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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

19 October 1978

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MEMORANDUM FOR: The Director of Central Intelligence

FROM : John N. McMahon
Deputy Director for Operations

SUBJECT : MILITARY THOUGHT (USSR): The Problem of Repelling an Enemy Tank and Armored Infantry Attack in Defense

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 examines the question of determining the number of antitank means required to repulse an enemy attack, based on the premise that the enemy will break off an attack after sustaining a certain number of losses. This number is calculated by assigning a probability for the enemy cessation of attack taken as the ratio of the number of enemy tanks to the number of antitank means required to repulse them, and also taking into consideration the different types of antitank means, their combat capabilities, and their rates of reinforcement. This article appeared in Issue No. 1 (83) for 1968. [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

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Page 1 of 8 Pages

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Distribution:

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COUNTRY USSR

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DATE OF INFO. Early 1968

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SUBJECT

MILITARY THOUGHT (USSR): The Problem of Repelling an Enemy Tank and Armored Infantry Attack in Defense

SOURCE Documentary

Summary:

The following report is a translation from Russian of an article which appeared in Issue No. 1 (83) for 1968 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal "Military Thought". The author of this article is Lieutenant Colonel V. Tarasov. This article examines the question of determining the number of antitank means required to repulse an enemy attack, based on the premise that the enemy will break off an attack after sustaining a certain number of losses. This number is calculated by assigning a probability for the enemy cessation of attack taken as the ratio of the number of enemy tanks to the number of antitank means required to repulse them, and also taking into consideration the different types of antitank means, their combat capabilities, and their rates of reinforcement. 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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The Problem of Repelling an Enemy Tank and Armored Infantry Attack in Defense

by

Lieutenant Colonel V. TARASOV

The problems touched upon in Colonel V. YEROFEYEV's article* are timely and have an important theoretical and practical significance. A great deal of consideration is being given to their research in the Military Artillery Academy, the results of which the author cites as well.** Data recently obtained differ slightly from those put forward in the article under examination and require clarification.

As is known, the task of antitank means consists in repulsing attacks of tanks and armored personnel carriers in front of the forward edge and in the depth of defense. The fulfillment of this task is achieved when a significant portion of the attacking enemy tanks are destroyed as a result.

Generalization of the data of a large number of battles in which our antitank subunits and units took part against attacking German tanks during the years of the Great Patriotic War shows that the enemy breaks off an attack at the loss of a certain number of tanks. The probability of such a break-off in relation to the magnitude of losses of attacking tanks is shown in the following table:

Magnitude of losses of attacking tanks, percent.....	0	10	20	30	40	50	60	70
Probability of break-off of attack.....	0	0.04	0.14	0.38	0.65	0.88	0.97	0.99

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* Collection of Articles of the Journal "Military Thought," No. 1 (80), 1967.

** When writing the article, Colonel V. YEROFEYEV mistakenly attributed the work used to the Military Artillery Engineer Academy i/n F. E. Dzerzhinskiy instead of to the Military Artillery Academy (The Editors).

As is apparent from the table, under conditions of actual combat actions, there is a point where cessation of an attack with various magnitudes of loss occurs. This being the case, one can only presuppose a certain degree of probability concerning the nature of the enemy's actions in relation to losses sustained. Consequently, with the designation of combat capabilities of antitank means, it is necessary to consider all possible occasions when an enemy might break off the attack and not just the prescribed magnitude of losses as does Colonel V. YEROFEYEV.

Concerning the combat capabilities of antitank means of units or large units combating attacking enemy tanks, it is more advisable to estimate the number of tanks ($N_{T.a}$), whose attack they are capable of repelling with a prescribed degree of probability. These probabilities depend on the quantity and composition of a given unit's or large unit's antitank means of all types, the characteristics of their fighting effectiveness, and the prescribed degree of reliability in fulfilling tasks.

The fighting effectiveness of a given (ℓ) type of antitank means is characterized by the required balance of forces (C_ℓ). We understand this to mean a ratio of the number of attacking enemy tanks (N_T) to such a number of antitank means (N_{pt}) as will provide for the repulse of a tank attack by means of a given type of antitank means with a prescribed level of probability, that is:

$$C_\ell = \frac{N_T}{N_{pt}}$$

Since the repulsing of a tank attack is one of the most crucial stages of a battle involving advancing groupings, the calculation of the required balance of forces establishes a high degree of probability of fulfilling the task -- 0.9.

Thus, the quantity of antitank means (N_{pt}) which provide a probability of 0.9 for repulsing a tank attack, should be considered as the quantity of these means required. One of the most important goals in organizing the employment of antitank means is the establishment of a grouping which would contain this number of combat items.

The required balance of forces, and consequently the required number of antitank means for each of their types, is not a fixed quantity; rather it depends on a variety of factors and may fluctuate within wide limits. The commander and staff, in organizing the employment of antitank means, are able to exert an influence on many of these factors (for instance, fix the distance for opening fire on tanks, create the most suitable combination of various types of antitank means on a given line, provide camouflage and engineer preparation of the battle formation, etc.) and, as a result, influence the combat capabilities of the entire system of antitank defense.

In this response we are not considering a determination of suitable methods of the combat employment of antitank means but are dealing rather with the method of calculation associated with their employment. With the performance of such calculations for a large quantity of antitank means, it is not possible to determine all of the various conditions under which every subunit is to operate. Under such conditions, for calculations, it is necessary to use some common value of the required balance of forces of each type of antitank means -- a standard coefficient (C_{pt}).

The standard coefficient of the required balance of forces for the SPG-9 antitank grenade launcher is 2.5; for the T-12 100-mm antitank gun -- 1.8; for the T-62 tank -- 1.8; and for the T-55 tank -- 1.1. We have determined these coefficients by calculating the possible place in the system of antitank defense of each of the types of armament considered; ranges of fire within the limits of which it will most probably be used; and the effect of enemy return fire.

The characteristic tasks in making calculations related to the employment of antitank means are the determination of the combat capabilities of antitank means in combating attacking enemy tanks and the rates of reinforcement of the given subunits, units, and large units with antitank means.

To accomplish the first of these it is necessary to know the number of items of each type of antitank means (N_ℓ) which are available in the antitank defense system of a subunit, unit, or large unit. The overall number of tanks whose attack all antitank means are capable of repulsing ($N_{T.a}$), is determined in the formula:

$$N_{T.a} = \sum_{\ell=1}^{k} N_\ell C_{pt}$$

where k is the number of types of antitank means.

If we assume that the enemy will carry out preparatory fire prior to an attack, then, as a consequence of losses of antitank means, their capabilities should be considered to be somewhat lower. Their magnitude will be, as calculations show, equal to:

$$N'_{T.a} = 0.8\ N_{T.a}$$

To accomplish the second task it is necessary to know the number of enemy tanks (N_T) whose attack the antitank means are assigned to repulse, and also the capabilities of the antitank means on hand ($N_{T.a}$). From this one works out the additional means (ΔN_T) needed for combat with a certain number of attacking enemy tanks.

$$\Delta N_T = N_T - N_{T.a}$$

The quantity of combat items of antitank means of reinforcement for a given troop level by type can be determined by the formula:

$$N_{\ell reinf} = \frac{\Delta N_T}{C_{pt}}$$

Taking into account that reinforcement means can also sustain losses during enemy preparatory fire, their estimated number must be raised by 1.3.

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