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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

27 April 1977

MEMORANDUM FOR: The Director of Central Intelligence
FROM : William W. Wells
Deputy Director for Operations
SUBJECT : MILITARY THOUGHT (USSR): Control of
Missile Units of the Ground Forces in
Offensive Operations

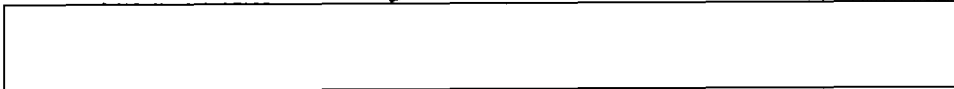
1. The enclosed Intelligence Information Special Report is part of a series now in preparation based on the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal 'Military Thought'. This article examines the various levels of control and conditions determining the nature of control of ground forces missile units in an offensive operation. The authors contend that isolation of the front commander in making a decision has led to the incorrect use of nuclear weapons in exercises and, thus, suggest that the chief of rocket troops and artillery and commander of the air army assist in the decision-making. The article also deals with the organization of cooperation among rocket troops of a front and between rocket troops of adjacent fronts in view of their great capabilities for maneuvering fire, with control of missile technical units and fire of missile units, and with relocation of rocket troops. Finally, the article dwells on the control of missile large units and units in a meeting engagement and during commitment of large operational formations to the engagement. 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

William W. Wells

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Intelligence Information Special Report

Page 3 of 21 Pages

COUNTRY USSR



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SUBJECT

MILITARY THOUGHT (USSR): Control of Missile Units of the Ground Forces in Offensive Operations

SOURCE Documentary

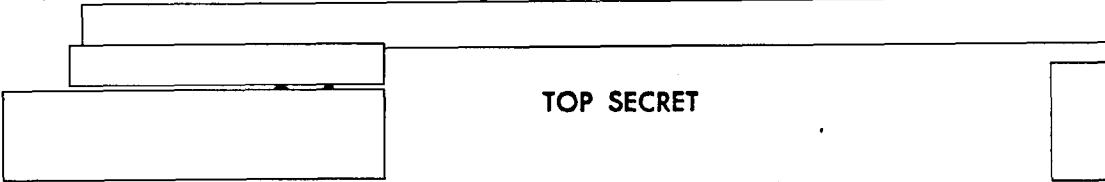
Summary:

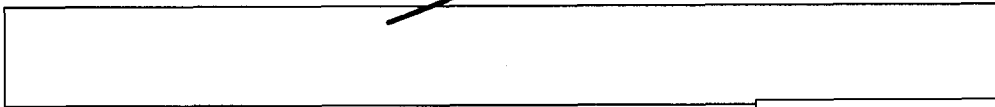
The following report is a translation from Russian of an article which appeared in Issue No. 2 (63) for 1962 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal 'Military Thought'. The authors of this article are Colonel P. Shkarubskiy and Colonel V. Godelevich. This article examines the various levels of control and conditions determining the nature of control of ground forces missile units in an offensive operation. The authors contend that isolation of the front commander in making a decision has led to the incorrect use of nuclear weapons in exercises and, thus, suggest that the chief of rocket troops and artillery and commander of the air army assist in the decision-making. In addition, the article deals with the organization of cooperation among rocket troops of a front and between rocket troops of adjacent fronts in view of their great capabilities for maneuvering fire, with control of missile technical units and fire of missile units, and with relocation of rocket troops. Finally, the article dwells on the control of missile large units and units in a meeting engagement and during commitment of large operational formations to the engagement. End of Summary

Comment:

Colonel P. Shkarubskiy, a Candidate of Military Sciences, also wrote "Some Matters of the Employment of Rocket Troops and Artillery in the Antilanding Defense of a Seacoast" in Issue No. 2 (69) for 1963

After 1962 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.





Control of Missile Units of the Ground Forces
in Offensive Operations

by

Colonel P. Shkarubskiy
Colonel V. Godelevich

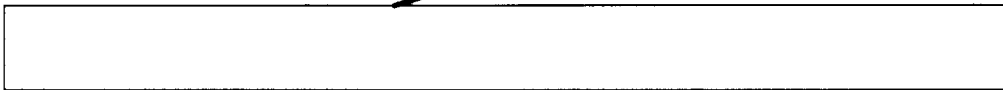
At the present time it is generally acknowledged that missile/nuclear weapons are the main means of destroying the enemy. The task of the combined-arms large units consists in exploiting the results of nuclear strikes in a timely manner in order to develop a rapid offensive into the depth of the enemy disposition, to complete his defeat, and to seize vitally important areas.

These fundamental tenets demand a special approach to the questions of the control of rocket troops. The experience of many exercises convincingly shows that the loss of control of the rocket troops for a short time, in essence, jeopardizes the fulfilment of the tasks of the operation. For this very reason, commanders of a front and an army, their staffs, and the chiefs and staffs of rocket troops and artillery must concern themselves with organizing and maintaining continuous control of the rocket troops in an operation.

Control, as we know, includes not only assigning and transmitting tasks to the rocket troops. This is merely the concluding stage of control. Before assigning the rocket troops tasks to deliver strikes it is necessary to carry out a large, complex array of measures to organize their combat actions, in particular: deploy the rocket troops and bring them to combat readiness; organize the preparation and supply of missiles to the missile units; obtain reconnaissance data on the targets for destruction; plan nuclear strikes; set up communications with the rocket troops and cooperation among them and with aviation, etc. During the operation a crucial measure is the planning and execution of relocations of the rocket troops, as well as the ensuring of their accelerated preparation for the accomplishment of tasks from the new areas.

Not one of the enumerated measures can be carried out without precisely tying in the actions of the missile large units and units with the tasks and actions of the other branch arms.





The functions and duties of combined-arms and artillery commanders and staffs for direct control of the rocket troops have been determined mainly on the experience of the exercises of recent years. Such control, according to general opinion, must be exercised by the chief of rocket troops and artillery guided by the decision of the commander of the front (army) to employ nuclear weapons in the operation.

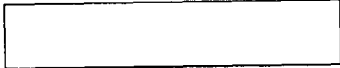
At the same time it should be mentioned that on questions of the development and content of the decision of the commander of the front (army) in respect to the employment of missile/nuclear weapons, there are no common views, and this has a negative effect on the employment of rocket troops. Some front commanders in exercises attempt in their decisions to foresee all the matters of employing missile/nuclear weapons in an operation. Others, the majority, limit themselves to just the main matters, such as, for instance, designating the targets for destruction for the rocket troops and determining the expenditure of missiles, the types of bursts, and the sequence of delivering the strikes.

Front commanders, as a rule, make decisions independently. The services of the chiefs of rocket troops and artillery are by no means always enlisted in working out decisions. Accordingly, their role is reduced to submitting their proposals to the commander before he makes the decision.

Such isolation of the front commander in making a decision has led in a number of cases in exercises to the incorrect use of nuclear weapons in an operation. The allocation of targets for destruction between rocket troops and aviation, as well as among rocket troops of different purposes, was not always done correctly. In one of the exercises, targets for destruction by operational-tactical missile units were planned to a depth of eight to ten kilometers from the forward edge, when these targets could have been destroyed successfully with tactical missiles.

Not infrequently mistakes occur in the choice of ground zeros and the designation of altitudes for nuclear bursts, especially when these questions are decided by eye, without due assessment of the expected results taking into consideration the nature of the target and the terrain. The experience of field firings shows that if the nature of the terrain is not taken into consideration in selecting aiming points, then the destructive effect of a nuclear burst can be considerably reduced. To an equal extent, when selecting aiming points, it is necessary to consider the position and dimensions of the target, the nature of combined targets, their dimensions and mutual disposition, the required degree of





destruction, errors in the determination of settings for firing, the dispersion of missiles, and the safe distance.

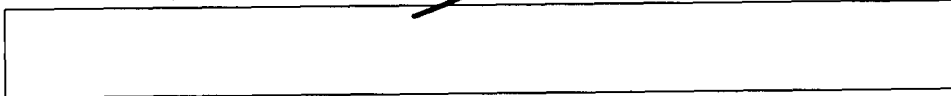
The decision for the employment of each nuclear warhead against this or that target must be based not only on operational expedience but also on the appropriate estimates of expected results. For this it is necessary that the chief of rocket troops and artillery and the commander of the air army, i.e., the persons to whom the means of supplying nuclear warheads are directly subordinated, become genuine assistants of the front commander when he is working out the decision for the operation. In other words, the commander of the front (army) must make the decision for the employment of nuclear weapons jointly with the chief of rocket troops and artillery and the commander of the air army.

The content of the decision of the front commander for the employment of nuclear weapons in each specific case may have its own special characteristics. Attempts to approach it stereotypically without consideration of the specifics of the preparation and conduct of the operation may lead to the incorrect employment of nuclear weapons. The experience of many exercises shows that all the basic matters connected with the employment of nuclear weapons by rocket troops and aviation in the operation must be reflected in the decision. In particular, it must determine the specific targets for destruction, allocate nuclear warheads for the destruction of each target with an indication of the altitude and, when necessary, also the ground zero of the burst, and establish the procedure for conducting a massed nuclear strike by the missile units, cruise missile units, and aviation.

During the joint work of the front commander and the chief of the rocket troops and artillery while working out the decision there must be coordinated the matters of deploying the rocket troops and bringing them to readiness, of providing them with missiles, engineer preparation of battle formations, cover by air defense means, organization of reconnaissance and communications, and relocation of missile units and subunits during the operation. In this case the chief of rocket troops and artillery is not required to refine and coordinate undecided or unclear questions, and he can use the time thus freed to give assistance to the rocket troops.

The staff of the front (army) has an exceptionally large role in the organization of control of rocket troops. On the basis of the decision adopted it must decide, jointly with the staff of rocket troops and artillery, all practical matters of the employment of rocket troops in the operation, and in particular, it must plan out the procedure and times for





deploying the rocket troops and bringing them to combat readiness, organize reconnaissance of the enemy, coordinate siting areas, map out the routes of movement of the missile and missile technical units, organize traffic control service and security, and allocate the necessary communications means.

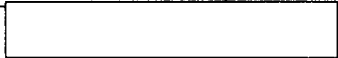
The staffs of rocket troops and artillery in turn must decide emerging questions of the control of rocket troops only after coordinating them, besides with the staff of the front (army), with the staff of engineer troops, the chief of communications, the chief and staff of the rear, as well as with the chief of the directorate (department) of missile and artillery armament.

The experience of exercises shows that one of the most important matters of control is the organization of cooperation among the rocket troops of the front and between them and the rocket troops of adjacent fronts. Especially necessary is strict coordination of the actions of rocket troops in the initial nuclear strike and during the delivery of massed nuclear strikes to rout large operational groupings of the enemy during the operation, mainly on the boundaries between armies and fronts. Careful coordination is needed in the distribution of siting areas of the missile and missile technical large units and units, in the planning of reconnaissance efforts, etc.

In organizing combat with enemy means of nuclear attack and destruction of the main groupings of his troops, the army and front usually plan nuclear strikes not only in their own offensive zone but also on the flanks. An analogous phenomenon also occurs in adjacent armies and fronts. Therefore, there may be cases where nuclear strikes with the means of two armies or fronts are planned for the same targets. Such planning will lead to the unnecessary expenditure of nuclear warheads and the putting into operation of a large number of missile launchers to the detriment of the fulfilment of other important tasks.

This is approximately what happened in one of the exercises when the delivery of nuclear strikes with the means of two adjacent fronts was planned against two enemy targets -- the position of a Corporal battalion and an infantry division. As a result, one nuclear strike on the Corporal position and four strikes on the infantry division by one front were laid on top of the same number of nuclear strikes of the adjacent front. Besides the unjustified overexpenditure of nuclear warheads, five launch batteries were put into operation unnecessarily in the strike.





The lack of proper coordination in the actions of rocket troops within a front and with the rocket troops of adjacent fronts may also lead to a point where the efforts of reconnaissance, especially of aerial reconnaissance, are directed toward the fulfilment of one and the same tasks while other targets go unreconnoitered.

A large number of tasks requiring coordination confront the rocket troops during the commitment of an army to an engagement. In this case it is necessary to coordinate the siting areas for the missile units of the army being committed, the receipt of reconnaissance data on the enemy in the zone of commitment, the delivery of missiles and special warheads, as well as the relocation routes of the missile and missile technical units, and to refine the fire tasks of the front missile units and the first-echelon armies. Some of these matters must already be decided before the commander of the front makes the decision to commit the army to the engagement, i.e., during the preparation of the operation.

The necessity of coordinating the combat actions of the missile large units of adjacent fronts during an operation is caused primarily by the great capabilities of missiles to maneuver fire. Operational-tactical missile units can not only maneuver fire in the offensive zone of their own front, but also accomplish tasks, if the situation requires this, in the zone of an adjacent one. Calculations show that in a front, up to 15 launch batteries, of which six are of army subordination and nine are of front subordination, can be allocated to deliver strikes in the zone of an adjacent unit. The concentration of such a number of missile means from each of the cooperating fronts permits accomplishing tasks to destroy large enemy forces on a particular axis with relative ease and in a short time.

The combined use of the rocket troops of adjacent fronts is possible in particular when routing large enemy counterattack groupings at the juncture of fronts, destroying concentrating enemy operational reserves, and when carrying out an assault crossing of a large water obstacle.

Cooperation among the rocket troops of a front and with the rocket troops of adjacent fronts is organized by the commander of the front. However, as the experience of exercises shows, the chief of rocket troops and artillery of the front must not stand on the sidelines; it is his duty on his own initiative to coordinate and refine these or other matters of the employment of his rocket troops and the rocket troops of the adjacent front.



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On the whole, it should be noted that matters of organizing cooperation of the rocket troops are new and they require further theoretical development and testing in exercises.

Control of rocket troops is organized in conformity with the general principles employed for the control of troops of a front (army) in an operation. The chief of rocket troops and artillery exercises control of the rocket troops from the command post of the front (army). If the commander of the front (army) is located at the forward command post, then the chief of rocket troops and artillery with a group of officers of his staff must also be at this post. Control from the command post in this case is exercised by the chief of staff of the rocket troops and artillery.

We believe that the chief of rocket troops and artillery must control not only the missile, but also the missile technical large units and units. Entrusting control of the missile technical units to the chief of the missile and artillery armament directorate (department) located at the rear control post does not ensure efficient command over them and it hinders the maintenance of their continuous cooperation with the missile units and large units. A consequence of this in exercises has been the tardy delivery of missiles to the missile units, which jeopardized the fulfilment of tasks of delivering nuclear strikes.

The missile technical units are not purely supply units, but they constitute a single whole with the combat units. In the final analysis, the timeliness of delivering the nuclear strikes depends on their timely preparation and shipment of missiles to the missile units. Control of the missile technical units, in particular of the mobile missile technical bases, must be organized from the command post on the net of the chief of rocket troops and artillery and within the overall unified system of control of the rocket troops. This will permit the chief of rocket troops and artillery to personally direct the preparation and delivery of missiles. To give assistance to the chief of rocket troops and artillery in controlling the mobile missile technical bases, it is desirable to have at the command post an operations group of the chief of the missile and artillery armament directorate (department), headed by his deputy.

The fire control of the missile units can be centralized or decentralized. The degree of centralization will depend on the conditions of the situation and the nature of tasks to be accomplished by the rocket troops.

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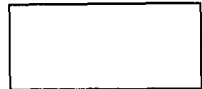


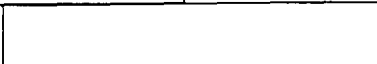
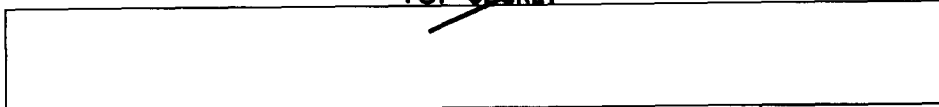
Decisive damage to the enemy can be inflicted in a short time with massed and grouped nuclear strikes. It is obvious that the fire control of rocket troops allocated for such strikes must be centralized in the hands of the senior commander. Most often the necessity of centralized fire control may occur when delivering the initial nuclear strike at the beginning of an operation, and also when delivering nuclear strikes in the course of the operation to accomplish tasks in support of the front as a whole or of any one army, when it will be necessary to allocate missile units of front subordination or of adjacent armies for the strike.

With centralized fire control of rocket troops, the commander of the front (army) determines the targets for destruction, and the number of missile units of front and army subordination allocated for the strike; he establishes the expenditure of missiles, the yields of nuclear warheads, and the types of bursts; and he indicates the procedure for delivering the strike, the time, and the degree of readiness of the rocket troops. In conformity with this, the chief of rocket troops and artillery refines the targets for destruction and allocates them among the missile units, transmits tasks to the executors, and sets up monitoring of the preparation and conduct of the strike at the prescribed time. When necessary, commands to the missile units of army subordination may be prepared and transmitted directly by the staff of rocket troops and artillery of the front (the staffs of rocket troops and artillery of the armies in this case will be relaying levels).

Sometimes, however, for instance in the absence of accurate data on the position of enemy troops, the army may have indicated for it only general tasks in the massed nuclear strike of a front (expenditure of nuclear warheads, time and procedure for delivering the strike); and the remaining matters, including the selection of targets for the army means, will be decided by the commander of the army. The role and tasks of the chief of rocket troops and artillery of the front in this case come down to transmitting the tasks of preparing the strike to the chief of rocket troops and artillery of the army in a timely manner, carefully coordinating targets for destruction among the front and army missile units, giving assistance when necessary in the final reconnaissance of targets, providing missiles in conformity with the allocated limit, and organizing monitoring of the readiness of the army missile units for the strike.

Thus, centralizing the fire control of rocket troops does not exclude the carrying out of a number of matters of the organization and conduct of a massed nuclear strike by lower levels when there is overall control on the part of the higher level.





During an operation when the actions of the troops will be developing along separate axes with a considerable separation of the large units from one another and with their uneven advance, excessive centralization in the fire control of the rocket troops may deprive the commanders of armies and divisions of the initiative in actions and lead to delay in the delivery of nuclear strikes coordinated as to place and time with the actions of combined-arms large units and units.

Under these conditions, the fire control of the rocket troops can be partially decentralized, and nuclear strikes will be delivered according to the decision of the commander of the army (commander of the division) with a mandatory report on this to the superior commander. This, naturally, must not exclude the possibility of going over at the necessary moment to centralized fire control of rocket troops at the front (army) level.

An important aspect of the control of rocket troops is control over their relocation during an operation.

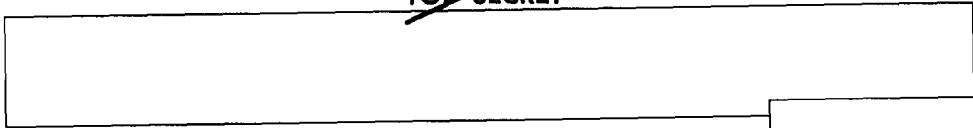
In organizing the relocation of rocket troops, it is necessary to proceed from the requirement of having a definite number of batteries on alert in constant readiness for combat with enemy means of nuclear attack, and during the fulfilment of the most important tasks by the front -- of having in readiness all or the greater part of the missile units of the front.

The procedure for relocating the rocket troops will depend on the number of large units (units) in the front, the range of the missile systems, their possible speed of relocation, the rate of the troop offensive, the time required to deploy and prepare for the conduct of fire, as well as on the tasks which the rocket troops are supposed to accomplish.

Missile large units will be relocated during an operation, as a rule, by battalions and, in rare instances, in full strength.

In missile brigades armed with missiles with a 170-kilometer range of fire, when troop rates of advance are 80 to 100 kilometers per day, it is necessary to relocate one of the battalions every day, with the movement distance being 90 or 120 kilometers. This considerably reduces the fire capabilities of the brigades during the operation. Besides that, it is necessary to take into consideration that some of the missile launchers may have been put out of service as the result of enemy strikes. Increasing the number of battalions in a missile brigade may somewhat raise its fire output and increase its survivability.





Missile large units armed with missiles having a 300-kilometer range of fire may be relocated over a distance of 170 to 200 kilometers. For them, the first relocation can be started on the second or third day of the operation. And separate missile units with missiles having a 500- to 600-kilometer range of fire are able to relocate over a distance of 250 to 300 kilometers.

Thus, with the increase in the range of missiles, the number of their relocations during an operation drops sharply and, consequently, the fire output of the missile units rises. Therefore, the problem of sharply reducing the unproductive time during which missile units do not conduct fire, can be solved by introducing into the ground forces longer-range missiles in comparison with the existing ones.

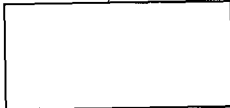
To provide the missile units with missiles in a timely manner and without interruption, it is necessary to plan out carefully the relocation of missile technical units during the operation. This planning is carried out in conformity with the decision of the commander of the front (army) by the staff of rocket troops and artillery jointly with the chief of the missile and artillery armament directorate (department).

As the experience of exercises shows, the deployment areas of the missile technical units must be situated at a distance of 30 to 50 kilometers from the siting areas of the missile large units and units. This best resolves the matters of close cooperation between the missile brigades and the mobile missile technical bases and the matters of control of the mobile missile technical bases, shortens the time required to deliver missiles to the missile units, and substantially simplifies the organization of security and defense of the rocket troops and transports with missiles and special warheads.

During an operation the most complicated thing will be control of the missile large units and units in a meeting engagement and during the commitment of large operational formations to the engagement.

One of the decisive conditions for achieving success in a meeting engagement, as we know, is preempting the enemy in the deployment of troops and the delivery of strikes. Having the greatest importance here is preempting the enemy in the delivery of fire strikes and, mainly, nuclear strikes, for the purpose of routing his main forces.

The missile units, in cooperation with aviation, with strikes on the means of nuclear attack and advancing troops of the enemy, must prevent





them from forming the intended grouping, delay his deployment, contain maneuver, inflict decisive damage on the main enemy grouping, and create conditions for completing his defeat with tanks and infantry.

Depending on the conditions of the occurrence of the meeting engagement, the nature of the actions of the rocket troops will have its own specific features.

Thus, with the occurrence of a meeting engagement immediately after the troops go over to the offensive, the operational-tactical rocket troops will have been deployed, which will facilitate the organization and timely delivery of nuclear strikes against the enemy.

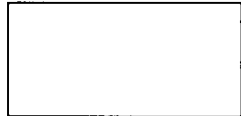
But in other, in our opinion, more frequent cases, the delivery of nuclear strikes in the meeting engagement will be preceded by the deployment of the rocket troops or their relocation into new siting areas. However, in these cases, too, it is necessary to endeavor to deploy the rocket troops beforehand and prepare them to deliver strikes against the enemy before the troops begin moving up to the line of a possible meeting with him.

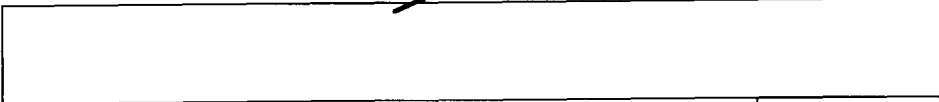
A meeting engagement under present-day conditions must, as a rule, begin with preemptive massed or grouped nuclear strikes of the rocket troops against the means of nuclear attack and the main grouping of the enemy. In exercises this requirement is not always fulfilled. The deployment of missile large units and units takes place not infrequently at essentially the same time as that of the troops.

The timely deployment and preparation of the rocket troops for the delivery of preemptive nuclear strikes in anticipation of a meeting engagement largely depend on their place in the march formation of the combined-arms formations (large units) during their movement up to the probable line of deployment, on the correct determination of the moment of the start of deployment, as well as on reliable and flexible control which ensures prompt transmission of tasks to executors.

During the movement of the army up to the line of deployment, one should have the missile brigade abreast of the main forces when it is making the march over an independent route, or else behind the first-echelon divisions.

In the first case, one of its battalions can be deployed and prepared to accomplish tasks by the moment the forward detachments enter into the





battle. It is possible to start deploying this battalion when the forward subunits of our troops are at a distance of 60 to 80 kilometers from the forward subunits of the enemy. The main forces of our troops and those of the enemy at this point may be 150 to 180 kilometers away from each other.

To deploy and prepare the battalion for conducting fire requires an average of one to 1.5 hours. And the encounter of the main forces of the belligerents in this situation may occur after about 3.5 to four hours. Consequently, with the joining of the meeting battle, the battalion that has deployed will be able to deliver strikes against the main forces of the enemy while they are moving forward and deploying.

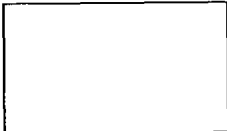
It is advisable to deploy the second battalion somewhat closer to the line of a possible encounter so as to ensure its readiness for fulfilling fire tasks before the start of the deployment of the main forces of the enemy.

The brigade can be deployed in approximately the same way also in that case where it follows the first-echelon divisions of the army on the march.

It is a positive point in the successive deployment of the brigade that this permits increasing the depth of destruction while simultaneously ensuring continuous fire action against the enemy on the approach and during deployment of his main forces.

At the same time, it is necessary to take into account that successive deployment of the missile brigade when a meeting engagement occurs reduces the capabilities for delivering massed nuclear strikes. Therefore, under certain conditions the missile brigade may deploy simultaneously in full strength. It is desirable to do this in that case where some of the tasks in support of the army during its movement are accomplished by the front missile large units and units.

In exercises there have been cases where, in determining the siting areas for missile units in a meeting engagement, the distance of these areas from the line of the possible meeting with the enemy was not taken into consideration. Thus, one of the armies deployed its missile brigade in a siting area that was 100 to 150 kilometers away from the probable line of meeting with the enemy. As a result, the brigade could not deliver nuclear strikes on the main enemy grouping, and already in the first hours of the conduct of the meeting engagement it had to be relocated.



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Deployment of the tactical missile battalions obviously will take place simultaneously with the deployment of troops. For the timely preparation of the battalions to conduct fire, it is desirable on a march to have them at the head of the columns of the main forces of the divisions, immediately behind the forward units. The readiness of the battalions for delivering strikes in this case can be ensured with the joining of battle by the forward units if the siting areas are to 15 to 20 kilometers from the line of encounter.

Abrupt changes in the situation will very often lead to the deployment of missile units from the march in unplanned areas. The commander of the army, the chief of rocket troops and artillery, and the commanders of the missile large units and units must outline the measures in advance to ensure the quick preparation of the rocket troops for conducting fire under these conditions.

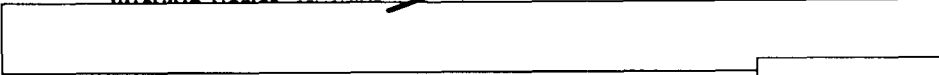
In planning the deployment of the missile units, it is necessary at the same time to provide for the deployment of the missile technical units. In the absence of a reserve of missiles in missile units, all steps must be taken so that the missile technical units deploy earlier with the task of beginning the preparation of missiles in good time and delivering them to the missile units in precisely established time periods.

The time and place of delivering missiles is coordinated with the fire tasks of the missile units and the order of accomplishing them. Each missile technical unit must know exactly which and how many missiles to prepare by what time and to which missile unit to deliver the readied missiles when and in what area. Helicopters should be used to speed up the delivery of tactical missiles.

Unsuccessful troop actions in a meeting engagement are often the result of inept employment of nuclear weapons, in particular of the scattering of nuclear strikes against many targets instead of mass-delivering them against the main enemy grouping on the most important axes.

Having great importance for the outcome of a meeting engagement is destruction of the enemy means of nuclear attack, which is carried out with extensive allocation of aviation, artillery, and tanks. The rocket troops may be assigned the task of destroying only those enemy means of nuclear attack which cannot be destroyed with other means.

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No less important a task in a meeting engagement is destruction of the enemy groupings on the distant approaches to the line of a probable encounter. This is achieved by delivering nuclear and chemical strikes with operational-tactical missiles in cooperation with aviation against the enemy troops in concentration areas and on the march. In the latter case, it is desirable to carry out the strikes at the moment when the enemy columns are passing through narrow sectors of the routes (defiles, crossings, etc.), where the bunching up of personnel and technical equipment is inevitable.

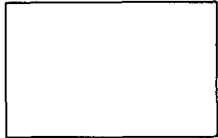
With a favorable wind direction (toward the enemy or crosswise), surface nuclear strikes can be delivered. This achieves additional destruction of enemy personnel by radioactive substances and affords the possibility of creating zones of strong contamination on the paths of movement, containing the maneuvering of the enemy.

Destruction of the enemy on the distant approaches is carried out mainly by the front missile units in cooperation with aviation. As the enemy approaches, army means also are allocated to accomplish this task.

The most decisive destruction must be delivered against the enemy during his deployment into battle formation. To accomplish this task, all means of destruction are allocated, including tactical missile battalions and tube artillery. By the moment the main forces of the army enter the engagement, the intensity of combat of the missile large units and units reaches its greatest limit. Nuclear strikes must be strictly coordinated by place and time with the actions of the troops.

In organizing control of the missile units and large units in a meeting engagement, one should proceed primarily on the basis of ensuring the capability of hitting the main enemy grouping with a massed nuclear strike. This strike can be delivered both during the beginning of the meeting engagement as well as in the course of the engagement. A strike to be delivered during the beginning of the engagement must, as far as possible, preempt enemy strikes against our troops.

The preparation and execution of a massed nuclear strike to hit the main enemy grouping is an object of the constant concern of the commander of the front (army) and the chief of rocket troops and artillery. The necessary data for such a strike must be accumulated while closing in with the enemy as reconnaissance information comes in and is carefully analyzed. In conformity with the decision of the front commander, the chief of rocket troops and artillery must constantly follow the position of his own troops





and the enemy troops and, on the basis of a careful analysis of the developing situation, promptly assign tasks to the missile units to deploy and prepare the strike.

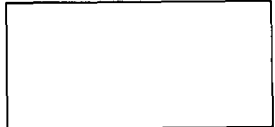
No less complex is the control of rocket troops during the commitment of a second-echelon army to the engagement. Under present-day conditions, the commitment of an army to the engagement as a rule will be carried out from the march. The first-echelon divisions will have to quickly move out to the line of commitment, deploy from the march, and, with the divisions previously operating here, swiftly advance into the depth of the enemy disposition.

Successful commitment of an army to an engagement is possible only if the rocket troops, artillery, and aviation are ready in good time to deliver strikes against an enemy who can offer serious resistance or even disrupt the organized commitment of the army to the engagement.

Having means of nuclear attack at his disposal, the enemy is able to inflict damage on the army being committed both during its movement forward and at the line of deployment. To prevent this, it is necessary, with the start of the movement of the army from the concentration areas to the line of commitment, to keep all the enemy means of nuclear attack under constant surveillance and fire action. Combat with them must be waged throughout the entire time of movement forward and deployment of the army. This task cannot be accomplished with the delivery of one strike.

On detecting the approach of large forces to the area of combat actions, the enemy will try not only to inflict damage on the advancing troops with nuclear weapons, but also to transfer operational reserves to the threatened axis. Therefore, an important task of the rocket troops will be to destroy the closest operational reserves of the enemy who can put up opposition to the commitment of the army to the engagement and to the development of its offensive.

Depending on the developing situation, the task of destroying the reserves can be accomplished while the troops are moving up to the line of commitment, during their deployment, or during the development of the offensive by the army. It appears most advisable to destroy the reserves before committing the army to the engagement. Taking into account the destruction of the nuclear means of the enemy, this will best ensure the non-stop movement of the army troops into the depth without significant delay at the line of commitment.





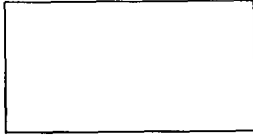
Rocket troops will also be assigned the task of hitting the enemy immediately in front of the line of commitment of the army to the engagement. It is advantageous to deliver strikes for this purpose at the closest possible moment to the arrival of the forward units of the army at the line of commitment.

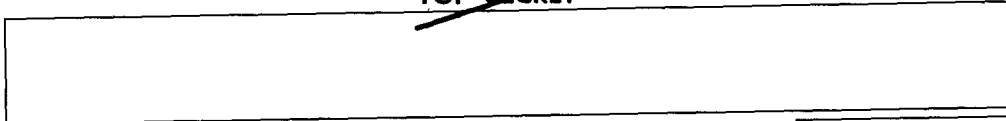
In organizing the deployment of missile units, the staffs of rocket troops and artillery of the front and the army must proceed from the necessity of having operational-tactical missile units in readiness to open fire no later than the beginning of the movement of the army up to the line of commitment, in order to most reliably accomplish the tasks of combating the enemy means of nuclear attack and his reserves. The chief of rocket troops and artillery must in a timely manner assign tasks to the missile brigade to deploy and prepare for conducting fire. In case the concentration area of the brigade is considerably removed from the intended siting area, the decision may be made for its movement in advance to a new area as close as possible to the line of commitment. If this cannot be done due to the situation, then the movement of the brigade from the concentration area to the siting area must begin immediately, as soon as the line of commitment is known, without waiting for the commander of the army to make a final decision on the commitment of the army to the engagement.

It is desirable to have the missile battalions of the first-echelon divisions ready to conduct fire by the moment of the arrival of the forward units of the divisions at the line of commitment. The necessity for this usually will arise in a situation where in front of the line of commitment there are considerable enemy forces whose destruction requires the employment of missiles with nuclear warheads.

It is advantageous to move tactical missile battalions forward behind the forward units of the divisions and deploy them from the march in siting areas close to the movement routes. Advance deployment of the tactical missile battalions of some divisions is not out of the question under certain conditions. This is possible when there are reliable data available on the enemy and there is certainty that the intended line of commitment will not be changed.

The fire control of the missile large units and units during the commitment of the army to the engagement is organized by the commander and the chief of rocket troops and artillery of the front since, to hit the enemy during this commitment, means of front subordination are allocated and, when necessary, part of the means of the first-echelon armies.





However, this does not mean that all the fire tasks for the rocket troops of the army being committed will be determined by the front. The front may indicate to them only the overall tasks and the most important targets for destruction. Sometimes the front may limit itself to transmitting to the army only those tasks which are being accomplished for it by missile units of front subordination.

The necessity of detailed planning of the actions of the rocket troops in the army is explained by the fact that the line of commitment may often be changed even when the troops of the army have already begun moving forward. But if the front determines all the targets of nuclear strikes, it may happen -- as it did in one of the exercises -- that the projected targets for destruction are not in accord with the decision of the army commander.

The staff of the army and the staff of rocket troops and artillery of the army must continually refine the situation in front of the line of commitment, follow the progress of the movement forward of the army and the actions of the enemy, and be ready to refine the fire tasks for the missile units in the shortest possible times. The most important duty of the chief of rocket troops and artillery of the army in this period is maintaining continuous, flexible and reliable control of the missile and artillery units allocated to accomplish tasks during the commitment of the army to the engagement.

Under the conditions of highly mobile combat actions of the troops and of frequent abrupt changes in the situation, the time factor plays a decisive role in the successful employment of missile/nuclear weapons. The question of time is a question of success or defeat. One can have good missile weapons in sufficient numbers but, because of delay in the delivery of strikes, not get those results which could be obtained with timely employment of them.

As we know, an average of 35 to 40 minutes is spent at the present time to prepare a missile for firing at a launch position. A battery on alert can deliver a strike on an unplanned target in 15 to 20 minutes, and on a planned one in two to five minutes; in so doing the battery is able to stay in a status of two- to five-minute readiness for three hours. These technical capabilities of missile subunits permit strikes to be carried out in relatively short times.

In spite of this, in exercises the preparation of nuclear strikes still takes a great deal of time. For instance, two to three hours, and in





some cases even more, are spent to prepare a massed strike at the front level, and up to one hour to prepare a single strike. There is plainly a discrepancy between the technical capabilities for preparing strikes by missile subunits and the actual time spent on the preparation of nuclear strikes.

This discrepancy can be eliminated by integrated automation of the processes of control of the missile units at all levels, from the staff of rocket troops and artillery of the front down to launch battery, inclusive. Electronic computers, designed to process reconnaissance data, select the necessary means of accomplishing tasks, efficiently allocate targets for destruction among the various means, compute the initial data for firing, and determine the effectiveness of destruction, must provide the basis for integrated automation of control.

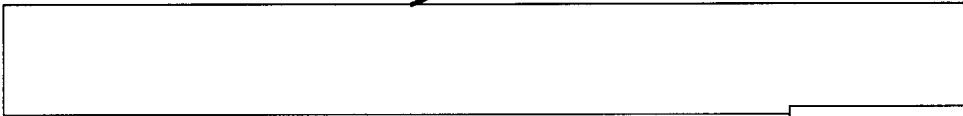
Experience in employing several technical means, including electronic computers, to control rocket troops in a number of exercises shows that they permit drastically shortening the preparation time for nuclear strikes along with increasing the reliability of the fulfilment of tasks. Suffice it to point out that employment of the electronic computer shortens the time norms of the preparation of initial data for operational-tactical missiles 10 to 15 times. The computer ensures self-monitoring of the accomplishment of a task and frees us from the necessity of organizing a complex system to monitor the work of computer sections.

The employment of such an electronic computer in tactical missile subunits permits shortening the preparation time for unplanned fire two to 2.5 times, the time for calculating corrections for firing conditions 10 to 15 times, and the time of determining the calculated settings for fire for effect 15 to 20 times, freeing officers and computer section personnel from laborious calculations, eliminating mistakes in accomplishing the tasks of preparing initial data, and increasing the fire effect.

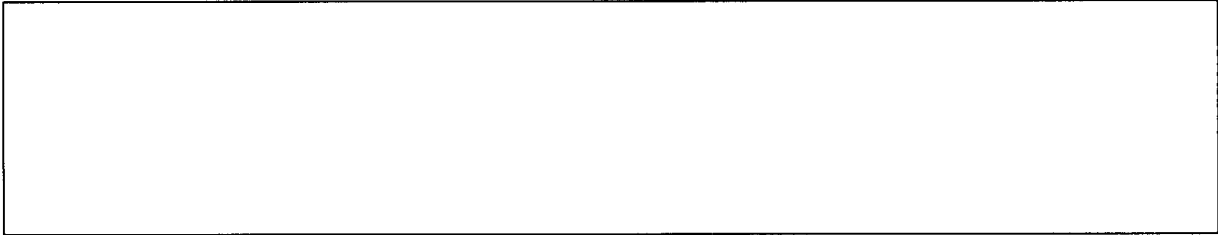
The matters of control of rocket troops raised in this article are exceptionally important, and the success of an operation largely depends on their correct solution. Some of these matters have been tested in the practice of exercises; others are debatable and need careful discussion to work out common views on them.



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