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	FROM :	William W. Wells Deputy Director for Operations	
•	SUBJECT :	MILITARY THOUGHT (USSR): Local Air Defense	·
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Local Air Defense by Colonel I. Kravchenko Colonel V. Radchenko Colonel of Medical Service S. Sivers

The article by Colonel General A. Gastilovich, "Local Air Defense"*, is of very topical significance. But this is understandable, since civil defense has become a new, extraordinarily important, although relatively little-researched area for the strategic support of the State. The solution of all problems facing civil defense is an extensive task encompassing many fields in the life and activity of the country. Unfortunately, until recently little attention was devoted to this extremely important problem in our military press.

In this commentary, we shall set forth our point of view on a number of questions which were not reflected in the article of Comrade A. Gastilovich or which were not sufficiently well grounded.

In the opinion of bourgeois military officials, and also in articles published in the foreign press, it is stated that a modern war will most likely begin with reciprocal missile/nuclear strikes which will be followed by clashes between ground troops. With this in mind, the first massed nuclear strikes by strategic means are expected to be delivered against administrative and industrial centers, areas where nuclear means are located, air bases, ports, major railroad centers, power stations and important industrial installations.

Thus, the rear of the country will become an arena of violent conflict and, consequently, civil defense will have to play a considerable role in ensuring mobilization of the armed forces, and conservation of human resources and of the rhythm of work of the entire national economy.

*Collection of Articles of the Journal "Military Thought", No. 2 (57) for 1961.





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Civil defense (local air defense), as is known, was implemented in the last war as well. However, the appearance of new means of destruction has introduced a number of substantial changes in the principles of its organization and the scope of measures conducted. Whereas previously civil defense was set up only at targets of potential enemy air strikes, now, in connection with the destructive properties of nuclear, chemical and bacteriological weapons, it must be extended to the entire territory of the country and encompass the entire population of the state.

It is known that, when a ground-burst nuclear strike is delivered against a given installation, heavy casualties are possible, not only in the area of the nuclear burst, but also in the main path of movement of the radioactive cloud. A similar phenomenon will also occur in cases where modern chemical and bacteriological weapons are employed by the enemy, since toxic agent fumes and bacteriological aerosols are capable of being disseminated over tens of kilometers.

Whereas previously measures for eliminating the aftereffects of an air attack were carried out by the internal forces of local air defense installations, in a nuclear attack it will be necessary to enlist outside forces and means, even from other cities, for this purpose. Therefore, naturally, the role and responsibility of oblast, krai and republic civil defense staffs are increased and, in a number of cases, even the intervention of the all-Union staff is required.

The scope of measures conducted at installations against which delivery of nuclear strikes by the enemy is probable, and in areas of contamination in the path of movement of a radioactive cloud, is diverse. First, civil defense must ensure protection from all casualty-producing elements of a nuclear burst (shock waves, penetrating radiation, thermal radiation and radioactive contamination), and also protection of people from chemical and bacteriological weapons. It is necessary to provide measures for warning and communications, evacuation of personnel and valuable materiel, for engineer-technical, emergency rescue and medical, emergency restoration and firefighting support, and for radiation, chemical and bacteriological reconnaissance.

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In a second case (basically this will be in rural areas, suburbs and workers' settlements) the scope of measures is somewhat less: warning, support of the populace by using individual chemical warfare protection means, conducting radiation, chemical and bacteriological reconnaissance, and eliminating contamination. Shelters must be built there for the population for protection from radioactive radiation, for which covered slit trenches, dugouts, basements, etc. may be completely suitable.

At the same time, a variety of new, complex problems arise in connection with the possibility of radioactive contamination of large rural areas: determining areas which are unsuitable for livestock pastures and haying, or for sowing certain kinds of crops, determining the level of contamination of grain, fodder, vegetables, fruits, milk and meat with radioactive substances, and determining the possibility of using them for food.

It is known that, in a number of areas of the US after test explosions conducted in 1958, the content of radioactive substances in vegetables exceeded the allowable norm by 1,000 to 2,000 times. It was also noted that there was an increase in the content of radioactive substances in the meat and milk of domestic animals grazing on previously contaminated land.

Now a complex task faces agricultural science -- determining which agricultural crops to the greater extent are susceptible to accumulating radioactive substances from the ground, so that in the future they will not be sown in a locality which has been exposed to heavy radioactive contamination.

Also, preserving the cereal grains in the fields is a serious problem. The idea of destroying the enemy by hunger is found reflected more and more on the pages of the bourgeois press. Thus, the French reactionary journalists Massaip, Bourmerne, Rougeron and Vartain suggest the following methods of total war: using large atomic and hydrogen bombs to set fire to the standing cereal crops, meadows, fields and fertile gardens, and to kill grazing herds of cattle and sheep. They feel that killing the enemy's populace by hunger is more important than strikes against industry. Rougeron points out that, when a bomb with a 20 million ton yield is burst in the air, the diameter of the area of destruction of crops will be at least 150 kilometers.



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A burst of 12 thermonuclear bombs, he maintains, during the period of ripening and, possibly, even of reaping, will destroy no less than three fourths of the grain in the Ukraine.

This orientation in using nuclear weapons advances the need to set up special natural firebreaks (of corn and other late maturing crops) in regions where the grain crops are abundant (the Ukraine, the Kuban and the Virgin Lands) to limit steppe fires.

It is very important to develop special substances which, in the period of threat, would raise the fire resistance of roofs of buildings in rural localities, which are made from highly flammable materials (straw, reeds, shingles, etc.).

The possibility has not been ruled out of employing various biological and chemical warfare means (herbicides) for destroying crops and domestic animals in a rural locality. This also requires that a variety of measures be carried out for the purpose of eliminating possible aftereffects in case the enemy should employ such means.

To properly organize and develop plans for civil defense, in our view, it is necessary to determine those installations against which the enemy may deliver nuclear strikes, their possible TNT equivalent, and the type of burst expected. On the basis of these data, with consideration for the average prevailing winds by altitude, the probable radiation situation which will develop in any particular region can be determined, and special maps can be drawn up.

This work, in our opinion, must be carried out by the staffs of military districts jointly with republic (oblast) civil defense staffs, and, for the entire country as a whole, by the General Staff jointly with the all-Union civil defense staff.

Working out these forecasts of the radiation situation is absolutely essential. It permits a number of measures to be carried out in peacetime in support of civil defense. It will be possible to determine the zones of heavy radioactive contamination, from which it is necessary to evacuate the populace or where it is necessary to take special protective measures, and to identify those enterprises, railroad junctions



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and stations, ports and docks which may be in zones of radioactive contamination and to take measures to ensure their normal functioning.

Finally, taking into consideration the prevailing directions of winds, it is possible to select the most advantageous areas outside the boundaries of major cities, which will not be exposed to radioactive contamination or which will only be very negligibly exposed, for constructing new enterprises and placing important control organs, communications centers, various depots, and hospitals.

To warn civil defense staffs and the populace in good time about the danger of radioactive contamination after a nuclear strike is carried out by the enemy, it is very important, in the shortest possible time, to have information about which installations the strikes were delivered against, the type of burst, and the TNT equivalent of the nuclear warheads employed. This task can be carried out best of all by the Air Defense Forces of the Country, who have everything necessary for the organization of proper observation of the entire territory of the country.

We fully agree with the proposal of Colonel General A. Gastilovich for organizing a unified meteorological and radiological service in the country, which should be subordinate to its civil defense staff and the staff of the Air Defense Forces of the Country.

The tasks of this service would be: forecasting average winds by altitudes, collecting data about enemy nuclear bursts which have occurred, forecasting the probable radiation situation and working out appropriate recommendations about measures for protecting the populace, collecting data about the actual radiation situation from radiation reconnaissance subunits and refining on the basis of this data the forecasts compiled, and periodically charting the strata of (mapping) the radiation situation with due regard for a drop in the level of radiation and for informing the civil defense troops and staffs about it.

Data about nuclear bursts and radiation reconnaissance from troop units and facilities of the ground forces, units of the Air Defense Forces of the Country and civil defense staffs which are



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located within the territory of the military district, must, in our view, be received in departments (or computation and analysis stations) of staffs of military districts, be processed and then utilized for warning troops and the populace located in the territory of the military district to take the appropriate protection measures, and must also be sent to the computation and analysis station in the main staff of the Air Defense Forces of the Country.

The need to study the matter of providing the entire populace with individual means of antichemical protection has grown. And it must be done now. The economic capabilities of the country fully permit us to gradually carry out this task now in peacetime. The means must be inexpensive, so that each person can obtain them for himself and for the members of his family.

In connection with the possibility of heavy radioactive contamination of large zones, it is also important that the entire population be provided with individual chemical dosimeters (DP-70), and medical facilities of all types -- with calorimeters (PK-56), to determine the doses of radiation received and, in accordance with this, to designate appropriate measures for assisting and treating the stricken.

We fully share the opinion of Colonel General A. Gastilovich about the need to widely propagandize among the populace about weapons of mass destruction and means and methods of protection from it. Often the weapon itself is not as frightening as ignorance of it and various rumors which arise in connection with this which, under certain conditions, may lead to demoralization of the populace and even result in panic. It is necessary to produce more popular literature and instructional films, to use all channels for appropriate work with the populace: the All-Union Voluntary Society for Cooperation with the Army, Navy and Air Force (DOSAAF), the All-Union Society for Disseminating Political and Scientific Knowledge, and also the press and radio. We should still more widely enlist the intelligentsia, officers and non-commissioned officers (primarily chemists) of the reserve for work. It is necessary to organize systematic training of the populace for protection from weapons of mass destruction. All this work among the populace must be well thought out and it must not be rushed.

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In our opinion, in a number of basic tasks entrusted to DOSAAF, besides training specialists for the armed forces and military-sports work, there must be training of the populace for protection from weapons of mass destruction (as it was done by the Society for Assistance to the Defense, Aviation and Chemical Construction of the USSR -- OSOAVIAKHIM -- before the war). Training the reserves for the army, of course, is very important, but under the new conditions, training the population for protection from weapons of mass destruction is a task of primary importance.

In our view, the article by Colonel General A. Gastilovich is of considerable interest. The author quite correctly portrays the tasks of civil defense and makes a serious attempt to find ways of solving many of its most acute problems. Nevertheless, a number of his opinions and proposals are in need of refinement, and we are not able to concur at all with some of them.

First of all, control of civil defense at the center and locally is somewhat different from the author's presentation of it. As is known, the Civil Defense Staff of the USSR is set up under the Chief of Civil Defense of the country and is subordinate to him. The command organs of civil defense in local areas are not in any way subordinate to commanders of military districts.

The commander of a military district, through his assistant for civil defense, and also the civil defense department of the military district, can assist and monitor the fulfilment of civil defense tasks only after coordinating the measures which are planned with the chief of civil defense of the Union republic and his staff.

Consequently, the commander of the military district, not having civil defense organs subordinate to him, can actually only coordinate with them. Therefore, it is difficult to imagine that, without subordination, but with the right of monitoring and assisting, commanders of military districts can exert decisive influence on the improvement of civil defense in local areas, although this influence will promote its improvement to a certain extent.

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We feel that the assertion of Colonel General Gastilovich is completely correct that the special civil defense services in krais, oblasts, republics and throughout the country should be eliminated. Actually, these services sometimes hinder the conduct of large-scale preparatory measures for civil defense even in peacetime.

Often, in local areas, it is not the chiefs of corresponding agencies and facilities who are given the responsibility of chiefs of the service, but rather their deputies, assistants and others who cannot independently and completely resolve the problems which arise.

It has become necessary to legislatively make ministers and chiefs of agencies and facilities responsible for total leadership of civil defense in both peacetime and wartime.

The author of the article is correct in rejecting the construction of major shelters for protection of the populace. In this regard, he should be fully supported because many leaders of civil defense in local areas consider the construction of such shelters the most important task of civil defense.

The fact of the matter is not only that these shelters are incredibly expensive. We must also take into account the fact that in large cities they are erected as shelters incorporated into existing structures. The possibility has not been ruled out that, as a result of a nuclear strike, the majority of these are liable to be obstructed. The experience of civil defense exercises shows how difficult, and at times impossible, it is to search for and detect obstructed shelters, and evacuate people from them in a limited time period. At the same time, it is known that a conventional slit trench or a covered slit trench, located in the open, is fully reliable for protection from the casualty-producing elements of a nuclear burst. If, moreover, it is advisable to instruct the populace in mutual and self-help, then, using simple shelters we will be better able than in major shelters to safeguard the populace.

It is also necessary to keep in mind that under modern conditions civil defense organs have an extraordinarily short time at their disposal for warning and sheltering the populace. Only by means of regular training can the rapid and organized



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evacuation to major shelters be achieved. However, in slit trenches which have been previously prepared somewhere nearby, even an untrained populace can be sheltered quickly.

The main thing in the vital activity of the state which is especially susceptible to missile/nuclear attack and which must be preserved is the stable control of the national economy, the armed forces and the course of mobilization and deployment. Unless reliably protected and appropriately equipped command posts are prepared, Soviet, Party, and military organs will not be able to carry out this task. Therefore, it is necessary to build such installations without delay.

We cannot agree with the author in his evaluation of the role of civil defense staffs attached to the councils of ministers of republics, oblasts and major city councils, to whom he assigns a role only as planning and monitoring organs, and not as controlling and organizing organs of civil defense.

The staff of the chief of civil defense of a republic, oblast or city is undoubtedly a control organ. It is precisely this staff which must know the organization of civil defense well, keep all control means in constant readiness, ensure reliable control of civil defense forces and means, and carry out cooperation between them.

We cannot agree with the assertion of Colonel General A. Gastilovich that staffs are not needed at a number of levels of civil defense, and also with his proposal to exercise all command of civil defense through the appropriate ministries, departments, local councils and facilities.

The fact is that the variety of civil defense measures implemented by a large number of various agencies and facilities must be conducted in strict coordination with respect to place and time. The Chief of Civil Defense, not having any planning and monitoring organ at his disposal, would, of course, not be able to carry out this work. Therefore, staffs must be maintained where they are available, and must be strengthened as much as possible.

A few words on civil defense contingents. It is assumed that the main assistance to the populace of stricken cities comes from



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civil defense contingents established in a rural locality: various detachments, teams, volunteer squads, and elements.

The experience of civil defense exercises shows that 50 to 70 such subunits are at the disposal of the chief of a sector in a major city for eliminating the aftereffects of nuclear destruction. The chief of the sector, having one radio set for communication with the chief of civil defense of the city, is not in a position to control these subunits properly.

It is an extremely complex matter to plan and carry out support of these contingents with equipment and food, and also to refine previously assigned tasks or determine new tasks while in the process of carrying out rescue and emergency restoration.

It is advisable to examine the tables of organization of non-military civil defense contingents and the procedure for manning them in order to consolidate, standardize and establish stable human and materiel-technical resources. Instead of the small and narrowly specialized contingents which we now have at our disposal, in our view, we should set up emergency rescue brigades and regiments.

The composition of a civil defense emergency rescue brigade should consist of two to three engineer, two to three medical and two firefighting battalions, an antichemical battalion and a motor transport battalion, a communications company, a reconnaissance company, and a company for repairing the network of municipal services, a traffic control service and guards for preserving order, as well as a staff of the brigade.

An emergency rescue regiment can consist of a lesser number of such subunits. The emergency rescue brigades and regiments must be organized according to the decision of the appropriate Councils of Workers Deputies, with consideration for existing capabilities.

In view of the fact that one raion is not able to organize an emergency rescue force, this can better be done on the inter-raion principle. The center for organizing the brigade or regiment is the rural raion which is located closer to the city for which the assistance is being planned.

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Civil defense emergency rescue units should be manned only by civilians, not by persons conscripted into the ranks of the armed forces.

In order to establish conditions for the timely arrival of the necessary replacements in civil defense units, in our view, all citizens accounted for in the civil defense manpower pool must be designated "in the service of civil defense" and each of them must be told in advance his specialty, the subunit to which he is attached and the place where he reports at call up or at the appropriate signal.

* * *

Colonel General A. Gastilovich, in our view, examines extremely topical matters of civil defense in a critical, polemical way. We must concur with many of the positions taken by the author.

We would like to express our own comments, mainly concerning problems of protecting the populace in a missile/nuclear war, although sufficient attention has been devoted to this matter in the article.

What courses does A. Gastilovich propose for resolving one of the most important and difficult problems of a future war -protecting the population? The author correctly feels that existing shelters in the basements of buildings do not completely protect the populace from nuclear bomb bursts. At the same time, he maintains without substantiation that deep slit trenches outside of buildings with very simple overhead coverings will save more human lives than shelters constructed in basements. It is completely clear that separate shelters of solid or layered construction and also shelters in underground subway tunnels are more reliable and protect people from all casualty-producing elements better. However, the installation of numerous expensive major shelters for the entire populace close to their places of residence and work is a task, in our view, which is unrealistic, for both technical and economic reasons. For this reason only, slit trenches -- the very simplest shelters -- must be assessed, as they are less reliable but more realistic means of collective protection, which to a certain extent are capable of protecting the populace or reducing the effects of the casualty-producing



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elements of nuclear bursts. It must be remembered that in placing personnel in trenches, the most destructive effects of a low-yield nuclear warhead are reduced as follows: ionizing radiation by approximately 25 percent, shock wave by approximately half, and thermal radiation by three times.

We must not underestimate the difficulties of constructing deep slit trenches within short periods of time, especially in major cities, in areas of multistory buildings with a high population density and an extremely limited amount of land which is free from buildings. This is why appropriate advance work in this direction is necessary, so that, when necessary, the simplest shelters can be set up quickly and in an organized manner. Regarding the available individual means of protection which A. Gastilovich puts great faith in, these are actually not very effective against the action of a shock wave and do not significantly protect from thermal radiation. These means can be effective mainly against "pure" radiation damage. Thus, we can assume that the available collective and individual means for protecting the population, as well as those which will be set up in the initial period of war, are not very reliable.

Among the measures for protecting the populace, until recently great importance was attached to preliminary evacuation of the populace from major cities. Unlike the majority of the countries of Europe, the USSR has more favorable geographic conditions for this.

The history of wars in this century attests to considerable migration processes among the populace. This phenomenon has become the inevitable companion of war. In the Soviet Union in 1941, the withdrawal of people from areas adjacent to the front and other areas threatened militarily assumed massive proportions. In the Council of People's Commissars of the USSR a special committee for evacuating the populace was established. There is no reason to assume that migration processes with their attendant negative phenomena (worsening of the sanitary-epidemic situation, spreading of panic, etc.) will disappear in a future war.

Colonel General A. Gastilovich considers preliminary evacuation of the populace (both able and unable to work) from major cities completely unrealistic and even harmful, motivated





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by the fact that people who are able to work are always needed in place, and evacuation of people who cannot work in an extremely short period of threat or in the first days of war can undermine the morale of those who can work. Although the author recognizes the possibility of evacuating those unable to work to a rural locality, he suggests implementing it gradually and in the course of the war, rather than at its onset. He is opposed to the urban population being directed to suburbs either on foot or by means of transport, since these areas themselves might be in a zone of nuclear strikes, and besides this, they will not be in a position to receive the additional population. This, according to the opinion of Colonel General A. Gastilovich, can hurt the successful conduct of mobilization measures.

The interests of mobilizing the armed forces unquestionably deserve our closest attention. At the same time, it is important to achieve a situation where a large part of factory and office workers in the main enterprises could continue work in place. This category of people should, in our view, be provided reliable means of protection. Along with this, it is necessary to carry out a number of measures to disperse the able-bodied people in a short period of time at the moment an actual threat arises (and work is stopped at the enterprises), and locate them in a non-urban area during the non-working hours. This will require great efforts, but the possible losses would be sharply lowered. The people who are unable to work, in our view, should be evacuated in advance to more or less safe areas.

If, as a result of a nuclear strike, great losses are sustained among the populace of major cities, then this complicates not only mobilizing the armed forces and maintaining a high level of production, but also eliminating the aftereffects of attack and implementing intercity assistance. Therefore, for example, it is necessary to evacuate medical personnel from major cities in good time, otherwise, after delivery of nuclear strikes against any given industrial center, there will be no one to take upon himself the task of medical attendance of casualties. That is why it is impossible to agree with the thesis of Colonel General A. Gastilovich that all people who can work are needed in the local area. The earliest possible evacuation of many of the medical workers, medical and other supporting facilities is one of the conditions for preserving the life and health of many, many thousands of those stricken.

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It is completely possible that in case the threat of attack arises, a certain part of the populace will independently begin to guit the city. The flight of the populace will be of an extremely unorganized nature and will have very serious consequences if possible routes and areas for evacuation are not specified and appropriate control and monitoring are not provided in advance. Massive relocation of the populace cannot be stopped by forbidding flight from the city. It is impossible to consider such a prohibition as a measure for combating panic. The failure to inform the populace about how to act during the threat of attack is fraught with great dangers. The refusal to prepare and conduct preliminary evacuation inevitably leads to maximal losses. After a nuclear strike it is still necessary to disperse both the stricken and the survivors in a non-urban zone, but in this case, the difficulties of evacuation are increased immeasurably.

The picture will be completely different if we conduct preliminary evacuation. If this is done, a considerable part of the populace can be used in civil defense contingents to eliminate the aftereffects of a nuclear attack. Refusal to implement a preliminary evacuation would signify a refusal to employ the resources of the city, not only for its own needs, but also for assisting other cities.

Thus, civil defense organs, in our opinion, must make adjustments for thorough preparation for and implementation of preliminary evacuation and dispersal of the population. A plan developed in detail must be checked and amended in systematically conducted exercises and training. Comrade A. Gastilovich is correct that this would remove the secrecy from such measures. Training with a great number of participants and major exercises would, in the future, allow the implementation of preliminary measures to which the enemy would not be alerted.

The author's arguments that evacuation of people who are unable to work in the first days of war may undermine the morale of those who can work, are not convincing. Examples of the history of the Great Patriotic War, in particular the evacuation of persons unable to work during the Leningrad blockade, proves that the reverse is true. Just like soldiers, the workers of cities appreciate the concern of Party and Soviet organs for those who are near and dear to them.



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Thus, in a missile/nuclear war the problem of protecting the urban populace must be resolved by the preparation of individual and simple collective protection means, the dispersal of factory and office workers, the timely withdrawal of the personnel of urban civil defense contingents and facilities beyond the line of possible destruction, and also previously prepared, orderly evacuation of persons unable to work. The difficulties arising in organizing protection of the urban populace under modern conditions require in-depth analysis of all possible ways and means of carrying out the assigned task.

