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# Intelligence Information Special Report

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SUBJECT

MILITARY THOUGHT (USSR): The Protection of Troops  
from Weapons of Mass Destruction

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The Protection of Troops from Weapons of Mass Destruction

by

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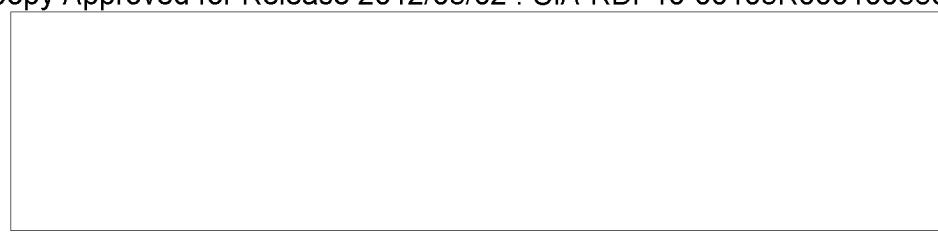
Analysis of the capabilities of the belligerents to use nuclear weapons in modern offensive operations shows that even a single delivery of a massive nuclear strike can result in huge losses of personnel and combat equipment. In a short time, not only individual large units, but entire groupings of troops can lose their combat effectiveness. Hence, the attention given to the research and development of the most effective organization and methods of implementing measures for protection from weapons of mass destruction is understandable.

In this article we would like to examine some of the conclusions and recommendations in regard to protecting the troops and installations of the front rear services. These conclusions and recommendations are based on the experience of command-staff and special exercises and have also been expressed by generals and officers of the Belorussian Military District at a military-scientific conference.

One of the important aspects of this problem, in our view, is planning and organizing protection from weapons of mass destruction, as well as monitoring its implementation.

We know that the planning and direction of protection from weapons of mass destruction currently involves all the chiefs of the arms of troops and services and their units. Research has shown that by solving the problem in this way we cannot succeed in implementing all the measures for protection from weapons of mass destruction completely and with sufficient effectiveness, and it is difficult to monitor their fulfilment. The attempt to have the fulfilment of tasks for protection from weapons of mass destruction coordinated by the operations directorate of the front staff did not produce the desired results, as shown by an experimental front command-staff exercise in our district. Obviously it is again necessary to review the proposal to concentrate the direction of the organization and implementation of protective measures in a specially created single organ in the front (army, large unit) staff, which may be in the form of a directorate (department, section). Opinions regarding the composition of these control organs, their tasks, functions, and responsibilities already have been stated repeatedly in the pages of the military press, including the

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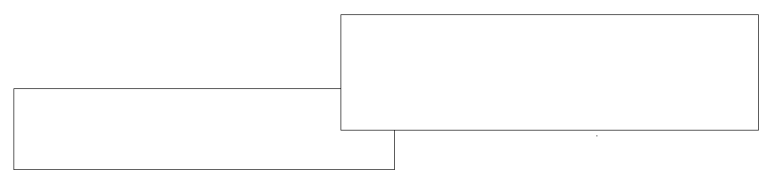
Collection of Articles of the Journal 'Military Thought'. Therefore, we consider it necessary to add only the following.

Organizing the above directorate (department, section) in formations and large units hardly calls for a major reconstruction of the organizational structure of the Field Command as a whole. Its creation generally may be based on the existing personnel, especially in respect to staffing it with specialists. The operating principle of this protection directorate may be approximately the following. The chief of the directorate, together with the basic complement of the forecasting department, must work at the control center (the control center in our district means the directing group at the command post), and jointly with the chief of the operations directorate, under the direction of the chief of staff, to evaluate the situation and draw up proposals regarding measures for protection, the restoration of combat effectiveness, and the elimination of the aftereffects of an enemy attack with weapons of mass destruction. The remaining personnel of the protection directorate, who will be involved in collecting the necessary information, allocating tasks to special units and subunits, and in monitoring the radiation exposure of personnel, may be located near the command post. The chief of the directorate must have reliable selective circuit communications with all the chiefs of the arms of troops and services of the Field Command.

The experience of exercises also showed that the most efficient and coordinated use of all forces and means assigned to implement protective measures and to monitor their fulfilment, may be achieved only if there is a single plan for protection from weapons of mass destruction which is worked out and, after coordination with the chiefs of the arms of troops and services, is presented to the formation commander (commander) by the chief of the protection directorate we are proposing.

True, the preparation of a single plan requires a great deal of time (15 to 20 hours in a front), but this time can be reduced, particularly by excluding measures which are reflected in the operations plan and in the plans for the combat use of arms of troops and services. It is desirable that this document reflect only the most important measures for protection from weapons of mass destruction which concern formations (large units) as a whole. This refers in particular to organizing reconnaissance, re-establishing troop combat effectiveness, and eliminating the aftereffects of the enemy use of weapons of mass destruction.

One of the most complex problems in organizing protection from weapons of mass destruction is forecasting the radiation, chemical and bacteriological situation. Timely forecasting requires a well-thought-out system





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of collecting data and information on the enemy use of means of mass destruction.

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In our opinion, such a system must be centralized on a formation and large unit scale and implemented by a single communications net created especially for this. It includes the control centers, front and army analytical evaluation stations, radiation and chemical observation posts, meteorological posts, nuclear-burst-fixing posts, and road commandant service posts, as well as the non-T/O analytical evaluation groups of the divisions and rear area control posts of the front and armies.

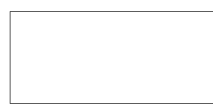
Practical exercises have shown that the non-T/O groups (stations) do not fully ensure the rapid preparation of data for the commander (chief), reciprocal information with subordinate and adjacent elements, or reports to the higher staff. This is explained by the fact that the officers staffing these groups are poorly qualified for forecasting problems, and often they are diverted to carrying out their own functional responsibilities.

To increase the working efficiency of the system of collecting and processing data on the nuclear, chemical and bacteriological situation, in our view, it is desirable to include analytical evaluation groups in the T/O of the directorates of divisions and of the army rear area, and an analytical evaluation station in the directorate of the district rear services. Based on the volume of tasks being performed and on the experience of many exercises, the optimum composition of an analytical evaluation group may be four to six men (two officers and two to four sergeants and enlisted men). The group must have radio communications with the chiefs of the regimental chemical services and with the army analytical evaluation station.

The organization of an effective system of collecting data and information on the enemy use of the means of mass destruction and of forecasting the radiation, chemical, and bacteriological situation makes stringent demands on staff working methodology.

Obviously the work should be organized so that collecting situation data, estimating it, making a decision, allocating tasks and reporting information to the higher staff are done at the same time. All the information on the nuclear strikes and on chemical and bacteriological contamination must arrive simultaneously at the command post, the control center and the analytical evaluation station, where they are consolidated and reported to the troop commander for making a decision. At the same time, the analytical evaluation station informs the troops on the use

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means of mass destruction which directly affect the fulfilment of combat tasks by the appropriate large units (formations).

Determining the ground zero of nuclear bursts remains a complex problem. The experience of exercises showed that the air defense troops still cannot fulfil these tasks completely. For technical reasons not all radar stations are capable of providing detailed data for determining the parameters of nuclear bursts. The lack of direct communications between the front and army radar stations and the analytical evaluation station does not ensure rapid collection of fix data, and as a result the meaning of forecasting is largely lost.

We think that a front, until special radiotechnical systems are brought into the armament, should have a radar station system specially intended for fixing nuclear bursts, and linked directly with the analytical evaluation station. According to our calculations, this requires five or six radar centers with P-30, P-35 and P-40 radar sets (two sets in each center) or else an additional one or two companies in a radiotechnical regiment or separate radiotechnical battalion. They may operate as required for purposes of reconnaissance and warning of the air enemy. The second way to resolve this problem is to put into practice the proposal of specialists from the Academy i/n M. V. Frunze regarding additional inclusion in each radar company of a PRV-10 (PRV-11) mobile height-finding radar, a P-12 radar and an R-118 radio set with a crew and specialist to work on the remote circular scanning indicator.

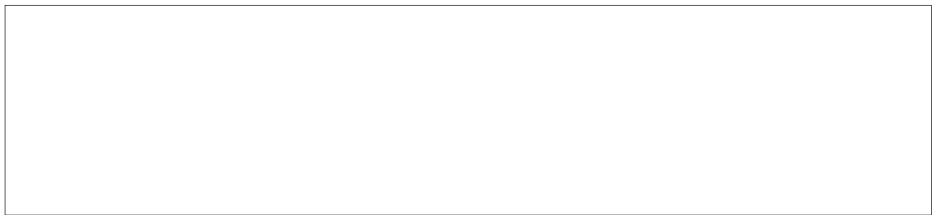
Chemical reconnaissance posts, whose locations are fixed on a geodetic basis, may be used successfully to determine the ground zero of nuclear bursts, and the special-purpose theodolites of meteorological posts of the meteorological battery which permit fixing at any vertical angle, may be used for measuring. Supplying all the posts with these or similar instruments even now can, to a considerable extent, facilitate resolving the problem of fixing the ground zero of nuclear bursts.

Calculations derived during the experimental front command-staff exercise showed that a front can ensure the conduct of radiation, chemical and bacteriological reconnaissance with its available forces and means only in support of the main grouping of troops. Especially great difficulties are encountered in organizing reconnaissance in front large units and units, and also in rear organs and installations, which total up to 400-500 elements. Because of this, increasing reconnaissance capabilities continues to be a highly urgent task.

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Usually two basic ways of fulfilling this task currently are cited: the first is to increase the organic reconnaissance subunits; and, the

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second is to give the main reconnaissance functions directly to the subunits, units and installations, and provide them with the appropriate automatic reconnaissance equipment for this. In other words, it is a question of making radiation, chemical and bacteriological reconnaissance massive.

We think the main factor in solving this problem now is the maximum introduction into the troops of the technical means for conducting reconnaissance. This requires that all tanks and armored personnel carriers (infantry combat vehicles) be provided with means for conducting chemical and bacteriological as well as radiation reconnaissance. It is desirable to install this equipment on certain combat and transport vehicles of the units and subunits of all arms of troops, special purpose troops, and the rear services.

The broad scale of radioactive contamination and the necessity of reducing the time spent conducting reconnaissance considerably heightens the role of aerial radiation reconnaissance. However, as it was established in exercises, the minimum time required for aerial reconnaissance of troop concentration areas or routes is still quite considerable. Moreover, due to insufficient forces and means a front and army can carry out all the tasks of aerial radiation and chemical reconnaissance only by repeated sorties. Consequently, counting the preparation of a repeat sortie, several hours will be required to fulfil them. In the process the helicopter crews may receive radiation doses of up to 30 roentgens.

For purposes of reducing reconnaissance time, as well as maintaining the combat effectiveness of the flight crews, it is desirable for a front to have an aviation group (nine MI-4 and nine YAK-12), an army an aviation squadron (one or two flights of helicopters and a flight of aircraft), and a division to have a flight of helicopters. It is advisable to equip the helicopters with highly effective dosimetric equipment, improve their defensive stability against radioactive emissions, and have radio sets ensuring the transmission of data a distance of 200 to 300 kilometers.

Still unresolved are all the problems in respect to organizing and conducting bacteriological reconnaissance. The forces and means available to the front are not yet able to complete the necessary volume of laboratory research. The time required to complete this work still is very great. An experimental tactical-specialist exercise on protection from bacteriological weapons showed that the chemical and radiation observation posts and reconnaissance patrols are capable only of approximately 50X1-HUM establishing that bacteriological weapons are being used. The chemical reconnaissance equipment available to subunits does not permit selecting



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samples from objects in the environment--water, air, etc.--for indications of bacteriological weapons. Under these conditions the commanding officers and staffs cannot determine the system of restrictive measures, the method of decontaminating the centers of contamination, and medical and prophylactic procedures in a timely manner.

In order to improve the entire system of bacteriological reconnaissance, chemical and medical units and subunits have to be equipped with special automatic means of indicating bacteriological weapons, and medical assistants or hygiene instructors, who would examine the problems of bacteriological reconnaissance, should be included in the personnel authorization of chemical subunits; the medical-antiepидemic platoons of the medical battalions should be supplied with electric thermostats, since the existing kerosene ones do not allow cultivating microorganisms while moving. We also should think about concentrating the command of chemical and bacteriological reconnaissance in the hands of the chief of the chemical service (chief of the protection directorate, should one be created).

One of the most effective methods of protecting rear troops and installations from weapons of mass destruction is their appropriate disposition on the terrain with regard for their protective characteristics.

The dimensions of troop location areas are determined by instructions and regulations. However, sometimes opinions are expressed regarding the need to enlarge them. Calculations and research have shown that proposals like these, however appealing they may be, cannot be adopted, since a further enlargement of the dimensions of these areas may result in violating the integrity of the organizational T/O structure or corresponding elements of the operational disposition of the troops, which would complicate control or the fulfilment of allocated tasks. Nor is there unlimited territory in which to accommodate rear services troops and installations.

To deceive the enemy regarding the actual disposition of troops in concentration areas, and to reduce the probability of their destruction by his nuclear strikes, broader and more frequent antinuclear moves obviously should be made, especially within divisional areas. A division must change its area of concentration in full complement, in our view, only when the enemy delivers ground nuclear strikes or when strong irradiation threatens the personnel. The experience of exercises shows that a battalion requires 30 to 50 minutes to change its location area, a regiment one and one-half to two hours, and a division up to six to eight hours.

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Reducing troop losses and maintaining their combat effectiveness are greatly aided by carrying out engineer measures. However, the engineer preparation of troop location areas still takes a very great amount of time. The preparation of covered trenches for all the personnel and of emplacements for all the tanks and artillery of a tank division (motorized rifle division) requires at least five or six hours. We cannot count on increasing engineer units and subunits to reduce this time. Therefore, we should find a solution to these problems through equipping combat and transport vehicles with light and sufficiently effective means, either detachable or built-in. For digging-in the vehicles to which this equipment cannot be adapted, it is desirable to provide tractor trucks with engineer attachments on the basis of one prime mover for 10 to 20 vehicles. For work at control posts we should make wider use of transportable, quickly emplaced and extracted sets of covered-type structures of industrial manufacture.

The question of water supply deserves special attention in solving the problem of troop protection. This is explained by the high probability of contamination of water sources and the increased troop and rear area requirements for water. To satisfy the needs of the front medical installations alone requires at least 8 to 10 thousand cubic meters of water per day. The water supply capabilities of front engineer units total only 1,500 to 2,000 cubic meters. Hence the conclusion that it is necessary to increase the productivity of the existing means of field water supply and the number of special water tank trucks out of those calculated to provide the units and large units with a daily water supply. To supply water to rear area units and installations, each hospital base has to have a water supply company, and each front base a water supply platoon.

The problem of finding the forces and means required to eliminate the aftereffects of an enemy attack with means of mass destruction immediately at the centers of destruction requires a theoretical base and a practical solution. There currently are several recommendations on these questions. For example, for the rapid elimination of the aftereffects of enemy use of weapons of mass destruction, it has been proposed that special organic protection subunits be created, from the regiment to the front; or that units, large units and operational formations have non-T/O detachments for eliminating aftereffects organized and trained in advance to perform special work in the centers of destruction. The opinion also has been expressed that no organic or non-T/O special detachments should be created, but that all the tasks for the elimination of aftereffects must be carried out directly by the troops. Of course, the troops must know how to eliminate the aftereffects of enemy strikes. However, specially trained subunits and units are needed to perform those purely specific tasks connected with eliminating aftereffects.

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At command-staff and field exercises in our district, aftereffects were eliminated by the troops themselves and by specially organized non-T/O detachments created in formations, large units and units. The experience demonstrated that the various small subunits that make up the non-T/O divisional and regimental detachments for the elimination of aftereffects, should be combined into a single organ and given special training even in peacetime. At the onset of combat actions they should be concentrated near the command post between the first and second echelons, since it is extremely difficult to assemble subunits of these detachments as needed during combat actions. Of course, this disposition of detachments results in separating considerable forces and means from their units and prevents them from being used in their primary function, but in the meantime we do not see another alternative. It would be desirable, if economic capabilities permit, to create organic protection units against the means of mass destruction in a front and army. This would prevent separating subunits from their units and forming them into non-T/O detachments.

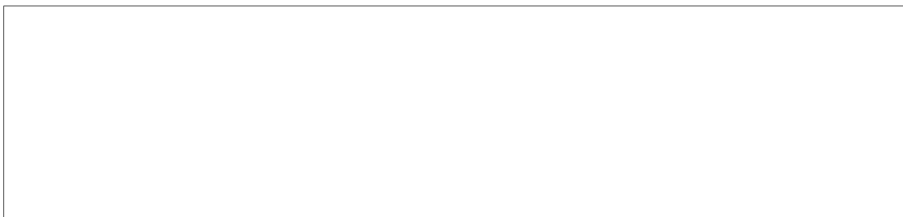
In modern operations the scale of troop contamination by toxic and radioactive substances, and also bacteriological means, may reach a considerable magnitude. For example, in the DNEPR maneuvers, after a massive nuclear strike was delivered against the "Eastern" troops, up to twenty thousand men, about five thousand pieces of heavy combat equipment and up to five hundred tons of food supplies required complete special treatment. The chemical troops of the front were faced with complex tasks which they could not carry out fully.

Essential defects also were revealed in the technical equipping of the chemical defense subunits and units. As is known, the DDA-53 vehicles possess low capacity for complete personal cleansing treatment of personnel. Clothing disintegrates and boots warp from the effects of high temperature when they are used to decontaminate personnel. Special-purpose front and army units have almost no capability for performing complete personnel cleansing treatment through the fumigation and decontamination of clothing; and their capabilities for performing complete special treatment of organic equipment with DK-4 decontamination units is only 30 percent, since these units are not installed on many special vehicles.

To improve special treatment it is desirable, in our view, to manufacture onboard DK-4 sets for tanks. With this kind of set on each tank, all the tanks of a division can be treated in one and one-half to two hours. The chemical defense platoon of a rocket brigade should include a cleansing treatment section consisting of two DDA-2. A chemical defense battalion in an army (including air army) and in a front must consist of four companies, which should be able to treat three regiments and

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divisional units at once, and an aviation division should have a chemical defense company.

Even now, in order to reduce the special treatment time, we can make wide use of the equipment already in the armament which has the necessary devices. Thus, in aviation it is desirable to use spray wash vehicles and TM-59 thermal machines with devices for feeding water into the stream of gas discharged from the jet duct of aircraft engines; in the air defense troops, various other devices; on self-propelled missile launchers and missile guidance stations, two or three nozzle tanks and two nozzles with brushes and 14 to 15-meter hoses; on the washdown/neutralizing vehicle, a tank and set of hoses like the ARS-12D-type spray tanker and a shower device like the DDA-53 shower unit; on an air servicing vehicle, a set (four or five pieces) of slotted nozzles with extension lines for using compressed air. It also is necessary to take into account that the technical equipment of some surface-to-air missile systems has a large number of hollow structures which can be used to carry supplies of decontaminant solutions, for example in the beam and boom of transport-loader vehicles, and in the outrigger mount of a vehicle crane.

We cannot dwell at length on the questions of organizing the protection of the rear from weapons of mass destruction within the bounds of one article. This problem requires special research. Further study of the organization of the defense of rear troops and installations from weapons of mass destruction, and verification of troop conclusions and recommendations through exercises, undoubtedly will be conducive to increasing the protection of armed forces personnel and equipment.

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