilization capacities of industry, with the idea of using the funds thus released to increase the current production of war materiel.

The transition of the national economy to a war footing in the event of the outbreak of nuclear war will occur differently than in past wars.

A part of our military-industrial potential could be destroyed or subject to strong radioactive contamination after missile/nuclear strikes are delivered by the enemy.

Great harm can be done to the production of complex articles of war materiel which require the delivery of component items from tens and even hundreds of subcontracting factories. For example, to produce the YAK-28 aircraft, there are delivered to the main factory component items and materials from 290 enterprises located throughout the Soviet Union.

It is quite obvious that the organization of the production of aircraft will be delayed or will become completely impossible if even a few of the subcontracting factories delivering goods in accordance with plans of cooperation should be destroyed. If, however, measures are taken in advance to prepare industry to work under war conditions, then industry will swiftly be able to organize the production of arms and war materiel.

The disruption of transportation lines linking the main enterprises with the subcontracting factories could also have a great effect on the production of arms in wartime. The degree of these difficulties depends on how these subcontracting factories are dispersed throughout the country, their distance from one another, the extent of the railroad network in the given area, the availability of bypasses of the large railroad junctions,

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alternate bridge and ferry crossings, etc.

Since various kinds of transportation difficulties can arise, the problem of narrow specialization in the enterprises is of great interest.

From an economic point of view, the specialization of enterprises in peacetime is very advantageous. It permits the organization of mass production on the basis of the automation and comprehensive mechanization of the productive processes so as to achieve the cheapest production. However, in wartime, narrow specialization and the long distance transportation of component items associated with it are fraught with great dangers.

If the specialized enterprise providing the component items, components, or parts is destroyed or cut off from the main factories, and there is no backup factory, the production of war materiel at many enterprises can be interrupted. What is the way out of these natural contradictions? What has to be done to increase the survivability of our industry?

In our view, to accomplish this, it is desirable to take the following measures in a timely manner:

- construct underground enterprises for the production of the most important articles of war materiel and component items;
- bring about inter-factory cooperation, if possible, within the confines of one large economic area, that is, the "cluster" arrangement of enterprises. We have had experience with a similar "cluster" arrangement, the method having been practiced widely during the Great Patriotic War;
- establish backup factories, which in a relatively short period of time could organize the production of articles produced earlier in factories which have been put out of service.

Of course, there are great difficulties associated with the realization of these proposals, since it would require large capital investments and a long period of time. On the other hand the survivability of our industry would be substantially increased under conditions of nuclear war.

To decrease the danger caused by disruption in the transportation lines between and within economic regions, and between the rear and the

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front, it is very important in peacetime to stockpile material resources in advance, and to create the necessary reserves needed for the continuous supply of industry with raw materials, materials, fuel, and equipment and for the supply of the armed forces with war materiel.

It should be noted that in the USA the strategic reserves of raw materials and materials are created on the calculation of a three-year nuclear war and number 77 items. The overall cost of the reserves is about eight billion dollars. The reserves include 1.8 million tons of aluminum, 1.4 million tons of zinc, one million tons of copper, 73 thousand tons of tungsten, 44 thousand tons of cobalt, etc.

Material reserves are also being established in the USSR. They are divided into state and mobilization reserves. The reserves are a constituent part of the socialist economy: their nomenclature, volume, the amount of stockpiling, and expenditures are determined by the Soviet government. Stockpiled in the state reserves, as a rule, are critical materials that can be used for both military and civilian production, and for the elimination of individual imbalances arising in the economy in peacetime. Also stockpiled in the state reserves are fuel and provisions needed for the armed forces as a whole.

Mobilization reserves are created to ensure the expansion of one or another type of war production according to a plan for a particular period and are stored at the appropriate factories.

What are the capabilities of the country's economy for satisfying the requirements of the armed forces?

The experience of past wars shows that military strength is determined not so much by the general maximum volume of production, as by that part of it which expresses military-economic potential and can be allocated to satisfy the requirements of the armed forces.

As an illustration, we can remind you that during the Great Patriotic War, we had considerably less capacity than Germany to produce cast iron, steel, and electrical energy. In addition, Germany's stock of machine tools in 1941 was two and one-half times greater than ours. As is known, however, the Soviet Union produced much more war materiel than Hitler Germany. At present, in this regard, there are even more favorable conditions resulting from the planned division of labor among the socialist countries, which is coordinated by the Council for Mutual Economic Assistance.

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It should be noted in passing that in the capitalist countries, because of the policy of the military-industrial monopolies, prices for articles of war materiel are several times higher than in the Soviet Union. This allows us to produce a larger amount of military equipment with the same amount of expenditures.

However, the capabilities of the socialist economy are not limitless. In peacetime, the allocation of funds and material resources for military needs depends on the international situation and on the domestic situation of the country. In recent years this item of expenditure has been fluctuating at about 15 percent of the expenditure section of the state budget. Naturally, in wartime the relative proportion of military expenditures rises sharply. In the most difficult period for our country, 1942 to 1943, it reached 60 percent of the expenditures of the state budget, of which about 50 percent was being spent on orders for arms and materiel. It is very important that these ratios, which have been confirmed by experience, be taken into consideration in plans for orders and in requests for a particular period.

At the present time the problem of the economic assessment of weapons models and weapons systems, the amount of labor they consume in production and their technological effectiveness have acquired great importance.

In our experience, there have been instances when at the start of war, because of difficulties in manufacture and insufficient reliability, several models of weapons produced by industry in the prewar period had to be taken out of production. In the area of small arms, for example, we abandoned the production of DS heavy machineguns and self-loading rifles and returned to the production of the MAXIM system machineguns and Model 1891/30 rifles.

Until recently, problems of military-economic analysis of scientific research, experimental design work, and orders made for series production did not always figure prominently in the work done by our staffs and directorates. There were instances when considerable expenditures and substantial losses of productive capabilities of industry were not compensated for by a corresponding increase in the combat might of the armed forces.

This occurred because the problems of decreasing the complexity of new articles of war materiel and the amount of labor consumed in producing them while maintaining their necessary tactical-technical characteristics was not given adequate attention either by the ordering directorates of the

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Ministry of Defense and their scientific-technical echelons or by the developmental organizations within what were formerly the state committees, and currently, the corresponding ministries. In the central apparatus of the Ministry of Defense there was not even an organ to coordinate all the military-economic work in the armed forces.

Our staffs and directorates developing tactical-technical requirements frequently concerned themselves only with the highest indicators of military effectiveness and worried little over what would be the complexity and labor consumption involved in the new model or what scarce machinery and basic materials would be required for its production.

Still persisting is the idea that the number of articles of war materiel that can actually be delivered from the national economy depends solely on the state planning organs and that the ordering directorates are not responsible for the possible level of the production of materiel, but must ensure only the high quality of the articles.

The orderers and developers should know that the fate of the introduction of a new model into the armed forces is in their hands. No matter how good the new model, if it is not economical and is not completely finished, it will not be produced in the required amounts and will have no appreciable effect on increasing the combat might of our armed forces.

The following example can be cited as an example of failure to make a complete assessment of the military-economic analysis of new models of war materiel.

Not too long ago a new free-flight rocket was developed and put into series production. While earlier similar purpose rockets were manufactured from prepared rolled tubes supplied by the national economy without any particular difficulties, for the manufacture of the body of the new rocket there was required deep drawing from a steel disc on large and very scarce presses. Because of this, the production of the new rockets became possible only on the machinery of factories manufacturing artillery shell cases. Even then, they were produced only in small quantities, since the amount of labor required to produce the new rockets was five times greater than what was required to produce the preceding models.

Unnecessary haste in deciding to shift the new model into series production also does considerable damage to the national economy.

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Instances have been noted when the ordering directorates, guided by the desire to expedite the introduction of a new model into the armed forces and finding themselves under the influence of developers interested in the rapid completion of the work, turn over for production unfinished models, models which have not undergone all the tests and which have not been accepted into the inventory. This practice does not provide the desired results for the armed forces. Numerous corrections in the technical documentation while series production is under way lead to the non-fulfilment of the production program for new models, and their cost grows excessively because of frequent alterations.

Experience shows that instead of expediting the supply of the armed forces with the newest war materiel, the period for the introduction of new models drags out intolerably. Expended on the final product are not only funds allocated for these purposes in the state budget, but also funds designated to pay for series production. As a result, even when there are considerable expenditures of funds and time, the army and the navy still do not receive within the designated period arms and war materiel in the amount planned.

Let us dwell briefly on the content of military-economic work in the armed forces. We note first that such an economically highly developed and wealthy country as the USA gives a great deal of attention to military-economic problems. Special organs have been established there which conduct a thorough analysis of unproductive expenditures of appropriations allocated for military purposes. Of course, not all these ways are equally acceptable for us, but, several of them are of definite interest and can be used in our military-economic work.

In the USA, recently, radical measures have been adopted to curtail expenditures on equipping the army. Measures are being worked out which in the 1966/1967 fiscal year will permit a saving for the year on the order of 3.5 billion dollars. There has already been a saving of 1.4 billion dollars for the 1963/1964 fiscal year.

The main directions in curtailing military expenditures for the purchase of arms in the USA are as follows:

-- elimination of orders for those articles of war materiel which can be dispensed with;

-- elimination of the use of more expensive, expressly military models of materiel in those instances where it is possible to use less

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expensive civilian models (for example, automobiles);

-- elimination of the orders for expensive, small series arms and war materiel, since the price of the articles ordered in small series increases greatly because of the cost of developing the models and manufacturing the production equipment;

-- lowering as much as possible the prices for articles of war materiel.

President of the USA Johnson has called on 7,500 suppliers of arms and war materiel to seek ways of cutting down on the cost of articles, whereby, to interest the suppliers in this, a designated part of the funds saved has been promised to them.

It should be particularly noted that in the US great significance is attached to the efficient work of military engineers directed at decreasing the cost of war materiel. The results of their activity in this field are taken into consideration in the granting of commendations and service promotions.

A decrease in prices for war materiel in the US is being brought about in two main ways:

1. Through the elimination of the pricing system based on "the cost of production plus a guaranteed profit" with a transition to competitive prices; that is, orders are given to the firm which sets the lowest price. This permitted in 1963 alone a saving of 237 million dollars.

Receiving greater application is the system of "incentive contracts", which stipulate, in addition to payment of the cost of the article, an additional compensation for excellent quality, punctual deliveries, and the lowering of the cost of production.

2. Through a change in technical documentation achieved by lowering the quality requirements on the articles, by the manner in which the parts are finished, and by the substitution of cheaper materials for expensive ones, etc.

In January 1964, US Secretary of Defense McNamara stressed that an excessively high quality of articles is an inadmissible waste. He went on to say that several characteristics of the present models of arms and war materiel (durability, precision in manufacture, weight, resistance to



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changes in temperature, and others) exceed the necessary norms, and, as a result, the cost of war materiel is increased two- to tenfold.

It has been calculated that by eliminating, for example, the unnecessary finishing of parts, the US Department of Defense can save one million dollars a week.

Significant savings can also be obtained by the substitution of cheaper materials for more expensive ones. Thus, parts made of stainless steel and costing 175 dollars each were used earlier in the turbines of space vehicle engines. After the transition to the production of these parts using plastic, their cost went down to two dollars apiece.

One of the mass-produced parts in the Polaris missile used to cost three dollars. Through the use of inexpensive steel and the simplification of the technology of production, they have succeeded in bringing its cost down to 20 cents.

In the Soviet Armed Forces measures directed at economizing must be achieved, in our view, in two stages: in developing and issuing tactical-technical requirements for a new model and in deciding on its acceptance into the inventory.

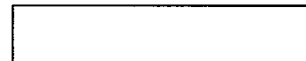
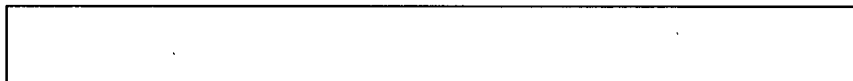
In the first stage, the working out of optimal requirements for development of the model acquires special importance. In setting forth the necessary conditions, consideration must at the same time be given to the facts which will have an influence on the cost and technological effectiveness during series production.

In the second stage, it is important to assess to what degree the shift from aiming the troops with the former model (if there is one) to the new model is justified from the military-technical point of view; that is, to show that the expected economic expenditures and losses are completely compensated for by the substantial military advantages of the new model.

Methods for the comparative assessment of military effectiveness of the new model and its predecessor are the subject of special research. In this article we have dwelt only on several indicators which should be considered in deciding on the introduction of new models of materiel into the armed forces.

Schematically, they can be reduced to two groups.

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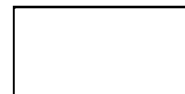
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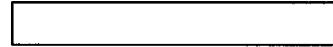
The first are the indicators which must be reviewed by the Ministry of Defense, and on the basis of which decisions are made for the possible introduction into series production of one or another new model of armament. This group of indicators is tied in with the assessment of the quantity and cost of the new weapon, the time required for making the transition to the new arms, the changes in the servicing personnel and operating costs, and with the proposals for the use of the materiel released after the transition. Accordingly, the problem of the possible time period necessary for making the transition must be reviewed jointly with the state planning organs.

The second group are the indicators having an influence on the expenditures and losses incurred in introducing the new models into series production. In this group can be listed:

- the amount of labor required to produce the new model as compared with its predecessor;
- the requirement for scarce, special, and unique machinery not used earlier;
- the requirement for non-standard, non-unified component items, components, and parts which have as yet not been developed for production, and the requirement also for scarce, rare, and imported types of basic materials;
- the possibility of using the mobilization reserves of raw materials and materials designated to support the production of the predecessor model, and the losses from the sale of critical materials which cannot be used for the production of the new model.

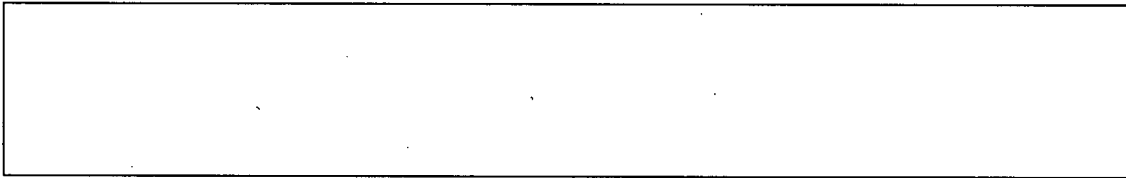
All of these indicators must be reviewed by the state planning organs and subsequent decisions should be made jointly with the Ministry of Defense.

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It should be particularly stressed that the area of military-economic research still occupies a very modest place among the general tasks dealt with by the Ministry of Defense. Perhaps now, in connection with the creation of the Central Scientific-Research Institute for Military-Technical Information there will be an increased interest in this work, since for all those called upon to study military-technical problems, additional opportunities are opening up to make a serious contribution to the broader provision of our armed forces with new highly efficient, economic models of armament and war materiel.

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