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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

19 January 1978

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MEMORANDUM FOR: The Director of Central Intelligence

FROM : John N. McMahon
Deputy Director for Operations

SUBJECT : MILITARY THOUGHT (USSR): Operational Calculations for the Use of Nuclear Weapons

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". The author of this article comments in a generally negative vein on a previous article on the calculations involved in the use of nuclear weapons. Among the issues raised is the definition of operational calculations, which the author considers too rough to be based on comprehensive analysis of conditions, and not applicable to massed and grouped strikes. He also qualifies the value of computers in that integrated automation of troop control is needed before they become effective. This article appeared in Issue No. 3 (79) for 1966. [redacted]

[redacted]

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

[redacted]

[redacted]

[redacted]

[redacted]

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Distribution:

The Director of Central Intelligence

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Intelligence Information Special Report

COUNTRY USSR

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DATE OF INFO. Late 1966

DATE 19 January 1978

SUBJECT

MILITARY THOUGHT (USSR): Operational Calculations for the Use of Nuclear Weapons

SOURCE Documentary

Summary:

The following report is a translation from Russian of an article which appeared in Issue No. 3 (79) for 1966 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal 'Military Thought". The author of this article, Colonel V. Zonov, comments in a generally negative vein on a previous article on the calculations involved in the use of nuclear weapons. Among the issues raised is the definition of operational calculations, which the author considers too rough to be based on comprehensive analysis of conditions, and not applicable to massed and grouped strikes. He also qualifies the value of computers in that integrated automation of troop control is needed before they become effective.

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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Operational Calculations for the Use of Nuclear Weapons

by

Colonel V. ZONOV

Making a sound decision for using nuclear weapons requires much painstaking joint work of various directorates and departments of the field headquarters of the front (army) and of the staff of the air army, conducted under the personal direction of the commander. This work is organized differently in each staff, depending on the accepted procedure for working out a decision and on the personal qualities of the commander.

How shall the large volume of calculations for using nuclear weapons be performed in a short time? General-Mayor P. ALTUKHOV in his article "Operational Calculations for the Use of Nuclear Weapons"* has attempted to show a method and sequence for solving this problem.

The author divides all calculations on the use of nuclear weapons into operational and special (technical). Operational calculations, in his opinion, should be based on a comprehensive analysis of the conditions of using nuclear weapons and be as simple and precise as possible. We cannot agree with such a description of operational calculations. Any operational calculation, as even the author correctly notes, is a rough calculation based on average norms of the requirement in forces and means. Therefore, an operational calculation is purely an approximation and cannot be based on a comprehensive analysis of the conditions of using nuclear weapons.

Indeed, how is it possible in planning an operation to perform operational calculations for the use of nuclear weapons based on a comprehensive analysis of the targets of destruction when it cannot be known even approximately what position in respect to our troops the majority of targets will occupy by the time the nuclear strikes are delivered against them? But it is precisely on the distance from our troops at which any given installation (target) is situated, whether it is in battle formation or in a concentration area, that the number and yield of nuclear warheads necessary for its destruction and the capability of employing a particular type of delivery vehicle to fulfil the task depend.

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* Collection of Articles of the Journal 'Military Thought", No. 1 (77), 1966, pp. 70-75.

For example, whereas a Sergeant guided missile battalion in a concentration area can be destroyed with one 40-kiloton missile, two missiles are already required for this when it is located in a siting area. Destruction of a US motorized infantry division in a concentration area can be accomplished with strikes of four or five operational-tactical missiles 40 to 100 kilotons in yield, but to destroy every one of its battalions in a defense area it is necessary to expend one tactical missile 20 to 40 kilotons in yield each. Nor is it possible in operational calculations to accurately allow for the real capability for opposition on the part of the enemy.

We think that operational calculations can be performed to determine the volume of tasks to be accomplished with nuclear weapons; to determine the capabilities of the means of nuclear attack based on the quantity of nuclear warheads allocated and the times of their arrival; to distribute nuclear warheads to formations (large units) according to the tasks of the operation and kinds of enemy targets (means of nuclear attack, troops, control posts, airfields, etc.); to determine the time required to prepare nuclear warheads in accordance with their arrival and distribution.

But as concerns the planning, preparation, and delivery of massed and grouped nuclear strikes, it is necessary to perform for this not operational but special (technical) calculations (we would term them detailed), which must include: determination of the specific targets of destruction and their characteristics (coordinates of the point of aim or center of the target, its nature, dimensions, distance from the forward edge, most vulnerable element); establishment of the necessary degree of destruction of the target (number and required yield of nuclear warheads, type and altitude of burst); determination of the means of delivery of nuclear warheads for each target, as well as the reliability of destruction of targets and the time of delivering strikes against them.

In the author's opinion, when a decision is made, the staff of the front (army) carries out more detailed planning of the use of nuclear weapons, in the course of which "a whole range" of questions is resolved. Such a method of work is possible, but it does not appear the best. Working practice of commanders and staffs shows it to be advisable that the planning of the use of nuclear weapons be carried out parallel to the development of the decision and concluded with its being made. After making the decision for using nuclear weapons, only individual problems connected mainly with a change in the position of previously reconnoitered targets of destruction or the discovery of new ones can be refined.

In the article mentioned, the author attempts to differentiate the functional duties in working out the decision for using nuclear weapons between the commander and staff of the front (army) on the one hand and the chief of the rocket troops and artillery and the commander of the air army and their staffs on the other. He correctly notes that the commander is not himself personally obligated to perform the large number of calculations pertaining to the use of nuclear weapons, and that in this job a large role is allotted to the chief of the rocket troops and artillery and the commander of the air army. Moreover, the performance of special (technical) calculations he considers to be mainly the task of the chiefs of the branch arms and services. In this connection, it becomes impossible to understand the author's conclusion that the main executor of the calculations mentioned above is the operations directorate (department).

It seems to us that the attempt to charge the operations directorate (department) with the whole enormous volume of work of planning the use of nuclear weapons, to bring special groups into the T/O of the directorate (department) for this purpose, and to make every officer versatile in the performance of all calculations is not completely sound.

In what way is it possible to shorten the time required to perform the calculations for using nuclear weapons? Undoubtedly, carrying out this job with the aid of electronic computers is the basic way to shorten the time for planning the use of nuclear weapons. Right now, however, in solving complex problems with the aid of computers, considerable time is spent on inputting the large volume of information into the machine. Therefore, the use of computers for this purpose in the course of combat actions will be effective only by integrated automation of troop control and first of all of control of the means using nuclear weapons .

The same must be said of the various illuminated display panels employed in certain staffs. Of course, they give a more graphic representation of the status of nuclear means, but they do not fully solve the problem of shortening the time for calculations connected with the use of nuclear weapons, and they do not often justify the enormous resources that are expended on their manufacture.

Until the introduction of integrated automation into troop control, the basic way of shortening the time for performing the calculations pertaining to the use of nuclear weapons is clear-cut distribution of functional duties among the directorates (departments) within staffs and active involvement in the work by those officers who are connected with the direct control of large units and units using nuclear weapons.

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