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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

14 January 1977

MEMORANDUM FOR: The Director of Central Intelligence
FROM : William W. Wells
Deputy Director for Operations
SUBJECT : MILITARY THOUGHT (USSR): Aerial
Reconnaissance in Support of the
Initial Nuclear Strike of a Front

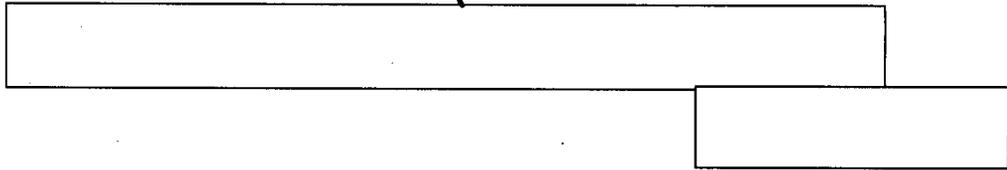
1. The enclosed Intelligence Information Special Report is part of a series now in preparation based on the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal "Military Thought". This article identifies final and poststrike reconnaissance of targets, the detection and evaluation of air defense and control systems, and radiation reconnaissance as the tasks of aerial reconnaissance for an initial nuclear strike. The number of targets, based on the front's striking capabilities, and the number of sorties required, are indicated. Among needed improvements, the author recommends joint planning by the front and air army staffs, centralization of control of reconnaissance aircraft, the introduction of portable drones, the use of wire communications, and the establishment of special data collection posts. This article appeared in Issue No. 2 (78) 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

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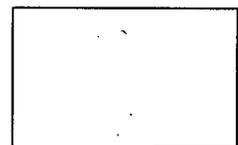
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Intelligence Information Special Report

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COUNTRY USSR



DATE OF Mid-1966
INFO.

DATE 14 January 1977

SUBJECT

MILITARY THOUGHT (USSR): Aerial Reconnaissance in Support of
the Initial Nuclear Strike of a Front

SOURCE Documentary

Summary:

The following report is a translation from Russian of an article which appeared in Issue No. 2 (78) for 1966 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal 'Military Thought'. The author of this article is Colonel G. Yeletskikh. This article identifies final and poststrike reconnaissance of targets, the detection and evaluation of air defense and control systems, and radiation reconnaissance as the tasks of aerial reconnaissance for an initial nuclear strike. The number of targets, based on the front's striking capabilities, and the number of sorties required, are indicated. Among needed improvements, the author recommends joint planning by the front and air army staffs, centralization of control of reconnaissance aircraft, the introduction of portable drones, the use of wire communications to reduce information loss, and the establishment of special collection posts to speed the passage of data to the troops.

End of Summary

Comment:

Colonel G. Yeletskikh was identified as a Hero of the Soviet Union and as a candidate of military sciences. He wrote an article in the Military Historical Journal, #11, 1973, entitled "Aerial Reconnaissance During the Great Patriotic War". 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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Aerial Reconnaissance in Support of
the Initial Nuclear Strike of a Front

by
Colonel G. Yeletskikh

Aerial reconnaissance enjoys high mobility and is capable of supplying rocket troops and aviation with the most reliable data about enemy installations and targets.

But, specifically, what tasks can it accomplish in support of the delivery of the initial nuclear strike of a front?

① With the start of combat actions its first task is to monitor the results of strikes delivered and to provide final reconnaissance of targets which are marked for aviation and missile strikes in subsequent launches.

② The second task of aerial reconnaissance should be considered to determine the make-up and location of the air defense means and the operating parameters of the radiotechnical means being used by the enemy to control aviation and surface-to-air guided missiles.

③ The third task will be to identify the boundaries of areas of radioactive contamination, establish the levels of radiation in the atmosphere and determine the weather.

For accomplishing the tasks enumerated, the appropriate forces, the requirement for which is occasioned by a number of factors, are necessary. First of all, it is necessary to know the quantity of missile/nuclear means to be used for the strike against the enemy, and also the capabilities of the forces and means of aerial reconnaissance. If the front has in its composition three combined-arms armies, one tank army, and one air army, then for the initial nuclear strike it can allocate up to 50 front and army missile launchers, a bomber air division, a fighter-bomber air division, and one or two regiments of front cruise missiles. This being the case, as the experience of exercises shows, two launches of army and front missiles usually are conducted in the initial strike: the first -- from readiness no. 1 and 2, and the second -- a little more than an hour after the first (based on the results of final reconnaissance).

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For the first launch, about 30 tactical missile launchers (or about 50 percent of the total number) located in the motorized rifle (tank) divisions are allocated, and for the second -- about 15 launchers.*

Thus, the total number of front, army, and division missiles which can be used in the first launch will equal 80.

A bomber air division, if 85 percent of its combat-ready aircraft are available, is capable, by operating in small groups (four to five aircraft per group, which provides the best conditions for negotiating enemy air defense), is capable of employing up to 15 to 18 nuclear bombs against moving targets, and a division of fighter-bombers up to 15.

Two regiments of front cruise missiles can use eight missiles in the first launch and four in the second.**

Based on the indicated quantity of nuclear means employed in the initial nuclear strike, it is necessary for aerial reconnaissance to perform final reconnaissance in support of bombers and fighter-bombers of about 33 targets (18 targets against which the bomber air division is using nuclear bombs, and 15 targets against which the fighter-bomber air division is delivering strikes with nuclear bombs). Aerial reconnaissance also must monitor the results of the first and second missile launches as well as the air strikes against 155 targets (110 targets are subjected to missile strikes, while bombers and fighter-bombers operate against 33 targets, and the two front missile regiments deliver strikes against 12 targets).

* The number of missile launchers available in motorized rifle (tank) divisions and capable of participating in the initial nuclear strike is indicated with the consideration that some of the large units will, by the moment of its delivery, be located not closer than 30 kilometers from the state border (demarcation line).

** The number of nuclear strikes characterizing the capabilities of aviation divisions and a front missile regiment corresponds not to the limit of nuclear warheads established for them at the present time, but to their maximum ability to accomplish delivery of means of mass destruction (nuclear, chemical, bacteriological, etc.) against enemy targets.

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In order to determine what aerial reconnaissance forces are required for accomplishing such a volume of tasks, it is necessary to know the probability of accomplishment of reconnaissance.*

It has been established that the probability of accomplishment of reconnaissance of stationary small-size targets in the daytime varies between the limits 0.5 and 0.7, and of mobile targets between 0.6 and 0.8. For reconnaissance at night, this probability decreases by 1.5 to two times. Considering the urgency and importance of accomplishing reconnaissance, it is necessary to provide for assured probability of target recognition equal to 0.8 to 0.9.

Calculations show that, given the assured probability indicated, it is necessary to allocate for final reconnaissance of each particular target against which missile delivery of a strike is planned, two aircraft by day and three to four by night. Besides that, for final reconnaissance of each particular target for an air strike, one or two aircraft are required.

From the experience of combat training it is known that each reconnaissance aircraft crew is capable of performing final reconnaissance of one or two targets (subsequently, we shall consider this an average of 1.5 targets).

Hence, it follows that for final reconnaissance of 34 targets in support of a second missile launch and four targets for the front cruise missiles it is necessary to complete 45 aircraft sorties by day ($34 \times 2 \div 1.5$) and not less than 70 sorties by night. For final reconnaissance of 33 targets in support of the operation of the aviation by day and night 33 more sorties have to be carried out.

For monitoring the results of strikes delivered by the rocket troops and aviation against 155 targets, 52 more sorties ($155 \div 3$) have to be carried out.**

* By probability of accomplishment of reconnaissance is understood the probability of recognizing targets from an aircraft, taking into consideration the probability of its negotiating air defense opposition during a reconnaissance flight.

** As combat training experience shows, in conducting poststrike reconnaissance, the crew of an aircraft is able to obtain all the necessary data on three strike targets.

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Besides that, in order to determine the operating parameters of the enemy radiotechnical means with which he controls his aviation and surface-to-air guided missiles, as well as to conduct reconnaissance of the weather and the radiation situation, it is necessary to complete not less than 10 sorties. About 20 sorties are required for conducting reconnaissance in support of the operation of all the troops of the front after delivery of the initial strike. And, finally, 15 to 20 aircraft should be held in reserve for the accomplishment of newly arising tasks.

Thus, the total requirements in forces of air reconnaissance in their support of the initial missile and air strike of the front amount to 180 sorties by day and not less than 200 by night. In addition, there is a need for unmanned reconnaissance aircraft of the DBR-1 and TBR-1 types capable of monitoring the results of operational-tactical and tactical missile strikes, as well as the operations of front and long range aviation.*

The indicated number of sorties can be carried out if the troops of the front are supported by three or four reconnaissance aviation regiments (reckoning on three sorties per aircraft) and a squadron of TBR-1 long-range unmanned reconnaissance aircraft with partial allocation of forces from fighter-bomber and bomber divisions for final reconnaissance of those targets against which they deliver a strike.**

Concerning the forces of aerial reconnaissance, it is appropriate to speak separately about those requirements which are made on them and which, unfortunately, they do not yet meet. Under present-day conditions, many mobile targets will change their location after a reconnaissance aircraft flies over them, maintaining careful camouflage in the process. In a number of cases, this will necessitate conducting a new search of targets already detected once. In order to avoid repeated reconnaissance of one and the same target, it is desirable to have reconnaissance-strike aircraft capable of finding a target and delivering a strike against it.

* Reconnaissance data from interpreting the wet negatives of an aerial photograph can be obtained in about an hour after landing of the TBR-1 and in three hours after landing of the nose instrument container of the DBR-1.
** Widespread allocation of bombers and fighter-bombers to reconnaissance is excluded because of the large number of combat tasks which are assigned to them. For this same reason, it is not possible to count on allocating fighters to reconnaissance.

Aerial reconnaissance can successfully handle the tasks assigned to it only in the event that it is skilfully planned to begin with.

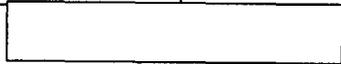
In our opinion, it is desirable that the planning of aerial reconnaissance in support of the initial nuclear strike of a front be carried out by the staff of the front jointly with the staff of the air army. (In exercises and war games, aerial reconnaissance is still frequently planned in the staff of the air army alone).

Such a recommendation is explained by the fact that the targets of the initial nuclear strike for missiles and aviation are determined by the front troop commander. Consequently, it is considerably simpler for the staff of the front to refine all the details connected with the planning of reconnaissance, in particular of aerial reconnaissance, for these purposes. In this case, the requirements of the missile units of the front and armies for reconnaissance data can be more fully taken into consideration, and reliable transmission of these data by radio from the aircraft (as well as from the command posts of the aviation staffs) to the staff of the front and to the command posts of the armies and divisions, can be more easily organized.

Considering the special role of aerial reconnaissance in supporting the initial nuclear strike of the front, it is necessary (besides the overall reconnaissance plan drawn up in the staff of the front) to work out a more detailed plan of aerial reconnaissance in the air army.

Very timely is the question of controlling the forces of aerial reconnaissance, and of collecting and processing reconnaissance data. In our opinion, control of reconnaissance aviation units and subunits of manned and unmanned reconnaissance aircraft, and also of non-T/O reconnaissance subunits and crews of other types of aviation in support of delivery of the initial nuclear strike, must be strictly centralized and carried out from the command post of the commander of the air army. This will permit employing them purposefully and at the same time economically on the main axis, and also quickly redirecting reconnaissance aircraft from one axis to another in conformity with the situation. In the future, as portable unmanned reconnaissance aircraft that do not require complex servicing come into service, it makes sense to introduce them into the tables of equipment of combined-arms and tank armies.

Control of reconnaissance aircraft which are placed at the disposal of combined-arms and tank armies and conduct reconnaissance for them can be accomplished by operations groups from the air army. In this case, the



command posts of the aviation units are charged with ensuring timely take-off of the aircraft, monitoring their accomplishment of the combat task, informing the crews about the situation (primarily the weather, changes in the navigational data affecting execution of flight, etc.).

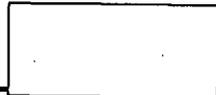
At all the command posts mentioned, the call signs of the reconnaissance aircraft, routes (flight axes), and tables of radio signals must be known, and there must also be coded maps there analogous to those which the crews on the flight are using. It is useful, besides, to have the above data and radio receivers at the command posts of the chief of the rocket troops and artillery of the front and of the commanders of the combined-arms armies and tank army, and also at the command posts of the commanders of combined-arms and tank large units. This will permit them also to make use of reconnaissance data received from the crews in flight. As the experience of exercises shows, when organizing communications with reconnaissance aircraft, it is necessary to take the following points into consideration.

Reliable communications between command posts and aircraft are achieved when one and the same radio channel is used by not more than 12 subscribers.

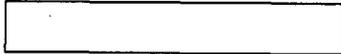
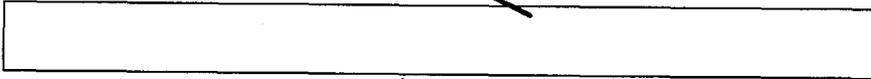
In transmitting radio messages from an aircraft in flight, even in the absence of interference, a considerable loss of information takes place. For instance, in an exercise conducted last August in the Carpathian Military District, out of 131 radio messages containing reconnaissance data transmitted from an aircraft, 120 were received in the staffs of the reconnaissance aviation units, 104 in the staff of the air army, 81 in the staff of the front, 15 in the staff of the rocket troops and artillery of the front, from 38 to 45 in the staffs of the combined-arms armies and tank army, and from 30 to 33 in the staffs of the motorized rifle divisions.*

The significant loss of information in radio transmission, especially in combined-arms staffs, makes it essential to set up direct wire communications lines between the reconnaissance aviation units, the intelligence department of the air army, and the intelligence directorate of the front.

* The great loss of information in this exercise was explained mainly by the limited capabilities for conducting long-range radio transmission in the ultra-shortwave band, poor training of radio operators, and the lack of receivers with fixed receiving frequencies in the combined-arms staffs.



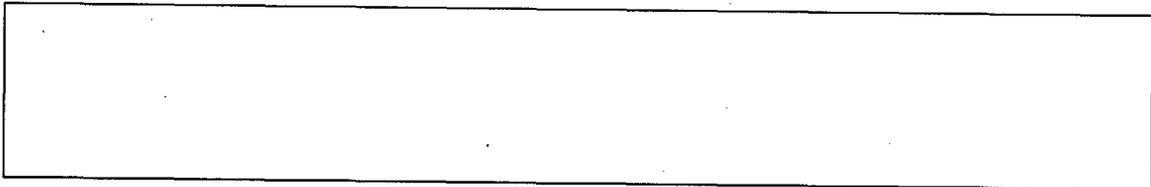
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In order to reduce sharply the time for the passage of the reconnaissance data from the air crews to the troops, it is advisable, as the experience of exercises shows, to set up special posts to receive these data in the reconnaissance aviation units, in the staffs of the air and combined-arms armies, the front, and also at the staffs of the combined-arms large units. In addition, it is necessary to have a center for collection, analysis, and collation of aerial reconnaissance data at the staff of the air army, and also a post for collection of aerial reconnaissance data at the intelligence directorate of the front. At the same time, the experience of exercises shows that newly established centers for the collection, analysis, and collation of aerial reconnaissance data begin to work smoothly two to three days after they are set up. Therefore, it is necessary to think of them beforehand, before the beginning of combat operations. In other words, it is necessary to train the personnel for them in peacetime.

And so, purposefully and actively conducted aerial reconnaissance allows providing all the necessary data to the aviation and the missile units of the front and thus facilitates effective delivery of the initial nuclear strike. It is a matter of skilful organization, which requires constant study and improvement.



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