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WASHINGTON 25, D. C.

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MEMORANDUM FOR: The Director of Central Intelligence

SUBJECT : MILITARY THOUGHT (SECRET): "Coordination of Adjacent Units During the Use of Nuclear/ Missile Weapons in Operation", by Colonel G. Yefimov

1. Enclosed is a verbatim translation of an article from the SECRET Collection of the Journal "Military Thought" published by the Ministry of Defense, USSR, and distributed down to the level of division commander.

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[redacted]

Richard Helms
Deputy Director (Plans)

Enclosure

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The Director for Intelligence,
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COUNTRY : USSR

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Following is a verbatim translation of an article entitled "Coordination of Adjacent Units During The Use of Nuclear/Missile Weapons in Operations", by Colonel G. Yefimov. This article appeared in Issue 6(61) of 1961 of a special version of the Soviet journal Military Thought which is classified SECRET by the Soviets and is published irregularly.

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[redacted] Comment: "Military Thought" is published by the USSR Ministry of Defense in three versions, classified RESTRICTED, SECRET, and TOP SECRET. The RESTRICTED version is issued monthly and has existed since 1937. The SECRET version is issued irregularly. By the end of 1961, 61 issues had been published, 6 of them during 1961. The TOP SECRET version was initiated in early 1960 and is also issued irregularly.

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Coordination of Adjacent Units During The Use of Nuclear/Missile Weapons in Operations

by

Colonel G. Yefimov

Nuclear/missile weapons are intended for the fulfilment of the basic missions in an operation. This is precisely the reason that every effort must be made to employ them with maximum effectiveness and to work out all problems related to their combat use in the greatest possible detail.

Unfortunately we have still not achieved this either in theory or in training practice. The tactical-technical capabilities of nuclear/missile weapons have not been exploited to the fullest, and this applies, first of all, to maneuver at the maximum range of fire. In the majority of cases the maneuver of missile troops in an operation is essentially limited to the zone of the formation or large unit within which they are operating. Maneuver at the maximum range of fire of the missiles takes place only on the authorization of the senior commander. The mutual use of missile weapons at the request of adjacent units, or with their consent, has not been provided or planned for, and this fact considerably limits the capabilities of missile troops.

Ensuring the safety of adjacent troops during the delivery of nuclear/missile strikes near the dividing lines or during troop operations on converging axes has also not been worked out. At the present time there are no established, to say nothing of official, principles which would completely preclude simultaneous missile strikes by adjacent units against the same objective.

We shall try to find the solutions to these problems which, in our opinion, will improve the coordination between adjacent units and ensure more complete utilization of the capabilities of nuclear/missile weapons in an operation.

It is known that one of the advantages of missiles over all other weapons is their great range of fire and the broad capabilities for maneuver by fire toward the flanks. For example, the range of fire of tactical missiles is more than twice the usual width of a divisional offensive zone. Consequently, a tactical missile battalion of one division can easily deliver nuclear strikes along almost the entire zone of two adjacent divisions. Army and front missile units are likewise capable of destroying, with nuclear/missile strikes, objectives within a significant part of the offensive zone of an adjacent army or front. In exercises, however, a maneuver by tactical and army missiles to the zone of adjacent units is still carried out only after the assignment of a special mission by the troop commander of the front (army), while interfrontal maneuver by missile fire has not, generally speaking, been fully developed in practice.

Before the appearance of nuclear/missile weapons, special means were allocated to provide for the security of flank juncture lines (styk). At the tactical level these missions were assigned to machine gun subunits and to artillery and mortar batteries and battalions. In an army or front, the flank juncture lines were made secure by the fire of several artillery units, or even large units. In modern operations, when troops will be operating along separate axes, without a continuous front, and with gaps, in some cases amounting to several tens of kilometers, between large units, there is a real need to raise the question of the security of the flanks of large units and formations.

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We feel that the presence of nuclear/missile weapons in divisions, in armies, and in a front has created real conditions for reliable flank security by nuclear/missile strikes, using air bursts or even surface bursts if conditions are favorable, and for making broad use of the maneuver by fire of missile troops in the tactical and operational plan.

In addition to securing the flanks, the maneuver by fire of missile troops is advisable, and even necessary, in those cases where a front (army) is organizing a group or massed nuclear/missile strike but does not have a sufficient quantity of means of its own ready to open fire. In the course of an operation, a considerable part of the weapons may be moved or withdrawn from the zones of radioactive contamination. Sometimes the nuclear weapons of a front (army) may not be ready for use or may not have been brought up to the launch sites. Possible losses of missile units must also be taken into account. All these conditions may sharply reduce the capability of a front, and even moreso in the case of armies, to carry out group or massed nuclear/missile strikes. In such cases, the adjacent units can offer some aid to an army or front by executing a maneuver by trajectories of nuclear/missile weapons.

Modern operations are distinguished by their exceptional dynamism. The situation in the zone of a formation frequently changes in the course of several hours, and, after massed nuclear strikes by the enemy, even in the course of minutes. Frequently, it is necessary to transfer the main efforts to a new axis at a considerable distance, measured in tens or hundreds of kilometers. This can be successfully accomplished in a matter of minutes by a maneuver by fire of the missile troops, provided such a maneuver had been previously provided for in the plan for the combat use of the missile troops of a front or of armies.

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It must also be noted that the use of missiles with chemical or conventional filling will have an appropriate effect only if they are used in great quantities in the launching of a strike against a given objective. In connection with this, the use of even 10 to 15 missiles with chemical filling in a limited interval of time is beyond the capability not only of an army but also of a front. This is explained as follows. It has been established by experience in exercises that, in the course of an operation, up to 50 percent of the missile units are usually moving or are preparing to open fire from new siting areas. In addition to this, of those missile battalions which are ready for firing, not less than one third of the launching mounts will be on a duty basis with nuclear missiles. Not all battalions will have missiles with chemical filling. Some of the battalions of army missile brigades will not be able to support the firing on the selected objective because of the great distance involved. If a front, let us say, has in its composition two front and three or four army missile brigades (30 to 36 launching mounts) then no more than 8 to 10 launching mounts can be allotted to the destruction of the selected objective with missiles with chemical or conventional filling.

This is precisely the reason that frequently during front exercises the majority of missiles with chemical filling allotted for an operation remain unexpended; and, when they are used, the required reliability of destruction of targets is not attained in the majority of cases. It is obvious that, even in this case, the employment of interfrontal maneuver by missile fire will make the use of missiles with chemical or conventional filling more effective and will greatly assist in the complete exploitation of the combat capabilities of missile weapons in an operation.

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In our opinion, in order to achieve the mutual use of nuclear/missile weapons in adjacent zones, it is necessary to indicate the following in the directive to a front or army on the conduct of an operation: the number of missile units, the type of nuclear warheads, and, also, the type of weapons with chemical or conventional filling they must have on hand in case of a request from an adjacent unit to launch strikes against targets which it has selected. It is clear that, at the same time, there must be an indication of the quantity of weapons that were planned for the purpose of being called on from adjacent units to the zone of a front or army.

Ensuring the safety of one's own troops during the employment of fire weapons is not a new problem. Even during World War II, commanding officers and staffs, in working out coordination efforts, adopted special measures to prevent cases of casualties among their own troops from air strikes or from artillery and tank fire. Thus, with troops operating along converging axes, lines were set up where the troops were to meet, and corresponding lines were set up to limit air strikes and the fire of artillery and tanks. These boundaries were usually reference lines joining landmarks which were shown on the map and clearly visible on the terrain, and sometimes they were roads or rivers. Fire to the flanks was limited by the dividing lines, beyond which artillery and mortars could fire only at the request of an adjacent unit.

In modern operations with the use of nuclear weapons, linear boundaries can no longer guarantee the safety of adjacent troops operating on the flanks or advancing on converging axes. It is clearly necessary to replace lines with zones, the widths of which correspond to the radii of destruction of nuclear weapons. A missile with a 100 kt nuclear warhead is capable of inflicting casualties on troops

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not in shelters within a radius of 3100 m. The safe distance from ground zero of the burst of such a missile is determined by the pressure in front of the shock wave (0.1 kg/cm^2), and is approximately 5300 m. If one takes into consideration the missile's probable deviation from the intended ground zero, then one is easily convinced that it is not possible to plan for the delivery of nuclear/missile strikes of such a yield closer than six to seven thousand meters from one's own troops.

Unfortunately, this fact is considered in connection with our own troops only in the narrow sense of the word. In training exercises, nuclear strikes have frequently been planned for delivery for three to five km from the dividing line with an adjacent unit and without any agreement with the unit, which does not always ensure the safety of adjacent troops. An exception is nuclear surface bursts, for which the zones of radioactive contamination are so extensive that they require advance detailed calculations in order to ensure the safety of the troops of an adjacent front or army.

When we consider that in modern operations troops will be operating along separate axes without a continuous front and at exceptionally high speeds, it is obvious that neither a front nor an army will have any precise information on the position of an adjacent unit. This information will always be obsolete - even under the best conditions, in two to three hours. In this time, by taking advantage of open flanks, the forward units will be able to advance 10 to 15 km. It is quite clear that under such conditions the launching of nuclear strikes, even within the zone of one's own formation, at distances of three to five km from the dividing lines of an adjacent unit, is fraught with grave risks.

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Other great difficulties may arise from the launching of nuclear strikes under conditions where troops are operating along converging axes with the mission of encirclement, where they are gaining the rear of large enemy groupings, or where they are making a detour of extensive zones of radioactive contamination with high radiation levels.

In consideration of these facts, we propose, in the interests of ensuring the safety of our own troops, the establishment of special zones within the boundaries of which the grounds zero for nuclear strikes may be designated only with the consent of the adjacent unit. For armies, such zones should be designated on the orders of the troop commander of the front and should follow the dividing lines. In the case of operations of strike groupings of two armies along converging axes, it is also necessary to set up such special zones on the line of their proposed meeting.

The width of this zone will be determined with reference to the highest-yield nuclear warheads which the troops possess, and to the maximum possible deviation of ground zero of the burst from the intended point. Thus, if the armies have 40 kt warheads, the maximum possible deviation (VO - vozmozhnoye otkloneniye) of the weapons from the point selected for ground zero, depending on errors in the preparation of the initial data for firing and dispersal (4 x range probable error (Vdp) or 4 x direction probable error (Vbp)) is equal to 1600 m; and if the distance (R - rasstoyaniye) from ground zero of the burst which is safe for personnel is that at which the pressure in front of the shock wave at ground level for that particular burst corresponds to 0.1 kg/cm^2, then the width of the zone (P - polosa) can be defined by the formula:

$$P = 4VO + R$$

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For the conditions we have given, the zone where nuclear weapons are used with the consent of adjacent units is P = 1600 + 3950 = 5550 m, and should overlap the sector of terrain from the dividing lines by not less than 5550 m. These zones will ensure the safety of our own troops only in the case of air nuclear bursts. For surface bursts, it is necessary in each specific case to carry out calculations, taking into consideration the yield of the weapon, the wind direction and velocity, and the position of one's own and the adjacent troops, as well as the nature of their operations in the next hours or days.

The limited number of nuclear weapons allotted to armies for an operation and their great value demand that there be no instances of inefficient use of nuclear weapons. Despite this, there are still no restrictions preventing the simultaneous launching of two nuclear strikes by adjacent units against a single target detected at the dividing line. During training exercises the situation often arises in which, after the detection of an important target, e.g., a "Corporal" guided missile battery, close to the dividing line between two armies, both army commanders may give the order for its destruction by nuclear missiles. As a result, two missiles are expended instead of one. The establishment of zones which we have proposed would play a positive role even in such a case.