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CENTRAL INTELLIGENCE AGENCY  
WASHINGTON, D.C. 20505

23 May 1978

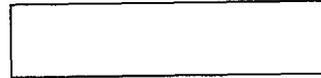
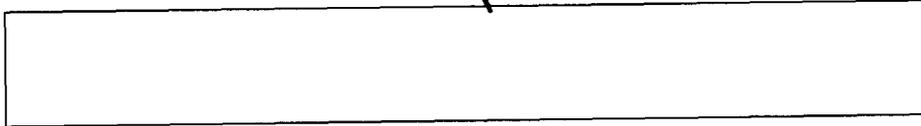
MEMORANDUM FOR: The Director of Central Intelligence  
FROM : John N. McMahon  
Deputy Director for Operations  
SUBJECT : MILITARY THOUGHT (USSR): Does a  
Combined-Arms Commander Need Aerial  
Photography?

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 refutes a previous article which maintained that aerial reconnaissance loses its usefulness in highly mobile combat actions due to the protracted time needed for processing and transmitting the aerial photographs. The author of the present article argues that even in the future aerial photo reconnaissance will remain the principal and most objective method of reconnoitering the enemy and the terrain. He proposes shortening the processing and transmission time by developing equipment that will permit photo reconnaissance results to be processed on board the aircraft and transmitted directly from the aircraft to the necessary command levels. He also proposes setting up photogrammetric centers in military districts for the processing and interpretation of aerial reconnaissance data. This article appeared in Issue No. 2 (63) for 1962.

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

John N. McMahon

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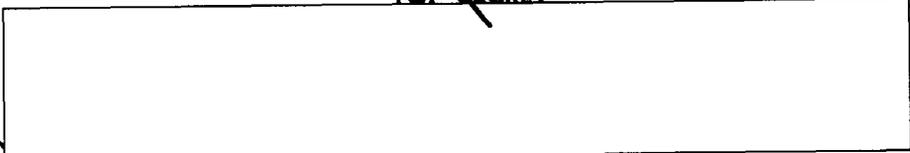
Deputy Director of Central Intelligence

Director of the National Foreign Assessment Center

Director of Strategic Research



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# Intelligence Information Special Report

Page 3 of 8 Pages

COUNTRY USSR



DATE OF INFO. Early 1962

DATE 23 May 1978

SUBJECT

MILITARY THOUGHT (USSR): Does a Combined-Arms Commander Need Aerial Photography?

SOURCE Documentary

Summary:

The following report is a translation from Russian of an article which appeared in Issue No. 2 (63) for 1962 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal "Military Thought". The author of this article is Colonel D. Popov. This article refutes a previous article which maintained that aerial reconnaissance loses its usefulness in highly mobile combat actions due to the protracted time needed for processing and transmitting the aerial photographs. The author of the present article argues that even in the future aerial photo reconnaissance will remain the principal and most objective method of reconnoitering the enemy and the terrain. He proposes shortening the processing and transmission time by developing equipment that will permit photo reconnaissance results to be processed on board the aircraft and transmitted directly from the aircraft to the necessary command levels. He also proposes setting up photogrammetric centers in military districts for the processing and interpretation of aerial reconnaissance data.

End of Summary

Comment:

The article reviewed is not available.



Does a Combined-Arms Commander Need Aerial Photography?

by

Colonel D. POPOV

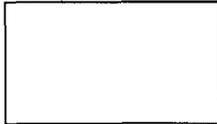
The article "Does a Combined-Arms Commander Need Aerial Photography?"\* by Colonel ASTAPCHIK and Lieutenant Colonel GLUSHACH touches upon a question of aerial reconnaissance which must not be resolved hastily. Of course, the authors have pointed out the fact that photographic documents give a combined-arms commander the opportunity of studying graphically and in detail the terrain in the engineer aspect, the location of targets on the terrain, and the characteristic features of the targets. All of this is very necessary during the planning period and during the conduct of an operation and battle.

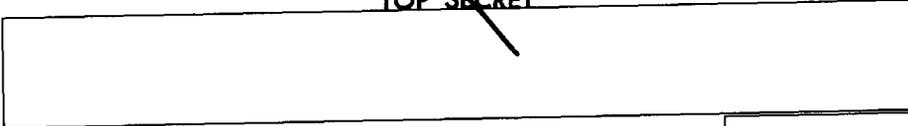
While agreeing with the propositions given in the article concerning the necessity of very rapidly conveying the results of the aerial reconnaissance to the troops, at the same time one cannot accept unconditionally the authors' conclusion that under conditions of the conduct of highly mobile combat actions, it is inadvisable to have the documents obtained in the process of photogrammetric treatment (aerial photographs, photo mosaics, photo panoramas, photo maps) prepared and, consequently, even to pass them on to the troops, since inasmuch as "much time is spent in processing and delivering the photo documents, they will in most cases have lost their initial importance and can be used only to corroborate visual observation data."\*\*

Really, the significant changes in the methods and means of warfare have brought about a decisive revolution in the conditions under which an operation and battle are conducted. But in the process, not all branches of military art and military science have undergone the same degree of development. Thus, the methods and means of aerial reconnaissance are far from satisfying present-day requirements. However, to assert that the photo documents of aerial reconnaissance can be used only as "historical material," is, in our opinion, incorrect and even harmful. That is why one cannot concur with the authors' opinion that "under modern conditions of

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\* Collection of Articles of the Journal "Military Thought," 1961, No. 4 (59).

\*\* Collection of Articles of the Journal "Military Thought," 1961, No. 4 (59), page 77.





conducting combat actions, it is necessary to decisively drop the preparation of photo mosaics of the troop concentration areas, railroad stations, and many other targets."\*

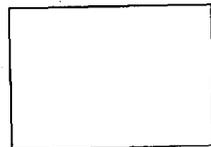
We believe that even in the future, aerial photo reconnaissance will remain the principal and most objective way of reconnoitering the enemy and the terrain, the one that is indisputably superior to all other types of reconnaissance. This concept was confirmed at the Air Forces conference on theoretical matters where they arrived at the firm conviction that photo reconnaissance and visual observation are at present the sole methods of reconnoitering enemy missile/nuclear means.

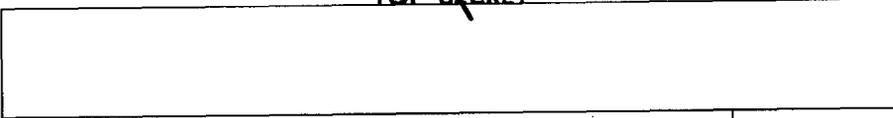
In the final analysis, the authors, whether they wish to or not, have cast doubt on the capability of aerial reconnaissance to quickly accomplish by means of photography the task of determining the location (coordinates) of military installations and of missile/nuclear weapons means. They have also pointed out that combined-arms commanders who do not have enough practical skill in working with aerial photographs much prefer to deal with large-scale maps that have the results of aerial photography printed on them. One asks whether this can be taken as an argument in favor of the view that aerial photos are not needed by a combined-arms commander.

In our opinion, the production of photo mosaics, photo maps, and other documents makes it possible for one to not only determine the coordinates of targets, but to also study changes in the terrain resulting from the effects of atomic weapons (which a large-scale map does not provide), and also, as the authors have correctly pointed out, to reconnoiter stationary installations, enemy defense sectors, crossings, drop areas for airborne landing forces, etc. Under modern conditions, even greater importance is attached to the task of exploiting aerial photography materials in the initial period of a war, in the planning and commitment to battle of the combined-arms large units and formations and of the reserves, and also when moving up fresh forces from the rear.

Pointing out the protracted time in processing aerial reconnaissance materials and in conveying them to the combined-arms commander, the authors state that these materials lose their usefulness. It would be more worthwhile to raise the issue of improving the techniques of processing aerial photography materials so as to decrease the length of time spent in processing and delivering the documents. The materials might be processed directly in the aircraft while it is in the air during the flight after completing the aerial reconnaissance. But for some reason, the authors do

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\* Collection of Articles of the Journal "Military Thought," 1961, No. 4 (59), page 79.





not raise this point. In the end, they recommend half measures instead of the drastic resolution of the problems of aerial reconnaissance. That is why this assertion of theirs turns out to be unconvincing: that under all combat situations a single front photogrammetry center would be able to relieve the combined-arms commander from using aerial photographs or mosaics. It is true that such a center is needed. And apropos, a front must have several of them and each one should include representatives of the military topographic service, since the most highly trained photogrammetry-photo interpretation officer personnel are concentrated in military topographic service units, and it must also have technical means for the publication of maps and the reproduction of graphic combat documents. But even such centers cannot relieve large unit commanders and the front command of the necessity of utilizing photo documents. Furthermore, photographs (photo mosaics) cannot be replaced by maps that have had aerial reconnaissance data printed on them. A combined-arms commander must have practical skill in working with aerial photographs and must be able to read them. They will help him in organizing the movement of his large unit on the roads, in studying the terrain, and in finding out the results of nuclear action. A large-scale map with reconnaissance data printed on it will not provide him with all of this in a timely manner. The preparation and delivery of such maps does not require any less time than the production of photo mosaics.

In answering the question raised by the authors of the article, of whether a combined-arms commander needs aerial photographs, we consider it necessary to give an affirmative answer. Aerial photographs are not only needed by a combined-arms commander, but they are extremely necessary since they are the document containing the objective, full, and very latest data that enable staffs and officers of any branch arm to use them extensively for the purpose of solving numerous problems before the decision is made as well as during the course of the battle. Of course, they will not be necessary in all cases. However, this does not mean that there will be many of these cases.

The ways of improving the methods of aerial photo reconnaissance and of decreasing the time spent in delivering its results to the troops are the field of special research. It seems to us that the first priority task of the scientific research facilities and the organs of the Ministry of Defense that are in charge of reconnaissance matters is to develop modern reconnaissance equipment that will make it possible to process the results of photo reconnaissance directly in an aircraft and to transmit these results directly from on board the aircraft to all interested command levels.

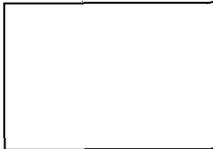




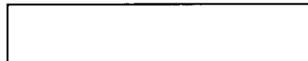
Together with such equipment, the aircraft should also have television units for the transmission from the air to the command posts of the images of the targets as they are being reconnoitered. In this case, the sharpness of the television image must enable one to take photographs directly from the ground television screen. Special attention must be devoted to developing new types of aerial photography equipment that makes it possible to obtain high quality aerial photographs when taking photographs from any altitude, and to increasing the resolution capability of aerial camera lenses, aerial film, and photographic paper.

Together with this, the experience gained in the work of photogrammetric centers in the troop exercises of the military districts permits us to put forward a number of proposals directed towards improving the methods of aerial photo reconnaissance and towards decreasing the time required to pass on the results of this reconnaissance to the troops with existing reconnaissance means. It seems expedient to us to set up permanent photogrammetric subunits -- photogrammetric centers -- attached to the military district's chief of intelligence. A photogrammetric subunit will have officers allocated to its complement -- intelligence officers, artillery-and-missile officers, operations officers, engineers, and topographic officers. The subunits must have modern devices and instruments for the photographic laboratory, for the photogrammetric processing of the aerial photography materials, and for the interpretation of the aerial photos, and they must also have map publication means and communications means. Among the junior specialists there must be photo lab technicians, photogrammetrists-interpreters, draftsmen, and communications personnel. The photogrammetric subunits must be brought into all of the military district's troop exercises, where they will be able to accomplish all of their tasks in cooperation with the front's reconnaissance organs and the air army's reconnaissance aviation.

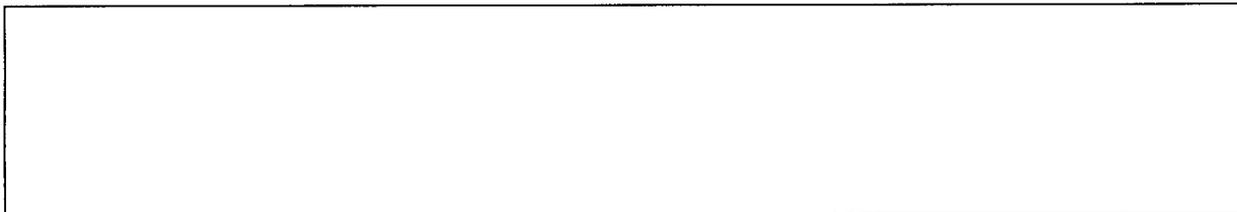
It also seems to us that the time has come to reexamine training programs and to improve the matter of the training of the aerial reconnaissance personnel cadres. This pertains primarily to the training of the interpreters, the photo lab technicians, and other aerial photography service specialists, as well as the crews of the reconnaissance aircraft. When reconnoitering enemy nuclear attack means, aerial reconnaissance personnel must be able to visually determine the type and readiness for action of these means, and also their geographic or rectangular coordinates on the map, and immediately transmit by radio the necessary data to the command. At the same time, it is necessary that combined-arms commanders be better trained in working with photographic documents and aerial photographs.



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