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WASHINGTON, D.C. 20505

19 June 1974

MEMORANDUM FOR: The Director of Central Intelligence

SUBJECT : MILITARY THOUGHT (USSR): Reconnaissance for the Initial Front Rocket Strike

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 proceeds from the premise that the timely transition of front rocket troops to a high degree of readiness is dependent on the front command knowing the actual state of enemy means of nuclear attack and having information available concerning all the important objectives which have to be destroyed in the initial nuclear strike. The capabilities and limitations of various forms of front reconnaissance are discussed, including agent and radar intelligence collection, special-purpose reconnaissance groups, and aerial reconnaissance. The introduction of automated reconnaissance systems will solve some of the problems presently encountered and special attention should be given to developing pilotless reconnaissance means. This article appeared in Issue No. 3 (91) for 1970.

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]

William E. Nelson
Deputy Director for Operations

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SUBJECT

MILITARY THOUGHT (USSR): Reconnaissance and Final Reconnaissance of Objectives for the Initial Strike by Front Rocket Troops

SOURCE Documentary

Summary

The following report is a translation from Russian of an article which appeared in Issue No. 3 (91) for 1970 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal "Military Thought". The authors of this article are Colonel Yu. Gordon, Candidate of Military Sciences, and Colonel B. Druganov. This article proceeds from the premise that the timely transition of front rocket troops to a high degree of readiness is dependent on the front command knowing the actual state of enemy means of nuclear attack and having information available concerning all the important objectives which have to be destroyed in the initial nuclear strike. The capabilities and limitations of various forms of front reconnaissance are discussed, including agent and radar intelligence collection, special-purpose reconnaissance groups, and aerial reconnaissance. The introduction of automated reconnaissance systems will solve some of the problems presently encountered and special attention should be given to the developing of pilotless reconnaissance means.

End of Summary

[redacted] Comment:

There is no information in available reference materials which can be firmly associated with the authors. 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.

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Reconnaissance and Final Reconnaissance of Objectives for the Initial Strike by Front Rocket Troops

by

Colonel Yu. Gordon, Candidate of Military Sciences
and Colonel B. Druganov

Experience gained from operational exercises shows that the most difficult problem faced by front reconnaissance during the preparation and conduct of an operation is to determine the probable moment that the enemy will go over to the use of nuclear weapons, as well as the acquisition of reliable data for the rocket troops regarding objectives to be destroyed by the initial massive nuclear strike. In order to carry out timely transition of front rocket troops to a high degree of readiness, and in order to plan their strikes and troop movements, the front command must know the actual state of enemy means of nuclear attack at any given moment and have information available concerning all the important objectives which have to be destroyed in the initial nuclear strike.

The principal indications of enemy preparation for nuclear action can be: the deployment of mobile field supply points for nuclear weapons (PPPS) and mobile field storage points (PPPKh); the mass issue of nuclear munitions directly to units (subunits) using nuclear weapons (tactical aviation, Pershing and Sergeant guided missiles, Honest John free rockets, and 203.2mm and 155mm howitzers); the assignment of tasks by radio to means of nuclear attack; the mass takeoff of tactical aircraft (30 to 40 minutes prior to the delivery of the initial nuclear strike); and others. At the same time, it should be noted that during the NATO troop exercises in 1969 the mobile field nuclear weapons supply system, as a rule, had been deployed even prior to the "war" (which indicates the high degree of troop readiness for the mass employment of nuclear weapons using all delivery means--operational-tactical, tactical, and aviation), even though this did not mean that combat actions would necessarily begin at once with the use of nuclear weapons.

Experience indicates that the use of agent and radar intelligence collection makes it possible even in peacetime to determine with a certain degree of accuracy and reliability the situation concerning the enemy nuclear means. Therefore, agent sources should be assigned to, and radio reconnaissance directed at, each of the targets such as operational and alternate airfields, military cantonments where nuclear attack units are located, assembly areas for alerts, duty sites for Pershing and Sergeant

subunits, warehouses, supply points, and special munitions storage areas. At the same time, they should keep a watch on control posts from which control of the means of nuclear attack is (or will be) carried out.

In border areas the reconnaissance of enemy targets is conducted more intensively due to the use of reconnaissance aircraft and helicopters which carry out tasks by employing oblique aerial photography, visual observation, and radiotechnical equipment without violating national borders. There is also the possibility of developing a system of observation points and posts of the large units of the first operational echelon. Particular importance is attached to the information obtained by radiotechnical subunits equipped with NRS-1 sets and others which are capable of discovering various enemy objectives by detecting his operating radar stations. The sum total of the abovementioned intelligence collection means provides information confirming the functioning of nuclear objectives and determines (with a sufficient degree of accuracy for rocket troops) the location of those which were in the same place for a certain length of time (see chart). Frequent daily analysis of the disposition and status of enemy rocket troops provides a definite picture of the degree and scale of the threat of a nuclear attack by him. As a result, appropriate countermeasures will be undertaken, to include increasing the state of readiness of the rocket troops and aviation.

It is difficult to establish a precise procedure for analyzing the disposition and status of enemy nuclear forces, since everything will depend on the situation, above all on the degree of buildup of the enemy nuclear threat.

In peacetime, when there is no sharp tension on the borders of the socialist countries, such an analysis may be carried out by the intelligence directorate of a border military district (group of forces), for example, four times a day: at 0000, 0600, 1200 and 1800 hours.

In a threatening period, when an acutely tense situation is at hand, analysis of the disposition and status of nuclear forces in the area of the forthcoming actions of the front and on its flanks must be conducted at least once an hour, i.e., in a time period when most of the nuclear means of the enemy ground forces (operational-tactical and tactical taken together) cannot be readied for combat actions (which, according to the experience of NATO troop exercises, requires 8 to 12 hours).

Continuous analysis is necessary during combat actions. It should be carried out by specially designated officers maintaining a special map of the missile/nuclear grouping and an account of the personnel, armament, capabilities, status, disposition and relocation of nuclear attack units

and subunits of operational-tactical and tactical designation; aviation; the entire system of nuclear weapons supply; and the control posts and communications system providing control of nuclear attack means.

With the beginning of the war, the high dynamism of combat actions and the complexity of the situation will create exceptional difficulties in the work of agent and radio intelligence collection. Added to this is the fact that almost all the troops will depart from the points (or areas) where they were stationed in peacetime; the enemy will increase his counter-intelligence measures; and the scale of radio deception and communications security will sharply increase. In this connection, the main responsibility for obtaining intelligence information will fall on aerial, special, radiotechnical, and troop (including artillery) reconnaissance.

Therefore, it is necessary that the intelligence directorate of the front (intelligence department of the army) determine beforehand the tasks and means of reconnaissance (assigning them to each target); and also establish when they are to begin reporting and with what regularity, as well as the format and degree of detail. The reconnaissance results are processed and immediately forwarded from the front intelligence directorate (army intelligence department) to the staff of the front (army) rocket troops and artillery for the timely preparation of rocket strikes.

Research shows that with the onset of combat actions, 75 to 80 percent of the objectives that may be hit by rocket troops and aviation in the initial nuclear strike will change their positions, and it will be necessary to look for them anew (these are primarily the means of nuclear attack, army groupings, command posts, mobile field supply systems for nuclear weapons, and others). The fulfilment of such an exceptionally complex task requires the subordination to it of the activities of the front intelligence directorate (army intelligence department) organizing the use of all the forces and means of operational and tactical reconnaissance in combat. Of great importance during this period is the organization and conduct of massive flights by reconnaissance aviation, which will be discussed below.

If combat actions start without the use of nuclear weapons and the initial nuclear strike is carried out in the course of the operation, the tasks of reconnaissance are somewhat simplified.

Agent intelligence collection will continue the activities which had begun in peacetime (although it must be taken into consideration that it will not have much capability for reporting on mobile targets).

Special-purpose reconnaissance groups (front and army) as well as divisional deep reconnaissance groups landed in the enemy rear at the onset of combat operations, will transmit their first intelligence data in four to six hours after they have landed (or approximately seven to nine hours later, after combat actions have begun). At the same time, the advancing troops may approach the enemy forward defensive line an average of eight hours after the start of combat actions, when the special-purpose and deep reconnaissance groups are not yet fully prepared to conduct reconnaissance. The front intelligence directorate (army intelligence department) has to take that factor into consideration and designate other forces and means, primarily aerial reconnaissance, for reconnaissance of the enemy.

The capabilities of existing front reconnaissance forces and means deteriorate considerably as the depth of reconnaissance increases. Their best capabilities are for reconnaissance of objectives to be destroyed by artillery and tactical rockets firing at a range not exceeding 20 kilometers. Concerning objectives (targets) located at a great depth, the accuracy of reconnaissance means used against them (agent, radiotechnical and aerial reconnaissance, and reconnaissance groups) in favorable conditions (except for aerial photography) permit delivering only operational-tactical rocket strikes against these targets; it does not ensure using tactical rockets against them.*

Therefore, it should be recognized as entirely necessary, along with increasing the operating range of reconnaissance means, to improve as much as possible their accuracy in determining target coordinates. Accordingly, it is desirable to proceed along the lines of increasing the precision of design of the reconnaissance instruments, stations and means under development, using coordinate determination methods which provide the necessary accuracy, and training reconnaissance subunit personnel to determine these coordinates skilfully.

As is known, reconnaissance aviation, which can fulfil its tasks by visual observation, aerial photography and the use of radiotechnical means, is considered the most flexible and fast-acting deep reconnaissance means. However, it should be taken into consideration that the capabilities of aerial reconnaissance are limited when the enemy air defense system is not sufficiently neutralized, and that the accuracy of the visual reconnaissance they perform will not always meet the requirements of the rocket troops and artillery. Aerial photography produces more accurate data, but

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* The required accuracy (average circular error) of determining the coordinates of objectives (targets) to be destroyed by artillery is 30 meters, by tactical rockets 100 to 150 meters, and by operational-tactical rockets 175 to 200 meters.

these data cannot be obtained until two hours or more after the reconnaissance aircraft departs the airfield.

Aerial reconnaissance does not reveal all the objectives for rocket large units armed with long-range systems, since the maximum operating radius of reconnaissance aircraft at low altitudes does not exceed 500 kilometers for the YAK-27R (YAK-28R) and 400 kilometers for the MIG-21R, and 800 and 600 kilometers respectively at medium and high altitudes. Because of this, the reconnaissance of objectives located beyond this depth is assigned to agent intelligence collection and front special-purpose reconnaissance groups, which, in turn, cannot detect the separate elements of large-scale objectives. Accordingly, for reconnaissance of deep objectives of destruction (including those for long-range missiles), a combination of various means, which supplement each other in both speed and accuracy of obtaining information, has to be used each time. In that case, in addition to agent intelligence collection and front special-purpose reconnaissance groups, reconnaissance aircraft must be used at medium and high altitudes for simultaneous reconnaissance by visual observation and aerial photography, with transmission of visual reconnaissance data from on board the aircraft. But at medium and high altitudes the probability that aircraft will be destroyed by air defense means increases. Therefore, when it is impossible to assign front reconnaissance aviation, long-range reconnaissance aviation must carry out this task as required. In the future, reconnaissance aircraft will have to have a system of reconnaissance equipment which ensures positive and accurate determination of objectives (targets) and their separate elements according to their various physical backgrounds and intelligence indications, with the transmission of data to the command post effected while the aircraft is in flight.

However, reconnaissance must not only determine the location of enemy objectives reliably and accurately, but it must also report information on the status of each of them. Therefore, it is not enough just to detect the location of, let us say, an enemy airfield or nuclear munitions depot; continuous surveillance must be conducted to establish the presence of aircraft and nuclear munitions up to the moment strikes are delivered against them. Thus, the reconnaissance of Pershing and Sergeant surface-to-air missile battalions should not only determine the location of the launchers and the command posts of the battalion and batteries, but it must also establish their degree of launch readiness. This task will be performed chiefly by agent and radio reconnaissance; front and army special-purpose reconnaissance groups and aircraft of reconnaissance aviation must be used for this.

Research has shown that at present it is possible to increase the effectiveness and reduce the time spent on reconnaissance support of the

initial strike only through massive flights of reconnaissance aviation (for reconnaissance and final reconnaissance of the objectives, and also monitoring the nuclear strikes conducted) and the immediate transmission of data from onboard the reconnaissance aircraft. All front reconnaissance aviation should be activated for this purpose (with the allocation of the reserve). However, this type of flight obviously is possible only under conditions when the first nuclear strike is delivered during combat actions. Accordingly the entire zone of the front should be kept under constant surveillance to a depth of up to approximately 250 kilometers, and up to 750 kilometers in individual areas. If the nuclear strike is delivered at the beginning of combat actions, the massive flight of reconnaissance aviation cannot precede it because of the prohibition against flying across the national border. Consequently, the nuclear strike will be carried out on the basis of agent, radio, and radiotechnical reconnaissance data, with all the previously mentioned difficulties of reconnaissance support to rocket troops. In our opinion, space reconnaissance must play an important part in supporting the initial nuclear strike delivered at the beginning of combat actions (discussion of this problem is the task of a separate article).

As to the capabilities of reconnaissance forces and means to support subsequent rocket launches carried out by front and army rocket large units (units) as required, they must be estimated based on the fact that the launchers can perform the repeat launch in 40 minutes to two hours and 30 minutes (depending on the type of rocket). No more than one-third of this time balance may be spent on reconnaissance and final reconnaissance of objectives, and the rest will be used for estimating the situation that has developed (based on the results of the initial strike), making a decision, issuing orders, and readying the rockets for the next launch. Consequently, reconnaissance has 30 minutes to one hour to obtain new, and to refine available, reconnaissance data in support of repeat employment of operational-tactical rockets, and 10 to 15 minutes for tactical rockets.

Analysis of the capabilities of existing front reconnaissance forces and means (particularly the time spent determining the coordinates of objectives to be destroyed and transmitting data) leads to the conclusion that final reconnaissance and reconnaissance of the objectives (targets) are not always possible in the time specified. Therefore, it is necessary to reduce as much as possible the time both for determining objective (target) coordinates and, especially, for transmitting the data obtained to the front (army) rocket troops and artillery staff. The best solution to this problem will be the introduction of automated reconnaissance systems. Until they appear, the various improvements available to the troops must be widely used, even though they have not been consolidated nor made available to all. There are many different adaptations for existing organic

reconnaissance instruments, stations and reconnaissance means which expedite the determination of objective (target) coordinates. This is facilitated by improvements in the processing of aerial photography materials and by using different types of nomographs and tables.

Using selective circuit communications facilitates expediting transmission of reconnaissance data within staffs. Of very great importance to the rapid transmission of aerial reconnaissance data from onboard reconnaissance aircraft and helicopters is that the information be received directly by the unit, large unit and formation staffs which need the reconnaissance data. The use of this method is limited by the inadequate number of radio receivers in the troops, and also by the fact that radio data for the receipt of transmitted information is not sent to them in time.

In conclusion, it should be emphasized that comprehensive improvement of the existing front reconnaissance forces and means, aimed at increasing the accuracy of determining objective (target) coordinates and the depth of operations and at reducing the transmission time for the data obtained, will be conducive to more effective use of the rocket troops in general, and in the initial nuclear strike in particular. At the same time, the appearance of long-range missile systems in the ground forces makes it necessary for the front reconnaissance aviation armament to include means capable of conducting aerial reconnaissance at a great depth. Taking this into consideration, it is our opinion that special attention should be given to developing pilotless means. It also is desirable that a front be able to use the results of strategic aerial space reconnaissance, receiving data from the General Staff in a timely manner and immediately sending the information to the front rocket troop and artillery staff.

(See Chart on following page.)

Chart

CHARACTERISTICS OF RECONNAISSANCE MEANS

Characteristic	Reconnaissance means: Agent intelligence collection	Special purpose reconnaissance groups / Deep reconnaissance groups	Reconnaissance groups of combined-arms large units and units	Radio reconnaissance / Radiotechnical reconnaissance	Aerial reconnaissance by visual observation / photography / radiotechnical system	Artillery reconnaissance: Laser range finder	Stereoscopic range finder	Bilateral spotting with recon. theodolite	Sound ranging battery (sound ranging platoon)	Ground artillery radar (SNAR)	Artillery radar, terrain features observation (ARSOM)	NRS-1	MI-1 KR
Mean error	No worse than 100 meters*	200 meters**	200-400 meters**	Radio reconnaissance 2-4% of fix distance / Radiotechnical reconnaissance 0.3-0.6% of fix distance	100-300-500 meters / 50-100 meters / 70-110 meters	5-10 meters	1-2% of fix distance	0.5-1% of fix distance	40-100 meters	20-30 meters	15-20 meters	30-60 meters	40-150 meters
Reconnaissance range (kilometers)	Entire depth of theater of military operations	Front - up to 1000 / Army - up to 500 / Up to 100	Division - up to 80 / Regiment - up to 50	Front - up to 1000 / Army - up to 200	Front - up to 500 / Army - up to 150	5-7	5-7	5-7	25 (15)	5-7	10	30-60	20
Time for determining coordinates from moment target (objective) spotted	Up to 5 minutes	Up to 5 minutes	2-3 minutes	2 minutes / 3 minutes	5-10 minutes / 3-5 minutes*** / 5-10 minutes	30-40 seconds	30-40 seconds	1-3 minutes	8-20 minutes	10 seconds	10 seconds	15-20 minutes	10-15 minutes (with observation post special fixing instrument)
Time for data transmission to staff (chief)	40-70 minutes (includes drafting the report, coding, transmission, decoding, plotting data on map and reporting to commander)	20-35 min. / 12-23 min.	10-20 min.	15-22 min. / 12-23 min.	5-7 min. / 2-3 min. / 2-3 min.	One to two minutes							

Annotations:

* - against stationary objectives

** - against immobile objectives in favorable observation conditions

*** - once target located on photography, 3-5 minutes spent plotting target on map, taking off coordinates and recording them. According to experience of exercises, 2 hours or more elapse from moment photography task given to aircraft crew to receipt of target coordinates by radio from photography laboratory located at the airfield of the reconnaissance regiment. (when photograp interpreted from wet negative).