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CENTRAL INTELLIGENCE AGENCY  
WASHINGTON, D.C. 20505

6 June 1978

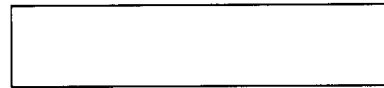
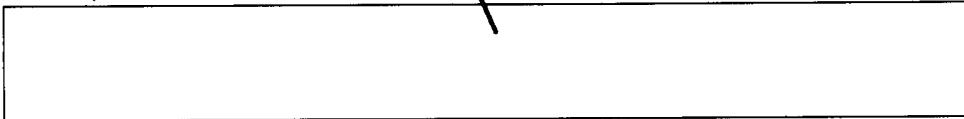
MEMORANDUM FOR: The Director of Central Intelligence  
FROM : John N. McMahon  
Deputy Director for Operations  
SUBJECT : MILITARY THOUGHT (USSR): Collecting and  
Collating Data on the Nuclear  
and Radiation Situation

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". The authors of the article point out that evaluating the radiation situation solely on the basis of forecasts is totally inadequate because forecasts are only approximate and may contain errors. They feel that radiation reconnaissance conducted at all levels in the troops will provide the most complete picture of radioactive contamination. This article appeared in Issue No. 2 (69) for 1963. The Russian-language version was disseminated as FIRDB-312/01591-75.

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

*JN* John N. McMahon

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Distribution:

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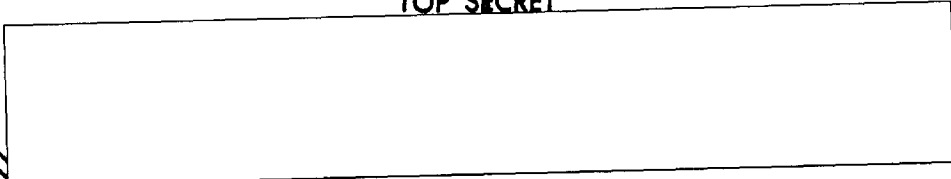
Deputy Director of Central Intelligence

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# Intelligence Information Special Report

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COUNTRY USSR



DATE OF INFO. Mid-1963

DATE 6 June 1978

SUBJECT

MILITARY THOUGHT (USSR): Collecting and Collating Data on the Nuclear and Radiation Situation

SOURCE Documentary

Summary:

The following report is a translation from Russian of an article which appeared in Issue No. 2 (69) for 1963 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal "Military Thought". The authors of this article, General-Major of Technical Troops A. Shevchenko and Colonel G. Zhukov, point out that evaluating the radiation situation solely on the basis of forecasts is totally inadequate because forecasts are only approximate and may contain errors. They feel that radiation reconnaissance conducted at all levels in the troops will provide the most complete picture of radioactive contamination.

End of Summary

Comment:

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.

The article to which it refers was

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Collecting and Collating Data on the  
Nuclear and Radiation Situation

by

General-Mayor of Technical Troops S. SHEVCHENKO  
Colonel G. ZHUKOV

In an article with the same title\*, General-Mayor A. CHUMAKIN expounds on the experience of exercises in collecting data on the nuclear and radiation situation. In these exercises, judging by what the author says, attention was devoted mainly to obtaining data on the areas of nuclear strikes, while the radiation situation was evaluated only on the basis of forecasts. In our view, this is completely inadequate for proper evaluation of the radiation situation.

In addition to the above-mentioned article, magazines and publications of military academies have recently published a series of other articles indicating that the radiation situation must be evaluated for the most part by forecasting. For example, in the article "The Problem of Actions in Zones of Radioactive Contamination" in the Collection of Studies of the Military Academy of the General Staff, No. 74, it is emphasized that "radiation evaluation of the route by which troops must proceed must be made primarily by means of forecast data received from a higher echelon," and at the same time there is an obvious underrating of radiation reconnaissance which, in the author's opinion, "should not even be conducted in units but mainly in subunits, in order to monitor the current radiation forecast."

At present no one any longer denies the great operational significance of the radiation situation created as a result of ground nuclear bursts. There is also agreement that in order to fully evaluate the radiation situation it is necessary to know: the dimensions of the area of contamination, the zones of different levels of radiation, the radiation levels on the axes and in the areas of troop actions, and also the possible irradiation of personnel -- the data on the above-mentioned must be precise. The question naturally arises as to whether these parameters can be forecast.

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\* Collection of Articles of the Journal "Military Thought", No. 5 (66), 1962.

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Forecast results are only preliminary and approximate. They will not be precise with regard to either the dispersal axis of the contamination zones or the evaluation of the radiation levels on the terrain. Thus, the average error in forecasting zones along an axis is  $\pm 15$  degrees. This means that at a distance of 10 kilometers from the center of the burst, the actual axis of the fallout may be shifted from the calculated axis by two to three kilometers. It is easy to see what the shift of the axis will be at a distance of 50 to 100 kilometers from the center of the burst.

Errors in calculating radiation levels may also be very great, since in forecasting no consideration is given to the effect of precipitation, relief, and vegetation cover on the dispersal of radioactive matter on the surface, an effect which can be substantial. Thus, on broken terrain, radiation levels on the slopes of elevations will exceed calculated values by a factor of about two on the windward side, while on the leeward side they will fall below calculated values. This difference will be even more significant in rainy weather and if there is a great deal of vegetation.

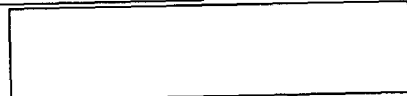
On the basis of the foregoing, we believe that the results of forecasting cannot be taken as the basis for evaluating the radiation situation. It can be evaluated fully and correctly only if data are available on the radioactive contamination which has actually developed, data obtained by radiation reconnaissance.

Radiation reconnaissance will always provide results based on so-called instrument reconnaissance. Its data regarding the limits of contamination, the nature of the zones, and the radiation levels at any given point at which measurements are made will be very precise.

Does this mean that we should not engage in forecasting radioactive contamination of the terrain? Of course not. It is always necessary to forecast the radioactive contamination and, on this basis, to adopt preliminary decisions on troop actions, but it is also necessary to assign tasks for conducting radiation reconnaissance. But in no way should we overestimate the importance of forecasting the radiation situation, since if we do we will force the troops to operate blindly on terrain

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contaminated by radioactive substances and we will place them in danger.

It should be noted that forecasting is on the whole nothing new. In organizing combat, we always make a preliminary evaluation of the enemy: we add up his probable strength, and the number and disposition of his troops in the first echelon; we determine the possible number of nuclear attack means and the distance of their positions from the forward edge, etc. But we never begin combat actions without conducting reconnaissance of the enemy, without obtaining precise information on his grouping, and positions of missile and artillery units. In doing this we select such operating methods as to enable us to rout the enemy with the fewest losses to our own troops.

Radioactive contamination is an insidious enemy which "fires on" the troops ceaselessly when they enter a contaminated zone and carries within itself a great many unexpected dangers.

In order to provide the fullest picture of radioactive contamination, radiation reconnaissance must be conducted at all levels. Radiation reconnaissance is, of course, mandatory in the subunit. But it is no less mandatory in units and large units, whereby the commanders of the units and large units organize and conduct it in support of the first echelons, as well as of the second echelons, reserves, and rear services.

Radiation reconnaissance at the army level must be particularly ramified in nature, since without the data it provides, it is impossible to organize the movement of troops and rear services facilities in the depth, where there will be very large zones of radioactive contamination.

It is fully understandable that a substantial number of chemical and radiation reconnaissance subunits and units are required in large units, in an army, and in a front.

Troop actions in zones of contamination must always be preceded by radiation reconnaissance. However, in some instances, especially when zones of contamination are created without warning, negotiation of contaminated terrain will begin before data are obtained from radiation reconnaissance. In these cases, the commanders of units and large units and the higher





staffs must take immediate measures for conducting radiation reconnaissance over a considerable depth, employing means for radiation reconnaissance on the ground and in the air. If the radiation situation dictates such action, this will make it possible to change or refine the task assigned to units and subunits in the contamination zone.

In organizing troop actions in zones of contamination, detailed consideration must be given to radiation reconnaissance data, the developing situation, and the irradiation of personnel by a given time. In order to do this, every officer is obliged to have a thorough knowledge of the fundamentals of nuclear physics. He must realize that a single radiation dose of, for example, 30 roentgens, is a large dose. It is particularly dangerous if personnel have already had a total radiation dose of 10 to 15 roentgens or more.

Personnel may be subjected to substantial radiation doses even in areas with low levels of radiation, especially where there is old nuclear fallout. Let us say that with a radiation level of five roentgens per hour on the terrain, and if troops have to operate for five to six hours in the contaminated zone, personnel can receive a dose of 25 to 30 roentgens.

Finally, it must be remembered that it is possible to accomplish a task even if irradiation of personnel is disregarded, but if they are overexposed it will not be possible to carry out the next task.

The interests of the troops urgently require the organizing of reliable, stable, and highly mobile radiation reconnaissance in all phases of an operation or battle. Only in this case can troops conduct combat actions in zones of destruction and contamination with minimal losses from radiation damage.

