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CENTRAL INTELLIGENCE AGENCY

WASHINGTON 25, D. C.

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MEMORANDUM FOR: The Director of Central Intelligence

SUBJECT : "Combat with Enemy Nuclear Artillery, Free  
Rockets, and Guided Missiles in Offensive  
and Defensive Operations of an Army"  
(Chapter II)

1. Enclosed is a verbatim translation of Chapter II of an seven-chapter TOP SECRET Soviet publication entitled "Combat with Enemy Nuclear Artillery, Free Rockets, and Guided Missiles in Offensive and Defensive Operations of an Army". It was issued by Scientific-Research Artillery Institute No. 1 in Leningrad in October 1960.

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*Richard Helms*

Richard Helms  
Deputy Director (Plans)

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**Original:** The Director of Central Intelligence

**cc:** The Director of Intelligence and Research,  
Department of State

The Director, Defense Intelligence Agency

The Director for Intelligence,  
The Joint Staff

The Assistant Chief of Staff for Intelligence,  
Department of the Army

The Director of Naval Intelligence  
Department of the Navy

The Assistant Chief of Staff, Intelligence,  
U. S. Air Force

The Director, National Security Agency

Director, Division of Intelligence  
Atomic Energy Commission

National Indications Center

Chairman, Guided Missiles and Astronautics  
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17 August 1962

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COUNTRY : USSR

SUBJECT : Combat with Enemy Nuclear Artillery, Free  
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DATE OF INFO : October 1960

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Following is a verbatim translation of Chapter II of a TOP SECRET Soviet publication titled "Combat with Enemy Nuclear Artillery, Free Rockets, and Guided Missiles in Offensive and Defensive Operations of an Army". This document contains seven chapters and was published on 15 October 1960 by Scientific-Research Artillery Institute No. 1 in Leningrad. Each chapter will be disseminated as it becomes available and is translated.

In some cases, there are imperfections in the original text which leave doubt as to the accuracy of translation. Question marks are inserted in brackets following uncertain words or phrases. As in other IRONBARK reports, transliterated and Roman letters are given as in the original.

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Chapter I

Reconnaissance of Enemy Offensive Nuclear Weapons

1. General Considerations in Organizing Reconnaissance of  
Enemy Offensive Nuclear Weapons

Organizing and conducting reconnaissance is a very important part of the group of measures that comprise the system for combating enemy offensive nuclear weapons.

Reconnaissance of enemy offensive nuclear weapons on the most extensive scale is planned at front level because only a front possesses all types and means of reconnaissance. At the same time the main efforts of front means of reconnaissance are directed toward identifying enemy offensive nuclear weapons located in the operational depth of his defense: operational-tactical missiles, airfields, depots, bases, supply stations and ports, etc.

Army means of reconnaissance and those attached to the army concentrate their efforts mainly on reconnaissance of tactical and the nearest operational-tactical enemy offensive nuclear weapons: fire positions of 203.2 mm howitzers, 280 mm guns and "Honest John" and "Little John" free rockets, firing and launch sites of "Lacrosse," "Corporal," and "Redstone" guided missiles and "Matador" and "Mace" cruise missiles, depots and supply points located in the tactical [?] and the immediate operational depth of the enemy defense, technical positions and control points for guided missiles, etc.

Reconnaissance of enemy offensive nuclear weapons in the zone of combat operations of an army and on its flanks is carried out within the general system of reconnaissance, according to the plan of the army commander. [Fifteen pages missing.]

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1. Aerial Reconnaissance

One form of reconnaissance which can obtain a great deal of important intelligence data for missile troops and artillery and thereby assist in the successful [?] combat against enemy offensive nuclear weapons is aerial reconnaissance.

Aerial reconnaissance is carried out by reconnaissance [two words missing] types of military aircraft.

Depending on the nature [half a line missing] aerial reconnaissance is divided into [half a line missing].

Operational reconnaissance is carried out by the independent aerial reconnaissance regiments for operational reconnaissance, which form part of every [?] army, and nonorganic reconnaissance squadrons of bomber large units to a depth of 600 to 800 km.

Tactical aerial reconnaissance is carried out by independent aerial reconnaissance regiments for tactical reconnaissance and nonorganic reconnaissance squadrons of fighter and fighter-bomber large units to a depth of 300 [?] to 350 [?] km.

Aerial reconnaissance, depending on the means available, [employs?] the following methods: visual observation, aerial photography, and with the help of radio-technical means, direction-finding apparatus [?].

At the present time, the IL-28r aircraft is equipped with [one word illegible] for operational reconnaissance, and the SON [?] for tactical reconnaissance is [two lines missing].

[Two lines missing] airborne reconnaissance station (SRS), "Kaliy" television transmitting station, dosimetric equipment, and infrared apparatus.

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Means of reconnaissance such as radar stations, airborne reconnaissance stations, and aircraft equipment of the "Tim" system are permanently on board the aircraft, but the air cameras and the dosimetric equipment are removable devices which are installed before a flight when required to carry out a given task.

Photography from an IL-28r aircraft is carried out by several types [?] of aerial camera (AFA) which are made in various versions of 2, 3, or 4 cameras in each and fitted in such a way as to take photographs of the reconnaissance and measurement types at the same time.

On the MIG-15r - bis 2 or 3 AFA can be fitted: one for [one word missing] and one or two for [one word missing] photography of the reconnaissance type [?].

For reconnaissance of enemy offensive nuclear weapons the following can usually be employed: visual observation, air cameras of these types [?], as well as "Kaliy" television equipment.

The main tasks [?] of aerial reconnaissance [word missing] of enemy offensive nuclear weapons are:

- the discovery of the location of enemy nuclear weapons and the intention [?] to employ them;
- detection [?] of nuclear ammunition depots and assembly [word missing]; [Six lines missing] employing nuclear weapons.

Aerial reconnaissance by visual observation does not produce measurement data of the objectives detected that could be utilized by missile units and artillery. This intelligence only partially satisfies missile units and artillery by the nature of the information obtained. This information can only be used as data needed to verify objectives and to gauge their importance, but not as measurement data because the establishment of the coordinates of the objectives is done on small-scale maps

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(1:100,000 to 1:500,000) and because of this, the accuracy of establishing coordinates is extremely low. It is sufficient to say that errors in establishing coordinates of objectives are in the region of 300 to 1000 meters. Therefore, the data obtained by visual reconnaissance can be utilized mainly as approximate (navodyashchiy) data which will require further artillery aerial combat reconnaissance.

Reconnaissance data for measurement purposes whose accuracy satisfies the requirements of missile units and artillery can be obtained by photography.

However, the aerial photography service of intelligence units carrying out photographic interpretation for the aviation fixes the coordinates of objectives that have been discovered on the map, i.e., with large errors. These errors are acceptable to aviation (because aircraft in most cases carry out strikes against observed objectives) but they are not acceptable to missile units and artillery. Nevertheless, the photographic service of the air forces up to the present time has [?] the tasks of accurate establishment of coordinates and other measurement data of enemy objectives. We do not possess sufficient manpower for this nor the appropriate resources.

Consequently, the photographic service of reconnaissance aviation does not establish accurate coordinates and other measurement data of enemy objectives and cannot obtain these for missile units and artillery. Measurement data from the results of aerial photography for missile units and artillery can be obtained from photographic centers set up at front headquarters, or from a photographic battery after it has received the air film and photographs from air army headquarters.

Radiotechnical reconnaissance from aircraft is done with the aid of [one word missing] radar stations, receiving and direction-finding apparatus (priyemo-pelengatornaya apparatura), television equipment, and other means. Radiotechnical reconnaissance basically obtains operational-tactical reconnaissance data as well as data on individual

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objectives. These data can be utilized by artillery reconnaissance as approximate data, as well as data for increasing the degree of verification of targets. However, owing to its low accuracy, these data cannot be used for the preparation of fire settings.

Besides the above-mentioned tasks, aerial reconnaissance can carry out weather reconnaissance tasks in our own disposition and in the disposition of the enemy. Some of the data about the state of the weather and particularly data on wind direction and velocity can be used by the staff of missile troops and artillery when planning their nuclear strikes.

From this brief review of the tasks carried out by air reconnaissance it follows that at the present time it does not satisfy the requirements of missile units and artillery [?]. To eliminate this defect it is necessary to [one and a half lines missing] photo-service of the air forces.

It is essential to organize the work of aerial reconnaissance in such a way that it carries out its tasks taking into account the requirements of missile troops and artillery for the accuracy of the measurement [?] data obtained. By fulfilling these conditions, the results of aerial reconnaissance can be utilized by missile troops and artillery to a much greater degree than at present.

At the same time it is essential to find ways of speeding up the reception of aerial reconnaissance data by the headquarters of missile troops and artillery.

At the present time material obtained by aerial photography can be received by the headquarters of missile troops and artillery of a front (army) no sooner than 4 to 6.5 [?] hours and more after the taking of the photographs. Naturally, this sort of timing does not in any way satisfy the requirements for planning to combat enemy offensive nuclear weapons. One of the possible ways of decreasing the time taken in passing the data obtained by aerial reconnaissance is by passing the data direct from the aerial reconnaissance units

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to the headquarters of missile troops and artillery of a front (army), bypassing the headquarters levels of the air forces and combined-arms headquarters.

Besides this, it is essential to take into account that during the period of preparation for an operation and during the operation, reconnaissance of important [one word missing] objectives, which will be targets for attack immediately or in a short time, during which [two words missing] in one area, [word missing] of the materials from photographing on a large scale will be made difficult [?] or generally [word missing], on account of the considerable time taken in their interpretation [?].

Therefore, data from aerial reconnaissance will be obtained primarily by visual means and [word missing] photography [?]. Data obtained by visual observation must be passed to the headquarters of missile troops and artillery immediately, and the material from aerial photography later, in order to confirm previously received data after accelerated processing and interpretation of the wet negatives. Only a procedure like this for the receipt of aerial reconnaissance data by the headquarters of missile troops and artillery of a front (army) can fully meet the requirements for combating enemy nuclear weapons.

## 2. Agent Intelligence

Intelligence from agents is divided into strategic and operational. A front organizes mainly operational intelligence. An army does not usually run agents.

In connection with enemy offensive nuclear weapons, agent intelligence carries out the following tasks:-

- ascertains the direction and time of the movement of units (subunits) of enemy offensive nuclear weapons, their structure, concentration areas, and combat formation;

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- discovers the location of nuclear warhead depots and bases for nuclear weapon assembly;
- obtains information and further details on the enemy road network [?] [two lines missing].

As a rule, all these [word missing], cannot be obtained from agent intelligence [?]. But in certain cases this information can be [obtained ?] in cases when [one line missing] documents etc. [?] [one and a half lines missing] can reach in the most favorable circumstances 40 to 60 [?] minutes from the time of detecting an important objective.

The front headquarters of missile troops and artillery receives intelligence obtained from agents through the front intelligence directorate.

The army headquarters of missile troops and artillery receives this information from the front headquarters of the missile troops and artillery.

Owing to the low level of accuracy in intelligence obtained through agents and the impossibility of using it directly for firing, in most cases it is essential to carry out further combat reconnaissance by means of artillery aerial reconnaissance.

### 3. Reconnaissance by Infantry and Tank Troops

Reconnaissance by infantry and tank troops, in coordination with other forms of reconnaissance, is capable of determining the location of offensive nuclear weapons, as well as enemy preparation for their employment.

Reconnaissance by infantry and tank troops when in direct contact with the enemy is carried out by the following basic methods: by reconnaissance in force, observation, raids, ambushes, listening in, interception of enemy conversations, and action of reconnaissance groups in the enemy rear. Besides this, it utilizes data from units and subunits of other arms of troops and special troops, [one word missing]

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subordinate headquarters, and also information obtained from the interrogation of prisoners and deserters [line missing] and captured material.

Reconnaissance in force. Before the start of an attack, a reconnaissance of the [word missing] is carried out by the army. One of the tasks of reconnaissance in force is to discover the existence of the enemy's nuclear weapons and his intention to use them [?].

Reconnaissance by the means of raids and ambushes is organized in order to capture prisoners, documents, and samples of enemy arms and combat equipment.

A special raid can be organized to discover the existence of enemy nuclear weapons, find out the intention to use them, and determine the location of nuclear weapons. For this sort of raid a reconnaissance group of ? to 12 men is organized. In an army zone 3 [?] to 5 raids may be carried out every 24 hours. Reconnaissance groups sent out for the purpose of raids from the regiments and divisions of the first echelon of the army will usually operate in the tactical depth of the enemy defense of to 30 to 60 km from our forward line.

Reconnaissance groups are organized to carry out reconnaissance in the enemy rear and sometimes for raids and ambushes.

But in certain cases reconnaissance groups can be given tasks to destroy enemy offensive nuclear weapons, or to call for and correct artillery fire, call for missiles and air strikes, and also to carry out additional reconnaissance of objectives earmarked for destruction by nuclear strikes.

Helicopters (aircraft [?]) are frequently employed to land reconnaissance groups in the enemy's rear, and use is also made of gaps and breaks in his combat formation.

Reconnaissance groups are formed from combined-arms units and large units, and special purpose (SPETSNAZ) sabotage-reconnaissance groups from the front sabotage-reconnaissance battalions [?]. One company can detail 9 [?] to 12 [?] sabotage-reconnaissance groups of 4 [?] to 8 [?] men each.

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The groups are equipped with means of radio communication, optical observation devices, interception equipment for radio shortwave traffic, and radio-relay and wire communications.

The depth of operation of these groups in the disposition of enemy troops can reach 250 to 300 km and more.

The length of time the reconnaissance group stays in the enemy rear may vary from 5 to 15 days.

The main efforts of the sabotage-reconnaissance groups are directed to the discovery of offensive nuclear weapons.

Each reconnaissance group is allocated a definite area for reconnaissance. Depending on the conditions of the terrain and the situation, the size of the area can be 10 x 10 km and sometimes even more.

All data obtained by the "SPETSNAZ" reconnaissance groups are passed to the front headquarters or to the army headquarters.

The location (coordinates) of the objectives is determined by the reconnaissance group with a large-scale map (aerial photograph). In cases where the objectives being reconnoitered are located at reliable and well established contour points (konturnaya tochka) or in the immediate vicinity of these points, the reconnaissance group will be able to give measurement data suitable for missile units and artillery fire. Besides this, the reconnaissance groups are capable of distinguishing with sufficient accuracy real objectives from dummy ones and this greatly increases the reliability of their information.

Reconnaissance groups, like agents, cannot pass information on a reconnoitered target sooner than 40 to 60 minutes after its discovery.

#### 4. Radiotechnical reconnaissance

Radiotechnical reconnaissance is also capable of obtaining intelligence data which can reveal in good time enemy preparation to employ nuclear weapons, and also establish the

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areas of the basing depots, and fire (launch) sites of the offensive nuclear weapons.

Radiotechnical reconnaissance in an army is organized by the army headquarters.

One of the forms of radiotechnical reconnaissance is radio reconnaissance. Army radio reconnaissance, in coordination with other means of intelligence collection, under favorable conditions can give the army headquarters sufficiently full information on the disposition areas of enemy offensive nuclear weapons. However, the accuracy in determining target coordinates by "OSNAZ", means (which carry out radio reconnaissance) is extremely low. For example, the accuracy of a fix or direction finding of an enemy radio station is characterized by a mean error, equal to 2.4 percent of the range of the fix. Therefore, data obtained by radio reconnaissance requires further detail.

Another form of radiotechnical reconnaissance is radar. This form of reconnaissance ensures getting accurate target coordinates and has already been considered in 2 of this chapter.

#### Chapter Conclusions

1. Reconnaissance of enemy offensive nuclear weapons is an extremely important, and at the same time extremely complicated element of the group of measures that form the system for combating enemy nuclear weapons [?].

At the present time, missile troops and artillery have at their disposal means of reconnaissance which do not fully satisfy the demands made on them to ensure successful combat against enemy nuclear weapons.

2. The main form of reconnaissance which provides missile troops and artillery with the most accurate and complete data on enemy offensive nuclear weapons is artillery aerial reconnaissance.

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In the reconnaissance of enemy offensive nuclear weapons, radar reconnaissance plays a fairly important part. Sound and optical reconnaissance have very limited possibilities in the reconnaissance of enemy offensive nuclear weapons and can be regarded only as additional means of reconnaissance.

3. The most useful of the combined-arms means of reconnaissance against enemy offensive nuclear weapons are reconnaissance groups, and particularly the reconnaissance-sabotage groups formed from the men and equipment of "SPETSNAZ."

4. Aerial reconnaissance, carried out by units of operational and tactical reconnaissance, possesses very great capabilities for finding out the grouping of enemy offensive nuclear weapons. The data from this type of reconnaissance, however, cannot be employed sufficiently by missile troops and artillery owing to its insufficient accuracy, and also to the delay in [processing and transmitting?] these data to the staff of missile troops and artillery. With the elimination of these shortcomings, aerial reconnaissance in conjunction with artillery aerial reconnaissance will be able to ensure to a very much greater extent successful combat against enemy offensive nuclear weapons.

5. Under modern conditions, aerial reconnaissance operations will encounter serious opposition from enemy anti-air defense, which possesses at the present time varied and very effective weapons. Therefore, to increase the capabilities of aerial reconnaissance it will be necessary to develop and put into service new pilotless means of reconnaissance (radio-controlled jet planes, missiles, etc), which will provide a more effective method of reconnaissance of enemy offensive nuclear weapons.

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