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MEMORANDUM FOR: The Director of Central Intelligence

FROM : William W. Wells
Deputy Director for Operations

SUBJECT : MILITARY THOUGHT (USSR): Methodology of Training for Combat Against Nuclear Attack Means

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 surveys the shortcomings in reconnaissance training at operational exercises in which locations of enemy nuclear weapons positions are indicated on the maps given to the trainees. This procedure does not force the game players to organize reconnaissance to determine the types of targets and their coordinates. The authors present some of the types of data required for effective combat and the capabilities of front means of reconnaissance in tabular form, stress the importance of analyzing a target and selecting the appropriate weapon with which to hit it, and make recommendations for setting up a training exercise on this basis. This article appeared in Issue No. 1 (68) for 1963.

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

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[redacted]

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MILITARY THOUGHT (USSR): Methodology of Training for Combat Against Nuclear Attack Means

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Summary:

The following report is a translation from Russian of an article which appeared in Issue No. 1 (68) for 1963 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal "Military Thought". The authors of this article are General-Mayor of Artillery F. Narkhodzhayev and Colonel V. Daragan. This article surveys the shortcomings in reconnaissance training at operational exercises in which locations of enemy nuclear weapons positions are indicated on the maps given to the trainees. This procedure does not force the game players to organize reconnaissance to determine the types of targets and their coordinates. The authors present some of the types of data required for effective combat and the capabilities of front means of reconnaissance in tabular form, stress the importance of analyzing a target and selecting the appropriate weapon with which to hit it, and make recommendations for setting up a training exercise on this basis. End of Summary

[redacted] Comment:

A General-Mayor of Artillery F. Narkhodzhayev formerly was Deputy Chief of Civil Defense of the Turkestan Military District, and is now retired. He also wrote "The Cooperation of Troops of a Military District and Civil Defense" in Issue No. 3 (88) for 1969 [redacted] 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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Methodology of Training for Combat Against Nuclear Attack Means

by

General-Mayor of Artillery F. Narkhodzhayev
Colonel V. Daragan

As is known, fire superiority over the enemy, primarily fire superiority in nuclear means, is of great importance in achieving success in present-day operations. In order to gain fire superiority, nuclear strikes, particularly those delivered against enemy means of nuclear attack, must be very effective.

The Minister of Defense of the USSR, Marshal of the Soviet Union Comrade Malinovskiy, indicated at the critique of one of the exercises that each nuclear strike must be supported by accurate reconnaissance data and must be calculated and prepared in such a way as to ensure the destruction of the designated target and to have the greatest effect on the course of the operation. Therefore, in planning a nuclear strike, it is necessary to anticipate the extent of damage to the enemy produced by the strike, the effect of the nuclear burst in altering the terrain, and the effect of the terrain itself on the casualty-producing elements of the nuclear burst. In line with this, the organization of the troops and their methods of actions are selected with a view to exploiting with maximum effect the results of a nuclear burst. Moreover, since the amount of nuclear warheads issued for the operation will be comparatively limited, under no conditions can purposeless nuclear strikes be tolerated. In our view, there is currently still little attention being given to this matter either in theoretical elaborations or at operational exercises.

In order to deliver an accurate nuclear strike against enemy nuclear attack means, it is necessary to have the coordinates of the target and to pinpoint its location immediately before the delivery of the strike. The main thing is to deliver the strike at the right moment, since, if the time needed after the moment of the detection of the target to prepare the missile for launching exceeds the time the target of destruction is located in a given area -- for example, a launcher at a launching site -- it will of course be useless to deliver such a strike. This often is not taken into consideration at operational exercises, and, on the whole, it seems to us that the existing methodology of training for combat against enemy nuclear means still does not meet modern requirements.

In conducting exercises on maps of the initial situation and in problems developed by the departments of military academies for the students, the locations of enemy nuclear attack means are indicated, as we know, by conventional symbols in the form of figures of the corresponding launchers or with ovals. This data is given to the trainees (players) even before they actually have organized reconnaissance and without taking into account the time of the possible location of the enemy launchers in the siting areas or (what is even worse) at the launching sites. Moreover, it is not always possible to determine from the conventional signs whether the target is a launcher, a battery, or a battalion. And this information is very important in planning and delivering nuclear strikes.

Since the initial situation map and the problem are handed out to the trainees several days before the start of the exercise, and since supplementary data, as a rule, are not given at that time, keeping track of the actual actions of the enemy nuclear strike means is entirely out of the question. Consequently, these means (as indicated in the problem) are located in certain areas for an unjustifiably long period of time. Therefore, since the trainees become accustomed to this unrealistic lack of mobility on the part of the enemy nuclear means, they do not hasten to organize reconnaissance and final reconnaissance of them, do not determine the possibility of destroying these means by fire, and do not deliver a strike immediately after conducting reconnaissance (final reconnaissance) of the targets. Often the exercise participants immediately plan and report the procedure of delivering nuclear strikes against the indicated targets without organizing reconnaissance. And, in a number of instances, they merely time the delivery of these strikes to the start of the offensive by the ground forces, which in our opinion is a flagrant error.

Nor do they always take into consideration that the enemy may employ mock-ups of launchers and missiles for purposes of operational camouflage. The trainees limit themselves to data about the enemy that have been received from the directing body and, as a rule, do not refine them.

Determination of the indices of firing effectiveness frequently is done after the delivery of a nuclear strike instead of preceding it for the purpose of selecting the optimum firing conditions. Moreover, little attention is given to the features characterizing each target.

Thus, the trainees fail to analyze the available target data, pinpoint the target coordinates, determine the nature and area of the location and the degree of engineer preparation of the area, calculate how long the target will be in the area, and strive to save time in preparing missiles

for launching. This does great harm to the operation and to combat training.

As a rule, the enemy nuclear attack means are represented on 1:500,000 or 1:200,000 scale maps. However, the players (trainees) do not take this into account. Instead of making an independent analysis of the target's elements, they immediately take the target coordinates from the problem map with the above-mentioned scale and assume that they have thus reduced the time needed to prepare the missiles for launching. Actually, however, this is not even just oversimplification, but the very failure to understand the complex process of preparing a nuclear strike. By acting in this manner, these comrades are first of all deceiving themselves, and, at the same time they are also misleading other assigned (for the exercise) personnel who are less competent in these matters.

Effective combat against enemy nuclear attack means is possible only when during its organization and conduct one takes into consideration the peculiarities of the employment of available nuclear means by the enemy, his battle formations and their most vulnerable elements, the procedure for supplying the missile units with delivery vehicles and propellant, the time and methods of preparing, occupying, and changing launching sites (fire positions), the time required to prepare for a launch, the procedure for relocating during an operation, etc. Some of these data on enemy nuclear means is cited in Table 1. We feel that these data must without fail be taken into account when preparing and delivering nuclear strikes with the means of the front, the armies, and the divisions.

Of course, an effort must also be made to learn about the total number of enemy nuclear means in the offensive zone of the front (army), their tactical-technical characteristics, the give-away signs of the targets and also to know the organization of the missile units and subunits. All this has been repeatedly brought out in military publications, and yet at the exercises a good number of specific matters related to the destruction of enemy nuclear attack means are at times accomplished incorrectly in practice.

For example, attempts to organize the destruction of, let us say, Honest John or Little John batteries by front means must be considered obviously unsound. The fact is that by the time the launching of front missiles is prepared, these enemy launchers will have long changed their launching sites. Moreover, as has already been noted in the critiques of many exercises, it is impractical to conduct fire with long-range front means against targets located at a depth of 10 to 20 kilometers, a distance

frequently within range of tube artillery and especially within range of tactical missiles and aviation.

Combat against enemy nuclear attack means must not be limited to destroying them only while they are at launching sites (fire positions), since they are there for a very short period of time. They also must be destroyed in concentration areas, waiting areas, at loading and unloading stations (ports, airfields), and on the march. This is not always done at the exercises.

This being the case, in a number of instances it will be more advantageous and more important to destroy not the launcher, for example, the Matador or the Redstone, but the nuclear warhead depot. This will protect our troops not from one, but from several enemy nuclear strikes. Therefore, in each specific instance, it is necessary to make a detailed analysis of all the known targets and select for a nuclear strike the main or the most dangerous ones at the time, whose destruction will be important for the progress and completion of the operation. In practice, though, during the exercises they frequently try to destroy all the detected enemy targets with nuclear weapons alone, forgetting that this is not possible and is not even required by the situation.

It should be stressed that, regardless of the enormous yield of nuclear warheads and the large areas of destruction, the requirements for accuracy in determining target coordinates remain as high as before. Calculations show that the average error in determining coordinates must not exceed 150 to 300 meters when firing operational-tactical missiles, or 100 to 200 meters when firing tactical missiles. Therefore, we consider erroneous the statements of several comrades that even considerable mistakes in determining the coordinates allegedly can be compensated for by a greater (than necessary to destroy the given target) yield of the nuclear warhead.

In the first place, this is very uneconomical; second, these warheads may not be available; third, if several missiles have to be expended to destroy a given target, the expenditure of these missiles, when the yield of their nuclear warheads has been increased, will increase unjustifiably. This undoubtedly will have a negative effect on the destruction of other equally important targets and on the execution of the tasks of the operation as a whole.

Therefore, it is necessary not only to reconnoiter the enemy nuclear attack means, but also to identify with sufficient accuracy the coordinates

of the center of the target or the most vulnerable element of the target, its size and configuration, the nature and degree of engineer preparation, and on the basis of these data to determine the required yield of the nuclear warhead.

For the most effective reconnaissance of the enemy nuclear means, the intelligence directorate of the front staff and the intelligence department of the staff of the rocket troops and artillery of the front must continuously keep track of the possible number of these means, their locations, as well as the number of targets that have been detected and destroyed. This can be done on a 1:500,000 scale reconnaissance map; but on it, for quickly going over to a large-scale map, there should be marked the nomenclature of the 1:100,000 or even 1:50,000 scale map sheets. This fully ensures the determination on a large-scale map of the possible location of the target's elements and the more concrete assignment of tasks for the reconnaissance and final reconnaissance of the target.

It can be seen from the data in Table 2 that as of now the most reliable means of reconnaissance of enemy nuclear means in a front (army, division) is aviation, since it alone is capable of conducting reconnaissance of a large area, of determining the target coordinates with the greatest accuracy and rapidly (from aboard the aircraft or by interpreting on a wet negative) transmitting reconnaissance results directly to the staff of the rocket troops and artillery of the front.

In organizing and conducting reconnaissance, the radiation situation on the enemy side must also be taken into consideration, particularly when large areas are contaminated as a result of ground nuclear bursts. The fact of the matter is that this situation may lead to changes in the location of enemy targets that we have not anticipated, mainly of those that happen to be in the contaminated areas.

Since the enemy will employ operational camouflage measures extensively, only those targets that have been confirmed by at least two types of reconnaissance at the same time (or with a minor difference in time) should be considered authentic.

Finally, in the course of conducting the operation and immediately before the delivery of nuclear strikes, it is necessary to pinpoint the coordinates by means of final reconnaissance. Final reconnaissance also is necessary in order to make certain whether a given target is still in its previous (already reconnoitered) area or whether its location has changed.

Consequently, we cannot agree with the opinion expressed by several comrades that final reconnaissance in no way differs from the usual reconnaissance activity and that therefore even the term "final reconnaissance" is becoming superfluous. This opinion is evidence of an erroneous conception of the essence and significance of final reconnaissance under present-day conditions. Final reconnaissance is called on to play a vital role, particularly in combat against enemy nuclear attack means.

The experience gained in exercises has shown that final reconnaissance requires efficient control of the reconnaissance forces and means. Therefore, it is advisable to have attached to the staff of the rocket troops and artillery an operations group, with communications means, from the separate spotting and reconnaissance air regiment.

When tasks are defined for the rocket troops, each launcher must be assigned an alternate target in addition to the main target of destruction. And to increase the reliability of destruction of the most important targets, it is advisable to allocate main and alternate launchers. A poststrike verification must be made after each nuclear strike, particularly in order to ascertain the extent of damage to the target. Again, this is not always done at the exercises.

Successful combat against enemy nuclear means also requires the timely preparation and supply of warheads to the front missile units and subunits and organization of communications, the activity of the batteries on alert, support of fire, fire control, safety measures, etc. We are not examining these matters in this article, but want only to stress their great importance.

All that has been said makes it possible to conclude that the organization of combat against the enemy nuclear attack means is a very complex and laborious process. There is virtually no way to carry out this process by merely employing the data from an initial situation map or problem and determining the range of one's own means, but without accomplishing the matters listed above.

In our view, therefore, the methodology of training for combat against enemy nuclear attack means must be organized in the following manner.

No data should be given on the initial situation map (map-problem) as to the location of the enemy nuclear attack means, since in reality there will be no data unless reconnaissance of these means is actually organized.

Purely stationary targets may be an exception, for example, nuclear weapons depots, some ballistic missile sites, and installations in the enemy air defense system whose locations are known in peacetime and are unlikely to change when war starts.

Textual information about the enemy nuclear weapons may be added to the problem (map) only in those instances when, according to the situation created, our troops are operating up forward or agent reconnaissance data are available. When this is done, the information must be general, with no precise delineation of the probable siting areas and launching sites and, particularly, with no coordinates. This information may be presented in the following way, for example: "At such and such a time (date and hour) agents observed special vehicles occupying a position in an area three kilometers north of the populated point N (or another reference point)," etc.

If the trainees immediately organize reconnaissance, data on the enemy nuclear means can be given to them in a more precise and continuous manner (cumulatively) without waiting for the planning of the operation to be finished. These data can include information about the movement of the targets, the delivery of warheads and propellant, etc.

Also to be kept in mind is the actual time of reconnaissance (final reconnaissance) of the targets or of receiving data from troops operating up forward. Thus, in the example cited, upon receiving information about enemy special vehicles occupying positions in an area north of populated point N, the front commander, of course, will immediately give the order for these data to be refined by means of final reconnaissance. When this is done, one should take into account the time needed to transmit the orders to the executors -- for example, to the air reconnaissance organs -- to reconnoiter the given target, to transmit the data from the aircraft, etc.

Calculations show that 45 to 60 minutes elapse from the start of reconnaissance (final reconnaissance) of the target until the launching of the missile. Also included in this time period are the following: the making of a decision by the commander to deliver a nuclear strike (the selection and assessment of the target, the calculation involved in selecting the yield of the nuclear warhead and the type and height of the burst, the determination of a safe distance, the designation of executors, the estimate of the expected result of the nuclear strike); the assignment by the front commander of the task of delivering the nuclear strike, with an indication of the target, its coordinates, the procedure and time of the

strike; the yield of the nuclear warhead, the type and height of the burst; the transmission by the chief of the front rocket troops and artillery to the launch battery of the encoded command to prepare and to fire, and verification as to whether the command has been received correctly; the preparation of firing data for the battery, which usually coincides with the time required to prepare for the launching of a missile under 15- to 20-minute readiness (the reference here is to batteries on alert).

This amount of time is sufficient for the destruction, for example, of a Corporal launcher and also ensures a reliability factor of 50 to 60 percent for hitting the target. But if the preparation time for firing against a Corporal-type target exceeds 60 minutes, the probability of a hit will be less than 50 percent. Similar calculations must be made when striking at other enemy nuclear means.

It may be argued that this is a technical aspect of the matter and that the front commander should not concern himself with this. However, we stress that these measures are the most important element in combat against enemy nuclear attack means. They are inseparable from measures of an operational nature, are closely linked with them, and are carried out jointly as a single process. Consequently, the commander is obliged to deal with these matters personally. This will contribute considerably to the success of an offensive operation.

Should the trainees react belatedly to changes in the location and actions of the enemy nuclear means, they must be "punished", for example, by being given hypothetical situations in which the enemy has delivered nuclear strikes, and then having to further play out the combat actions of the sides on this basis.

During exercises and games, the delivery of nuclear strikes against unreconnoitered targets and their merely presumed locations should be prohibited. In actual practice, this is not the way things are done at the exercises; it is merely recorded that a certain number of nuclear strikes have been delivered against empty areas.

If the initial situation (problem) is presented as one in which a war has already started, there should be indicated on the map, in the zone of the impending front actions, the areas of radioactive, chemical, and bacteriological contamination, sectors of destruction, obstructions, and fires resulting from the enemy's employment of nuclear weapons and other means of destruction. However, the levels of radioactive contamination and the nature of the destruction should not be indicated, so that the players

themselves will organize radiation and engineer reconnaissance of the terrain.

We would like to draw attention to still another matter. As has already been said, all the generals and officers undergoing training must always be aware of the need to fight for fire superiority in the very first operations. This fighting requires the participation not only of nuclear means, but of all the conventional means of destruction, including aviation, artillery, and tanks. However, the experience gained from the exercises has shown that they still are insufficiently utilized to destroy enemy nuclear means. It seems to us advisable to carry out appropriate experimental exercises for this purpose and, particularly, to establish expenditure norms for tube artillery ammunition to destroy enemy nuclear attack means, since existing norms are clearly inflated. Similar exercises would also be useful for establishing the procedure for tank actions from indirect fire positions. Finally, exercises are needed which are specially designed for reconnaissance of enemy nuclear means, with the use of mock-ups of these means which are already available in the mobile training grounds of certain military districts.

Table 1

Designation of nuclear attack means	Distance from the forward edge, in kilometers	Area, in square kilometers	Firing preparation time at launching site	Rate of fire of one launcher	Type of radar	Target elements	Most vulnerable elements	Number of targets of destruction
Matador cruise missile group	80 - 150	600 (30X20)	From 20 to 30 min. up to 3.5 hours	One launching per 1.5 hours	AN:MSQ-2 AN:MPS-9	Preparation zone (assembly and checking of cruise missiles, special propellant, spare parts). Launching zone (launching areas, launchers with radar, depots of assembled cruise missiles)	Launching areas with cruise missiles ready for launching, depots in preparation and launching zones, special depot propellant	Several independent targets of destruction
Mace cruise missile group	120 - 150	600 (30X20)	0.3 - 3.5 hours	Two launchings per hour		Same	Same	Same
Redstone battalion	80 - 100	15 - 32 (3X5 - 4X8)	3 hours			Fire position of the launch batteries, fire control post, the locations of the headquarters company, the engineer company, and the ordnance company	Fire position of the launching batteries, the engineer company, the control post	Same

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Table 1 (continued)

Designation of nuclear attack means	Distance from the forward edge, in kilometers	Area, in square kilometers	Firing preparation time at launching site	Rate of fire of one launcher	Type of radar	Target elements	Most vulnerable elements	Number of targets of destruction
Corporal battalion	30 - 60	About 50 (6X8)	6 - 10 hours	Two missiles per day	AN:MPQ-28 AN:MPQ-7	The position of the fire battery, command post, the locations of the headquarters battery and warhead depot	The position of the fire battery, the command post guidance platoon	One or several targets
Lacrosse battalion	4 - 12	1.5 (1X1.5)	10 - 30 minutes	Four missiles in first hour	AN:MSM-5	Command post, battery siting area, locations of the repair and servicing platoon and the communications platoon of the ammunition supply section	Command post, battery siting area	One target
Honest John battalion (battery)	4 - 12	--	30 - 65 minutes	Two missiles per hour	--	Fire battery, command post, locations of headquarters and service batteries and locations of battalion transport means	Fire battery, missile assembly and checking area	Several targets

Table 1 (continued)

Designation of nuclear attack means	Distance from the forward edge, in kilometers	Area, in square kilometers	Firing preparation time at launching site	Rate of fire of one launcher	Type of radar	Target elements	Most vulnerable elements	Number of targets of destruction
Nike Hercules guided missile battery		900,000 meters (600X1500 meters)	5 - 10 hours		GS-17449 GS-18034 GS-17638	Launching site, control site, personnel and transport shelter area	Launching site	One target
203.2 millimeter howitzer battery	4 - 12	2.25 - 4 (1.5X1.5 - 2X2)	15 - 20 minutes			Fire position	Fire position	Same

Table 2

Designation of reconnaissance means	Possible number in a front	Operating depth	Number of reconnaissance targets	Remarks
Agents and specially trained reconnaissance groups	There may be 70-75 groups in the front zone at one time	In a front--350-500 kilometers and more; in an army--250 kilometers and more; in a division--100 kilometers and more	One group can reconnoiter one or two targets	Basically they give the area, but not the coordinates of the target; the data may be late. Final reconnaissance is necessary
Radio and radiotechnical means	300-400 posts	Front radios: ultra-shortwave, 35; shortwave, 700-1,000 kilometers. Army radios: ultra-shortwave, 35; shortwave, 250 kilometers. Division radios: ultra-shortwave, 30; shortwave, 40 kilometers. Front radiotechnical means: aircraft, 350-400 kilometers; ground radar station up to 40 kilometers.	One post monitors 3-4 enemy radio nets; a radar post monitors 10 ground targets or 20 air targets	Accuracy of coordinates is low. They detect only operating stations. They are subject to jamming
Artillery reconnaissance	--	15-20 kilometers	--	The data come in fast, but final reconnaissance of the target coordinate is necessary
Aerial reconnaissance	Operational reconnaissance regiment (bomber aviation)	600-700 kilometers and more	Up to 250 (observation of 50-60 targets)	Data come in directly from the aircraft
	Tactical reconnaissance regiment (fighter aviation)	Up to 300 kilometers	--	--
	Separate spotting and reconnaissance air regiment. (Separate spotting and reconnaissance air squadron.)	Up to 500 kilometers	--	--