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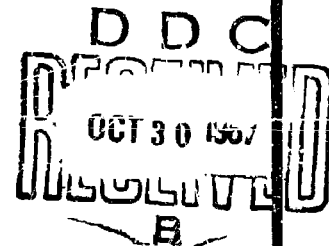
## FOREIGN TECHNOLOGY DIVISION



TACTICS (THE OFFICER'S LIBRARY)

by

V. G. Reznichenko



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# EDITED MACHINE TRANSLATION

TACTICS (THE OFFICER'S LIBRARY)

By: V. G. Reznichenko

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**ABSTRACT:** This book outlines the basic questions of the grand tactics of combined-arms combat in a missile and nuclear war. It presents the subject of tactics and its place and role in the military art and indicates the material basis of modern combined-arms combat, its character, and the most important principles of conducting it. Basic attention is allotted to the discussion of the content of offensive, encounter, and defensive combat. Along with this questions of control of troops in combat, of movement and disposition on terrain, and of support of combat actions are discussed. This work was developed by an authors' collective of the M. V. Frunze Military Academy, including: General-Major V. G. Reznichenko, Candidate of Military Sciences, Docent. (leader of the authors' collective); Colonel I. N. Vorob'yev, Candidate of Military Sciences, Docent; Colonel D. M. Milyutenkov, Candidate of Military Sciences, Senior Scientific Colleague; Colonel N. F. Miroshnichenko, Candidate of Military Sciences, Senior Scientific Colleague; Colonel Yu. S. Nadirov, Candidate of Military Sciences, Senior Scientific Colleague; and Colonel A. A. Sidorenko, Candidate of Military Sciences, Senior Scientific Colleague. This book was prepared for press by Colonel A. A. Sidorenko. It is intended for officers of the Soviet Army, for students in military educational institutions, and for officers of the reserve.  
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This book outlines the principal questions of the tactics of combined-arms combat in missile and nuclear war. The subject of tactics and the role and place of tactics in military art are developed and the material base of modern combined-arms combat, its character, and the main principles for conducting it are pointed out. The main attention is allotted to exposition of the content of offensive and defensive battle and the meeting engagement. Together with this [the book contains] an outline of questions of control of forces in battle on the march, and during disposition during halts, and also support of combat actions.

The work was developed by an authors' collective of the Frunze Military Academy, composed of the following: Major General V. G. Reznichenko, Candidate of Military Sciences, Docent (leader of the collective); Col. I. N. Vorobyev, Candidate of Military Sciences, Docent; Col. D. M. Milyutenkov, Candidate of Military Sciences, Senior Scientific Worker; Col. N. F. Miroshnichenko, Candidate of Military Sciences, Senior Scientific Worker; Col. Yu. S. Nadirov, Candidate of Military Sciences, Senior Scientific Worker; and Col. A. A. Sidorenko, Candidate of Military Sciences, Senior Scientific Worker.

The book was prepared for press by Col. A. A. Sidorenko.

This work is intended for officers of the Soviet Army, students at military educational institutions, and officers of the reserve.

General Editor:

Major General V. G. Reznichenko, Candidate of Military Sciences, Docent

## PECULIARITIES OF NOMENCLATURE<sup>1</sup>

### General

a. Soviet nomenclature as applied to tactical units has numerous peculiarities. There is no single word for "unit." Instead, the Soviets use four different terms (listed below), the choice of which depends upon the size and/or relative independence of the unit. None of these terms has an exact English equivalent.

- (1) Ob'yedineniye. Ob'yedineniye is used by the Soviets to refer to a major field force, such as front or an army. Literally, ob'yedineniye means "uniting" or "consolidation." In this translation the terms front or army have been used.
- (2) Soyedineniye. Soyedineniye is used by the Soviets to refer to a corps, a division, or a brigade. The components may be from a single arm or from various arms and services. The term also is used loosely for an army. It is similar to the British term "formation." Literally, soyedineniye means "union," or "compound." In this translation the term formation has been used for soyedineniye.
- (3) Chast'. Chast' is used by the Soviets to designate any unit of regimental or smaller size that is administratively self-contained and separately numbered. Examples of these are a rifle regiment, an engineer battalion of a rifle division, and a corps signal battalion. Literally, chast' means "part." In this translation the term unit has been used for chast'.
- (4) Podrazdeleniye. Podrazdeleniye is the Russian term for "subdivision." It is used to refer to a subordinate unit of a chast'; it is any unit which cannot be fully identified numerically except by reference to the larger unit of which it is an integral part - e.g., battalions, companies, and platoons of a rifle regiment; the battalions and batteries of an artillery regiment; the companies of an engineer or signal battalion. In this translation the term subunit has been used for podrazdeleniye.

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<sup>1</sup>See DA Pamphlet 30-50-1, July 1958.



## INTRODUCTION

The Communist Party and the government of the Soviet Union consistently and firmly conduct a peace-loving foreign policy. The Soviet Union persistently seeks the realization of proposals presented by it for general and total disarmament under strict international control. However, the imperialistic states stubbornly refuse to accept these proposals and they intensively expand their armed forces. They do not want to be reconciled to the existence of the world system of socialism and talk openly about their senseless plans to liquidate the Soviet Union and other socialist states by means of war.

Proceeding from the Marxist-Leninist position that while imperialism remains the danger of aggressive wars will also remain, our party and government take all measures to strengthen the defense of the country, and to maintain the combat readiness of the Armed Forces on a level ensuring decisive and total destruction of any aggressor.

During the last few years, thanks to outstanding achievements in the development of Soviet economics, science, and technology, we have seen a real revolution in military affairs. Radical qualitative changes have occurred in all basic areas of military affairs: weapons, organization, methods of combat actions, and methods of instructing and training of personnel. The fundamental reason for these changes may be attributed to the wide introduction of the nuclear-armed rocket and its support equipment.

The changed means, methods, and conditions of conducting armed struggle have presented new and increased requirements for Soviet command cadres.

In the program of the CPSU it is written that "the Party will tirelessly concern itself with the training of command, political, and technical cadres of the army and the fleet, cadres which are selflessly dedicated to the Communist cause, and are recruited from the best representatives of Soviet people. It considers it mandatory that command personnel firmly master Marxist-Leninist theory, receive high military and technical training, meet all requirements of contemporary military theory and practice, and strengthen military discipline."

Meeting all requirements of contemporary military theory and practice requires that one possesses a deep knowledge of military theory and know how to apply it creatively in practice; that one know modern weapons, combat material, and the methods and forms of armed struggle; and that one skillfully resolve problems of the training and instruction of troops under new conditions.

One of the most pressing problems of military and theoretical training of officers is the study of tactics as the most massive area of the military art, in whose sphere the biggest part of the personnel of the army is occupied.

The character of modern combat requires from officers a broad grasp of operational and tactical knowledge. In conditions high tempo of combat operations, with the great depth of combat problems and the rapid and sharp changes in the situation during independent actions of subunits and units, every commander must be a true innovator, a man of bold and creative thought and intelligent initiative, who can grasp correctly the complex situation on the field of battle and apply those methods and combat means which will best ensure victory.

The first exposure to the contemporary theory of tactics is through regulations. Without deep knowledge of the regulations and solid mastery of their requirements and recommendations, it is impossible to become a real master of one's business. At the same time the specific character of the regulations does not permit the enumeration of all contingencies encountered in combat operation. Nevertheless, knowledge of regulation is an important condition for a thorough understanding of the contemporary theory of tactics. This book is written to provide officers that knowledge required to master the art of tactics.

Since understanding of the character of contemporary combined-arms combat and of the methods and forms of conducting it is significantly facilitated by knowledge of the basic stages of their historical development and also of factors conditioning this development, this book allots proper attention to these questions.

Study of the theory of tactics in its development in comparison with past tactical views and methods of conducting combat permits tracing definite regularities and trends and enables one to comprehend and clarify more thoroughly the revolutionary changes in methods of combat operations of troops under conditions of the application of nuclear weapons and other contemporary means of combat.

The main attention in this work is allotted to the tactics of units up to the regimental level. Combat operations in special terrain conditions are not considered, and therefore it does not pretend to be a comprehensive treatise on tactics.

The authors have attempted to develop the basic questions of the tactics of combined-arms combat and thereby to promote the development of tactical thinking, to increase the level of training of our officer cadres, and to promote their successful fulfillment of missions in strengthening the defensive capability of our Motherland.

The authors express deep gratitude to the generals and officers who read this work in manuscript and who made a number of valuable suggestions toward the improvement of its content.

## CHAPTER I

### THE SUBJECT OF TACTICS

#### Tactics - A Component Part of Military Art

Soviet military practice as a scientific theory is divided into three components: strategy, operational practice, and tactics. Such a division is based on the presence of specific peculiarities of conducting armed struggle on different scales. It permits every part of the military craft to investigate specifically and purposefully the field of phenomena pertaining to its subject.

Strategy includes the study of questions of the preparation and conduct of strategic operations for a war as a whole. It investigates the conditions and character of future war, methods of preparing for and conducting it, the types of armed forces and the basis of their strategic use, questions of strategic support of combat operations, and leadership. Strategy is the mission of the highest military and political leadership, of the supreme command and highest headquarters, and pertains to preparation of the country for war and the conducting of armed struggle under specific historical conditions.

Operational art relates to the development of the theory and practice of the preparation and conduct of contemporary operations carried out by strategic units of various services, both independently and jointly.

Operational art is the binding link between strategy and tactics. Guided by the requirements of strategy, operational art investigates the character of contemporary operations, the regularities, principles, and methods of their preparation and realization; the organization, capabilities, and the principles of application of strategic units; questions of operational support of all types and of the principles of control of troops in operations and their rear support.

Tactics studies all aspects of battle as one of the most important phenomena of war.

A battle constitutes an organized armed struggle among units of various sizes and formations of different types of troops and branches of armed forces. It can be conducted on the ground, in the air, and on the sea. The goal of a ground battle consists of the destruction of the tactical formation of the enemy and the capture (retention) of important terrain. It is conducted by the coordinated efforts of all types of ground troops with the support of aviation and, in a number of cases, of forces of the naval fleet. Therefore such a battle is a combined-arms combat.

The most complete expression of contemporary combined-arms combat lies in the scale of the combined-arms formations and units, whose composition includes subunits of various branches and special troops. However, this character of combat is not limited at present by the framework of combined-arms formations and units. The

increasing ability of motorized infantry (tank) battalions independently to carry out combat missions, their contemporary organization, and their reinforcement by subunits of other kinds of troops, obtained as a rule in the period of battle, mean that a battle on the battalion scale obtains the character of a combined-arms combat.

Contemporary combined-arms combat is usually a part of an operation, of a battle. Sometimes for the achievement of particular goals it can also be conducted outside this framework; however, the importance of such combats in contemporary conditions is insignificant. The decisive goals of military actions on land can be successfully attained only by carrying out major operations on the basis of a single plan. Every combat in such an operation is a means of solution of operational problems.

In a combined-arms combat the action of subunits and units of every kind of troops and type of armed forces is coordinated in terms of goal, place, and time, i.e., in close interaction they direct their efforts to the achievement of the basic mission -- the fastest [possible] destruction of the enemy. In battle they each apply in their own particular methods and means of struggle, ensuing from the peculiarities of their organization, combat qualities, and capabilities. The development of specific concepts connected with the actions of regiment-sized and smaller units of any service or branch of the armed forces, in combined-arms combat or independently, is the [object of the] study of tactics, the development of concepts for their joint use in combined-arms combat is the subject of general tactics.

General tactics proceeds from the tactical and technical qualities and capabilities of subunits and units of types of troops and branches of the armed forces to determine their assignment in combined-arms combat and the order and methods of [their] joint use in different combat situations, and thereby affects their improvement. In turn, the development of general tactics is influenced by the combat capabilities of the subunits and units of types of troops and branches of the armed forces and also by their methods and means of struggles. Therefore the development of general tactics in many respects depends on the development of the tactics of the various types of troops and branches of the armed forces.

Tactics, like other branches of the military art, has two aspects -- the general theoretical and the applied.

In the general theoretical aspect, tactics investigates the character of contemporary battle and the most general problems of its organization and conduct; it reveals regularities of armed combat by tactical forces and means and the principles and methods of conducting combat actions.

The theoretical positions of tactics find reflection in regulations, manuals, textbooks, training aids, and other theoretical military works dedicated to the study of battle.

In the applied sense, tactics deals with the development of questions connected with the organization and conduct of different forms of combat in a specific situation, with their overall support and control, and with other tactical measures.

All the component parts of the military art are mutually connected and interrelated. Each of them, studying the field of phenomena relating to its objective, supplements the others and promotes successful solution of the total problem facing the military art as a whole.

With the development of military science, the connection and interdependence between parts of the military art have been continuously changed and improved. The place and role of tactics in military art differed at various stages of its development. They were determined by the place and role of battle in the system of armed conflict.

Prior to the second half of the 19th Century, combat was the only means of destroying the enemy and was essentially identified with battle, which unfolded on a limited section of open terrain with the participation of comparatively small armies of the warring states. It is possible to say that battle constituted nothing other than a single large combat. Therefore battle, like combat, was the object of the study of tactics. The strategic goals of war, destruction of the enemy, were

attained exclusively by combat, by battle.

"War" - wrote Clausewitz - "possesses only one means - battle."<sup>1</sup> Take battle away from war, he indicated, and war will lose any meaning. This same concept was emphasized by another outstanding military theoretician of that time, Jomini: "Strategy brings the army to decisive points of the operational zone, prepares for success of battle, and predetermines its results. But to achieve victory requires tactics in conjunction with bravery, genius, and good fortune."<sup>2</sup>

Since the second half of the 19th Century and the beginning of the 20th Century the rapid growth of productive forces considerably complicated the conditions of conducting armed conflict. The introduction of a universal military obligation made possible the creation of massive armies whose maintenance was ensured by the condition of the economies of warring states. The development of railroads made possible rapid concentration of large masses of troops in certain regions and simultaneously ensured their support, while the application of the electrical telegraph made possible control of large formations deployed over a considerable area and frequently separated from one another. These developments meant that military actions obtained considerably wider scope in time and space. They began to unfold on fronts hundreds of kilometers in extent, in several directions, and to a considerable depth.

In these conditions, the problem of the destruction of the entire active army of an enemy no longer could be solved in one so-called general battle. Total destruction required a whole series of combats and battles, connected by a single plan and developed both simultaneously and sequentially over a relatively large area. In military art there appeared and was developed a new phenomenon - operations conducted by strategic units with the participation of tens and hundreds of different formations and units. Now the operation - not combat and battle - became the main means of achieving strategic goals. Naturally, tactics could not embrace simultaneously all questions of the preparation and conducting of combat and operations. Objective reality advanced the requirement for the creation of a new branch of the military art which would encompass questions of the theory and practice of operations, i.e., operational art [minor strategy].

Thus the operational art was a logical consequence of the change in the character of armed struggle, reflecting the appearance of its new phenomenon - operations.

However, one should note that up to the Second World War combat, as before, remained the only means for destruction of the enemy and achievement of victory, because operational as well as strategic leadership did not have at its disposal and directly subordinated to it, besides tactical forces, means of mass destruction. In the end only battle, or more exactly the totality of many battles, determined the outcome of operations, campaigns, and the war as a whole.

The Second World War marked the appearance of long-range (strategic) aviation and certain pilotless combat equipment, which were used directly by the high command for strikes on the deep rear of the enemy on his economic and political centers. In view of the absence of powerful means of destruction they did not render a serious influence on the achievement of the goals of the war. The fate of the war, as before, was decided by the systematic destruction of the armed forces of the enemy directly on the fields of battle.

The basic form of armed struggle, as in the First World War, was the operation. But in distinction from the first World War, when operations were conducted by strategic units composed basically of infantry and cavalry formations and a certain quantity of reinforcing artillery units, in the Second World War operations were carried out by strategic units of much more complicated and heterogeneous organization. Besides a qualitatively different composition of formations of land troops, the

<sup>1</sup>K. Clausewitz. O voyne (On war). 4th Edition, Vol. I, Moscow, Gosvoenizdat, 1937, p. 147.

<sup>2</sup>A. Jomini. Ocherki voennogo tsukusstva (Notes on the military art), Chapter II. Moscow, Voenizdat, 1939, p. 3.

operational command had at its disposal powerful aviation forces and formations of airborne troops. They could be used not only in direct interaction with troops on the field of battle but also for solution of certain independent problems in operational depth, i.e., outside the boundaries of combined-arms combat. However, such airborne operations did not as a rule render a decisive influence on the success of operations. Regarding airborne troops, their application in operations was limited and the single form of accomplishment of their missions was combined-arms combat.

Thus during the Second World War battle continued to be the most important means of destruction of the enemy and achievement of operational and, in the end, also strategic goals, since the means of combat directly subordinated to the strategic and operational leadership could not render a decisive influence on the course and outcome of operations and the war. Without battle even a single operation, the war itself, and victory in it were inconceivable.

With the appearance of the nuclear-armed rocket weapon the position was radically changed. The strategic leadership for the first time in military history obtained its own means of destruction, by massive application of which it is possible directly to accomplish major strategic missions, creating favorable conditions for carrying out operations and battles on the land and naval theaters and changing their character. Additionally, an operational command having nuclear weapons and long-range means of their delivery to targets can now strike the enemy over the entire depth of his disposition and thereby not only affect tactics but also successfully carry out missions which earlier could be accomplished only by combat of combined-arms formations and units. Moreover, the nuclear weapon in direct subordination to the operational command is now the main means of destruction of the enemy in operations.

Thus in contemporary conditions battle has ceased to be the single means of destruction of the enemy; its place and role in armed conflict have changed. Between strategy, operational art, and tactics there was established another interconnection and interdependence. Now, unlike the past, the highest category of the military art, in whose sphere there are used combat means inherent to it, renders a direct and immediate influence on the lowest category of the military art. This interdependence creates new and higher requirements for commanders of tactical units. They must possess a wider operational horizon than before and also must have a sufficiently clear concept of the character of modern war, of the means and methods for conducting it. Only a deep understanding of the influence of strategic means of destruction on the character of armed conflict will permit achieving a correct grasp of the value of the initial period of a future war, of the necessity for maintaining constant combat readiness of troops in time of peace and also for decisive actions at the beginning of a war with the goal of the most effective use of massed nuclear blows inflicted by strategic means.

The change in the interconnection between the component parts of the military art does not mean at all that the role of tactics has become insignificant. Battle, as before, is one of the most important means of achieving operational goals. Beyond a doubt, with the existence of nuclear weapons at the direct disposal of the strategic and operational commands the capabilities of these commands have been expanded. At the same time one should consider that armed conflict has now obtained a different character than before. It has become more complicated and embraces not only the line of direct contact of troops but also the entire depth of theaters of military actions and even the entire territory of the warring sides. In these conditions, while nuclear strikes inflicted directly by the strategic and operational commands may decide the most important part of the total problem of armed conflict, they still resolve just part of it. For total victory it is still necessary to consolidate the results of nuclear strikes inflicted by the high command, to complete the destruction of the enemy, to master his territory, and to deprive him of the ability to carry on resistance in any form. The achievement of this goal is inevitably connected with the conducting of intensive combat actions.

The imperialistic states, in addition to other means of conducting war, have created large land forces with varied and powerful weapons, which can be deployed along the boundaries of the socialist countries in a zone with a depth of up to 1000 km. It is absolutely clear that in spite of the application of long-range nuclear means major combats and battles with these forces will develop from the very

beginning of a war. Victory in these conflicts will determine the success of the use of the results of nuclear strikes inflicted by the resources of the strategic and operational commands. Besides this, nuclear weapons will be applied by the supreme command on major objectives and in the most important areas. In other areas and in the destruction of formations not struck by strategic and operational nuclear weapons, battle will play the decisive role.

Thus the main mission of troops of the tactical line in a nuclear war will be to utilize the results of the application of nuclear weapons by the supreme command, to complete the destruction of surviving enemy formations, to conquer quickly his territory with the political and economic centers which nourish war and the concealed means of strategic conflict, and also to prevent invasion by the ground troops of an aggressor and his landing on our territory.

The importance of this mission lies in the fact that without its fulfillment final victory is impossible. This fact determines the significance of combined-arms combat in nuclear war as a means of achieving final victory and at the same time determined the role of tactics in contemporary military art.

The tactical theory of the Soviet Army, critically processing and absorbing all that is best from the experience accumulated by the Russian Army, has encountered great and rich events on the path of its development. Knowledge of this path promotes a deeper understanding of the problems and content of tactics in contemporary conditions.

#### Short Survey of the Development of the Tactical Theory of the Soviet Army

The tactical theory of the Soviet Army, like Soviet military science as a whole, took shape in the course of the violent struggle of the young socialist state against the forces of imperialistic intervention and internal counterrevolution. It developed together with the development of the Red Army.

The development of the principles of Soviet military art is inseparably connected with the name of V. I. Lenin, who left a very rich theoretical heritage in this field. He enriched and developed Marxist theory on war and the army under the new conditions, formulated the most important positions of Soviet military science, and defined the decisive factors for achievement of victory in war. These Leninist positions have enormous theoretical and practical value for contemporary Soviet military science.

Expressions on military questions are to be found in many of the works of V. I. Lenin; this is explained by the character and peculiarities of his work as the leader of the Communist Party and the working class and the solution of military problems in connection with problems of the class struggle of the proletariat. V. I. Lenin has also left a number of scientific works dedicated to basic military questions. These include "The Fall of Port Arthur," "Socialism and War," "War and Revolution," and also a number of other works, reports, speeches, and all the extensive military correspondence of the period of foreign military intervention and civil war, 1915-1920.

Directing the defense of the socialist state, V. I. Lenin was forced to study mostly questions of strategy. But life and the practice of battle forced him to solve questions connected with operational art and tactics.

Of enormous scientific value are the statements of Lenin regarding the forms and methods of armed conflict, on the dependence of their application on the concrete conditions of the situation, about the necessity of mastering all forms of conflict, about their rational combination for achievement of victory. Lenin allotted considerable attention to the question of the technical means of armed conflict. He refined and developed the position of Engels on the dependence of tactics on the level of military technology and repeatedly emphasized the hopelessness of conducting armed conflict "in the absence of people able to make knowledgeable use of the latest

improvements of military technology."<sup>1</sup>

Speaking of the need to apply different forms of military actions, V. I. Lenin assigned the decisive role to the offensive. He more than once indicated that only by decisive offensive actions is it possible to achieve victory and to win a war. The main goal of the offensive was considered by Lenin to be not the repulse of the enemy, not the occupation of territory, but the complete destruction of hostile forces.

According to Lenin the most important condition for a successful offensive is the maximum possible development of any success, carrying it through to total victory. During the years of the Civil War he required that "our offensive be transformed from small and partial into a massive, huge assault, carrying through to victory."<sup>2</sup>

While recognizing the offensive as a basic and decisive form of armed conflict, Lenin allotted considerable attention also to the defensive; but he considered it not as an end in itself but as a temporary action, forced by the situation and subordinated to the general interests of destruction of the enemy. In defense, V. I. Lenin required the manifestation of maximum resistance, persistence, and selflessness. In those cases when the situation is especially unfavorable for defense, Lenin allowed the possibility of retreat. But he required that the retreat be organized.

The theoretical military heritage of V. I. Lenin includes numerous expressions about the conditions determining the successful conduct of armed conflict. Lenin assigned great significance to material and moral factors, to thorough study of the enemy, to correct selection of the direction of the main blow, to the creation of superiority of forces and means in a decisive area and at the decisive moment, to the achievement of surprise, to thorough development of military plans and manifold preparation of battles. Basic ideas which run through all the expressions of V. I. Lenin on questions of the military art are activity, resoluteness, boldness, and the necessity of offensive actions in armed conflict. These ideas are now the basis of our tactical theory and of all Soviet military art.

The greatest contribution to the development of the theoretical principles of Soviet tactics, and also of Soviet military science as a whole, was introduced by M. V. Frunze. He examined questions of tactics in close connection with the character of future war and means of conducting it.

Frunze indicated that tactics and strategy are phenomena of the same order, component parts of the military art. The development of tactical theory depends on the changes in its material base, in the means of conducting battle. "Any tactical theory," he states, "corresponds to a definite historical epoch; if the type of weapon is changed, if new technical improvements are introduced, then together with this there will be a change in the form of military organization and in the methods of leading troops."<sup>3</sup>

Considering that "war of the future will be, in considerable measure if not wholly, a war of machines,"<sup>4</sup> Frunze allotted considerable attention to the technical equipment of the Red Army and expressed advanced views on the role of various types of forces, in particular aviation, tanks, and artillery, in combined-arms battle.

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<sup>1</sup>V. I. Lenin. Polnoye sobraniye sochineniy (Complete collected works), Vol. 9, p. 153 [Russian Edition].

<sup>2</sup>V. I. Lenin. Polnoye sobraniye sochineniy (Complete collected works), Vol. 39, p. 245 [Russian Edition].

<sup>3</sup>M. V. Frunze. Izbrannye proizvedeniya (Selected works). Moscow, Voenizdat, 1950, p. 185.

<sup>4</sup>M. V. Frunze. Izbrannye proizvedeniya (Selected works). Moscow, Voenizdat, 1957, Vol. II, p. 343.



Frunze considered the influence of technology on the character of battle, taking into account not only its direct combat effect but also the moral influence, emphasizing that "frequently this latter goes far beyond the limits of causing direct material damage."

He considered that armed conflict, in spite of the external appearance of chaos, possesses properties of objective regularity, the discovery of which constitutes the most important problem of military science. In his works he determined the relationship and interconnection of offense and defense, of maneuver and position forms of battle, of the role of fire, maneuver, and attack in battle; he examined the principles of application of different forms of combat actions, depending upon the situation.

Frunze considered the basic form of battle of the Red Army to be offensive, emphasizing that only he who finds the courage to advance will conquer; the strict defensive is inevitably doomed to defeat. "The tactical theory of the Red Army," he stated, "has been and will be impregnated by activism in the spirit of bold and energetically conducted offensive operations. This ensues from the class nature of the 'workers and peasants' army and at the same time coincides with the requirements of the military art." Speaking of requirements of the military art, Frunze held the view that the offensive gives a number of purely military advantages with respect to seizing the initiative, achievement of surprise, suppression of the will of the enemy, etc. At the same time Frunze recognized the possibility, under certain conditions, of defense and sometimes even retreat, considering it as one of the points of a future offensive.

In the works of Frunze the idea of achievement of victory in battle by the united efforts of all types of forces is decisively presented. He opposed even distribution of forces in battle and indicated the advantages of actions by shock formations.

Proceeding from the maneuver character of future war and the role of maneuver in the achievement of success in battle, M. V. Frunze repeatedly emphasized that "maneuverability should enter into the flesh and blood of our Red Army." But he did not negate the possibility of using position methods of conflict. "No war of maneuver can be managed without elements of position,"<sup>2</sup> he indicated.

M. V. Frunze assigned exclusively great significance to the training of command personnel, since these are, in his expression, the backbone of the army, the basis of its military power.

A commander in the Red Army not only must know narrow military affairs but also must perfectly master Marxist-Leninist theory, stated Frunze. He considered mastery of the methodology of Marxism-Leninism to be a necessary condition for deep understanding of military affairs and fervently supported the idea that the Marxist method should become the method of leadership in all fields of scientific-military knowledge.

While assigning paramount value to Marxist-Leninist education, Frunze at the same time stated that without proper tactical training no Soviet commander could consider himself prepared to fulfill his honorable and responsible assignment. He required that command personnel work systematically and constantly on self-education, always keeping up with developments in the Soviet Union and abroad, constantly developing and enriching their military knowledge. "He who fails in this will quickly find himself outflanked and in this case he will have only himself to blame."<sup>3</sup>

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<sup>1</sup>M. V. Frunze. Izbrannye proizvedeniya (Selected works). Moscow, Voenizdat, 1950, p. 206.

<sup>2</sup>Frunze, op. cit., p. 189.

<sup>3</sup>M. V. Frunze. Izbrannye proizvedeniya (Selected Works). Moscow, Voenizdat, 1957, Vol. II, p. 18.

Great contributions in the development of the theory of Soviet tactics were made by M. N. Tukhachevskiy. In his works,<sup>1</sup> along with consideration of questions of strategy and operational technique, much attention is allotted to tactics.

"Tactics," wrote Tukhachevskiy, "studies the nature of battle and the participation in it of forces as a whole."<sup>2</sup> His basic attention was allotted to uncovering the effect of new means of battle - especially tanks, aviation, long-range artillery - on the change in the character of combined-arms combat and the principles of conducting it. He originated the concept of battle in depth and developed the principles for conducting it. Tukhachevskiy advanced the burning question of the time, the problem of technical equipment for troops and its combat application.

The majority of the theoretical works by Tukhachevskiy on tactics are dedicated to the offensive. In them he outlines the principles of the offensive, the forms of maneuver, the dependence of the width of the offensive zone on the possibilities of destroying the enemy by artillery fire, questions of control and coordination of various types of troops, the structure of the battle formation, the conduct of battle, and other topics.

Of special interest is Tukhachevskiy's foundation for the necessity of transition from reserves to second echelons and their fundamental distinction. "The question of second echelons," he wrote, "is a question of greatest significance; without it there cannot be a viable battle formation."<sup>3</sup> Tukhachevskiy indicated that reserves were the basis for Napoleonic tactics, which involved the following steps: troops of the first echelon uncovered the most advantageous direction by means of battle and the reserve was shifted there by a flick of the senior commander's baton. Given the insignificant range of fire at that time, the movement of the reserve was unhindered and could be executed in good time. The First World War and the [Russian] Civil War showed that reserves subjected to the effect of long-range weapons of the enemy constantly lagged behind schedule. This was the reason for the transition to second echelons.

Tukhachevskiy saw the main distinction of a second echelon from a reserve in the mission and the character of actions prior to entry into battle. "The second echelon should receive the tactical mission simultaneously with the first echelon and the commander of the second echelon, upon obtaining this mission, acts absolutely independently."<sup>4</sup> He moves his troops independently in the direction indicated to him in order to secure timely development of the success of the first echelon, conducts necessary measures ahead of time, personally watches the course of the battle, and carries the responsibility for the timely introduction of the second echelon into the battle.

Tukhachevskiy allotted considerable attention to the development and study of the dynamics of battle. He indicated that in the old Russian Army battle was studied only up to the moment of bayonet attack, and after this it "was like an affair in 'another world'." In this lay one of the causes of the defeat of the Russian Army, which "did not know the process of offensive in depth."<sup>5</sup>

M. N. Tukhachevskiy was a military theoretician on the broad scale. In his works we find further development of questions not only of the offensive but also

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<sup>1</sup>M. N. Tukhachevskiy. Izbrannye proizvedeniya (Selected Works). Vols. 1 and 2. Moscow, Voenizdat, 1964.

<sup>2</sup>M. N. Tukhachevskiy. Izbrannye proizvedeniya (Selected Works). Moscow, Voenizdat, 1964, Vol. I, p. 255.

<sup>3</sup>Tukhachevskiy, op. cit., p. 68.

<sup>4</sup>M. N. Tukhachevskiy. Izbrannye proizvedeniya (Selected Works). Moscow, Voenizdat, 1964, Vol. I, p. 68.

<sup>5</sup>Tam zhe. str. (Ibid.), p. 194.

defense, meeting engagement, retreat, march, control of troops, reconnaissance, and procedures of tactical training. He outlined a convincing basis for the need for combat independence of the battalion and indicated the way to increase it. In his works a large place is allotted to the forms and methods of developing the tactical thinking of the commander and independence, initiative, and boldness in reaching decisions. "A commander should know," wrote Tukhachevskiy, "that after a failure encountered by his unit as the result of bold actions on his part - and failure cannot be excluded in war, - he will encounter not reproaches and inquiry, but general sympathy and moral support."<sup>1</sup>

Major contributions to the development of the theory of tactics of the Red Army were made by such outstanding Soviet commanders and military workers as S. S. Kamenev, A. I. Yegorov, I. E. Yakir, V. K. Blyukhar, I. P. Ubovich, V. K. Triandafillov, A. I. Sedyskin, R. P. Eydenau, and others.

Their theoretical views found reflection in transactions [books], numerous reports and articles, and also in regulations, manuals, instructions, and directives which were developed with their direct participation.

In the 1920's there appeared many works dedicated to various questions of tactics. In them the experience of the Civil War and the First World War was generalized, a basis was developed for the most important positions of the military art, methods and forms for conducting battle were revealed, and the path of further development of military affairs was laid out.

Of the works on general tactics, those of A. I. Verkhovskiy, N. Ye. Kakurin, A. G. Lignau, N. V. Morozov, N. P. Sapozhnikov, A. D. Syromyatnikov, and others are of particular value. The main attention of Soviet military theoreticians was allotted to the investigation of combat actions in a war of maneuver, especially the meeting engagement. "In tactics," indicated Verkhovskiy, "the meeting engagement has become the most characteristic phenomenon... He who wants to win in contemporary war must first of all master the technique of the meeting engagement."<sup>2</sup>

Along with works on general tactics, this period saw the publication of many works considering the tactics of particular types of troops.

The development of artillery tactics was the subject of the works of Ye. K. Smyslovskiy and V. K. Tokarevskiy; the tactics of armored forces, of the works of P. D. Gladkov and K. B. Kalinovskiy; and the tactics of aviation, of the works of N. A. Yatsuk, M. P. Stroyev, and A. N. Lapchinskiy.

In the 1930's the development of the theory of tactics of the Red Army was characterized first of all by the development of problems of combined-arms combat in depth on the new material and technical basis. Of great merit in this area are the works of M. N. Tukhachevskiy, V. K. Triandafillov, and K. B. Kalinovskiy.

Tukhachevskiy, proceeding from analysis of the experience of the First World War and from the equipping of the army with new armaments (mainly tanks and aviation), first advanced the idea of battle in depth as early as 1928. He indicated that the new material and technical base of the army (long-range artillery, tanks, aviation, airborne forces) would make it possible to reject the former exhausting forms of battle for every enemy position separately and would allow crossing over to new, more effective forms and methods of conducting battle. He proposed simultaneous destruction of the enemy over the entire depth of his disposition.

The idea of the possibility of simultaneous destruction of the entire tactical

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<sup>1</sup>Tukhachevskiy, op. cit., p. 313.

<sup>2</sup>A. Verkhovskiy. Obshchaya taktika (General tactics), Part II. Moscow, VVRS, 1922, p. IV:

depth of the enemy's defense by means of echeloned application of tanks in three groups - [NPP] (НПП), [DPP] (ДПП), and [DD] (ДД)<sup>1</sup> - breaking through to different depths, in interaction with long-range artillery and aviation, was outlined in specific form by V. K. Triandafillov. K. B. Kalinovskiy thoroughly developed the tactics of actions of these tank groups and thus placed a practical foundation under the entire concept of battle in depth.

The essence of the theory of battle in depth consisted in simultaneous action over the entire tactical depth of the defense of the enemy and rapid development of tactical success by specially designated mobile troops. Simultaneous suppression of the hostile defense would be attained by aerial strikes and artillery fire, by swift breakthrough of long-range tank groups, into the position of enemy artillery and tactical reserves by decisive advance of tanks providing long-range fire support for the infantry, and by nonstop advance of infantry with the direct support tanks. The development of a tactical success into an operational victory would be carried out by a special echelon for development of successes [breakthroughs], consisting of mechanized and cavalry formations. All this would permit containing, suppressing, and paralyzing all defense, depriving the enemy of the possibility of engaging in counteraction and restoring the front by bringing up reserves.

Subsequently the theory of battle and operations in depth was at the center of attention of the scientific military thought of the Red Army. Its most important positions were presented in works of G. S. Isserson and N. Ye. Varfolomeyev, and also in the collective work Combat Actions of the Rifle Corps. With the publication of the Instructions on Battle in Depth and the appearance of the Temporary Field Regulations of the RKKA<sup>2</sup> (1936) the new principles of tactics were brought to the troops and became the basis of their combat training.

In subsequent years the development of tactics proceeded mainly in the direction of manifold foundation of the positions of the theory of battle in depth, taking into account the further development of the technical means of conflict.

A major contribution to the development of the theory of tactics in the prewar years was the issuance in 1940-1941 of fundamental collective works: General Tactics, in three volumes, Artillery in the Basic Forms of Combat, and Service of the Combined-Arms Headquarters in Battle.

Given mass printing, these works played an important role in the training of command personnel of the Red Army on the eve of the Great Patriotic War.

However, it is necessary to note that before the Great Patriotic War huge losses were inflicted on Soviet military science by the repressions carried out against the leading military cadre in the situation of the Stalin cult of personality. Many military scientists were unlawfully repressed and their views made questionable, while their scientific publications were said to be harmful and were suppressed.

The Great Patriotic War was the most important stage in the development of Soviet military science. It served as a severe test of Soviet military theory and uncovered all its positive and negative sides.

In the course of the war the theory of tactics was developed on the basis of a vast store of combat experience. The most important of its theoretical positions and conclusions, new principles of conducting battle, found reflection in orders and directives, regulations, manuals and instructions, and descriptions of battles and operations. In this war there were developed effective methods for achieving breakthrough of an enemy defense, expansion of a tactical success into an operational one, surmounting from the march of intermediate defensive lines in operational depth.

<sup>1</sup>[NPP] (НПП) = direct support of infantry; [DPP] (ДПП) = long-range fire support of infantry; [DD] (ДД) = long-range. Expansion is drawn from TM 30-546 Glossary of Soviet Military and Related Abbreviations (Feb. 1957) [Trans. Ed. note].

<sup>2</sup>RKKA (РККА) = Workers' and Peasants' Red Army [Trans. Ed. note].

pursuit, forcing of rivers, encirclement and destruction of the surrounded enemy, conducting of active, insuperable defense, and others.<sup>1</sup>

In the following period, especially during its first decade, the basic attention in the development of tactics was turned to the investigation and generalization of the experience of the past war and to improvement of the methods applied in the course of the war for conducting combat actions, taking into account the changed organization and equipment of the armed forces.

The modern stage in the development of the theory of tactics and of Soviet military science as a whole is connected with the arrival of nuclear weapons in the arsenal of the Soviet Forces. The equipping of all branches of the Armed Forces with these weapons advanced new problems for Soviet military science and demanded radical reconsideration of views on the character of a possible war, on the forms and methods of armed conflicts of all scales.

### Problem of Tactics at the Contemporary Stage

In contemporary conditions, the tactical theory of the Soviet Army solves its problems by proceeding from the existence of new means of struggle: (first of all nuclear weapons); from the changed character of armed conflict and the requirements of Soviet military doctrine, from the possibility of a surprise attack by an aggressor on our Motherland, and from the enormously increased role of the initial period of a war.

The Second World War gave many examples when an aggressor struck sudden, swift blows in the beginning of the war, mainly by thrusts of mobile troops supported by aviation and driving across the boundaries of neighboring countries to penetrate to the greatest possible depth, to break up defending forces, and to surround and to destroy them while simultaneously seizing important regions in depth. The suddenness of attack, as is known, gave great advantages to the aggressor.

At present the existence of nuclear weapons and other powerful means of destruction and also the great mobility of troops have considerably increased the possibility of surprise attack by an aggressor, and its consequences can be catastrophic. Therefore the most important problem of tactics is the development and realization of measures ensuring constant combat readiness of units and subunits to conduct combat actions in a complicated air and ground situation.

The emergence of nuclear weapons and other modern means of armed conflict radically changed the character of battle and the conditions for conducting it. Tactical theory is called upon to bring these changes to light, to investigate the nature of contemporary battle — its characteristic features and regularities — and principles of training for and conducting it.

Disclosure of the nature of contemporary battle is connected first of all with investigation of the means of conducting it, that is, with study of the changes occurring in the weapons and technical equipment of troops and with manifestation of the influence of new means of struggle on methods of conducting battle.

In contemporary battle the most powerful means for destruction of the enemy is the nuclear weapon. Its skillful application permits inflicting huge losses on the enemy in terms of personnel and equipment in a short period, neutralizing strong points, destroying engineering structures and other objects, creating zones of radioactive area contamination, and also rendering a strong moral effect on troops.

A nuclear strike inflicts total destruction on the enemy in a defined radius and in this radius the need for application of conventional fire and attack by troops is eliminated. In a nuclear explosion fire and blast merge together. With the help of nuclear weapons it is possible to solve independently problems of the destruction

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<sup>1</sup>See *Razvitiye taktiki Sovetskoy Armii v gody Velikoy Otechestvennoy vojny* (Development of Tactics of the Soviet Army During the Years of the Great Patriotic War (1941-1945)). Moscow, Voenizdat, 1958.

of one or another enemy formation more effectively and in shorter periods than is possible by the use of conventional means of destruction.

Consequently, nuclear weapons have changed the very content of combined-arms combat. Its former elements - fire, maneuver, and attack by troops - no longer completely encompass the essence of contemporary battle. There has appeared a new and also most important element - the nuclear strike. Therefore determination of the methods of the combat application of nuclear weapons and defense against the nuclear weapons of the enemy, methods of the most effective use by the troops of the results of nuclear strikes, and protection of troops from weapons of mass destruction are major problems of tactics.

However, no matter how great the power of nuclear weapons, they alone cannot solve all problems on the field of battle. It is necessary to keep in mind that nuclear ammunition destroys the enemy only in a defined radius, beyond the borders of which his subunits and units can preserve their combat capability, and the completion of his destruction will demand the use of other forces and means. Besides this, it is clear that nuclear weapons will be widely applied in main directions for the destruction of the most important objects. Other targets and objects, including certain tactical nuclear weapons, tanks and artillery in combat formations, detached fire means, etc., will be hit by conventional means. From this it follows that in contemporary battle along with nuclear weapons wide use will be made of conventional means of destruction - artillery, tanks, aviation, small arms, etc. The development of effective methods of using conventional weapons in battle constitutes one of the most important problems of tactics.

Completion of the destruction of an enemy in battle during the application of nuclear weapons is attained, as earlier, by a close combination of fire, strike, and maneuver, although their role, content, and conditions of application are essentially changed.

Fire, whose power has sharply increased, prepares for and accompanies the attack by the troops and is an inalienable part of the attack itself. At the same time it creates the necessary conditions for realization of maneuver and frequently ensures its realization.

The strike constitutes a combination of fire and movement of tanks and motorized infantry subunits and small units for the purpose of completing the destruction of the enemy directly in battle, at close range. It is expressed in decisive and unceasing attack (counterattack) and the swift advance of troops on the field of battle. The basic means of inflicting a strike on troops is cannon, machine-gun, and automatic fire of high density, conducted from tanks and armored carriers in motion and from short halts. Therefore, the force of the blow of attacking troops is now determined primarily by the firepower of their weapons.

Maneuver is the organized and rapid shifting of subunits and units both during the preparation for battle and also in the course of battle for the purpose of creating the most profitable conditions for application of forces and means, achievement of timely and most complete use of the results of nuclear strikes, and successful fulfillment of the assigned combat mission.

Consequently, the successful study of the essence, role, and place of fire, assault, and maneuver and the development of methods of their application in combined-arms combat also enter into the problems of tactics.

On the basis of investigation of the combat properties of different means of combat and the capabilities of subunits, units, and formations, knowledge of the nature of battle and its character, and the regularities operative in battle, tactical theory develops the most expedient methods for organizing and conducting battle in one or another situation. The solution of this problem constitutes the final result of all theoretical research in tactics. The correctness and completeness of its solution are the evaluation of theoretical work carried out in tactics.

The development of the most expedient methods of troop actions is carried out by the tactician in reference to a definite type of battle, since every form of

battle has its own peculiar methods, procedures, and principles for the use of forces and means. In view of the extraordinary variety of conditions of the combat situation, the tactician develops these methods first of all for the most typical conditions. At the same time, manifold investigation is made of all the essential peculiarities of troop actions which are caused by the character of the terrain, the season, and the time of day (combat actions in mountains, in forest, in deserts and steppes, in inhabited localities, in winter, at night, etc.).

Tactical theory, investigating manifold conditions of conducting battle, does not give ready recipes and categorical instructions suitable for all cases found in real life. It contains only the major and most important positions and rules; following them, the commander makes independent decisions corresponding to the specific conditions of the combat situation. The art of preparation for and the conduct of contemporary battle is connected with broad manifestation of initiative and creative work by commanders at all levels. Rigidity and adherence to pattern in tactics frequently lead to defeat.

Battle constitutes a conflict between two sides, each of which, struggling for achievement of its goals, persistently seeks victory. Therefore, tactical theory does not develop methods for operations of friendly troops in a vacuum, but takes into account the tactics of the probable enemy, his organization, the capabilities of his weapons and equipment - their strong and weak sides. Only under these conditions is it possible to develop procedures and methods for operations by our own troops which will give the greatest effect with the least expenditure of effort. Therefore the tactician studies the forces and means of the enemy, his views on their application in battle, and also his methods of conducting different forms of battle.

The changes occurring in the character of contemporary combined-arms combat have rendered an essential influence on the methods of controlling troops. At present it is mandatory to conduct all measures in extremely limited periods and frequently while in motion, under conditions of a rapidly and sharply changing situation. Tactical theory is called upon to investigate in depth questions of control and to develop the most expedient recommendations on their resolution in the complex conditions of modern battle.

Other important problems of tactics are to uncover the factors and methods of realization of measures undertaken for manifold support of combat actions and to investigate questions of the disposition of troops in place and during movement, especially the carrying out of marches, which have now become an integral and inalienable part of combat actions.

Of very significant value in tactics are the organizational forms of units and subunits. The most highly perfected organization, in which the correct combination of economic capabilities with contemporary methods of armed conflict is to be found, promotes successful conduct of combat actions. Incorrect solution of organizational and organic questions hampers the conduct of battle and serves as a brake on the development of tactics. Therefore another of the problems of tactics is the scientific foundation of requirements for the forms of organization of forces.

In developing theoretical positions on the conduct of combined-arms combat, the theory of tactics considers the moral spirit of the troops. At the same time it determined the requirements for combat morale ensuing from the character of contemporary combined-arms combat.

The moral strength of personnel of forces in future battles will be subjected to vast pressure and unprecedented tests. Nuclear weapons and other means of destruction will render not only a strong physical effect, but also a huge moral and psychological influence on personnel.

The entire personnel of our army, and especially the commanders, must be educated in a spirit of infinite devotion to their Motherland; they must possess great force of will, which will help them to suppress in themselves wavering, indecision, and the sense of fear connected with danger, and will enable them in the most complicated situation to preserve cheerfulness of spirit, clarity of thinking, and a high sense of responsibility - to manifest courage, resoluteness, and initiative.

Courage is a feature of behavior expressing the moral strength and stability of the soldier, his bravery, the presence of mind in danger, his readiness to conduct battle boldly and resolutely in the most difficult conditions of the situation. Courage restrains him from hasty, unthinking, incorrect decisions and actions and at the same time creates confidence that success will be achieved. The manifestation of courage requires thorough knowledge of military affairs, self-confidence, and confidence in the might of his weapons and combat equipment.

Resoluteness is manifest first of all in boldness in making a decision and persistence in carrying it out. It renders a great influence on the course of battle. Swiftly in making a decision and firmness and persistence in carrying it out - these are the guarantee of successful combat actions of troops. If, however, the situation changes and the accepted decision ceases to apply to it, the commander must find in himself sufficient force of will to drop it in good time and immediately to make another, more useful decision. Indecision and wavering can ruin things even in the most favorable conditions.

Initiative is highly developed independence, the ability to act creatively and not according to a pattern in achieving the goal of battle. Reasoned initiative is based on understanding of the plan of battle, of one's own problems, and the problems of adjacent forces, and consists in an effort to find the most effective ways, means, and methods of fulfilling the mission at hand in a given situation.

High moral combat qualities of personnel, including command personnel, do not develop by themselves. They are the result of constant, tedious, and purposeful work. Therefore one of the problems of tactical theory is the determination of the content of tactical exercises in the system of combat training which take into account the development of specified moral combat qualities of personnel. Together with this, tactics participates in the development of forms and methods of political work in battle, ensuring the maintenance of a high political and moral state of the troops and their successful fulfillment of combat missions.

#### Methods of Studying Tactics

The study of tactics by officers is carried out in peacetime (in educational institutions, in the system of combat training, at seminars, in courses, independently) and continues in the course of war. In former wars, some officers could learn tactics exclusively means of personal combat experience. However, even then such a method was extraordinarily unprofitable, since errors and discoveries of the ABC's of tactics, long known by others, were paid for in blood. In contemporary conditions such a method is essentially excluded: the technique of battle and the character of armed struggle conflict are too complex. The requirements for a commander have increased sharply and the time factor has obtained vast significance.

At present the only proper method is that of persistent and vigorous study of tactical theory in peacetime. This corresponds to the interests of the security of the Motherland, to the requirements of the Program of the CPSU that our forces be ready at any moment to give a crushing rebuff to imperialistic aggressors.

The peacetime study of tactical theory by officers is composed of thorough mastery of the theoretical principles of combined-arms battle and the development of definite practical methods and skills in the leadership of troops in battle. These are the two sides of the single process of mastery of tactics, in which the study of theory and the skill to apply it in practice are of identical importance.

Knowledge of the theory of tactics is a necessary condition for and a basis of creative solution of all questions of combined-arms battle. Only with this knowledge is it possible to develop a creative approach to the fulfillment of practical problems, and to solve them rapidly and correctly. Therefore mastery of theory is necessary for every commander and military leader. Without it successful military activity is impossible. "Today," - states the Minister of Defense, "it is inconceivable that anyone can lead troops, or instruct and educate them without scientific knowledge or without regard for science. And the further military affairs develop, the greater will be the role of scientific theory, generalizing experience



and illuminating the path to practice."<sup>1</sup>

Together with this, tactics falls among those fields of knowledge which carry in the highest degree an applied character, where it is important not only to know, but also to know how — to know how to evaluate a situation rapidly, to produce necessary operational and tactical calculations, to make a correct decision, to assign missions to the troops, to organize their fulfillment by coordinated efforts of various types of troops, to know how to quickly prepare concise and clear combat documents, to work with maps and with means of communication, etc. However, in spite of the great importance of the applied part, it should not displace the theoretical, since in this case the danger of injection of patterns, of blind, mechanical repetition of known procedures and methods, inevitably increases. Consequently a harmonious combination of the study of tactical theory with its creative application in practice is necessary.

The development and improvement of the practical methods and skills necessary for leadership of troops are attained mainly by carrying out group exercises, through tactical leaflets and staff training, in military games, and by command-staff and military exercises.

Study of the theory of tactics is carried out at lectures and seminars, in conversations, during various practical occupations and exercises, and primarily by means of independent work.

Independent work is the basic method for studying the theory of tactics. Only with deep independent study of the military literature is diverse self-preparation for practical work possible. "Without outstanding independent labor," wrote V. I. Lenin, "truth cannot be found in any serious problem; he who rejects labor loses the possibility of finding truth."<sup>2</sup>

Of basic importance in the independent study of tactics are the regulations which govern the troops. They contain the generalizations of vast experience and the final results of theoretical research, which are expounded in the form of defined positions, principles, and correct norms, derived on the basis of profound analysis of experimental data and manifold theoretical development. The regulations give guidance on the organization and conducting of battle and ensure unity and community of views of the command cadres. Solid knowledge of the regulations and their positions is obligatory for every officer.

However, regulations alone do not embrace the entire theory of tactics. The positions presented in the regulations do not explain phenomena occurring on the field of battle. The regulations cannot give the broad picture of the development of the basic principles of tactics, nor can they define trends in the development of tactics. They contain only prepared conclusions and generalizations and do not indicate the prerequisites for them. Meanwhile, in order to know well and to understand deeply the regulation positions, and chiefly to know how to apply them creatively and in conformity with the situation, it is necessary to know just why the regulations are written as they are.

Furthermore, the rules and norms presented in the regulations are not unconditionally comprehensive; they do not cover all practical cases, but only the most typical conditions in their general form. In war no situation is ever repeated. Continuous changes occur in the forces of the enemy, the quantitative and qualitative composition of our own troops, conditions of terrain, and other elements of the situation. Therefore the commander should know not only the regulation norms, but also the methods of their derivation, so that by using the latter he himself can draw the necessary conclusions on the scene by correctly estimating the factors forming the situation.

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<sup>1</sup>R. Ya. Malinovskiy. Bditel'no stoyat' na strazhe mira (Vigilantly guard the peace. Moscow, Voenizdat, 1962, p. 53).

<sup>2</sup>V. I. Lenin. Polnoye sobraniye sochineniy (Complete collected works), Vol. 23, p. 68.

Consequently, in order to direct troops successfully in battle it is necessary not only to know firmly the regulations but also to have wide theoretical preparation, and a profound understanding of the essence of the phenomena occurring on the field of battle. From this follows the necessity of bringing to light and laying down the foundation of the most important positions of tactics in lectures and at seminars and other meetings, and also [the need for] deep independent study of theoretical works on tactics: textbooks, training aids, periodical military literature, and works on the history of the military art.

While studying theoretical works and enriching his military knowledge, every officer must himself take an active part in the development of military theory, remembering that this is a problem for all officers without exception, and not for some small group of military theoreticians. By generalizing the experience of troops and combat training and analyzing it, every officer can draw definite theoretical conclusions. Such development of theory, based on practice and exact calculation, will be the most active and correct, and will meet the needs of combat practice.

## CHAPTER II

### PRINCIPLES OF COMBINED-ARMS COMBAT

#### Factors Determining the Development of Combined-Arms Combat

Combat, as the centuries-old history of armed struggle shows, has developed along the path of continuous complication of its organization and conduct, an increase in the size of the forces participating in it and the means used, an increase in the power of means of destruction, expansion of the front and depth of combat actions, and a growth of losses in men and equipment.

From a one-act, short encounter on a limited and unorganized section of terrain by a comparatively small number of infantry armed with silent weapons, combat has turned into a continuous, tense, and prolonged struggle of numerous forces with varied and powerful armaments, conducted on terrain which has been prepared in an engineering sense and waged on a wide front and to great depth.

The basic factors determining the continuous development of combat are changes in the weapons and personnel of armies. Furthermore, the development of combat is influenced by the character of operations and of war as a whole, the requirements of operational art and strategy as related to tactics, the enemy (the quality of his troops, his organization, and methods of action), the level of development of military theory, the degree of combat training and political preparation of troops, the combat traditions and national peculiarities of the army, and also the organization of forces, dependent in its turn upon the development of military art.

Means of armed conflict render the most revolutionary influence on the character of combat and methods of actions of troops. "The achievements of technology," wrote F. Engels, "scarcely having become applicable and actually applied in combat, immediately - almost violently, frequently against the will of the military command - bring about changes and even revolutions in the means of conducting battle."<sup>1</sup> V. I. Lenin commenting on this law of the development of tactics said: "Military tactics depends on level of military technology, - this truth was chewed and put in the mouths of Marxists by Engels."<sup>2</sup>

The appearance of nuclear weapons, the most powerful means of conflict ever applied in warfare, and the absence of experience in their application on the field of battle demand deep scientific investigation of the influence of the new weapons on the change in the forms and methods of conducting battle and also in the roles of existing weapons and combat equipment and the principles of their application in combined-arms combat.

<sup>1</sup>Marx, K., and F. Engels. Soch. (Works), Vol. 20, p. 176.

<sup>2</sup>Lenin, V. I. Polnoye sobraniye sochineniy (Complete collected works), Vol. 13, p. 374.

To approach the solution of this question more correctly, let us consider in the most general outline the influence on the character of combat which has been rendered by the appearance of new weapons in the past.

Development of the means of armed struggle occurs continuously, both through improvement of available armament and by creation of new forms. Every step of such development by necessity causes corresponding changes in the methods of armed struggle. Here gradual improvement of earlier known forms of weapons leads, as a rule, to immaterial evolutionary changes in methods of combat actions. Radical changes in this realm occur only if weapons themselves change, if qualitatively new means of struggle appear in the arsenals of armies. It is these qualitative changes in armament which lead to radical changes in the forms and methods of combat actions of troops and in the military art.

When armed struggle was conducted with silent weapons (bows, lances, swords, and others), which for thousands of years were merely improved but were not changed essentially, the character of combat was not subject to major changes.

The application of silent weapons was based on man's muscular force. The main role in combat was that of the physical blow. Therefore combat was conducted by excessively dense formations of troops on areas of terrain limited in size and for the most part not engineered. Enemies usually initiated a battle with thrown weapons (arrows, lances, stones) and then drew close together and achieved victories through the physical blows of tightly packed masses of infantry and cavalry.

The appearance of gunpowder and the invention of firearms signalled a total revolution in warfare. Fire became the most important element of battle. As a result it became possible to strike an enemy at a great distance and with great force; this development led to radical changes in the methods of conducting battle. Battles were initiated with inflicting of damage on the enemy by fire, after which the decisive blow was struck with silent weapons.

Inasmuch as the greatest effectiveness of fire was attained only through mass use of firearms, the troops were aligned for battle in lines of several ranks, allowing a large number of soldiers to fire simultaneously. Such formation made it possible to conduct continuous firing during the approach to the enemy and to attack with hand weapons without needing to reform. Furthermore, it promoted the maintenance of discipline and facilitated the conducting of battle by means of unreliable mercenaries who possessed no sense of patriotism and were not inclined to self-sacrifice and the manifestation of initiative. The so-called linear tactics appeared.

However, linear tactics also had great deficiencies. Battle could be waged only on level terrain devoid of obstacles. The troops were distributed evenly along the front and moved extremely slowly, and maneuvers in the course of battle and pursuit were almost impossible. Therefore in armies manned by personnel with higher morale there was a persistent search for new combat formations which would allow not only complete use of the fire of the insufficiently effective smooth-bore weapons but also the application of maneuvers for the purpose of inflicting decisive defeat on the enemy by attack with silent weapons. Such a combat formation was the column, used for the first time by the outstanding Russian commanders Rumyantsev and Suvorov.

Columns of various scales, combined with a loose formation, found especially wide application in the wars of the French Bourgeois Revolution. Against the hired professional troops of the coalition, the French could pit numerous but in the main very poorly trained troops. The combat formation used by these troops ensured the possibility of more effective use of trained riflemen and large masses of poorly trained but revolution minded and brave infantry.

The advantages of columns over the line of ranks included considerably greater striking force, greater ease of control, faster movements and ability to operate on any terrain. The application of columns permitted subdividing troops into separate combat units, each of which had certain independence in action. Therefore the one who conducted battle in columns could concentrate his main forces on a decisive sector, break through any enemy linear formation (which of course had

identical force at all points), and defeat troops fighting in linear formation.

The further development of firearms led to radical changes in their quality. In the place of smooth-bore guns and cannons there appeared rifled weapons. In connection with this there was a sharp increase in the range, rate of fire, and accuracy of the weapons; the zone of fire effect on the enemy was increased; and it became possible to inflict heavy losses in a short period on an enemy, operating in dense formations. In the wars of the 18th Century troop losses to firearms were about 20%; in the wars of the first quarter of the 19 Century these losses were about 40%; and in the Franco-Prussian War, 1870-1871, in connection with the adoption of rifled weapons as the basic armament of the armies these losses were about 90% of total losses.<sup>1</sup>

Under these conditions the former methods of conducting battle in columns turned out to be absolutely unsuitable. When the Prussians at Saint Privat, 18 August 1870, tried to use the company column, the five regiments taking the greatest part in this battle lost one third of their personnel in some two hours. "Since then," writes F. Engels, "the company column has been condemned, as have battalion columns and the linear formation. Any attempt to advance in close-order detachments under enemy rifle fire was abandoned. Later the Germans conducted battle only by those dense skirmish lines into which the column was ordinarily broken before it was actually destroyed under the hail of enemy bullets; this in spite of the fact that high command personnel fought this practice as a violation of order."<sup>2</sup>

Thus, radical changes in the weaponry of armies compelled them to change also the methods of troop operations and demanded the application on the field of battle of a new formation, in the form of the skirmish line.

The skirmish line initially was quite dense but still suffered fewer losses from fire than the column, since the soldiers in the line could approach the enemy at a run or crawl, adapting to the terrain and using entrenchment for protection from hostile fire. At the same time the formation of troops in a line created favorable conditions for conducting fire from the maximum number of small arms from beginning to end of the battle. The system of volley fire applied in the line, besides its purely combat effect, had great disciplinary value, while independent fire developed the initiative and shrewdness of troops. Formations of troops in a skirmish line also ensured the possibility of maneuvering fire and personnel on the battlefield and grouping subunits for inflicting blows in hand-to-hand combat.

Thus, the skirmish line turned out to be the combat formation which in the very best manner ensured combination of fire, strike, and maneuvering from beginning to end of battle under conditions of strongly increasing effectiveness of fire. At the same time the application of the line combat formation permitted rapid dispersion and concentration of subunits and units, rapid change when required from march order to combat order and back, due to a switch from the offensive to the defensive and vice versa, i.e., it permitted combinations of different forms of combat.

With application of rifled weapons battle came to be constructed around close coordination of rifle and artillery fire. In order to inflict shock in hand-to-hand combat it was necessary to bring troops up to the assault position under enemy fire, to mass them on this position, and to prepare the attack with preliminary artillery and rifle fire. To support the troops in the course of the battle it became necessary to transfer artillery to new firing sites and also to attach part of the artillery to the infantry. Thus arose the problem of the transformation of a homogeneous combat formation of infantry into a mixed formation of infantry and artillery.

Under these conditions both the value of coordination of forces and the complexity of its organization and support during battle increased. Now it became necessary to coordinate the operations not only of subunits and units, but also of

<sup>1</sup>Kaminskiy, L. S., and S. A. Novosel'skiy. Poteri v proshlykh voynakh (Losses in past wars) (1756-1918), Moscow, Medgiz, pp. 129-150, 1947.

<sup>2</sup>Engels, F. Izbrannye voyennye proizvedeniya (Selected military works), Moscow, Voenizdat, p. 14, 1956.

different kinds of troops. Disturbance of coordination in some sector would now have an essential effect on the success of the entire battle. The conditions of control of troops in combat had changed. The need arose for high-speed means of control and also for special communications troops.

The application of entrenchment by the troops gave rise to new missions for the artillery. It had to strike not only exposed forces but also concealed troops; this demanded the development of new artillery systems capable of high-angle fire. Also needed were shells capable of destroying shelters. Appropriate methods of conducting artillery fire for these missions had to be developed.

The new conditions of combat led to sharp growth in the operational front. While a regiment in close columns advanced on a front of approximately 500 paces, battalions advancing in line occupied 1000 and more paces. As a result it became impossible to merely indicate to the regiment, and all the more so to the division, only the direction of movement, as had been done with massed formations of troops. It became necessary to lay out zones, taking into account the mission, the density of forces, their fire and maneuvering capabilities, and possibilities of making an assault.

The invention and introduction into armies of machine guns and the adoption of artillery weapons for firing from closed [concealed] firing sites considerably increased the firepower of forces and rendered an essential influence on the character of combat. The considerable increase in firepower led to the development of field fortifications in the form of systems of trenches and dugouts and to the appearance of field position defense. It was found that troops were unable to surmount the machine-gun fire of the enemy by former methods. The need arose to break up position defense, for which considerable strengths of infantry, artillery, and other striking forces were concentrated on the breakthrough sector.

New and profound changes in the development of methods of combat operations took place with the appearance of tanks and aircraft on the battlefield.

The use of tanks first of all increased the offensive capabilities of troops, increasing their capacity with respect to breakthrough of position defense and the striking of swift blows to a great depth. This innovation demanded new offensive methods, based entirely on the organization of close and continuous coordinated action of all types of troops.

Saturation of the battlefield by tanks also rendered a high influence on the character of defense. Now the defense was constructed primarily as an antitank defense. Infantry came to be grouped around antitank cannons and to act in coordination with them, in view of which battalion and company areas of defense gradually evolved into unique antitank centers and antitank strong points. Echelonning of antitank means became one of the indispensable conditions for strength of a defense. In the depth of the defense special antitank areas appeared, and such elements as antitank reserves and mobile obstacle detachments began to be developed within the composition of the combat structure of forces.

Application of aircraft expanded the boundaries of combat operation of ground forces and demanded from them simultaneous struggle not only on the ground but with an aerial enemy, which naturally could not fail to affect the methods of organizing and conducting combined-arms combat. Having become a direct participant in the combined-arms combat, aviation promoted an increase in the rate of its development, an increase in the force and depth of strikes, and in faster and more decisive destruction of the enemy. Possessing powerful armament, great range, and high maneuverability, aircraft rendered active support to troops on the battlefield, suppressing and destroying the personnel and combat equipment of the enemy, protecting friendly troops from air strikes, and conducting combat reconnaissance in their interest. At the same time application of aircraft demanded organization of antiaircraft defense, greater dispersal in the combat formation of troops at the front and in depth, and the accomplishment of various engineering measures directed at decreasing losses during air strikes.

Thus in every case the application of new weapons which considerably exceeded in combat capabilities the earlier-applied means of armed struggle led to essential changes in the character and methods of combat operations of troops. Naturally nuclear weapons will also evoke such significant changes in the character of combat that in no case will it be possible to simply adapt old methods of troop operations to the new weapons.

However, one should consider that while appearance of new weapons also renders a large influence on methods of combat operations of troops, historical experience shows that essential changes in these operations occur only under one indispensable condition: the use of new weapons in a massive quantity. Separate, individual specimens of new weapons, however effective they may be, cannot by themselves radically influence the forms and methods of combat. Experience shows that if individual samples of a new weapon appear on the battlefield, the first attempts will be to adapt them to existing tactics. And only with an increase in the quantity of this weapon and accumulation of experience in its application, when its combat properties have been revealed in full measure, will greater changes in the forms and methods of combat occur.

Thus the revolution in military affairs connected with the use of gunpowder did not happen immediately, but took at least three centuries because of the inability of artisan production to ensure mass manufacture of firearms. Only with the appearance of manufacturing, when it became possible to produce (and this means also to apply) firearms in massive quantities, did radical changes in methods of combat action of troops occur.

The appearance of a few individual machine guns in the Russo-Japanese War (the Russian troops had eight machine guns at the beginning of the war and at its end, fifty-six) did not lead to serious changes in the character of combat. The true significance of machine guns was revealed only in World War I, when tens and hundreds of thousands of them appeared on the battlefield. They had an essential influence on methods of combat.

The situation was analogous with respect to the use of individual tanks. When in September 1916 the English for the first time used 14 experimental tanks in battles on the Somme, this not only had no influence on the success of the battle but even nearly brought the new combat means to compromise. Massed application of tanks in subsequent operations (Cambrai in 1917, 379 machines; the Amiens operation of 1918, over 600), along with improvement of their tactical-technical capabilities, led to essential changes in methods of combat operations. However, tanks were not able to render a decisive influence on the character of combat until World War II, when they were considerably improved and were used in great numbers.

Consequently, when determining the influence of nuclear weapons on methods of organizing and conducting combat operations one should originate not from the possibility of delivering separate nuclear strikes, but from conditions of their mass application by both sides. The objective conditions for such application have already matured.

When considering the influence of new forms of weapons and combat material on the character of combat, we must also point out that "old" weapons nowhere and never have disappeared without a trace upon the appearance of new means of combat. In every war in which a new weapon was applied for the first time in mass quantity, older means of combat were also widely applied.

Thus, the appearance of firearms did not displace hand weapons immediately. They existed for a prolonged period along with firearms and in fact, exist even now. However, the role and significance of hand weapons in combat have undergone essential changes: from the decisive means of combat they evolved into auxiliary means, and then into a means of self-defense. A number of the qualities of hand weapons reappeared in the firearm. The rifle with a bayonet replaced the bow, lance, and spear, while the automatic weapon, thanks to its high rate of fire, essentially replaced the bayonet as a solution to problems of close combat.

The appearance of machine guns, in spite of their exceptionally high fire power, did not cause other forms of firearms to fade away. However, the problems solved by rifle fire and its role in combat were changed essentially. The mission of artillery was changed also. Now in addition to striking the personnel and artillery of the enemy, it also had to suppress his machine-gun fire.

In exactly the same way the use of tanks, aircraft, and poisonous substances did not displace previously existing means of combat. Conversely, it demanded their further improvement and affected the methods of their combat application.

Combat application of tanks required their coordination with artillery, infantry, and combat engineers, and led to the creation of self-propelled artillery for support of tanks on the battlefield, as well as the appearance of special antitank

artillery as means of combatting tanks. Thus, the role and significance of "old" means of battle were changed.

The use of aircraft for neutralization of the enemy in turn affected the use of artillery, tanks, and other forms of weapons in combined-arms combat. Artillery became capable of making complete use of its long-range potential for striking targets not visible from its ground observation posts. It became necessary to adapt machine guns for combatting aircraft and to create special antiaircraft artillery and other means of combatting an aerial enemy. Tanks became capable of striking deep blows with the support of aircraft.

Thus, experience shows that with appearance of a new weapon, previously used means of combat do not die out immediately and simultaneously. They exist for a more or less prolonged period along side the new weapon, and even are improved.

This means that under conditions of application of nuclear weapons the older weapons, or, as they are customarily called, conventional means of combat, will find wide application. Therefore it is necessary to study them well and to further improve and develop methods of their combat application in close coordination with the new weapons.

The influence of means of armed struggle on development of combined-arms combat is manifest, as is known, not of itself but through people who apply weapons and combat materiel on fields of battle.

The human masses participating in armed conflict -- ordinary soldiers and command personnel -- are the direct creators and carriers of military art. With weapons in hand they conduct armed struggle, and in many respects the methods and form of struggle depend on their combat characteristics and political consciousness, determined by social and state order. This is convincingly proved by the experience of all past wars. We have already noted above the influence of the qualities of the personnel of armies on the application of linear tactics and of columns combined with the loose formation. Especially graphic examples of the influence of the individual on the development of military art are given by combat practice of recent times.

Thus, during the years of the foreign military intervention and the civil war in our country the troops of the Red Army, inspired by the great ideas of Socialism, manifested not only mass heroism but also the greatest creative work in the field of military art. The tactics of the Red Army were distinguished by resoluteness, activity, and maneuverability. The Red Army repeatedly hammered a numerically superior and better armed enemy in offensive and meeting engagements, swiftly inflicting blows on the flanks and rear of hostile forces. It gave unexcelled examples of deep raids on the enemy rear, of bold bypass and envelopment of one or both flanks without fear of loss of close lateral contact between units and formations.

In the Great Patriotic War the Soviet man -- soldier and commander -- played with special vigor a decisive role in the development of new methods of combat operations of troops. Only Soviet troops, directed by the Communist party, were able, in spite of extremely unfavorable conditions at the beginning of the war, to develop and to utilize against the perfidious aggressor effective methods of counteraction. Subsequently, when the enemy was forced to switch to the defensive, the Soviet Army was able to develop and to apply methods for his destruction which finally allowed the Soviet people to achieve full victory over the enemy in the Great Patriotic War.

An especially important role in the development of methods of combat operations troops falls to the command cadres. The commander is the main organizer of the battle. He considers and uses under the actual conditions of the situation all factors influencing the organization and conduct of battle. Therefore the intellect, knowledge, will, ability, and military talent of the commander, together with skill in generalizing the experience of the troops, are important factors determining the development of military art.

The character of operations and requirements of operational art and tactical strategy render a large influence on the development of combined-arms combat, since it is not an isolated, independent act of war but an integral part of an operation.



In World War I offensive operations were developed, as a rule, to an insignificant depth. The mobility necessary for development of a tactical success in an operation did not exist. This character of operations also had an influence on the development of the combined-arms combat. With the establishment of a solid front all tactics essentially were reduced to position defense and actions during breakthrough of defensive positions in a tactical zone. Thus on the first day of an offensive infantry divisions usually were given the mission of penetrating only one position; subsequently breakthrough of the following position was prepared; and so on.

In World War II the character of offensive operations was changed sharply. In operations of the Soviet Army the tactical zone of defense of enemy was usually broken by rifle troops and the development of a tactical success into an operational one was carried out by tank and mechanized formations and armies. In accordance with requirements of operational art, the order of the day imposed on rifle formations of the first echelon was breakthrough of the entire tactical zone of defense of the enemy, in order to ensure favorable conditions for the introduction into the battle of subsequent swift actions of tank and mechanized formations.

Carrying out operations to a great depth demanded conducting continuous combats of growing intensity at high tempo and for many days. In connection with this, further development was given not only to methods of breakthrough but to methods of conducting battle at operational depths: rapidly surmounting hastily occupied defensive boundaries and water barriers, pursuit, meeting engagement, encirclement, city warfare, hasty transition to defense in the course of the offensive, and others.

The change in the character of contemporary operations is an important factor determining the character and methods of conducting combined-arms combat; therefore development of the theory of tactics is possible only by taking into account the character of operations and of war as a whole.

Inasmuch as battle constitutes a bilateral process of armed conflict, the organization and quality of enemy troops and his methods of conducting combat actions also affect the development of the combined-arms combat. In the first period of the Great Patriotic War, when the enemy defense was shallow, Soviet troops broke through it in a single-echelon formation of units and formations. When the enemy shifted to position defense in depth our troops began to use deeply echeloned combat formations, while the methods of artillery preparation and support of the attacking infantry and tanks were changed.

A great influence on development of the combined-arms fight is rendered by the level of development of military theory. This is why the degree of correctness of the development of military theory, the extent to which it corresponds to combat practice, and how well the troops have mastered its basic aspects in the course of combat training are to a great degree critical factors for success in combat action. The more deeply and fully all factors influencing the character of armed conflict are understood and considered and the better the methods of combat action are developed, the fewer will be the errors in war and the greater will be the victories achieved by high military skill.

Experience shows that theoretical military thought has not always played a preeminent role in all countries. Advances or lags in military theory have always been due to character of the social and state order: to the method used by military theoreticians of one or another state, the existence of combat experience and the skill to evaluate it, and the scope of military-scientific work (degree of participation of generals and officers in theoretical development of new problems, the scale of experimentation, latitude for creative discussions, etc.).

Lags in military theory, its inability to make timely discovery of new phenomena in military art, have led in the past to great sacrifices in the course of war. One of the serious deficiencies of prewar theories, as witnessed by the experience of past wars, was underestimation of fire capabilities and the degree of the influence of fire on conducting combat actions, which involved an incorrect approach to the solution of a number of fundamental questions of practice.

Thus before World War I, in spite of sharply increased firepower, the main means of offensive was considered to be the infantry; its penetration ability was evaluated by the force of the bayonet attack. Artillery preparation for attack was not provided by regulations and was not carried out at the beginning of the war. Offensive action was conducted in excessively dense formations. The combat formation of the infantry contained no artillery accompaniment. All of this led to fruitless and unsuccessful attacks and huge losses.

Toward the end of 1914 the trained contingents of infantry of all the warring armies had been almost completely knocked out of action.

Deficiencies in military theory ensuing from underestimation of firepower on the battlefield were characteristic of certain armies before World War II also, a weakness which did them considerable damage in the course of the war.

A serious cause of lags in military theory in the past was incorrect regard for the combat experience of past wars particularly of the most recent great war, and the tendency to rely on this experience in spite of changes in military affairs occurring after war. Especially dangerous is devotion to past combat experience when in fact profound qualitative and quantitative changes have taken place in the means of armed combat and in the technical equipment of armies since the previous war.

#### Means of Combat Applied in the Contemporary Combined-Arms Combat

The contemporary period is characterized by the appearance and rapid development of a number of qualitatively new means of combat, by significant improvements of earlier forms of weapons and materiel, and by full motorization of army and its intensive mechanization. Let us consider the basic forms of weapons of foreign armies.

The main place among new means of combat is occupied by nuclear weapons, rockets, and electronics.

Nuclear weapons. Of all the means of destruction nuclear weapons possess the greatest force of physical and moral effect and therefore render a decisive influence on the character of combat actions.

In a comparatively short period nuclear weapons have passed through a rapid course of development. The first nuclear explosives had power of about 20 kt and their only means of delivery was by strategic bomber; at present nuclear explosives have been created with a force of from several tons to several tens of millions of tons. Nuclear weapons, according to the foreign press, can be delivered by almost all forms of combat aircraft, by rockets of various types, by artillery systems (even down to the Davy Crockett recoilless rifle), and also in the form of torpedoes, mines, land mines, and other means. They have entered the arsenals of all types of armed forces and have been introduced on the operational and tactical scale.

The swift quantitative and qualitative development of nuclear weapons and their wide introduction into the armed forces arise from the great destructive properties of these weapons, their ability to eliminate personnel, armament, and materiel and to destroy various structures over a great area almost simultaneously and instantaneously.

The basic destructive factor of the nuclear explosion in most cases is the shock wave. Approximately half the energy of the nuclear explosion is expended on its formation. It can cause casualties, destroy structures, and damage materiel and property at a considerable distance from the center (epicenter) of the explosion. Damage can be inflicted both as result of direct and indirect effects of the shock wave (flying fragments, pieces of destroyed structures and buildings, trees, stones, lumps of earth, etc.). In Hiroshima and Nagasaki, for instance, cases of mortal wounds from the direct effect of the shock wave were observed at distances up to 800 m from the epicenter of the explosion, while wounds from the indirect effects were observed at up to 3200-3600 m.

A very important destructive factor of the nuclear explosion is light [thermal] radiation,<sup>1</sup> on which about 35% of the energy of the explosion is expended. Personnel subject to the thermal radiation receive various degrees of burns, which are caused both by the direct action of thermal radiation on the skin and also due to fires and the ignition of clothing, weapons, and combat equipment. Thermal radiation causes ignition, charring, and melting of combat equipment and arms. According to the American press, from 20 to 30% of the people killed at Hiroshima and Nagasaki died from the direct effect of thermal radiation. It is considered that burns from thermal radiation would probably be fatal to almost all personnel on open terrain at distances up to 1800 m and more from the epicenter of the explosion. Even at distances of 3600-4200 m from epicenter cases of serious burns were observed.<sup>2</sup> Thermal radiation can strike the eyes and lead to temporary blindness. The blinding effect of the nuclear explosion is especially strong at night.

An important feature of the nuclear explosion, distinguishing it from the explosion of ordinary ammunition, is the fact that it is accompanied by the emission of invisible rays, which possess high penetrating ability and are harmful to the human organism. Penetrating radiation, which represents about 15% of the total energy of a nuclear explosion, acts for 10-15 seconds after explosion. As a result of its destructive action, humans develop radiation sickness.

The degree of radiation sickness is determined basically by the dose of radioactive irradiation received by the organism. Depending upon dose we distinguish three degrees of radiation sickness: first, a dose of 50-200 roentgens; second, a dose of 200-300 roentgens; and third, over 300 roentgens. A single dose of up to 50 roentgens and a multiple dose (spread over 10 days) of up to 100 roentgens have practically no effect on a healthy adult.

A peculiarity of radiation sickness is the presence of a latent period with a duration of several hours to two to three weeks. During this time the victim feels healthy; then, depending upon the dose of radiation, he will fall ill. In radiation sickness of the second and third degrees the first symptoms of disease appear in all victims during the first day.

Finally, a nuclear explosion causes radioactive contamination of ground, air, and various objects both in the region of the actual explosion and also along the trace of the radioactive cloud. Especially intense radioactive area contamination appears after surface bursts. Radioactive contamination also represents a great danger to troops and renders a considerable influence on their actions.

The character and degree of the destructive effect of a nuclear explosion depend on the power of the nuclear charge, the type of burst (air, ground, underground), the distance from the center (epicenter) of the explosion, the position at the moment of the explosion, the degree of protection, meteorological conditions, and the character of the terrain.

The force of a nuclear charge (and consequently the power of the explosion) is customarily characterized by a TNT equivalent, i.e., by the quantity of TNT whose explosive energy is equal to that of the given nuclear charge. Depending upon their power, nuclear charges are customarily divided into calibers: low, with a TNT equivalent of a few thousand tons; medium, tens of thousands of tons; and high, hundreds of thousands of tons. Charges with power of less than one thousand tons are called super-low power or super-low caliber.

The radius of the destructive effect of a nuclear charge of low caliber is usually determined in hundreds of meters while that of medium and high caliber charges is measured in kilometers. In all cases the nuclear weapon is a weapon of area destruction.

<sup>1</sup>Russian term translates literally as "light radiation"; hereafter it will be translated as "thermal radiation."

<sup>2</sup>Deystviye yadernogo oruzhiya (Effect of nuclear weapons). Translation from English, Moscow, Voenizdat, p. 349, 1963.

The tremendous destructive force of the nuclear weapon permits a sharp reduction of density of artillery and aircraft necessary for destruction and rout of enemy defenders. For instance, in the period of World War II for destruction of a company area of defense equipped with trenches required up to one hundred cannons and mortars and several thousand mines and shells, delivered in the course of 15-20 minutes, or several hundred tons of high-explosive bombs, dropped from tens of aircraft; now it is possible to match this with a single nuclear weapon of appropriate power.

This means that the nuclear weapon does not simply increase firepower in its former understanding but stands out as an independent means of destruction of formations of troops and as a solution to other important tactical problems. In virtue of this the nuclear strike cannot be identified with fire of ordinary means but is assigned the role of a support means, of fire support of combat actions of troops. There are radical qualitative distinctions between a nuclear explosion and the explosion of ordinary ammunition. Fire in its former sense falls far short of embracing the total content of the destructive factors of the nuclear weapon. The basis of its effect lies not in chemical reaction, as during the explosion of ordinary ammunition, but in liberation of energy by means of splitting or fusion of the atomic nucleus. The destructive factors and the ability of the nuclear weapon to solve problems whose execution would demand the application of fire, maneuver, and attack by troops transform the nuclear strike into an independent element of combined-arms combat.

Further development of the nuclear weapon follows the line of improvement of its technical characteristics, increase in destructive effect, and creation of charges of various power and assignment. In addition to increasing the power of nuclear charges, work is underway to create nuclear ammunition with strength of 1 kt down to several tons. For instance, the United States Army has adopted as armament so-called small-size nuclear weapons - nuclear charges with a force of 20-200 tons for the recoilless Davy Crockett gun.

A fundamental feature of nuclear explosions with a force of less than 1 kt is the fact that they injure personnel mainly with penetrating radiation. Thus, in the foreign press it is noted that during explosion of a nuclear charge with a power of 1 kt the area over which exposed personnel will receive a dose of radiation of 200 roentgens is approximately five times greater than the area in which second-degree burns can be expected and exceeds by several tens of times the zone of the destructive effect of the shock wave. Here injury is due not to gamma radiation but to the neutron flux, making up 60-70% of the penetrating radiation. Inasmuch as a neutron flux possesses greater penetrability than gamma rays, protection of personnel is complicated and consequently the probability of their destruction is increased. As regards radioactive area contamination, according to the foreign press it will be insignificant and levels of radiation will drop quickly.

Since a nuclear weapon with a force of less than 1 kt has a comparatively small radius of destruction, it is preferred for use in direct proximity to friendly troops for destruction of objectives on which it is impossible to use nuclear weapons of medium and even small calibers. It is believed that such small objectives as the platoon and company will be profitable targets for destruction by nuclear weapons. The nuclear weapon will become the basic means of destruction of enemy not only in formations but also in units and subunits,<sup>1</sup> thanks to which the effectiveness of action by ground forces will be increased considerably.

The possibilities for creation of new types of nuclear weapons are still far from exhausted. In the pages of the western press it is noted that in the United States work is being conducted on creation of the so-called neutron bomb. The shock wave and thermal effect during the explosion of a such bomb can be held to a minimum. It will not create radioactive contamination. Its basic destructive factor will be a neutron flux affecting personnel over a radius of 400-800 m. It is considered that application of such a weapon will extraordinarily hamper the protection of troops on the battlefield at the same time will allow friendly forces to attack the enemy immediately after the burst and seize practically undamaged objects and areas.

<sup>1</sup>Literally "subdivisions," i.e., probably regimental and battalion units [Tr. Ed. note].

Creation of nuclear ammunition on the basis of the use of new fissionable materials is not excluded either. In particular, the French press has indicated the possibility of creating nuclear ammunition from Californium, whose minute critical mass (1.5 g) might permit creating nuclear charges for even small arms.

The outstanding achievements in the development of our native nuclear physics and technology ensure the maintenance of our defensive capability on the highest level.

Chemical weapons. Chemical warfare was applied for the first time on a large scale by Imperialist Germany on the battlefields of World War I. In spite of the comparatively low toxicity of then-existing poisoning substances (applied, moreover, only within the limits of the tactical rear), the total number of men disabled by chemical weapons during the war was more than one million.

In 1927 the Soviet government, in conformity with its constant policy directed at strengthening the peace and the safety of peoples, subscribed to the Geneva Protocol prohibiting the use of poisonous substances and bacterial agents in war. However, certain imperialistic states, in spite of repeated proposals of Soviet government to prohibit use of all means of mass destruction, have not yet ratified the Geneva Protocol. This obliges personnel of Soviet Armed Forces to study the combat qualities of chemical weapons and to know how to conduct combat actions during their use by an enemy.

Abroad chemical weapons are considered to include poisonous substances and the means of which they are applied. The basis of the injurious action of chemical weapons is poisonous substances, which possess the following combat properties:

- inflict mass injury to unprotected personnel over large areas;
- penetrate tanks and other combat machines, shelters, and structures lacking special equipment, injuring people in them;
- retain their injurious effect in the air, on the ground, and on various objects for a definite time after their delivery.

Depending upon the length of time for which the injurious effect is retained, poisonous substances are divided into unstable and stable types. The unstable types include rapidly evaporated substances which retain their destructive effect on open terrain for several minutes. Stable substances are those which remain injurious for several hours to several days.

In terms of the character of action on the human organism, in the armies of the capitalistic states poisonous substances are subdivided into nerve (paralytic), general toxic, blister, suffocating, and irritating types.

Toxic substances of the neuromuscular type attack the central nervous system after entering the organism through the respiratory or digestive tract or the integument. These include sarin, soman, and tabun. They possess a high degree of toxicity. The lethal concentration of vapors of these substances for inhalation of 1 minute is up to 0.05 mg/liter. In small concentrations they cause temporary weakening of vision as a result of sharp narrowing of pupils (miosis) and respiratory difficulty of breathing (retrosternal-asthmatic effect).

According to reports in the foreign press, in the United States development is under way of new toxic substances of neuromuscular action, called V-gases, which are supposedly hundreds and thousands of times more toxic than other substances of this group. Thus, while lethal injury to a human through the skin requires 3.5 g of tabun,<sup>1</sup> a total of 2 mg of V-gases, i.e., almost two thousand times less, would have the same effect.

<sup>1</sup>Los, K. Sinteticheskiye vady (Synthetic poisons), Izd. in. lit., p. 226, 1963.

The high toxicity of these poisonous substances is responsible for the extraordinarily small norms of their expenditure per unit area. According to calculations of the American Chemical Society, a fighter-bomber, using chemical ammunition, can affect troops over an area of 40-60 km<sup>2</sup>, and a bomber of the B-52 type can cover an area of up to 250 km<sup>2</sup>.

Besides V-gases toxic substances of the systemic, blister, and suffocation types and irritants can be used. At present the latter are considered in capitalistic countries to be training gases and also are used by the police.

The imperialistic states included in aggressive military blocs are seeking new, even more toxic poisonous substances, together with improved of the means and methods of their application. Therefore we cannot exclude the appearance of toxic agents displaying effects on the human organism which are new in principle. Thus, for instance, the foreign press reports that in the United States work is being conducted on the creation of so-called psychochemical gases. Acting on the central nervous system, they disturb normal psychic activity or normal perception of the environment, or they cause such physical deficiencies as temporary blindness, deafness, limitation of motor functions or of the functions of individual organs.

**Bacteriological weapons.** The use of bacteriological weapons, like that of chemical types, is condemned by the Soviet government, which signed the Geneva Protocol. However, certain imperialistic states have bacteriological weapons and have used them in war. Thus, as the 1949 Khabarovsk trials of Japanese military criminals showed, Japanese imperialists used bacteriological weapons in the war against China. The American imperialists used this weapon in the war against the Korean people (1950-1953) and also on the territory of Chinese Peoples' Republic.

Bacteriological weapons are pathogenic microbes, and the toxins produced by them are intended to destroy humans, agricultural animals, and plants. A broader concept is that of the "biological weapon system" which, besides pathogenic microbes and their toxins, also carries various insects, ticks, and other carriers of microbes.

Bacterial means for human destruction include botulin and plague incitants: tularemia, brucellosis, anthrax, glanders, cholera, typhus, smallpox, and other diseases.

Bacteriological weapons can cause mass contagious diseases and poisoning of people and animals. This property is due, first, to the fact that pathogenic microbes and toxins can affect man or animal by acting on their organisms in insignificantly small quantities, and secondly, to the ability of certain diseases to be transmitted from an infected to a healthy being and to spread rapidly among people and animals, causing mass epidemics and epizootic infections, especially during crowded location of troops and unfavorable medical-hygienic conditions in the region of combat actions.

Another peculiarity of the bacteriological weapon is the difficulty of detection of pathogenic microbes and toxins in the environment and the ability of certain of them to retain their ability to injure for a prolonged time — from several days and weeks to several months.

The difficulty of establishing the fact that an enemy has used a bacteriological weapon, and the even greater problem of determining the causative agent, are explained by the fact that under natural conditions the bodies of humans and animals, the air, water, and especially the soil are constantly inhabited by a huge quantity of harmless microbes which in dimensions, forms, and many biological properties do not differ from the pathogenic types, which have no specific color or odor. Detection in the environment of bacterial agents applied by an enemy requires a certain amount of time and the use of special equipment.

An essential feature of the bacteriological weapon is the presence of a latency (incubation) period with a duration of several hours to several days. For infection by plague it is 1-3 days, for tularemia 3-6 days, typhus 10-14 days, brucellosis 2-3 weeks. During this period infected persons display no symptoms and do not lose their combat effectiveness.

Bacterial agents atomized in the air in the form of aerosols are able to penetrate together with air, into unsealed structures and combat vehicles, and to contaminate both personnel and objects in them and also the internal surfaces of the vehicles and structures.

According to the views of the military leaders of the imperialistic states, bacteriological weapons can be used not only in the operational-strategic scope but also on a tactical scale. According to the American Chemical Society, 200 kg of bacteriological prescriptions (in practice one rocket) is sufficient for infection of an area of up to 80,000 km<sup>2</sup>, on which 25-75% infection of personnel may be expected.

All this permits us to consider that troops will be forced to conduct combat actions not only during massive enemy use of nuclear weapons but also during wide use of toxic substances and bacterial agents.

Rockets. At present various types of guided and unguided rockets of tactical, operational-tactical, and strategic assignment are available. Rocket weapons are widely used in all branches of the armed forces and by all arms of the troops. Special units armed with these weapons have been created.

The rapid development and improvement of rockets are due to their great combat capabilities and are inseparably connected with the high level of development of contemporary productive forces and with the latest achievements in physics, chemistry, telemechanics, radioelectronics, automation, metallurgy, and other sciences.

One of the most important combat characteristics of rockets is the possibility of guiding them to the target with consequent high striking accuracy. Ordinary artillery shells after leaving the gun barrel or an aerial bomb after release from the aircraft continue their motion according to the laws of ballistics, and there is no possibility of changing their flight in a needed direction, even if deviation from the target is discovered. Possible deviations of a guided rocket can be detected and eliminated with the help of various automatic instruments and devices. Thanks to this the area of their application is expanded considerably and the accuracy and effectiveness of their striking action are increased.

According to statistics, in the First World War the average percentages of target hits were: for artillery of large caliber, 2.7%; for torpedoes, about 11%; and for aerial bombs, about 1%. In the Second World War the percentages of hits for these weapons were, respectively, up to 3.6%, about 15%, and about 7%. The percentage of hits by guided rockets, according to the foreign press, reaches and even exceeds 46%.<sup>1</sup>

A very important combat characteristic of rockets is their practically unlimited range (within the limits of the earth's surface). In the past war the range of howitzers did not exceed 20 km and that of cannons was 30-35 km. Rockets have ranges calculated in hundreds and thousands of kilometers and therefore can strike not only targets at tactical and operational depth but also strategic objects in the deep rear. With the appearance of nuclear weapons there was a fantastic increase in the firepower of the armed forces, but only with the appearance of rockets were the conditions created for the most complete use of this power to inflict heavy losses on an enemy without the need for direct contact with his troops.

The use of rockets permits a sharp increase in the power of the warhead by loading it with large quantity of ordinary explosive or with special devices. Thanks to this advantage rockets are the most effective carriers of nuclear and thermonuclear charges.

The important combat characteristics of rockets include their independence from season, time of day, and meteorological conditions, and also the difficulty of their interception and destruction in flight.

The fact that launchers require no heavy gun carriages, barrels, and antirecoil devices, together with simplicity of construction and use, make this weapon

<sup>1</sup>Mcrozov, F. Spravlyayemoye raketnoye oruzhiye (Guided rocket weapons), Moscow, Voenizdat, p. 12, 1961.

comparatively light and mobile, permitting its use under the most varied conditions of combat.

Rockets are divided into ballistic and winged types according to their technical construction, aerodynamic qualities, and the character of trajectory.

Ballistic rockets may be guided or unguided. Unguided ballistic rockets possess shorter range than guided ones. They can be used with success against tactical targets, since launching is from mobile launchers without the use of control and guidance equipment.

Winged rockets constitute pilotless jet aircraft-missiles which have airfoils (wings) and which are controlled over the entire trajectory of flight. The speed of winged rockets as a rule does not exceed that of jet fighter airplanes. Therefore they can be detected comparatively easily by radar, intercepted and destroyed by antiaircraft rockets and fighter airplanes. The deficiencies of winged rockets include the fact that their control and guidance systems can be subjected to interference by the enemy and that the radio stations for control of the rockets in flight expose the firing sites.

Depending upon the location of launch and target, all types of rockets may be divided into four classes: "surface-to-surface," "surface-to-air," "air-to-air," and "air-to-surface" [SSM, SAM, AAM, ASM]. For the Navy the classification is somewhat different but is based on the same principle.

The broadest class is that of "SSM". According to combat assignment they are divided into tactical, operational-tactical, and strategic types.

Tactical missiles have ranges of up to several tens of kilometers and are intended for striking targets located at tactical depth. They operate directly in the combat structures of combined-arms formations and units on the battlefield and execute missions in their interests. Fire (launch) positions for these weapons are usually several kilometers from the front.

Rockets of tactical assignment have comparatively small dimensions and low weight and are launched from light mobile launchers mounted on motor vehicles with improved roadability, trailers, armored carriers, and tank chassis.

Subunits and units armed with tactical rockets are able to accomplish long marches, to shift position on battlefield rapidly, to open fire in a few minutes, and to execute different missions. The explosive power of the nuclear charges of tactical rockets is equivalent to several hundred to several tens of thousands of tons of TNT.

Operational-tactical missiles have ranges of several tens of kilometers to 1000 km and are intended for striking objectives at operational and tactical depth in the interests of large military formations (armies).

Rockets of operational-tactical assignment are equipped with more powerful nuclear charges, with TNT equivalents of 50-100 thousand tons and more. They have somewhat greater dimensions and weight than tactical types. Launchers for operational-tactical rockets are also mobile and are able to operate under any conditions jointly with combined-arms armies and formations.

In the ground troops of the Soviet Armed Forces the basic forces are rocket formations and units of operational-tactical assignment armed with nuclear and other rockets. Training with combat firing has confirmed high the combat capabilities of these rocket troops: high accuracy of target strike, speed of deployment for launch, and ability to move large distances without loss of combat efficiency.

Although the use of strategic rockets is outside the framework of tactics, the results of their action will have an immediate and direct effect on the character of combat actions of troops, and it therefore has to be considered tactics. Strategic rockets include all guided missiles, regardless of their design, with a range of over 1000 km.



Tests of new multistage ballistic rockets conducted by the Soviet Union brilliantly demonstrated the excellent qualities of rockets of this type. The nose cone of a rocket launched on 20 January 1960 was accelerated to speeds of more than 26,000 km/h. It reached the assigned area, about 12,500 km from the launch site, missing the assigned point of impact by less than 2 km. Repeated launchings of powerful ballistic rockets made since then have also confirmed their high qualities.

Thus, the rocket weapon permits inflicting sudden blows on any objectives at various distances.

Important directions in development of the rocket weapon are decrease of weight and dimensions, simplification of design, increase in combat readiness, invulnerability, reliability, and maneuverability.

Front-line (tactical) aircraft. These are aircraft intended for joint combat actions with ground forces. In spite of the rapid development of rocket technology, aircraft, as before, are a very important means of armed struggle.

The role of front-line (tactical) aircraft in combat actions of ground forces is determined primarily by such combat characteristics as high maneuverability, ability to concentrate forces rapidly in necessary areas and to shift the attack from one objective to another, a combination of independent search and immediate destruction of detected objectives and determination of results of strike.

Front-line (tactical) aircraft are an effective means of antiaircraft defense, reconnaissance, and destruction of mobile and small targets. They also play an important role in landing and transport of troops and materiel.

Depending upon the character of assigned missions, the flight and tactical character of the aircraft and their armament, front-line (tactical) aircraft are subdivided into fighter, bomber, fighter-bomber, reconnaissance, and support types.

The fighter aircraft is one of basic means for destroying aircraft and winged missiles (winged rockets) in the air. Besides covering missions for troops and rear objectives, the uses of fighter aircraft include attacks on various exposed ground objectives (nuclear rockets, aircraft, personnel, combat equipment, and electronic gear) and also conducting reconnaissance.

Contemporary fighter airplanes have supersonic speed and great operating altitude. As a rule they are armed with guided missiles and automatic guns and can use aerial bombs of various types. Special guidance equipment mounted on guided missiles can automatically correct errors in aiming, compute changes of the position of an aerial target, and ensure high accuracy of fire. It is possible to alter the flight trajectory of rocket missiles and to correct deviations of missiles due to errors in aiming, maneuvering of the target, etc.

Bomber aircraft, capable of striking blows of great destructive force at considerable range, are designed to use aerial bombs and missiles of the ASM class to destroy various objectives on the battlefield and in the operational rear of the enemy, including nuclear rockets, aircraft at airports, troops and equipment located in shelters, reserves, control points, and various depots and engineering constructions. Bomber aircraft can be used for conducting aerial reconnaissance.

Bomber aircraft may be either subsonic or supersonic and have considerable altitude capabilities and great load capacity.

New weapons of contemporary bombers are rockets of the ASM class. Such rockets are equipped with motors and can develop high speeds, regardless of the speed of the aircraft. Consequently the bomber need not enter zone of antiaircraft defense around its objective nor even approach it. Its mission consists in delivering a rocket to a certain point. It is clear that in such a situation the vulnerability of the carrier aircraft is considerably reduced.

Contemporary bomber aircraft are equipped to strike more exactly than before ground targets invisible to them owing to clouds and during flight in them, in adverse weather conditions by day and at night.

The fighter-bomber aircraft is a new kind of front-line (tactical) aircraft. Its appearance is due mainly to the creation of small, light-weight nuclear bombs, allowing us to use the fighter airplanes as a bomber. The positive qualities of the fighter-bomber are: multipurpose capability, i.e., the ability to execute missions both of a bomber and a fighter (with carrier dropped); absence of the need for a fighter escort, since they themselves can act as fighters; the complexity of combatting it in the air, due to its great speed and altitude of flight and also its small dimensions, which hamper its detection by radar.

According to reports of the foreign press the fighter-bomber, which can be armed with ASM and AAM, ordinary bombs, and nuclear bombs, constitutes a universal aircraft. It is designated for direct air support of ground forces, for engaging aerial targets, for isolation of the battle area, and also for reconnaissance of ground targets.

Reconnaissance aviation consists mainly of aircraft of the same types used for other purposes but equipped with special equipment for conducting aerial reconnaissance by day and at night by different methods: visually, photographically, and by electronic means. Reconnaissance aircraft can conduct reconnaissance of ground objects from great heights under the most varied conditions of visibility and weather.

A variation of reconnaissance aviation is spotter-reconnaissance aviation intended to provide artillery with reconnaissance data and to correct its fire to targets unobservable by ground points. These consist of spotter aircraft and helicopters.

Support aircraft are of transport, medical, and communications types. Transport aircraft are used to transport troops, drop paratroops, and to supply troops with arms, ammunition, fuel and lubricating materials, provisions, and other material means. Transport aviation consist of transports, helicopters of different types, and VTOL's. Medical aircraft are used for evacuation of injured and sick needing immediate medical help. Communications aviation serves to provide control of troops in different forms of combat activity.

Qualitative changes occurring in the postwar period in all forms of front-line (tactical) aviation have considerably increased its effectiveness in combat and operations. The further development of combat aircraft is following the path of creation of VTOL aircraft, increasing their range and speed, their ability to fly both at the lowest and greatest heights, and equipping them with controlled and homing bombs and rockets and also with various automatic devices for flight control. The development of transport aircraft is taking the direction of providing transportation by air of any armament, including tanks, over great distances.

Artillery. The role of artillery as a means of combat under contemporary conditions is determined, first of all, by necessity and possibility of its wide application for combatting the tactical nuclear means of the enemy, for destroying weapons, personnel, tanks and other combat machines in direct proximity to friendly troops, and also to attack numerous objectives at depth.

After the Second World War, artillery, like other means of combat, underwent qualitative changes. Its development proceed both along the line of the creation of new types of cannons, mortars, and rocket launchers and different forms of ammunition for them, and in the direction of modernization of systems already forming part of the armament of armies.

A qualitatively new direction in the development of artillery was the creation of nuclear ammunition for field artillery. This can be traced especially distinctly in the example of artillery development by the United States Army, for which (according to the foreign press) at present time nuclear warheads have been created for the 280-mm gun, the 203.2-mm howitzer, the 155-mm howitzer, and the the Davy Crockett recoilless gun. Work is being conducted on creating nuclear shells for 105-mm weapons, and tank and antitank cannons.

The basic advantage of barrelled nuclear artillery over other means of delivery of nuclear weapons in the opinion of American military specialists, is high accuracy of firing. Thanks to this it is possible to inflict nuclear strikes on targets located at comparatively small distances from forward subunits of friendly troops and also on important small targets.

Furthermore, it is felt that wide introduction of nuclear ammunition for use with barrelled field artillery will hamper the enemy's struggle with nuclear means, increase the combat independence of combined-arms subunits, units, and formations, and allow flexible maneuvering with nuclear ammunition by air.

Barrelled nuclear artillery has a comparatively small range (for instance, the 203.2-mm howitzer has range of 14.5 km; that of the 155-mm howitzer is about 15 km) and as a rule is intended for support of actions of subunits and units of ground forces. It can be used for nuclear strikes with a power of 2 to 20 kt on troop concentrations, for destruction of tactical means of nuclear attack, on headquarters, and for destroying specially fortified defensive structures. Firing sites are located at short distance from the front line and thus are within the range of enemy artillery fire.

The recoilless Davy Crockett used by the United States Army has a range of 2 km for the light (120-mm) and 4 km for the heavy (155-mm) cannon. This requires that they be placed directly in the combat formation of subunits of the first echelon. Additionally the low TNT equivalent of the nuclear charge (20-200 tons) permits the use of Davy Crockett missiles on targets in direct proximity to friendly troops.

The conventional field artillery of contemporary armies, as in the last war, included howitzers, guns, and mortars. However, the quantity of gun artillery in the composition of combined-arms formations and units has been sharply reduced as compared to that existing in the period of the Second World War. Their armament now consists chiefly of howitzers. For instance, divisions of all types of the United States Army include only howitzers. Inferior to guns in range, they are considerably lighter and have a more powerful shell; consequently they are more effective for fire missions in close combat. At the same time armament of formations of other armies (for instance, British) consists of guns and gun-howitzers.

A valuable quality of cannons is their long range, which is very important for striking enemy objectives located at considerable depth (tactical means of nuclear attack, artillery and mortars, control points, and others). Furthermore, under all conditions of the [combat] situation gun artillery is a powerful and reliable means of combatting tanks, as was shown by the experience of the past war.

An important form of artillery of contemporary armies is the mortar. In the course of the Second World War their total amount was approximately equal to the number of all other artillery cannons. In the armies of all nations the development of mortars is allotted considerable attention at present, since they are considered the most effective means for support of infantry in close combat. Mortars of small caliber (50-60-mm) have been removed from almost all armies, owing to the low effectiveness of their fire. A trend has been observed toward shifting mortars of bigger caliber into lower units. For instance, in the armies of the United States, West Germany [FRG], and France the 81-mm mortar has become the basic weapon of high-angle fire in the infantry company, while 107-120-mm mortars are basic to the battalion.

As compared to other artillery cannons mortars have a number of advantages. They are simple in design, comparatively light in weight, and permit applying high-explosive shells with a high relative weight of explosive charge (which is very important for destruction of heavy field structures); they also ensure a large radius of destruction with the use of fragmentation and fragmentation-high-explosive charges. However, they also have certain inherent deficiencies - limited range, large dispersion, and others - whose elimination is being worked on.

In recent years much development of rocket field artillery has been accomplished. Its advantages are capability of massed fire and great maneuverability. The development of rocket field artillery is proceeding along the line of increasing the number of launching rails, the power of the missile and the range of fire, improvement of accuracy, decreasing the flame from the propelling charge, and reducing loading time.

As a whole the development of artillery is directed towards improvement of such basic combat properties as power and accuracy of fire, range, rate of fire, and mobility.

An important quality of contemporary artillery is its high maneuverability. This is attained by creation of new means of traction, ensuring towing of cannons at high speed, and also by transporting cannons on self-propelled carriages.

In the armies of certain capitalistic states, for instance the United States and France, self-propelled cannons have undergone very great development. It is considered that artillery under mechanical tow is not capable of continuous support of tanks and infantry operating under conditions of application of nuclear weapons. Furthermore self-propelled artillery ensures greater combat readiness than the towed type. Time need not be spent on calling tractors from shelters, coupling and uncoupling, shifting cannons from the traveling position to combat position, etc. Also it is easier to protect the crews from weapons of mass destruction and to reduce their number. Also the amount of equipment subject to entrenchment is reduced, camouflage is improved, columns are shortened, and transport requirements for forcing rivers is reduced. However, self-propelled cannons have limited cruising range and carry a small reserve of ammunition; the work of the crew during firing is hampered; and production of such artillery is more complicated and more expensive. With cannon connected to a tractor the breakdown of one unit automatically disables the other. Considering all this, a number of armies are striving to combine self-propelled artillery with the towed type, depending upon combat purpose.

In connection with the increased role of tanks in combat and the improvement of their tactical-technical characteristics, antitank artillery is of great significance under contemporary conditions. Its development is taking several directions.

The newest and apparently most promising of these are antitank guided missiles (PTURS). Their advantages over other antitank artillery systems include great range of effective fire, accuracy of fire, high armor-piercing capability, maneuverability, and ease of servicing.

Existing antitank guided missiles can effectively combat tanks at ranges up to 3 km and more, with a high hit probability and able to pierce up to 600 mm of armor. Such missiles can be fired from light ground launchers or without them, or from launchers mounted on motor vehicles, trailers, armored carriers, tanks, helicopters, and low-speed aircraft.

Antitank guided missiles also have essential deficiencies. In particular, they cannot be used against tanks at close range (to 500 m), especially upon a sudden appearance of tanks. Their aiming requires open terrain and the tank must be visible. They have low speeds of flight, which facilitates countermeasures. Their accuracy is in greatly dependent on the mental state of the operator.

All this, however, does not minimize the value of PTURS. They are continuously improving and their quantity is rapidly increasing. Indubitably this new form of antitank weapon will find application not only against tanks but also for attacking other important targets on the battlefield.

In a number of countries (the United States, England, France, and others) armies have recoilless antitank cannons. Their basic merit is the absence of recoil, which allows firing from light-weight cannons of simple construction (without antirecoil devices). The possibility of using shaped-charge missiles considerably increases armor-piercing capability (to 400 mm). These cannons can also be used for the destruction of personnel and enemy fire means.

The deficiencies of recoilless guns include the betraying effect of the powder gases, the low utilization factor of the charge, insufficient range (about 1000 m), and their comparatively great height, which hampers their camouflage and use in the combat formation of the infantry.

**Tanks.** The role of tanks in contemporary combat has been considerably expanded, since they possess great resistance to enemy nuclear strikes, can use nuclear weapons most effectively, and can successfully conduct combat actions on contaminated terrain, by day and night, and at a high tempo.

Contemporary tanks possess considerably greater firepower than the tanks of the Second World War. This is achieved by application of large-caliber cannons with high muzzle velocities, improved fire-direction mechanisms, and mechanization of loading. While up to the end of the Fifties most American tanks were armed with 90-mm and British with 83.8-mm guns, the 105-mm gun is now used in these countries for basic types of tanks.

Tanks are equipped with firing-platform stabilizers in one or two planes, which sharply increases the probability of hits during rapid firing; with monocular range finders, ensuring determination of target ranges of 500-4400 m; and with infrared night sights which permit aimed fire at night at ranges up to 1000 m.

The basic armament of tanks continues to be tube artillery. For use against armored targets, in certain countries (England and FRG) preference is given to subcaliber shells, while in others (France) shaped-charge shells are preferred. As a supplement to the gun armament PTURS have appeared on certain foreign tanks. Work is being conducted on the design of tanks for which guided missiles will be the main armament.

The maximum speed of tanks of basic postwar types varies from 40 to 65 km/hr and their cruising range is 400 km and more.

Considerable attention is allotted to hermetic sealing of tanks, which is connected both with efforts to expand the ability of tanks to surmount water barriers by traveling on the bottom and also to guarantee protection of crews from weapons of mass destruction. Tanks equipped with an additional attachment can surmount water barriers with depths of 4 m and more. To increase the capabilities of tanks during action on contaminated terrain they are equipped with filtered ventilation systems, which ensure creation of overpressure and thereby prevent penetration of radioactive substances into the combat and control compartments.

The armor protection of contemporary tanks is thicker than that of tanks of the Second World War, reaching 200 mm and more. However, even this armor is pierced by contemporary antitank weapons. Therefore work to increase the protective properties of tanks is being conducted along other lines: new materials for armor, reduction of the height and silhouette of tanks, increase of battlefield maneuverability, and others.

Depending upon weight, armament, and combat use, tanks are subdivided into light, medium, and heavy types.

Light tanks - combat machines weighing up to 20 t - are designed mainly for execution of reconnaissance and other special missions and are usually amphibious.

Medium tanks - combat machines weighing up to 40 t - constitute the basic tank type. They are the main shock force of armored troops and are designed for destruction of tanks, artillery, and personnel.

Heavy tanks - combat machines weighing over 40 t - are designed chiefly for destruction of tanks and also artillery and personnel. Furthermore, they can be used to suppress and destroy field defensive constructions of the enemy and to penetrate strongly fortified defensive positions.

Means of organic antiaircraft defense. To combat enemy air, systems organic antiaircraft defense use fighter aircraft, guided antiaircraft rockets, artillery, machine guns, and electronic devices. Furthermore, against low-flying air targets, especially piston aircraft, helicopters (VTOL's), and automatic balloons, massed fire of small arms by subunits is used.

A qualitatively new means of contemporary organic antiaircraft defense is the guided antiaircraft rocket. These combine great speed, high ceiling, and ranges of several tens of kilometers with high strike accuracy, which is ensured by guidance of the rocket during flight. In the Second World War antiaircraft artillery expended on the average 600, and sometimes a thousand, shells for every aircraft brought down; it is now possible to destroy an aircraft with one rocket.

Flight control of rockets and guidance to the target are carried out from ground guidance stations. Also these rockets can have homing guidance systems, ensuring reliable destruction of air targets.

Guided antiaircraft rockets with nuclear charges are designed for destruction of formations and especially important single aerial targets. They can also be applied for striking ground targets.

In certain armies guided antiaircraft missiles have been developed for infantry subunits (for instance, the Redeye missile in army of the United States). These missiles are intended for use against low-flying aircraft (up to 4 km), helicopters, and winged rockets, and also against ground objectives (tanks, artillery, infantry, and others). The light weight (4.5 kg) and small dimensions of the missile enable it to be carried and deployed on the battlefield by one person.

Organic antiaircraft artillery consists of small-caliber (20 to 60 mm), and medium-caliber (60 to 100 mm) antiaircraft artillery. In the postwar years the qualitative composition of antiaircraft artillery has improved considerably and its combat capabilities have increased noticeably. To the armament of troops there have been added antiaircraft battery complexes (cannons, antiaircraft fire directors [PUAZO], and spotting stations [SON]), which ensure the possibility of striking aerial targets under any weather conditions both by day and by night. Antiaircraft subunits are equipped with improved radar stations and fire control systems. All antiaircraft cannon have automatic attachments for loading and also special actuators for fast pointing. In the development of small-caliber antiaircraft artillery a tendency is observed to create complex installations (paired, tripled, and quadrupled), ensuring high rates and density of fire.

Electronic means are used for timely detection of enemy aircraft and for notification of the antiaircraft defense and troops, to provide for response by fighter aircraft, antiaircraft artillery, and rockets, and also for countermeasures against enemy electronic devices. Existing radar stations permit detecting aircraft at great distance and determining their coordinates at any time of day during various weather conditions.

Small arms. These weapons, as before, remain the mass weapon of personnel of motorized rifle subunits and finds wide application in close combat.

Special features of the small arms of contemporary armies are: fully automatic a comparatively high degree of uniformity (a single cartridge for different weapons), high maneuvering capabilities, convenience of use when firing on the move and also from armored carriers, universalization and reduction of forms of small arms.

An important form of armament for motorized infantry subunits in a number of armies is the hand-held antitank grenade launchers or the rocket-powered antitank gun. They have effective range of up to 400 m and can pierce armor up to 300 mm thick.

One type of armament for personnel of subunits of all branches is the hand grenade.

Along with development of the above-considered weapons, in recent years great success has been achieved in development of engineering techniques, means of transporting troops, reconnaissance, communication, control, and defense against weapons of mass destruction.

Qualitative changes in means of combat, the appearance of new forms of weapons and combat equipment, and sharply increased combat capabilities of troops have brought about radical changes in the character of contemporary combined-arms combat.

#### Characteristics of Contemporary Combined-Arms Combat

Each battle, even those conducted in the same operation and at the same time, has its own unique peculiarities, determined by actual conditions of the situation. At the same time combined-arms combat as a phenomenon of armed struggle, independently of its form and the conditions under which it is carried out, has certain inherent general characteristic features. Such features of combined-arms combat are customarily understood to be the most important of its properties and qualitative peculiarities which in their totality reveal the character of battle in this or that war, and at a particular stage in the development of military art.

Equipping troops with contemporary weapons and latest materiel has created new conditions of combat actions, arising from great changes in the methods of conducting them. As a result new characteristics features of combined-arms combat have appeared, distinguishing it from that of the past war.

Contemporary combined-arms combat is characterized by broad application of nuclear weapons and other powerful means of destruction, greater than ever before, by decisiveness, high maneuverability, dynamic character, rapid and sharp changes in the situation, irregularity of development on the front and in depth, and a great spatial scope.

Wide application of nuclear weapons and other means of mass destruction. The armies of a number of imperialistic states have nuclear weapons and other means of mass destruction. Our forces have nuclear weapons and means of their delivery in sufficient quantities.

The contemporary development of industry permits production of nuclear warheads and delivery means in large quantities. In the press, for instance, it was reported that by the beginning of 1963 the United States, according to calculations of foreign scientists and military specialists, had approximately 40 thousand nuclear warheads of different sizes.<sup>1</sup> The American physicist R. Lapp, in the book "Kill and Overkill," published in 1962, indicates that at that time the reserves of nuclear weapons in the United States "exceeded 30,000 megatons. Secretary of State Rusk calculated that by 1966, at the present rate of production, reserves of ammunition will twice exceed this figure."<sup>2</sup> For comparison, in the course of the Second World War power of all ammunition expended was equal to only about 3 million tons of TNT.

Along with nuclear charges contemporary armies also have large quantities of means for their delivery, including those in tactical units. Thus in a mechanized division of the United States Army, after the creation of the nuclear shell for the 155-mm howitzer and its replacement of the 105-mm howitzer virtually all artillery became nuclear. Now in a single division more than 90 different weapons using nuclear ammunition can be counted.

Consequently, under contemporary conditions the enemy also has all prerequisites for mass application of nuclear weapons, which will be the main means of destruction. This determines one of the basic features of contemporary combined-arms combat.

<sup>1</sup>"Pravda," 17 January 1963.

<sup>2</sup>Lapp, R. Ubiystvo i sverkhubiyatvo (Kill and Overkill), Moscow, Voenizdat, p. 134, 1964.

Wide application of nuclear weapons by both sides will radically alter the entire situation on the battlefield. Besides destruction of troop concentrations and other objectives, nuclear strikes will inevitably lead to tremendous destruction, to the formation of large fires and floods and to extensive zones of radioactive contamination.

The possible scales of radioactive contamination may be judged from the nuclear explosion of great power set off by the Americans on Bikini atoll on 1 March 1954. The dimensions of the contaminated region were 350 km downward (from the center of the explosion), 32 km upwind, and 65 km in the transverse direction. The total area of contaminated territory was 18,000 km<sup>2</sup>.<sup>1</sup> Contamination here was so strong as to present unconditional danger to the lives of unprotected people.

During wide application of nuclear weapons radioactive contamination will become the most important factor of the operational situation and have a major influence on the character and methods of troop actions. Depending upon the conditions of the situation, subunits will have to bypass zones with high levels of radiation or, when bypass is impossible, they will have a choice of crossing these areas at high speed in tanks, armored carriers, and other combat machines with the necessary measures of protection, waiting for a drop in the high levels of radiation, or conducting combat actions on the contaminated terrain.

**Decisiveness.** The decisive character of contemporary combined-arms combat is determined by two main causes: the political content of future war and the use of extraordinarily destructive and powerful means of destruction.

Experience shows that the more decisive the aims pursued in war, the more violent is the character of the conflict. This law is uniquely emphasized by V. I. Lenin: "The more deeply political a war is, the more military it seems; the more deeply political it seems, the less deeply political it is."<sup>2</sup>

A future nuclear war, if the imperialists succeed in unleashing it against the countries of the socialist camp, in its social essence will be a decisive collision between countries of two opposite world social systems — the capitalistic and the socialist.

"If the imperialistic aggressors nevertheless dare to unleash a new world war," states the Program of CPSU, "peoples will no longer suffer the existence of that order which plunged them into devastating wars. They will sweep away and bury imperialism."<sup>3</sup>

An acute class character of war, excluding any possibility of compromise, predetermines an extreme resoluteness of its political aims, which in combination with the specific peculiarities of contemporary means of struggle will inevitably be responsible for the profoundly decisive character of military actions.

On a tactical scale decisiveness of combat actions is determined on the one hand by the possibilities created by new means of struggle, and on the other by the requirements of strategy and operational art, aimed at maximum exploitation of the results of the application of these means for successful solution to problems ensuring from the political goals of the armed conflict.

Decisiveness is expressed in the goals of combat and the methods of their achievement, in the ability of commanders to make bold decisions and to implement them persistently, in energetic, active, and selfless actions of troops, in their desire to achieve victory through the total destruction of the enemy. The high

<sup>1</sup>Deystviye yadernogo oruzhiya (The effect of nuclear weapons), Translation from English, Moscow, Voenizdat, p. 451, 1963.

<sup>2</sup>Lenin, V. I. Zamechaniya na sochineniya Klauzevitsa "O voyne" (Remarks on the Clausewitz compositions "Vom Kriege," Moscow, Gospolitizdat, p. 12, 1939.

<sup>3</sup>Programma Kommunisticheskoy partii Sovetskogo Soyuza (Program of Communist party of Soviet Union), Izd. "Pravda," p. 59, 1961.



morale of the personnel of the Soviet Army, the powerful means of struggle at its disposal, and also the advanced character of our military science ensure Soviet forces a real possibility of achieving the most decisive goals of combat actions. However, for these aims to be achieved all personnel of our army must be instilled with an inflexible will to win, superb and skillful use of their weapons, and must manifest a high degree of activity, boldness, persistence and initiative, constantly striving to impose their will on the enemy while holding the initiative in their own hands.

High maneuverability. This feature of contemporary combined-arms combat is first of all the result of the application of nuclear weapons, the total motorization of forces and the absence of a continuous front.

The use of nuclear weapons permits inflicting decisive blows on an enemy in the shortest periods and creation of breaches and breaks in his combat formation, ensuring swift advance of our troops. At the same time total motorization of forces has considerably increased the speed of their movement on the battlefield, making possible swift exploitation of the results of nuclear and fire strikes, the shifting of forces from one direction to another, swift reinforcement of troops where they will attain the greatest success, and rapid assault upon the enemy after nuclear strikes.

The absence of a solid front, the considerable dispersion of troops, the presence of open flanks, and large intervals all favor maneuvering actions, the accomplishment of bold envelopments, deep bypass, swift movements to the flanks and rear of the enemy, and inflicting sudden and decisive blows from various directions.

The highly maneuverable character of contemporary combat means that the protracted, methodically measured actions of troops that took place in the past war are things of the past. They not only are not appropriate for the capabilities of contemporary weapons and combat equipment but even hamper their effective use.

The predominant value in combat activity of troops will now lie in movement, marches action from movement, and highly dynamic and mobile forms of combat. Troops will frequently go over from actions in combat formation to swift advance in columns, making extensive use of maneuvers with different aims and missions.

Of especially great significance under contemporary conditions is maneuver with nuclear strikes. This is the new content of maneuver.

In the past concentration of shifting of fire over great distances usually entailed considerable regrouping of weapons and loss of time. Now maneuver with nuclear strikes can be carried out in extremely short periods and over practically any distance without moving the rocket launchers. The enemy can be dealt such losses that large concentrations of troops will not be necessary for mounting an attack. Under these conditions the mission of the troops will be to follow up nuclear strikes with deep and swift penetration to complete the destruction of the enemy and to capture important sections of terrain.

Along with maneuver with nuclear strikes and fire by conventional means, maneuvering of troops will find wide application in contemporary combined-arms combat. Here the scale, conditions, and purposes of battle are expanded considerably. In the past troop maneuvering usually was limited to transferring them to more profitable positions with respect to the enemy for inflicting a blow. Now maneuvering of troops will be applied also to permit swift exploitation by subunits of the results of fire strikes (above all, nuclear) for swift advances deep into the enemy rear and withdrawal of subunits from under nuclear strikes of the enemy, and for relief of subunits which have suffered heavy losses from an enemy nuclear strike and have lost their combat effectiveness. Timely and most complete utilization of the results of nuclear strikes form the basis of the troop maneuvering in contemporary combat.

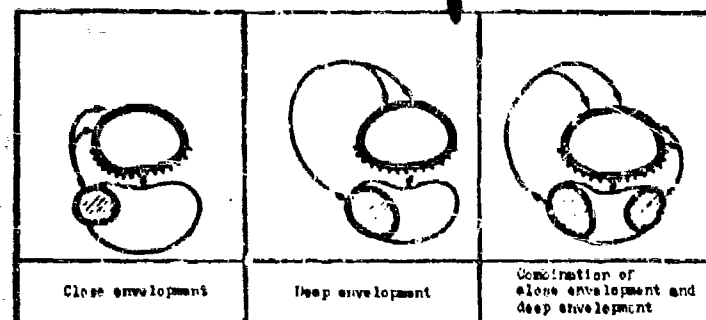


Fig. 1. Close envelopment and deep envelopment in combat.

Contemporary combat provides great possibilities for close envelopments, deep envelopments, and combinations of them (Fig. 1).

Close envelopment is a maneuver carried out in tactical and fire coordination with troops acting from the front. Through close envelopment favorable conditions are created for striking the flanks and rear of the enemy to complete his destruction.

The deep envelopment is a deeper maneuver which is carried out in tactical coordination with troops acting from the front. The deep envelopments require stronger concentrations of troops than the close envelopment; these troops must be able to fulfill the mission of destruction of the enemy without fire support of troops advancing from the front.

Swift and radical changes in the situation. The use of nuclear weapons and the high mobility of troops will inevitably lead to rapid and radical changes in the situation.

The rate of change of the situation is determined by time during which essential changes occur in the position and the character of actions of the troops of both sides. It depends first on the speed of the effect of means of destruction, i.e., on the ability of weapons to suppress or destroy given enemy objectives in a minimum time, and second on the speed of movement of troops. In the last war, when the basic means of firepower was artillery, when the troops usually bore predetermined losses, the tempo of the offensive was limited on the average to 1-2 km/hr, and the defender required considerable time to alter the relative strength; the battlefield situation changed comparatively systematically. Essential changes in the disposition of forces usually did not occur in the course of an hour.

The situation can be completely different in contemporary combat. The application of nuclear weapons makes possible almost instantaneous alteration of relative strength in one or another direction or sector and permits rapid surmounting of enemy resistance or a quick shift from the defensive to the offensive. Thanks to the great mobility of troops it has become possible to make rapid use of the results of nuclear strikes, to traverse large distances in a short period, to strike from the march, to conduct combat actions in tempos exceeding by several times those attained in the past war, and to break through swiftly to great depth into enemy territory. Moreover, the absence of a solid front and the presence of breaches, gaps, and breaks in the combat formation of troops create favorable conditions for the inflicting swift and sudden blows on the flanks and rear and for rapid alteration of the situation. In virtue of this the situation on the contemporary battlefield changes not hourly but by the minute and even the second, and not only rapidly but radically.

The extreme nature of change of the situation is expressed in qualitative changes in the composition of forces and in relative strength due to nuclear and powerful fire strikes, rapid deployment of reserves, and the dropping of paratroops;

thus it encompasses sharp change of the character and methods of actions, transition from one form of combat action to another, transfer of forces in very shortest times, new missions for troops, and alteration of battle formations.

This situation requires: that troops be in constant readiness to fulfill any missions arising in connection with a change in the situation; that commanders react quickly to this change; that resoluteness and independence be manifested. It also makes more critical the sharply increasing role of the time factor in contemporary combat. Even an insignificant delay in taking urgent measures in any control section can cause unjustified losses in men and materiel and failure in fulfilling the combat mission.

Uneven development of combat actions along the front and in depth. In the past, with its solid front lines and close lateral connection between subunits, units, and formations, combat actions as a rule were developed evenly from one line to another. For instance, in the First World War the offensive bore the character of a uniform advance of the entire front line in a given area, i.e., combat always took place on a line of direct contact of the opposing sides. Actions of troops were ruled by extreme methodism. "When any corps or any division lagged, then for the sake of maintaining a uniform tempo of the offensive its neighbors also held back. The British and French blindly held to such tactics."<sup>1</sup>

In the period of the Second World War linearity of advance of troops in combat was usually retained, especially during a breakthrough of the enemy defense, although combat then embraced not the line of direct contact of troops but a whole zone with a depth of several kilometers. And only during offensives at operational depth (especially by tank and mechanized formations and units), where the front was not continuous, were battles conducted in [all] directions and developed nonuniformly along the front and in rear areas.

Under contemporary conditions combat actions will unfold from the very beginning not on a solid front but in all directions. This is due on the one hand to the possibilities developed in connection with the use of nuclear weapons and on the other to requirements for protection of troops - the desire to avoid unnecessary losses in case of enemy nuclear attack.

Application of nuclear weapons and airborne landings, the absence of a solid front, conducting battle in [all] directions, and differences in the degree of enemy resistance in different sectors will lead to extremely nonuniform development of combat actions along front and in depth.

In some areas subunits and units, using the results of nuclear and fire strikes, will swiftly advance in depth; in others, where limited use will be made of nuclear weapons, they will conduct a persistent fight with the resisting enemy; in still others they will be forced to slow the advance or to stop it temporarily to liquidate the consequences of enemy nuclear attack, to switch to the defensive to repulse his blows, or even retreat.

It is absolutely clear that the front line as formerly understood, when combat actions were developed from line to line with close lateral connection with neighboring units, will not now exist (Fig. 2).

Efforts of both sides to use intervals not occupied by troops and breaches in the battle formation formed by nuclear strikes for swift advance will lead to deep mutual wedging in of troops. Under these conditions combat actions frequently will take on a focal character. Subunits and units not infrequently will be forced to fight with flanks exposed and with bypassed enemy troops capable of active operations in their rear.

<sup>1</sup>Hart, Liddell. Pravda o voyne 1914-1918 (A History of the World War 1914-1918) [The Truth About the War of 1914-1918], Moscow, Gosvoenizdat, p. 86, 1935.

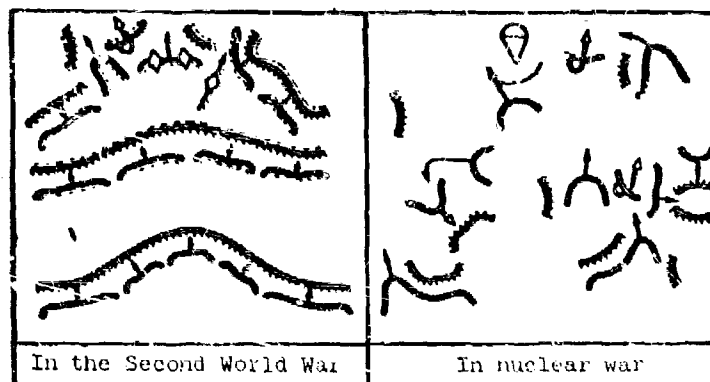


Fig. 2. Character of development of combat actions.

The irregularity of development and the focal character of combat actions increase the value of independence of units and subunits operating in separate areas, of initiative of commanders at all levels, and of safeguarding intervals, flanks, and the rear of friendly troops. At the same time these conditions require troop actions bold to the point of daring, swift breakthrough to great depth, and wide application of close and deep envelopments to strike the flanks and rear of the enemy.

Great spatial scope of battle. The means of destruction applied in contemporary combined-arms combat and the increasing combat capabilities of troops have sharply increased the spatial limits of battle (Fig. 3). First of all, in connection with the increasing combat capabilities of troops and the necessity for their dispersion, the zones of the offensive and defensive have increased. Thus, in the past war the battalion would attack on a 500-m front and on the defensive would occupy up to 2 km of front; now it can operate on an offensive front of up to 2 km and one of up to 5 km for the defensive. Thus the width of a battalion front has increased 2.5-4 times. The offensive zones of units and formations have also increased.

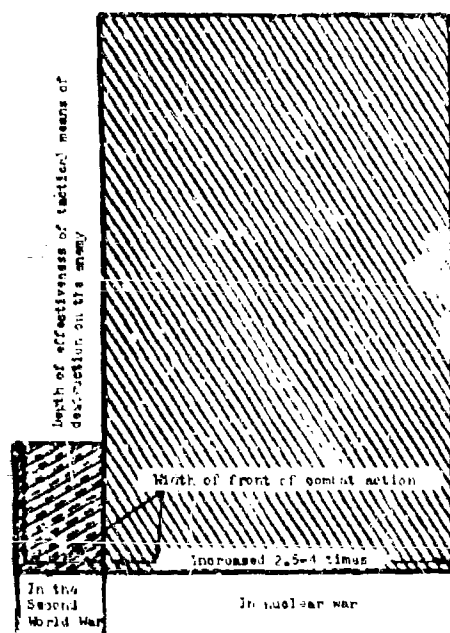


Fig. 3. Change of spatial scope of battle.

Wide zones of troop actions create more profitable conditions for maneuver and at the same time hamper maintenance of coordination and control of troops.

The boundaries of battle have also increased several times in depth. In battles of the past war the enemy was subjected to fire basically to a depth of up to 10 km; now, with the help of rockets, he can be neutralized to the entire depth of the disposition of his battle formation.

It is necessary also to consider that under contemporary conditions tactical airborne landings will find wide application, and troops acting from the front will be able to penetrate rapidly into the depth of the enemy disposition. Combat actions will embrace almost simultaneously the entire depth of battle formations, including second

echelons and reserves of formations, which in the past were usually out of reach of the enemy before being sent into battle.

Thus the character of contemporary combined-arms combat contrasts radically with that of the Second World War. Combat has become more complicated deeper, more maneuvering, more dynamic, and extraordinarily intense.

The complex character of contemporary combat imposes new and higher requirements for education, training, discipline, mental preparation, and physical hardening of Soviet soldiers. The main force in combat always was and remains the individual. The fate of a battle in the end will be decided by people who have mastered new technology, who possess high moral spirit, are devoted to Communism, and ready to fulfill their duty without regard for their own lives. Therefore under contemporary conditions there sharply increases the value of party-political work to strengthen the morale of the troops, to instill in them high fighting qualities, and constantly to maintain aggressiveness and military discipline.

Especially high morale must be possessed by commanders. Under the complex conditions of contemporary combat they must quickly size up a situation, make the proper decision and firmly strive to implement it, preserve their courage and composure, and display resoluteness and initiative. The surety for such actions of the commander is a deep conviction in the righteousness of his cause, devotion to his Motherland and the Communist cause, a high sense of responsibility for successful fulfillment of the combat mission, a thorough knowledge of regulations and manuals, and a clear understanding of the nature of contemporary combat in general and of its different forms in particular.

#### Forms of Combined-Arms Combat

The combat activity of troops is extremely diverse. In seeking victory over the enemy the troops apply the most diverse tactical maneuvers and methods of action, singly and in all possible combinations. However, in spite of the variety of combat actions, they are classified by types on the basis of definite essential criteria.

Classification of combat actions facilitates the process of study of combat as a complicated phenomenon of armed struggle. It ensures the most complete and profound study, permits detection of the specific character of conditions, forms, and methods of application of forces and means in various forms of combat, and makes it possible to discover the inherent laws of combat, the peculiarities of organizing and conducting it.

The criteria for classification of combined-arms combat are the goals pursued by one or another form of combat action and the methods of its achievement taken as a whole. On this basis we distinguish in tactics the meeting engagement, the offensive, the defensive, and withdrawal.

The meeting engagement constitutes a form of combat in which both sides simultaneously strive to wage the offensive. Its purpose is to crush the advancing enemy, to seize a certain region or line, and to guarantee further desired development of combat actions.

The mutual offensive is responsible for the peculiarities of the methods of conducting this form of combat. From beginning to end of the meeting engagement there is a continuous intense fight for the initiative, since the possessor can impose his will on the enemy and through skillful actions destroy him, even if lacking an overall numerical superiority.

The meeting engagement occurs most frequently during deployment from the march; therefore its conduct is directly connected with simultaneous deployment of troops from march columns. It can also arise in the course of other forms of combat. In all cases each side strives to forestall the other in mounting thrusts, capturing useful lines, attacking flanks and rear, and in destroying the enemy piecemeal.

Under contemporary conditions the probability of occurrence of meeting engagements has increased sharply. This is due to the wide application of nuclear weapons, high mobility of troops, the maneuvering character of combat actions, and the extraordinary resoluteness of the goals of armed struggle.

The offensive is the basic form of combat action. Only by a resolute offensive, conducted at a high tempo and to great depth, is total destruction of the enemy attained.

The essence of the offensive is as follows: the troops strike the resisting enemy with nuclear weapons, aircraft, artillery fire, and other means and by exploiting the results swiftly advance into the depth of his position, seize or destroy personnel, armament and combat equipment, and seize a certain part of the territory occupied by the enemy.

The offensive has a number of undisputable advantages over other forms of combat actions. The principal one is that the advancing force holds the initiative in selection of the direction, time, and methods of assault, which makes it possible to impose its will on him and thus to achieve a decisive victory.

Possessing the initiative, the attacker has time and opportunity to develop a plan and to concentrate his forces and means and thoroughly prepare conditions for success in accordance with it. He possesses broader possibilities for launching sudden blows, swift exploitation of results of nuclear weapons used on the enemy and of opportunities arising as the situation unfolds, and also for timely accomplishment of maneuver in the course of battle.

The offensive, bold forward movement, raises the morale of the troops and multiplies their strength. "The attack itself," stated M. V. Frunze, "the offensive itself strengthens the attacking side and gives it a greater chance for success."<sup>1</sup> At the same time the offensive always has a negative effect on the mental state of the defender, since "this attack alone reveals a stronger will."<sup>2</sup>

The experience of past wars indicates that even without an overall numerical superiority over the enemy, more skillful, energetic and maneuverable troops of the attacking side can frequently create a decisive superiority in the main direction, suddenly inflict a crushing blow, develop a swift advance in depth, and gain the victory.

Very important advantages of offensive ensue from the fact that combat actions are shifted to territory occupied by the enemy. Advancing into the enemy position, the attacking troops seize or destroy his means of nuclear attack, his depots of nuclear ammunition, and his bases, thereby reducing his ability to utilize weapons of mass destruction. They also seize the conventional weapons and combat equipment of the enemy, capture personnel, and use the resources of territory which he had occupied, thus depriving him of part of his military and economic potential.

The defensive in most cases is a forced and temporary form of combat action. Although victory over the enemy is attained only through a decisive offensive, the defensive has been applied in the past and undoubtedly will find application in future war. "No wars," remarked V. I. Lenin, "which began and ended with uninterruptedly victorious offensives have taken place in world history; or if there were, they were the exception."<sup>3</sup> This remark of Lenin's is valid even today.

The purpose of the defensive is to hold occupied territory (zone, sector, or region), to repulse the offensive of superior enemy forces while inflicting significant losses on him, and to create conditions suitable for transition to the offensive.

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<sup>1</sup>Frunze, M. V. Izbrannye proizvedeniya (Selected works), Moscow, Voenizdat, p. 105, 1950.

<sup>2</sup>(Ibid), p. 101.

<sup>3</sup>Lenin, V. I. Polnoye sobraniye sochineniy (Complete collected works), Vol. 44, p. 100.

In accordance with this the methods of the defensive are characterized first of all by the infliction of damage on the enemy by fire of all combat means from fixed positions, persistent fight for retention of positions, lines, and strong points, and also by decisive counterattacks to destroy enemy salients and to restore the situation.

Troops usually turn to the defensive when offensive operations in a given area are impossible for inexpedient or when it is necessary to economize forces and means to support an offensive in other, more important areas.

As a form of combat action the defensive lacks many of the advantages peculiar to the offensive. The defender's actions are dependent on the attacker. He is constantly under great tension and must be in readiness to repel blows of the enemy from any direction. The defending troops as a rule are inferior in force and means to the advancing troops.

However, the defensive also has inherent strong points which with skillful use will permit one to overcome to a considerable degree deficiencies in forces and means and to conduct a successful struggle with an enemy of superior force. The defender chooses the place for the battle, making maximum use of natural tactical and protective properties of the terrain. He prepares this terrain to some degree in an engineering sense; he creates positions ensuring convenience of firing and providing reliable shelter for men and equipment; he prepares maneuver routes and lines of deployment for carrying out counterattacks; and he utilizes various obstacles in combination with a system of fire of all forms.

In spite of the fact that the same combat means are used in the offensive and the defensive, their capabilities are unequal. Thus, for instance, one hidden defender can destroy 10-20 advancing enemy soldiers; one entrenched defending tank can successfully battle two, three, and more advancing tanks. A nuclear strike on sheltered troops will cause fewer losses than one of the same power inflicted on advancing troops, forced to act on open terrain.

Defending troops can create a strong fire system, prepare data for firing on certain regions and lines ahead of time, adjust their fire, and thereby ensure high accuracy of fire.

In defense it is possible to apply camouflage effectively, to create false objectives and areas and to conceal true ones, compelling the advancing force to expend ammunition on empty positions and secondary objectives. Better knowledge of the terrain enables the defender to maneuver his forces and means more flexibly than the advancing force. All this creates conditions favorable for defending troops to repel a numerically superior enemy. However, it is necessary to consider that such a mission can only be executed by a skillful, well organized defensive under conditions of high morale of the defending troops. Some time is required for the creation of a strong defense and must be gained by different means. Intense work is also demanded of all personnel for creation of fire systems, obstacles, and positions. Experience of the last war shows that in defense persistence is victorious. Even in an apparently hopeless situation persistence leads to victory.

When the enemy has penetrated into the defense in a number of sectors and has access to the rear, the defending troops can adopt the combat-in-encirclement tactic. Combat in encirclement is a defensive adopted when the enemy is not only in front of but simultaneously on the flanks and to the rear of the defending troops. If combat in encirclement is combined with a subsequent breakout from the encirclement, these actions in totality no longer can be referred to as a defensive. This will be a combination of defensive, offensive, and withdrawal.

Withdrawal as a form of combat action is used to extract troops from under a blow by a numerically superior enemy and to occupy a more suitable position for the subsequent execution of the combat mission. It usually is started under extremely unfavorable conditions, when the enemy possesses such superiority or such advantages that at the given moment there is no possibility of putting up adequate resistance and conducting a defensive battle has become unprofitable and pointless.

Because withdrawal is connected with loss of territory and with complication of the situation in neighboring sectors and areas, it is conducted only by order of the senior commander. A junior commander threatened directly with an enemy strike can easily exaggerate the danger and start a withdrawal earlier than necessary. Furthermore, he usually does not know in full measure the capabilities of the senior commander for counteraction and rendering of help, and also cannot evaluate the effect of the withdrawal of his subunit on adjacent units.

When in contact with the enemy, withdrawal usually is preceded by disengagement, breaking contact with the enemy in order to regroup for conducting other actions. Withdrawal can be carried out directly to an area designated by the senior commander, under cover of a rear guard, or by fighting on a number of consecutively occupied lines. In all cases withdrawal is conducted in an organized manner, secretly, and in accordance with the plans and orders of the senior commander.

All forms of combat may be carried out under different conditions of terrain, in various seasons and times of day: in mountains, on steppes, in deserts, in the forest, in winter, at night, etc. The enumerated conditions undoubtedly will dictate special features of troop actions and must always be considered during the organization and conducting of battle.

In considering the different forms of combat, we must emphasize that all of them are intimately interconnected; in the course of combat actions they can change frequently and can be combined with each other. Therefore commanders at all levels must possess the skill to appraise the situation rapidly and to apply such methods of action which best ensure the fulfillment of the mission at hand.

#### Basic Principles of Contemporary Combined-Arms Combat

Victory and defeat in each specific battle are determined by many factors of both objective and subjective order. In combat there are always two active sides, each of which, actively manifesting its own will, strives to destroy the resisting enemy and to preserve its own forces. Here the forces and means of the two sides, their armament and number, the morale of troops, and the art of command are absolutely different. In war a combat situation is never repeated and every action requires its own approach and solution.

Success in battle is influenced most decisively by the troops participating in it, their morale, training, and armament. Thorough preparation of troops for battle must also be the prime subject of the activities of commanders, political workers, and Party and Komsomol organizations. However, the presence of a sufficient number of combat-ready troops and adequate materiel still does not mean that victory is assured.

Combat is, first of all, an organized struggle. It is thoroughly planned and prepared and is conducted in accordance with a plan directed at the achievement of a clearly defined goal. Actions of troops in combat are directed solely by the will of the commander — the single authorized chief, who, relying on his military knowledge and experience and on the knowledge and experience of his subordinates, by thoroughly analyzing the situation and anticipating possible changes, organizes the battle, coordinates the action of the troops and of different means of struggle, and displays his skill in the achievement of victory over the enemy.

The art of organizing and conducting battle, or tactical art, dependent upon the military knowledge, experience, organizational abilities, intelligence, force of will, and military talent of a given commander, is of exclusive importance to victory. To a considerable degree it determines the actual possibility of victory, at what price and in what period this victory will be obtained, and how total it will be.

In certain cases organizational talent and skill of a military leader play a decisive role in the achievement of victory. Thus, in 1790 Suvorov took Izmail with troops which without him could not have taken this fortress.



But, however manifold the factors determining victory in any particular battle, there exist also certain general principles of the military art; adherence to these principles is a very important condition for achievement of victory.

The principles of military art are the basic guiding principles for organizing and conducting battles, operations, and a war as a whole. In these principles the known, objectively conceived laws of armed conflict find expression. They were not invented by individuals but are the result of scientific generalization of practice, and the discovery of objective, repeated, and necessary relationship of armed conflict.

"Principles are not the initial point of study," wrote F. Engels, "but the final result; these principles are not adapted to nature and human history but are abstracted from them; nature and humanity do not conform [adapt] to principles but, on the contrary, principles are true only so far as they correspond to nature and history."<sup>1</sup>

Laws exist outside the consciousness of man, in phenomena themselves.

They act independently of the will and desire of men whether the commander wishes it or not, or whether their effect pleases him or not. He cannot select among the laws for himself but must reckon with them.

Principles, on the contrary, are consciously applied by the commander, the general, depending upon the actual conditions of the situation. In them there are successfully combined both the mandatory character of effect of the laws of armed conflict and the relative freedom of the conscious activity of man within the framework of these mandates.

The laws of armed conflict express the necessary essential relationships between victory and the conditions determining it, but by themselves do not indicate how it is necessary to proceed in order to achieve this conformity. Principles, being based on laws, include recommendations for the most expedient actions; namely, they indicate what it is necessary to do to achieve victory over an enemy, how it is necessary to act. But these recommendations bear, so to say, an averaged character and are given irrespective to the actual situation. Therefore in a theory which considers principles outside the situation, all of them are recognized as equally important, but in practice their importance varies: in one situation some principles can be of prime importance, in another others play this role. Successful application of the principles of combat is directly dependent upon the creative ability of the commander, and on his skill in controlling troops, in analyzing the situation, and in drawing correct conclusions from it.

The German military theoretician of the last century, Clausewitz, wrote: "A principle is the same as a law for action, but not in its ultimate formal meaning -- it represents only the spirit and sense of the law; where the diversity of the real world is not contained within the completed form of the law, principle gives judgment great freedom during its application. Since it is left to judgment itself to justify those cases in which principle is inapplicable, the latter is the true reference point and guiding star for the actor."<sup>2</sup>

The principles of military art are historical. They change both in content and form with a change of condition and character of armed struggle. Principles born of former conditions lose their meaning and new ones appear in their place. And, although the formulation of certain principles may not change for a long time, the principles themselves take on new content.

The diversity of conditions in conducting combined-arms combat is responsible for the variety of its principles.

<sup>1</sup>Marx, K. and F. Engels. Sochineniya (Works), Vol. 20, p. 34.

<sup>2</sup>Clausewitz. O voyne (Von kriege), Vol. 1, Fourth edition, Moscow, Gosvoenizdat, p. 146, 1937.

**Massing.** This principle was first applied by the Theban commander Epaminondas at the battle of Leuctra in 371 B.C. Having a total of 6500 men against 11,000 of the best troops of that time, the Spartans, Epaminondas rejected the earlier practice of equal distribution of forces over the entire front, since under the given conditions this would have meant certain defeat. He created on the left, the attacking, wing a column 50 ranks in depth, while the remaining force, the center and right wing, contained 8 ranks. The Spartans aligned their army evenly in 12 ranks. Having superior forces on the left wing, the Thebans with a swift blow broke the Spartans line and then, moving to both sides, passed around the broken units of the Spartan phalanx and gained victory.

F. Engel's investigating the military history of the ancient Greeks, wrote: "Epaminondas first discovered the great tactical principle which down to our day decides almost all regular battles: nonuniform distribution of troops along the front for the purpose of concentration of forces for a main blow at a decisive point."<sup>1</sup>

Thus the essence of the principle of massing is that for achievement of victory it is impossible to disperse one's own forces and means evenly over the entire front; one should concentrate his basic forces in the most important area or sector and at the proper time. In secondary areas and sectors it is possible to be limited to minimum forces, thereby taking a calculated risk. The desire to be equally strong everywhere leads to equal distribution of forces and means along the front, to their dispersion, and, in the end, to defeat.

It is necessary to be strong where it is necessary and profitable according to the situation, where it is possible to achieve the greatest success and to defeat the enemy decisively. To accomplish this goal it is necessary to possess deep military knowledge, to know the capabilities of different resources, and to know how to estimate the situation correctly in order to concentrate maximum forces in the main area.

The principle of massing forces and means in the decisive area has been used skillfully by all outstanding commanders. Its importance was repeatedly indicated by V. I. Lenin, who included it among the main laws of the art of armed combat. In his historical address to the Petersburg comrades (Sovety postoronnego) ["Advice of a stranger"], expounding the basic conditions for success of armed uprising, he wrote: "...It is necessary to gather a great preponderance of forces at the decisive place, at the decisive moment...."<sup>2</sup>

In another of his works Lenin again indicated that for achievement of victory it is necessary "at the decisive moment and at the decisive moment and at the decisive point to have an overwhelming preponderance of forces - this "law" of military success is also a law of political success, especially in that violent, seething war of the classes which is called revolution."<sup>3</sup>

The Soviet command in the Great Patriotic War successfully applied the principle of massing both on the strategic and operational level and also on the tactical scale. For instance, in November 1942 the 16th Guards Rifle Corps of the 16th Army of the Bryansk Front in the Bolkhov operation (July 1943), having an offensive zone of 22 km, concentrated its basic force in a 7-km sector, this including 27 battalions out of 36 (75%), 1087 guns and mortars out of 1176 (92%), and 156 tanks and self-propelled artillery pieces out of 172 (93%). This tactic permitted attaining local

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<sup>1</sup>Engels, F. Izbrannye voyennye proizvedeniya (Selected military works), Moscow, Voenizdat, p. 181, 1956.

<sup>2</sup>Lenin, V. I. Polnoye sobraniye sochineniy (Completed collected works), Vol. 34, p. 383.

<sup>3</sup>Lenin, V. I. Polnoye sobraniye sochineniy (Completed collected works), Vol. 40, p. 6.

superiority in the main area over the enemy, who were superior in infantry by 4 times, in artillery by 10 times and in tanks by 17 times.<sup>1</sup> It is possible to give a great number of such examples of skillful massing of forces and means.

Although the principle of massing was discovered long ago, the form, methods, and means of its realization under different historical conditions were not identical. For Epaminondas the object of massing was exclusively infantry, but for Alexander of Macedon it was primarily cavalry in combination with infantry. With the appearance of firearms, guns and personnel began to be concentrated in the most important area. In the two world wars concentration of forces was attained by the creation in a relatively limited space of large formations of infantry, tanks, artillery of different forms, and other combat means in combination with massed application of aircraft in the main area.

Under contemporary conditions this principle is carried out differently than before. Concentration of huge forces of troops on relatively narrow sections of the front, as was done in the past war, will be fraught with grave consequences in a rocket-nuclear war. And it is unnecessary.

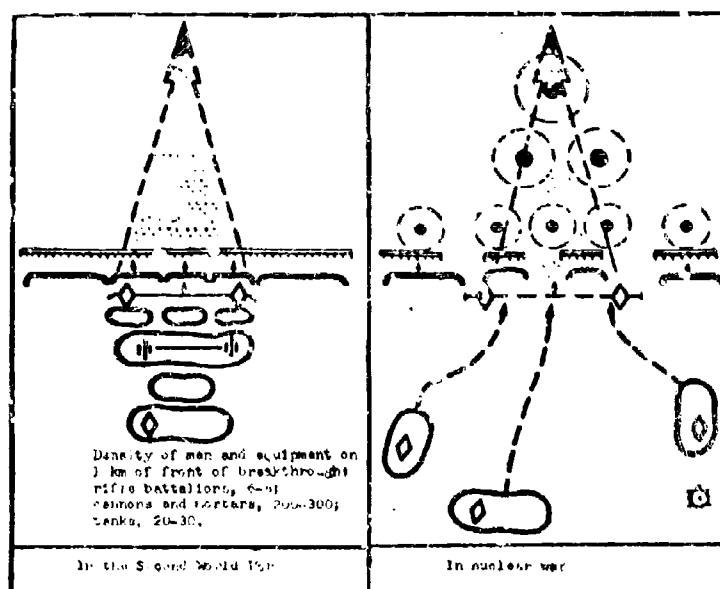


Fig. 4. Expression of principle of massing in the offensive battle.

The basic purpose of massing is to create superiority over the enemy in a decisive area at the proper time. Contemporary combat means permit a new solution to this problem: through concentration of fire of all forms, and, first of all, through the use of nuclear strikes, it is possible almost instantly to change the balance of forces and means in one's favor in a chosen area or sector. Furthermore, the great range of rockets makes it possible to inflict powerful nuclear strikes from rocket launchers far to the rear, while full motorization of troops permits rapid concentration of this strength when units are deployed over a relatively large area (Fig. 4).

<sup>1</sup>See *Razvitiye taktiki Sovetskoy Armii v gody Velikoy Otechestvennoy voiny 1941-1945* (Development of tactics of the Soviet Army during the years of Great Patriotic War of 1941-1945), Moscow, Voenizdat, p. 125, 1958.

Consequently, concentration of forces in the most important direction in contemporary combat is attained by other means and methods and is closely connected with the principle of dispersion of troops.

Dispersion. The need for dispersion in order to reduce losses from enemy fire, also arose in past wars. For instance, with increases in firepower, division and regimental columns began to be broken down into smaller units — at first into battalions and half-battalions and then into company and platoon units, which in turn were scattered into the skirmish line. The intervals between soldiers in the skirmish line also are continuously being increased. In the beginning of the Russo-Japanese War of 1904-1905 these intervals were 1-1.5 paces; at the end of the same war they were 4-6 paces, and toward the end of the First World War, 8-10 paces.

Before the appearance of rocket-nuclear weapons the limits of dispersion of troops on the field of battle were determined mainly by probability of destruction of soldiers by small-arms fire and by the radius of destruction of a single shell, mine, or bomb. In view of this, dispersion was intended not so much for protection of a whole unit as for protection of the individual soldier and was applied chiefly in small subunits and between them. Close lateral connection between subunits and units was retained in battle and regiments, divisions, and corps acted essentially as compact masses.

Under contemporary conditions, in connection with the area character of the destructive effect of nuclear weapons, dispersion of troops took on another meaning and its value increased sharply. Dispersed deployment of troops became the usual state not only in zone of combat actions but also far beyond its limits. To station or move large compact masses in an area, independently of the distance from the enemy, is now impossible. To protect themselves and to hold losses during an enemy nuclear attack to a minimum, subunits, units, and formations are forced to disperse at the front and in depth.

The limits of possible dispersion of forces and equipment can vary under different conditions of the situation. The foreign military press, for instance, indicates that this dispersion depends on the power of the nuclear ammunition available to the enemy, on the probability of its use on one or another objective, the degree of shelter of the troops and their ability to successfully fulfill their combat mission in dispersed deployment (preservation of fire and tactical coordination, convenience of control, etc.).

Thus, an American author in the article "Vulnerability and dispersion of troops in nuclear war"<sup>1</sup> writes that he studied this problem for five years and studied the battle formations of over 300 companies and nearly 100 subdivisions of battalion size in various situations. The average force of nuclear charges require to destroy the investigated subunits was determined as: for a company, about 2 kt; for a battalion, taking into account dispersion between companies and in companies themselves, about 30 kt. According to his calculations, the average strength of the nuclear strike necessary to destroy a combat command of three battalions lies within limits of 300-500 kt, and for an armored division in a concentration area approximately 4 mt would be needed.

On the basis of these prerequisites, it is considered expedient to have on the battlefield dispersion which will prevent the simultaneous destruction of two adjacent military organisms of corresponding type by one nuclear explosion whose power is sufficient to destroy each of them separately. However, depending upon the size of the subunits and conditions of fulfillment of the combat mission, it is also possible to apply a dispersion which will prevent the disabling by one nuclear explosion of more than one subdivision of corresponding type (Fig. 5).

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<sup>1</sup>Zhurnal "Armor," May-June 1963.

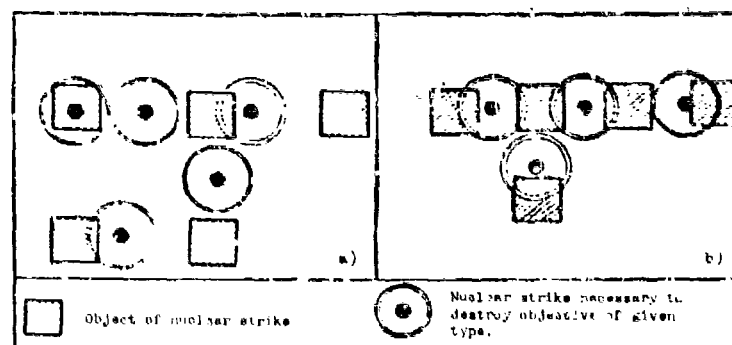


Fig. 5. Dispersion of subunits on the field of battle. a) prevention of simultaneous destruction of two adjacent subunits by nuclear explosion sufficient to destroy each of them separately; b) prevention of disabling of more than one subunit of corresponding type.

Of course, dispersion of troops is not the only means of protecting them from the destructive effect of a nuclear weapon. Even with dispersion full use must be made in all situations of other possibilities for protection - camouflage, engineering preparation of the terrain and maximum use of its protective properties. High mobility of troops and rapid change of their location will also hamper the enemy's use of nuclear weapons and decrease the probability of destruction of subunits on the battlefield.

Dispersion of troops does not eliminate the need to concentrate them at the proper place and time for mounting powerful assaults. But now it is not done so early before the attack, since it is carried out from the march, secretly, swiftly, from various directions, and directly prior to the assault. After the attack the troops are again dispersed without delay so as not to present a worthwhile target for enemy nuclear weapons. The time during which the troops represent a suitable target for an enemy nuclear strike should be held to a minimum. By his ability to solve this problem under actual combat conditions the commander displays his skill and the level of training of the troops for mobile actions.

**Coordination.** In contemporary combat the most varied forces and means of armed struggle are applied. Rockets, motorized rifle and tank troops, artillery of different forms, antiaircraft defense troops, engineering and other special troops, aircraft, paratroops, and in coastal operations even naval units take part.

Every means of struggle, every form of combat equipment and armament, every unit (subunit), depending upon its composition and armament, possesses certain combat properties and the ability to solve certain problems. Some types of troops and forms of combat equipment are distinguished by certain strong points, others by different ones; at the same time, each of them has its weak points. And in combat they operate together to solve the common combat problem. Therefore coordination is also directed towards matching up the combat efforts of subunits, units, and formations of different types of troops and means of struggle for the purpose of making full use of the strong points of each of them.

The principle of coordination reflects the nature of contemporary combat, its combined-arms character. It states that success in contemporary combined-arms combat can be achieved only through united efforts of all participating means of struggle, subunits of different types of troops and special troops on the basis of their close and continuous interaction.

Therefore skillful organization and constant realization of coordination are the most important obligation of the commander and headquarters during preparation for battle and in the course of it. The skill to efficiently organize and continuously maintain coordination in the course of battle shows the art of the commander, his organizational abilities and tactical maturity, and his ability to control troops in combat.

The essence of coordination in contemporary combined-arms combat consists in coordinated actions of all types of troops and means of destruction with respect to missions, areas, lines, and time, and also in mutual assistance of subunits in the interests of successful fulfillment of the common combat mission.

Because the nuclear weapon is the most powerful means of destruction, the main purpose of coordination is to mesh the actions of troops for the purpose of making the most effective use of nuclear-strike results. At the same time, close mutual assistance and support must exist between all types of troops and special forces, between ground forces and aircraft, and also between adjacent units. The value of mutual aid of adjacent units under contemporary conditions has increased considerably in connection with the irregularity of development of combat actions, the presence of gaps, the possibility of formation of discontinuities in the battle formation, and exposure of flanks and rear.

Coordination must be continuous from the beginning to the end of a battle. Even a brief disruption leads to disorganization in troop actions, lowers the impact of assault on the enemy, and leads to unjustified losses.

Of special value in maintaining continuous coordination is the initiative of junior commanders. In all cases when coordination is disrupted they must themselves strive to establish communications between adjacent units and with the senior commander, and they must try to coordinate mutual actions without awaiting special orders. Skillful coordination of actions of all means of struggle, types of troops, and special forces participating in a battle requires thorough knowledge of their combat properties, capabilities, and methods of application in different situations and also demands skill in making rapid and exact calculations. Coordinations can exist only when each commander of a subunit participating in a battle thoroughly knows and correctly understands the purpose of the battle, his own particular mission and the overall combat mission and the methods of their fulfillment; when he knows with whom, when, how, and why he must coordinate his actions; and is aware that he must promptly inform the senior commander about the situation and must display creative initiative directed at maintaining continuous coordination.

Surprise. Historical experience shows that he who uses surprise in battle has always obtained the advantage over the enemy. The side subjected to unexpected attack and unable to adjust quickly to the situation as a rule suffered defeat. Achievement of surprise in battle, the destruction of an enemy taken by surprise, with minimum losses by the attacker and minimum expenditure of forces and equipment, was and is considered to be one of the most important criteria of high military art of the commander and all personnel.

The tremendous value of surprise in armed conflict was emphasized repeatedly by V. I. Lenin, who demanded striking the enemy "when and where he least expects it."<sup>1</sup> "In war do not inform the enemy," he wrote, "when the attack is to occur."<sup>2</sup> In the period of preparation for the armed uprising in October 1917 Lenin wrote: "...It is necessary to try to take the enemy by surprise, to seize that moment when his troops are scattered."<sup>3</sup>

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<sup>1</sup>Lenin, V. I. Polnoye sobraniye sochineniy (Complete collected works), Vol. 6, p. 176.

<sup>2</sup>Lenin, V. I. Polnoye sobraniye sochineniy (Complete collected works), Vol. 21, p. 399.

<sup>3</sup>Lenin, V. I. Polnoye sobraniye sochineniy (Complete collected works), Vol. 34, p. 383.

Under contemporary conditions the role and value of surprise are ever increasing. This is explained by those benefits which can be achieved through surprise with application of nuclear weapons and other contemporary means of struggle.

The surprise attack permits inflicting upon an enemy very great losses, depressing the morale of his forces, sharply reducing their combat effectiveness, rapidly changing the ratio of forces, paralyzing the will of the enemy, and causing disorder, confusion, disorganization, and disruption of control, thereby creating favorable conditions for decisive defeat of his forces.

An enemy subjected to surprise attack and taken unawares falls into a grave and critical position. He is forced to change his intentions suddenly, to halt his systematic combat activity and to reorganize it to conform to new, unexpectedly appearing conditions of the situation; we must act uncertainly, without a plan. Measures to counter the surprise attack must be sought hastily; consequently they are often of little effect.

Surprise does not appear by itself, accidentally. It can be achieved through intense creative activity of commanders and headquarters and skillful actions of all troops.

The ways and means of achieving surprise are quite varied. Depending upon the actual conditions of the situation, surprise can be attained by confusing the enemy relative to one's intentions, by secrecy of preparation and speed of troop actions, wide use of night conditions, unexpected use of nuclear weapons and other means of destruction, by inflicting a swift blow when and where the enemy does not expect it, and through application of combat methods unknown to the enemy and new means of struggle.

Surprise is incompatible with patterns. A pattern contradicts the very essence of surprise. While it is possible to deceive the enemy once, he will not be deceived a second time by the same method. Therefore it is necessary to search constantly for new methods and means of achieving surprise.

An indispensable condition for achievement of surprise is secrecy. The enemy constantly expects an attack and takes all measures to ensure that it will not take him by surprise. Only in those battles in which secrecy of preparation was ensured was surprise achieved and, as a result of it, great success.

Secrecy of preparation for battle is attained by keeping the assigned mission and plan for forthcoming actions in the strictest secrecy, by continuous and active battle against enemy intelligence of all forms, by camouflage, by maintaining the existing state of combat activity of troops, by the concealment of all preparatory measures, by strict observance of security rules for coded communications, and by high vigilance of troops, command and headquarters at all levels.

It is necessary to consider that contemporary motorized and mechanized troops are more difficult to hide from enemy intelligence than, for instance, infantry; it is more complicated to carry out their regrouping and concentration and to move them into the required areas secretly. Additionally the continuing improvement of technical means of reconnaissance and the wide application of photograph, television, infrared, radio, radar, heat-finding, and other equipment increases the capabilities of reconnaissance, making it possible to obtain data about our troops at greater depth, in shorter periods, and with less dependence upon weather, time of day and year, and character of terrain. Especially great capabilities are possessed by aerial reconnaissance. The contemporary reconnaissance aircraft, carrying long-range radar and powerful photographic and television equipment, can conduct reconnaissance at a considerable distance from the objective, frequently without crossing the front line. All of this indisputably complicates and hampers the achievement of surprise and requires, along with measures undertaken for counteraction of enemy intelligence, constant improvement of the means and methods of camouflage, the passing of misinformation, and observance of strict camouflage discipline by all personnel.

Surprise is not a one-time act which is accomplished, for instance, during preparation or in the beginning of battle. It should be the basis of all combat activity of troops, accompanying the battle from its beginning to end. Surprise attained in the beginning of a battle can exhaust itself after a certain time. The duration of its influence is limited by the time required by the enemy to overcome and liquidate the unequal conditions caused by unexpected actions of the opponent. Therefore in the course of battle it is necessary to strive both for maximum use of results of once-attained surprise and for its achievement every time on the level of all military elements.

The achievement of surprise, the application of means and methods of action unexpected by the enemy, depends on a high level of operational and tactical training of command personnel, on their constant knowledge of enemy tactics and his weak and strong points, on their ability to evaluate and exploit the situation rapidly and skillfully through knowledge of the blunders and negligence of the enemy, and on their ability to manifest creative work in the search for ways of ensuring surprise action in different situations.

In striving to achieve surprise it is necessary to take all measures in order to prevent its application by the enemy. This is attained by continuous reconnaissance, timely and thorough security of combat actions, high vigilance of troops and their constant combat readiness, and the ability to counteract quickly.

Vigor of actions and persistence in achievement of a set goal. The experience of past wars shows that, other things being equal, success in battle is achieved by the one who more actively, resolutely, and persistently struggles for the initiative, imposes his will on the enemy, and forestalls his actions.

In a number of his works Lenin indicated that in armed conflict it is necessary to act with the greatest vigor and resoluteness. Resoluteness and impact, he wrote, comprise three-fourths of success, and "every detachment should remember that by missing an opportunity for such operation presented today, this detachment is guilty of unpardonable inactivity, of passivity, - and such guilt is the greatest crime...."<sup>1</sup>

The vigor of troop actions finds concrete expression in constant pressure on the enemy, in timely use of all profitable conditions of the situation and one's own combat capabilities for striking the enemy and defeating him, in depriving the enemy of the ability to select the most advantageous instances, time, place, area, and character of actions, and in chaining his will and actions.

Vigor is intimately connected with initiative, expressed in bold and reasoned daring, in the desire to find the best methods for fulfilling a particular mission, and in readiness to accept the responsibility for a bold decision. This is why our regulations emphasize that reproach is deserved not so much by one who fails in his efforts to defeat the enemy after a genuine effort as by one who, fearing responsibility, manifests idleness and passivity and does not use at the needed moment all forces and means for achievement of success in battle.

While constantly manifesting vigor in battle, one must always be guided by the common goal and steadily aspire to its achievement. In battle the goal always appears as a mission to be fulfilled. The mission should be real, practicable, feasible, and based on correct calculation of forces and equipment, on calculation time, actual conditions of terrain, possible counteraction by the enemy, and other data on the situation.

However, the experience of past wars shows that either owing to lack of consideration and haste of decision or in striving to display their energy, zeal, and desire to do more and in shorter periods of time individual commanders, have assigned unrealistic tasks to troops. Such a practice greatly damages morale, negatively affects the combat effectiveness of troops and their coordination, and undermines the authority of commander, faith in his orders and confident in victory.

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<sup>1</sup>Lenin, V. I. Polnoye sobraniye sochineniy (Complete collected works), Vol. 11, p. 342.



A set goal can be achieved in different ways, but it is important that the solution to every intermediate problem bring us nearer to the outlined goal. In the course of battle the will of the counteracting enemy is constantly active, the situation changes, and unexpected obstacles appear, as do different chance factors compelling one to deviate from the initial decision. However complex the situation becomes the main goal must never be forgotten. The basic efforts of the troops plus the thought and energy of the commander must be directed to its achievement.

**Continuity.** The essence of this principle is that once begun, combat actions have to be conducted actively and continuously at any time of year and day, in any weather, until total defeat of the enemy is achieved. Blows must be struck with unremitting force.

Continuity of conducting battle ensues from the increasing combat capabilities of troops, the character of contemporary operations developed to great depth, and the requirements of operational art imposed on tactics. Continuous actions ensure achievement of goals in short periods with minimum expenditure of forces and equipment and deprive the enemy of the time and ability to organize his situation, maneuver reserves, regroup and strike back, deliver materiel, and organize resistance on new lines.

Continuous conducting of battle at a high tempo creates unfavorably conditions for application by the enemy of weapons of mass destruction. He cannot exactly determine targets of nuclear strikes, and, furthermore, he is frequently forced to relocate his means of nuclear attack.

Under contemporary conditions a halt in a battle signifies loss of advantages for the attacker. He risks being subjected to enemy nuclear strikes. At the same time, the enemy can move up reserves in a short time over a great distance (for instance, 100-200 km and more in one night), can set up a strong defense capable of stopping the offensive or considerably slowing its pace. If the attacker decides to stop his combat operations in order to prepare for fulfillment of a new mission, the enemy can wreck these intentions. He hits the halted troops, being profitable targets, with nuclear strikes, and after this, having changed the balance of forces in his advantage he switches to active combat actions.

Continuous conducting of battle demands unending combat activity of troops with consequently great mental and physical strain on all personnel. From commanders it requires high organizational abilities, the skill to prepare and thoroughly ensure conditions for fulfillment of subsequent combat mission in the course of fulfillment of the previous one. Continuous battle also requires thorough setting up of the battle formation and the presence of sufficient reserves of various types, both to ensure continuous development of the battle and to provide solutions to other, suddenly appearing, problems.

The most important and qualitatively new content of this principle is continuous struggle with means of nuclear attack by all means and methods available in a given situation.

In the past, before the appearance of nuclear weapons, the capabilities of single guns were comparatively limited; the results of their use could not decisively affect a change in the battle readiness of subunits and units or in the balance of forces. Under these conditions single guns or enemy batteries revealed during preparation for battle could not be destroyed immediately after their detection but could only be marked for subsequent destruction, for instance in the period of artillery preparation.

At present the situation is radically changed. Every nuclear strike, depending upon its power and accuracy, immediately affects the combat effectiveness of the entire subunits, units, and even formation. Now every artillery cannon able to use nuclear ammunition and every enemy rocket launcher has to be destroyed immediately after its detection to prevent its use. Simultaneously with this nuclear ammunition

on positions, bases, and during transport should be immediately destroyed. The outcome of the entire battle depends on successful solution of this problem.

Thorough combat support. The essence of this principle is the organization and persistent carrying out of all measures undertaken to prepare for combat actions. It indicates the dependence of success of battle on its comprehensive and detailed support.

"...Any battle," taught Lenin, "contains the abstract possibility of defeat and there is no way to reduce this possibility other than through organized preparation for battle."<sup>1</sup>

Comprehensive support is a most important part of the preparation and conducting of any battle. It includes reconnaissance, defense against weapons of mass destruction, security, antiaircraft defense, camouflage, and engineering, rear, and other forms of support.

Under contemporary conditions comprehensive combat support in all of its forms and measures, take on especially great significance. Without timely and reliable intelligence data about the enemy, the terrain, and the radiation and chemical situation it is impossible to make the correct decision and to make effective use of the available means of conflict. Without proper support of the troops in terms of fuel and ammunition the most advanced combat equipment becomes dead weight. Without organization of the entire complex of measures undertaken for protection from weapons of mass destruction, successful fulfillment of the combat mission is inconceivable.

Having thoroughly secured and prepared for battle in the operational-tactical, material, technical, combat, and engineering respects, we must turn to the training of personnel.

The decisive and intense character of contemporary battle and the use of weapons of unprecedented power have led to a sharp growth in the value of morale of troops and consequently to increased responsibility of commanders for the mental and political preparation of personnel for battle. The basis of this preparation is the idea of protection of Socialism and Communism, the protection of the Socialist Motherland. Every soldier must deeply realize the justice of the goals of our struggle, the rapacious character of war as the enemy wages it, and his personal responsibility for protection of his Motherland. Realization by the masses of the causes and aims of war and conviction in its justice, instructed V. I. Lenin, lifts the spirit of troops and ensures victory.

<sup>1</sup>Lenin, V. I. Polnoye sobraniye sochineniy (Complete collected works), Vol. 6, p. 137.

## CHAPTER III

### CONTROL OF TROOPS

#### Essence and Conditions of the Control of Troops in Modern Combat

Essence of the control of troops. Control consists in the constant leadership of units and subunits in the organization of combat operations of troops and guidance of their efforts toward fulfillment of set combat problems.

Success in combat has always depended on the quality of control. Skillful leadership promotes the defeat of the enemy with minimum losses and the quick achievement of victory.

Throughout the history of the development of the armed forces of different countries the theory and practice of control of troops did not remain constant. They underwent constant development and improvement in accordance with changes in armament, organization of troops, and methods of conducting combat actions.

Before the appearance of mass armies, when combat actions developed on small areas, the control of troops was carried out directly by the commander. This stemmed from the fact that he could successfully watch all the troops on the field of battle and direct their action without the help of special organs of control. At that time all orders were given by the subordinate commander or through aides, orderlies, and messengers.

With the appearance of mass armies, the increase in the scope of combat operations, and changes in conditions for conducting them, directing troops became ever more complicated. The volume of measures conducted in the process of control sharply increased. Gradually the work connected with the leadership of the troops became so cumbersome that no one man could any longer accomplish it all. Moreover, the time allowed for solution of problems of control was reduced ever more.

In these conditions the commander no longer personally leads the troops. Sending orderlies or aides to subordinates also does not permit timely solution of all questions of leadership of troops in the course of combat operations. It is necessary to create a special element capable of helping the commander in the control of the troops, to free him from all secondary matters, to allow him to concentrate his attention on the solution of basic problems.

To resolve the problems connected with control there was introduced first the military council with a commander in chief; then in the middle of the 18th Century, the army staff; and at the beginning of the 19th Century, staffs of divisions and units. Since then in the armies of all countries of the world the staffs have been the basic element of control of troops.

With the development of the armed forces new military branches and special troops appeared. They are equipped with complicated types of weapons and combat equipment and play an ever more significant role in the achievement of success in combat. This development required further expansion of the circle of official persons drawn into the leadership of troops. Gradually chiefs of branches of troops and special troops began to be involved in the process of control.

The order of control elements was constantly augmented by ever more improved technical means for communication and movement and the forces and means of conducting reconnaissance. This permitted more successful continuous solution of the problems of control in all the complicated conditions of battle and improvement in the methods of organization of combat operations and methods of leadership of troops in battle.

In contemporary conditions the control of troops has become a very complicated process. It includes the solution of many new, extraordinarily important, and complicated problems. Thus, for instance, in connection with the appearance of nuclear weapons it became necessary to direct the application of this weapon, to coordinate actions of other means of destruction with nuclear attacks, to ensure the rapid use by troops of the results attained, and to predict subsequent radioactive contamination, scale of destruction, fires, and flooding of terrain. The application by the enemy of nuclear weapons requires special attention to maintaining high morale and combat-readiness of the troops, organizing rapid liquidation of the consequences of a nuclear attack, radiation reconnaissance, bypassing, and crossing zones of radioactive contamination, and calculating doses of irradiation of personnel. The constant threat of a nuclear attack by the enemy requires organization of dispersion of troops, changes in their location, and a number of other measures.

The control of troops in contemporary combined-arms combat embraces the activity of a considerable number of officials. In the limited time which is now available to take measures for the control of troops, the commander cannot, in practice, solve all the problems which arise. Successful solution of problems connected with the leadership of troops in the preparation for and course of battle is possible with the active participation of not only the commander but also the staff, political elements, and chiefs of branches of the army, special forces, and services. It is quite clear that by all means the principle of one-man authority [unified] should be retained since, as V. I. Lenin instructed, its absence "leads inevitably to catastrophe, chaos, panic, ployarchy, and defeat."<sup>1</sup>

The basic content of the control of troops consists of maintaining a high political and moral state and constant combat readiness of troops; collecting and studying data on the situation; detecting the intentions of the enemy; formulating a solution; assigning missions to subordinates; organizing and maintaining coordination of troops; supporting them in combat; and checking the fulfillment of the assigned problems.

Well-organized and uninterrupted leadership of the troops ensures the seizure and retention of the initiative, secrecy of preparation and suddenness of inflicting blows on the enemy, effective use of nuclear weapons and conventional means of destruction, skillful use of results of their action, and timely execution of measures for defense against weapons of mass destruction. It permits effective use in combat of all troops, taking into account their capabilities.

Conditions for control of troops. Until recently control was carried out under conditions when combat operations were developed methodically and at a measured pace, the situation on the battlefield changed comparatively slowly, and the outcome of the battle depended mainly on the effectiveness of actions of a nonmotorized infantry, insufficiently perfected tanks, tube artillery, and piston aircraft. Control posts were close together, since not infrequently an area of 15-20 square km contained the initial position for an offensive of the force and means of an entire division; all the control posts often remained at the same site for a rather long time and were less vulnerable to enemy action than today.

<sup>1</sup>Lenin, V. I. Polnoye sobraniye sochineniy (Complete collected works), Vol. 39, p. 46.

In modern combat the control of troops is considerably more complicated. Now it is necessary to direct subunits and units of very high mobility and maneuverability, operating in contaminated areas in conditions of general destruction, flooded terrain, and fires.

The frequent and rapid transitions from one form of combat operations to another make it necessary to organize a battle in the course of preceding combat operations or to solve problems of the organization of combat in the process of moving troops, i.e., on the march. The long period of preparation which in the past always preceded the beginning of combat operations will now, as a rule, be lacking. Troop control usually is carried out in a confused situation and in complicated conditions of the transition of troops to combat operations. Not infrequently is it necessary simultaneously to organize the action of the troops for fulfillment of a given mission and to direct the liquidation of the consequences of enemy nuclear strikes.

The increase in the spatial scope of combat operations leads to an increase in distances between the control posts and to the necessity to coordinate efforts of troops dispersed in areas several times larger than those of World War II. The rapid pace of development of combat operations makes necessary frequent movement of control posts; the commander and staff spend long periods on the move and they must direct the troops on the run. In view of the rapid and radical changes in the situation information about it must be collected with minimal delay, decisions made, and the persons affected informed. In order to cope successfully with the means of enemy nuclear attack and to make effective use of the available means of destruction, speed and exceptional accuracy in carrying out complicated tactical calculations are necessary.

The vulnerability of control posts and means of control to nuclear weapons and sabotage-reconnaissance groups is greatly increased, and the operation of radio communication is reduced by enemy interference. The application of nuclear weapons by the enemy can cause great losses in personnel of control elements, disturbance in communications, and a loss of control posts and even whole control elements.

Although the volume of measures undertaken for leadership of the troops has increased immeasurably the time available for their fulfillment is constantly being reduced. During the last war much time was expended preparing for combat actions. Thus the 26th Guards Rifle Division received a combat mission on 2 October 1944 and went on the offensive on 16 October - i.e., they engaged in preparation for fulfillment of the mission for almost 15 days. The 850th Rifle Regiment of the 277th Rifle Division in October of 1944 spent 13 days preparing for a breakthrough of the defense. Now the organization of combat in units and subunits consumes considerably less time.

Thus the conditions of control of troops have been immeasurably complicated, a fact which considerably increases the demands of leadership of subunits and units in contemporary combined-arms combat.

#### Requirements for Troop Control

The control of troops can be successful only if it is firm, flexible, and continuous, if the leadership of the subunits and units is operationally effective and secret and be based on centralization and wide manifestation of intelligent initiative and independence by all subordinates (Fig. 6).

Firmness of control consists in the bold acceptance of a decision and its persistent and resolute implementation, with the commander and staff highly exacting in their demands for completeness and accuracy of fulfillment by the troops of assigned tasks, in the achievement of the goal set by the superior commander.

Firmness of control is in direct ratio to the degree of training and the personal qualities of the commander and officers of the staff, especially their boldness, resoluteness, and persistence. Combat actions do not always develop in accordance with a plan outlined beforehand. In combat a great number of

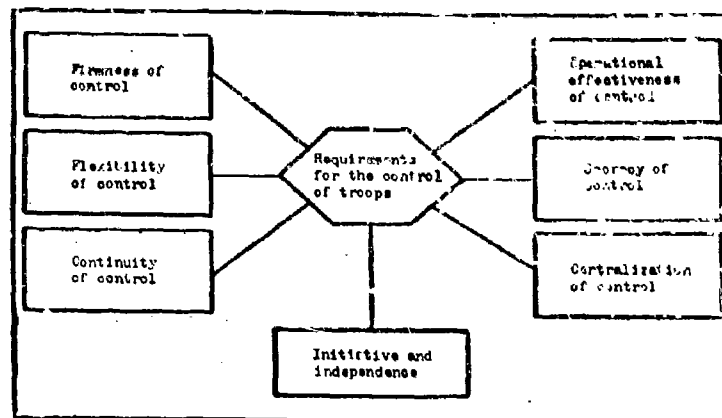


Fig. 6. Requirements for the control of troops.

unforeseen difficulties will arise. They can cause uncertainty in the commander organizing the battle and lead him to doubt the correctness of his actions and lose faith in victory. Therefore, at critical moments of the battle, when the tension of forces of the opposing sides attains the highest limit, he who keeps his faith in victory and strives to carry through the accepted decision will win.

In the midst of sharp complications of the situation it is possible to count on success only if all efforts of the troops are resolutely united and directed to surmounting the difficulties encountered in the course of combat and to complete and exact fulfillment of the mission. Unity of will of the commander and his subordinates, unanimous effort to successfully complete a battle once begun, to execute exactly the plan of the superior commander and to reach a successful solution to the general combat problem will weaken the effect of any surprises on the course of events and will reduce to a minimum the effect of chance changes.

In modern combat events develop more swiftly than before and the situation changes rapidly. Application by the enemy of weapons of mass destruction can inflict great losses on troops and cause strong area contamination, extensive destruction, and fires. Some personnel could lose their courage and panic might appear. All this puts the troops in a difficult position hampers the implementation of the accepted decision. In such a situation only firmness of control, exacting requirements and decisive actions of the commanders and staff can prevent possible complications.

Firmness of control must not be identified with obstinacy in actions of the commander and staff. To stick obstinately, despite common sense or necessity, to a decision which is not appropriate to the concrete conditions of the real situation on the field of battle can lead only to useless losses.

Flexibility of control is expressed in quick reaction to changes in the situation, in a timely and more precise definition or change of a decision accepted earlier (and if necessary even to reject it and make a new one), and in giving the troops a more precise definition of their combat missions and method of coordination in accordance with this decision.

Persistent fulfillment of an accepted decision is carried out so long as it ensures achievement of the outlined goal. If, however, this decision ceases to correspond to those concrete conditions which form in the course of battle, its further implementation will cause unjustified losses of troops, means, and time. This can be avoided by a timely refinement or change of a decision made earlier.

Flexibility of control permits constant adaptation of the methods of actions applicable by the troops to conform with variable conditions of the situation and direction of the efforts of the troops to the quickest achievement of the outlined goal.

World War II provided a great number of examples of flexibility of control of the troops. Thus during an attack by the 121st Rifle Division (August, 1943), with an assault crossing of the Seim River, the commander of the division concentrated the main efforts on the left flank. But in the course of battle success was achieved on the right flank, where the 705th Rifle Regiment managed to seize a bridgehead. The commander of the division changed his initial decision and shifted the main attack to the area which had been considered secondary. Quickly regrouping the main forces, the 574th and 383rd Rifle Regiments, on the right flank, he exploited the success with all his forces. This made it possible to inflict a significant defeat on the enemy and facilitated quick liberation of the city of Ryl'sk.

In contemporary combat success in the control of troops can be expected only if it is flexible and ensures quick reaction to sudden changes in the situation. For instance, between the time it is decided to make a nuclear strike on the enemy and the moment when the warhead detonates above the chosen target the target can change position, and if the decision is not altered immediately before the strike, effective results cannot confidently be expected. Or let us take another example. The application of a nuclear weapon can quickly change the balance of the forces and means of the opposing sides and can make an attack in the planned direction unprofitable. In this situation a quick change of the previous decision and the transfer of efforts to a new area is required.

Flexibility of troop control has nothing in common with indecision. Frequent and unfounded changes of decision due to waverings on the part of the commander or inadequate knowledge and analysis of the situation only disorganize the operation of the control elements and the action of the troops. Each new decision involves changes in actions of the subunits conducting the battle. Groundless and frequent changes lead to serious errors in control and failure to fulfill the task.

The most important factors are the speed and correctness of the reaction of the commander and the staff to changes in the situation, i.e., altering the plan or acceptance of a decision in the shortest period and the timely issuance of the altered plan or new combat missions and order of coordinated action to those who must carry them out.

Indispensable conditions for achievement of flexibility of control are constant checking of the fulfillment of the problems at hand and rapid collection and analysis of data about the enemy and his forces.

Continuity of control is manifested in constant influence on the course of combat actions in the interests of successful fulfillment of the mission by the troops.

Even in the past, when conditions for conducting combat actions were less complicated, a breakdown in command of the troops in the course of a battle was not infrequently one of the basic causes of defeat. In the swift pace of modern combat, the situation requires the commander and staff immediately, without delay, to influence the course of combat actions.

Under conditions of nuclear-missile war the achievement of continuity of control is greatly hampered. However, in spite of this the commander and the staff cannot permit even brief interruptions in the leadership of the troops.

An indispensable condition for achievement of continuity of control is constant knowledge of the situation and anticipation of its most essential changes. Knowledge and profound analysis of the conditions in which the combat activity of troops proceeds enable the commander and the staff to accurately direct their efforts to surmounting the difficulties encountered in the course of battle.

But if [a commander] limits himself to merely reacting to events which were already completed, it is difficult to expect the successful fulfillment of the assigned tasks under conditions of rapid and sharp changes in the situation. In contemporary conditions it is necessary to be able to anticipate how events may develop on the battlefield. Today one must anticipate the possible development of events at considerably greater depth and with greater speed than during the last war.

This ability depends to a great extent on knowledge of the enemy's tactics, calculation of factors affecting the development of events, active and purposeful reconnaissance, reliable communications, prompt reporting by subordinates, and constant information from the superior commander and neighboring units.

To achieve continuity of control it is very important that command posts be dispersed skillfully, set up secretly, and transferred at the proper time. Each of the commanders designates deputies in addition to those authorized, provides for a definite reserve of forces and means of communication, and is himself prepared at any time to take over command if his superior is lost. If control is disrupted by nuclear attacks, without delay the commanders and staff will take all the necessary measures for its quick restoration.

Operational effectiveness of control is displayed in the rapid realization of all measures connected with the command of troops in preparing for and conducting combat operations. In conditions of bitter struggle of the opposing sides to gain time this is of great importance.

High operational effectiveness in the work of the commander and the staff is especially necessary in the course of combat. If troops advance at the rate of 4-5 km/hr, then the orders from the commander to take actions in connection with a new situation and reaching them, for instance, 20 minutes after the change in the situation, will catch them at a time when they have already succeeded in advancing almost 2 km. And at the beginning of a meeting engagement, when the troops of the sides are moving to meet each other at march speed, after the same 20 minutes the relative position of the troops of the opposing sides may have changed not by 2 km but by almost 10-15 km. One can well understand that when a commander is slow to react to the development of events his orders can be too late and will not correspond to the situation which actually exists on the battlefield at the given time.

Especially high operational effectiveness is necessary in solving problems connected with the use of results of nuclear attacks, countering the nuclear means of the enemy, and repelling raids by his aircraft. A tardy solution to these problems is fraught with serious consequences for the outcome of combat actions: it can lead to a loss in initiative and even defeat. While in previous times the appearance of one aircraft or one battery did not have a considerable influence on the course of a battle, today an aircraft or battery using nuclear ammunition (or even a single cannon) can substantially change the balance of forces and means.

In contemporary combat all measures connected with the organization of combat operations of troops and their leadership in combat should be conducted with minimal expenditure of time. This will be ensured by swift reaction of the commander and the staff to events. And this, in its turn, depends to a considerable degree on how quickly commanders and staffs can learn of changes in the situation. This means that quick procurement of data about the enemy, timeliness of reports of the subordinates, especially during sudden sharp changes of the situation, and well-organized information from the superior commander and adjacent units are of decisive importance.

Operational effectiveness of control is attained by a high level of personal training of the commander and officers of the staff, skillful fulfillment of their duties, organization and coordination in the work of all control elements, and the application of command methods which reduce the time expended on measures undertaken for control during preparation and in the course of combat operations. A major role is played also by the presence of perfected technical means which ensure the mechanization and automation of laborious processes connected with the leadership of the troops.

Secrecy of control has always been important. As the experience of past wars indicates, its breakdown results in unjustified losses and failure to accomplish assigned missions. In contemporary combat secrecy of control acquires an even greater importance in connection with the increase in the role of surprise actions, increase in enemy intelligence capabilities, and the application of nuclear weapons. If the enemy can succeed in uncovering the plan of operations of the troops, he can utilize strikes with nuclear and chemical weapons to wreck the



realization of their intentions. Once he establishes the sites of nuclear means the enemy is quickly able to put them out of action, and troops without nuclear weapons cannot achieve success in combat with an enemy having weapons of mass destruction. If he discovers control posts the enemy can quickly put them out of operation and thereby disrupt the control of the troops.

Such consequences can be eliminated by holding in the strictest secrecy everything that is connected with the preparation and conducting of combat operations and especially, measures pertaining to the use of nuclear weapons and the exploitation of their results. This is attained by a strict observance to established order of conversations on technical means of communication and the application of various ciphers and codes. Camouflaging of control posts and maintaining the secrecy of the activity of officials participating in the command of forces are very important.

Centralization of control has not lost its importance in modern combat. In spite of the substantial changes in the character and methods of combat operations, they are conducted as before in accordance with the plan of the senior commander and the achievement of the common goal requires the efforts of all forces and means participating in the battle. It is possible to unite these efforts and successfully direct them toward achievement of the outlined goal only through unified command.

Centralization of the control of troops is expressed in the unification by the senior commander of all actions of subordinate and attached subunits by a single plan, in the direction of their efforts toward the quickest achievement of the common goal of the battle. Centralized control is especially important in the solution of problems connected with the use of nuclear weapons and exploitation of the results, with countering the nuclear means of the enemy, and with actions in zones of contamination in regions of great destruction, flooding and fire. The greater the power and range of the available means of combat, the greater is the degree of centralization of their control and the higher the echelon which organizes their use in combined-arms combat.

Centralization of control has nothing in common with guardianship<sup>1</sup> over subordinates. Any effort by the commander to substitute for them and to make their decisions for them trains them to act only on orders from above. Petty dictatorship in questions of control generates lack of self-confidence in subordinate commanders and staffs, leads to a loss of time, damages the leadership of the troops, and negatively affects the fulfillment of the combat mission. Centralization does not exclude but rather assumes extensive initiative in the actions of subordinate commanders.

Initiative and independence. The initiative of a commanding officer and his ability to display independence in a complicated situation have always played a large role. Thus, in June of 1944 the commander of a battalion of the 61st Guards Rifle Regiment, Major Fedotov, discovered during the artillery preparation that the enemy was withdrawing and decided to start an attack immediately, although a half hour of the artillery preparation still remained. This intelligence was reported to the commander of the army. The artillery preparation was stopped and the subunits attacked, successfully mastering the enemy positions with insignificant losses.

In contemporary conditions the initiative and independence of the commander and other officers participating in control of the troops acquire an incomparably greater importance because no single commander can foresee everything. The situation on the battlefield changes frequently and quickly, and the one who is directly involved in the battle can take the necessary measures without waiting

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<sup>1</sup>This Russian word implies treating the subordinates as a father treats children, by making their decisions for them and preventing them from fulfilling their duties and responsibilities. [Trans. Ed. Note]

for instructions from above.

Waiting for instructions instead of taking the necessary measures could lead to the loss of time and to an even greater complexity of the situation. Moreover, given the contemporary character of combined-arms combat, the superior commander cannot always react in good time to a sudden and radical change in the situation. A commander may not receive instructions from the senior commander for a period of time.

In all cases when the situation is suddenly changed, the available instructions no longer correspond to the new conditions, and it is impossible to obtain new orders from the senior commander, every officer will act independently, displaying intelligent initiative and resourcefulness. The officer assumes complete responsibility and by following the general purpose and plan of actions of the superior commander he independently reacts to changes in the situation. Having quickly analyzed the situation, by his initiative he boldly takes necessary measures, selects suitable methods of fulfilling the combat mission, and persistently puts his decision into practice, seeking to defeat the enemy with the least possible force and to achieve the overall goal set by the superior commander.

The manifestation of initiative and independence in the process of control of troops facilitates the allocation to subordinate command elements of much freedom in action within the framework of the general mission. Every commander should have clearly in his mind the objective of the combat operations and the general plan of the superior commander. In connection with this the timely orientation of subordinates on the possible actions of troops in the course of further development of combat is of great importance. This will allow the commanders and staff to act more intelligently and purposefully during sudden and abrupt changes in the situation and absence of instructions from the superior commander.

#### Role of the Commander and Staff in the Control of Troops

The successful fulfillment of requirements for control depends to a considerable degree on the training, organizational abilities, and clear-cut distribution of functions among those officers who participate in the leadership of units during training and in the course of combat. A special place in the control of the troops belongs to the commander and staff.

The commander is the central figure in the control of the troops. He directs the units (subunits) in accordance with rules given to him by laws of the Soviet government and regulations, instructions and orders of superior commanders. He bears complete responsibility for the political and military training and instruction of personnel, for the combat effectiveness and constant combat readiness of the unit (subunit), and for the control of the troops and their successful fulfillment of the assigned mission.

To direct means to organize subordinates and to guide skillfully their actions for the achievement of the outlined goal. The commander organizes operations of the troops and constantly leads them in the course of battle, directing their efforts to a quick and complete destruction of the enemy, and giving them the necessary help. He observes the field of combat, thoroughly studies the situation, makes a decision, assigns combat missions, and organizes the coordination and thorough support of the troops.

The commander monitors the action of subunits and seeks exact and timely fulfillment of assigned missions and destruction of the enemy even with smaller forces. He assigns to the subunits additional missions and affects the course of battle by all the means at his disposal.

Examples of high combat skill of commanders were numerous in World War II. Here is one of them. In November of 1942 Lieutenant Colonel G. N. Filippov, who headed an advanced detachment of the 26th Tank Corps, skillfully led it at night through the combat formations of the 3rd Motorized Division of the enemy and with a swift thrust cut through to the Don River; the advanced detachment, which

advanced to the crossing with headlights lit, was mistaken by the enemy for its own troops... By its bold action the advanced detachment seized the crossing and ensured the quick surmounting of the great water barrier by two tank corps.

In contemporary conditions the role of military skill and organizational abilities of the commander has increased immeasurably because in combat he must control units (subunits) equipped with complicated weapons and extremely varied combat equipment.

The skillful organization of their action and their confident direction in the course of combat will be accomplished only by a commander who deeply understands and consciously executes his military duty, possesses strong theoretical military knowledge, has a high level of technical military training, and in whom the skill of leadership of troops in conditions of the application of weapons of mass destruction is highly perfected.

V. I. Lenin taught that the art of leadership consists in the determination of that main link in a chain on which depends the success of the solution of the main problem, that a leader should "...know how to find at every special moment that special link in the chain which it is necessary to grasp with all his strength in order to hold the whole chain and to prepare durably the transition to the next link...."<sup>1</sup> This Leninist position is applicable in full measure to the activity of any commander.

The activity of the commander should be for his subordinates a model of high organizational and operational effectiveness, of the ability to quickly solve the most important problems of control of troops. All this promotes the creation of firm authority of the commander among the subordinates.

The commander, the single authorized chief, is guided by a collective in the process of control of troops, since one man alone cannot solve all problems connected with the leadership of troops. Therefore, he governs the troops not only personally but through the staff, his deputies, heads of branches of the army, special troops, and services, and is guided in the process of the control by the party and Komsomol organization.

The staff is the first level of assistance of the commander in the leadership of troops, and is a basic element ensuring control.

The contemporary staff is a complicated organism which solves very responsible and many-sided problems in the process control of troops. It must study the various problems of the organization and conduct of battle; the use of results of nuclear attacks and protection from weapons of mass destruction, the combat application of complicated military equipment, the organization and continuous support of the coordinated action of troops, their complete protection, and so on.

The most important obligation of the staff is constant knowledge of the situation. This is ensured by thorough organization of intelligence, the persistent procuring of data on the enemy, and continuous study of the true position, state, and combat capabilities of their own troops, the character of the terrain, meteorological conditions, and the radiation, chemical, and bacteriological situation. In the process of organizing of combat operations, the staff in a short time produces complicated calculations and prepares for the commander proposals for the application of available forces and means in the forthcoming battle. It studies the planning of combat actions of the troops, passes the decisions of the commander to them, and helps him to organize and continuously support the coordinated action of troops in the course of fulfillment of assigned missions.

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<sup>1</sup>Lenin, V. I. Polnoye sobraniye sochineniy (Complete collected works), Vol. 36, p. 205.

The paramount concern of the staff is the organization of the thorough support of combat actions of troops, control posts, communications, commandants service, and the regulation of movement. The staff not only passes the combat missions to the subordinates in the subunits, but also checks the correctness of their understanding, carries out constant monitoring of their timely and exact fulfillment, and provides the necessary help. One of the most important obligations of the staff is the presentation of dispatches to higher headquarters on the course of combat operations and the constant information of command elements of subordinate cooperating subunits on new data of the situation.

Successful solution of all of these complicated problems requires organization, precision, good coordination and high operational effectiveness in the work of the staff, as well as outstanding training of every officer. The characteristic of requirements which should represent an officer of the staff is best described by V. I. Lenin: "any work of control requires special properties.... In order to govern, it is necessary to be competent, it is necessary to know completely and with accuracy all conditions of production, it is necessary to know the technology of this production at its contemporary level ...."<sup>1</sup>

An officer of the staff should be a highly skilled worker, thoroughly grounded in Marxist-Leninist theory and possessing an extensive operational and tactical outlook, good military-technical training and staff education. He will be able successfully to execute his functions only under the condition that he understands deeply the nature of contemporary combined-arms combat and is able to produce quickly the necessary calculations, develop the required documents, and by means of communication and in personal reports correctly and briefly inform the recipient the content of the instructions of the commander, dispatches from the subordinate staff, and information from adjacent units. It is of special importance that the officers of the staff display creative initiative, resourcefulness, and skill; quickly comprehend a complicated situation and find the most expedient ways of solving the problems; maintain his stamina and equanimity; and possess self-control during sudden changes in a combat situation.

In conditions of the wide application of nuclear weapons it is very important not only to have the correct distribution of duties and coordination in the work of officers taking part in the control of troops, but also the observance of the principle of mutual interchangeability. Quick replacement of an officer who is out of action facilitates the preservation of organization and exactitude in the work of the staff.

The role of the chief of staff is especially great. He is the first deputy of the commander and has the right to issue orders to the troops and also to the deputies of the commander and the officers of branches of the army, special troops, and services. He reports all such orders to the commander, and the commander indicates to the chief of staff his assumptions and intentions and informs him about his decisions and issued orders. The work of the commander and the chief of staff is constructed on the basis of mutual understanding and a creative business-like contact. This promotes achievement of unity of opinions, consolidates the authority of the commander, and unites the efforts of the command element.

The chief of staff should be always ready to report his opinions on the decision for battle, to know where the troops are, what they are doing, and what they need. He bears the personal responsibility for the organization and support of efficient control, directs the work of the staff and guides the activity of the whole control apparatus for timely carrying out of measures connected with the preparation and conducting of combat operations. The chief of staff coordinates the work of the staff and the chiefs of branches of the army and services.

#### Means of Control - the Material Basis of Control

The means of control include the various machines, instruments, devices, and equipment utilized in the process of leadership of troops for the purpose of easing and accelerating the activity of the commander, the officers of the staff, and

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<sup>1</sup>Lenin, V. I. Polnoye sobraniye sochineniy (Complete collected works) Vol. 40, p. 219.

other control elements. They permit officials to associate with each other, to obtain data about the enemy, to obtain information about their own troops and adjacent units, to analyze information obtained about the situation, to prepare data necessary for the direction of troops, to develop combat documents, to pass the decisions of the commander to subordinates, and to control the action of the subordinates. Means of control are the material basis of control, the technical base which ensures the direction of troops over the extent of the entire combat.

At various stages of the development of military skill different technical means were applied. At present the control of troops rests on a high technical basis. Elements of control are equipped with a considerably quantity of means of communication and other equipment necessary for the direction of troops in complicated conditions of a nuclear rocket war.

In the process of control radio facilities are widely used; these include shortwave and ultrashortwave radio stations and receivers, ensuring communication not only on site, but also in movement. According to the foreign press, the range of communication ensured by radio means on a tactical scale reaches 50-80 km. All radio stations and receivers are equipped with means of classifying transmission.<sup>1</sup>

Wide use is made of radio relay means, forming multichannel communication lines over which simultaneous telephone, telegraph and phototelegraphic communication is possible. Radio relay communication possesses a very high interference-protection and almost the same maneuverability and versatility as standard radio communication. It depends little on climatic and meteorological conditions and time of year and day, and it can easily be accomplished through poorly accessible regions.

In the process of control various mobile means of communication are widely used: motor vehicles with improved roadability, armored cars, armored cars, motorcycles, helicopters, and others. Used also is the wire means of communication, which, owing to the use of new types of cables, the introduction of sealed equipment, and the application of improved methods of arrangement of cable lines, has not completely lost its importance. Tactical links of control use signal means of communication: rockets of different colors, colored smoke and flares, lanterns, searchlights, signal matches, tracer bullets and shells, flags, markers, etc.

Application of communication means to the greatest degree satisfies the need for control. With the help of communications the most important problems of the leadership of subunits are solved. Even an individual tank in contemporary conditions cannot fight without the application of means of communication. Communications ensures the passing of combat missions and the order of coordination to subordinates, the maintenance of coordination of forces in the course of combat, obtaining reports of subordinates about the fulfillment of orders of the commander, the receipt of information about the situation from higher headquarters and from adjacent units, the announcement to the forces of an aerial threat and radioactive and chemical contamination, direction of the activity of the rear, and the fulfillment of other tasks connected with the control of troops during training and in the course of battle.

In contemporary conditions communications must meet high requirements. Communications are organized to be established in good time and remain uninterrupted during any changes of the combat situation, so that the necessary speed of transmission of any information and secrecy of its work are ensured.

In the units (subunits) a single system of communications is created, meeting the needs of the commander, staff, and other controls in any conditions of the situation. The basis of the system of communications are communications centers created at control posts. Each communications center unites in its makeup various

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<sup>1</sup>Worley, M. Novoye v armii SSHA (New Developments in the Army of the United States). Moscow, Voenizdat, 1959, pp. 229-232.

technical means. This ensures the complex application of available means of communication, with simultaneous or sequential use made in each direction of several different means (radio, radio relay, mobile, signal, wire). The commutation at the communications center of wire lines, and also of telephone apparatus and radio stations which are found in the control room, permits a quick transition as needed from one means of communication to another and ensures the mutual interchangeability of communication channels.

Communications centers are connected with each other by radio, radio relay, wire communication lines and mobile means. Communications can be organized by different methods (Fig. 7): as a network (radio and radio relay communication), a link (radio, radio relay, wire and communication by mobile means), along an axis (radio relay, wire, and mobile communications), and in a circular route (communication by mobile means).

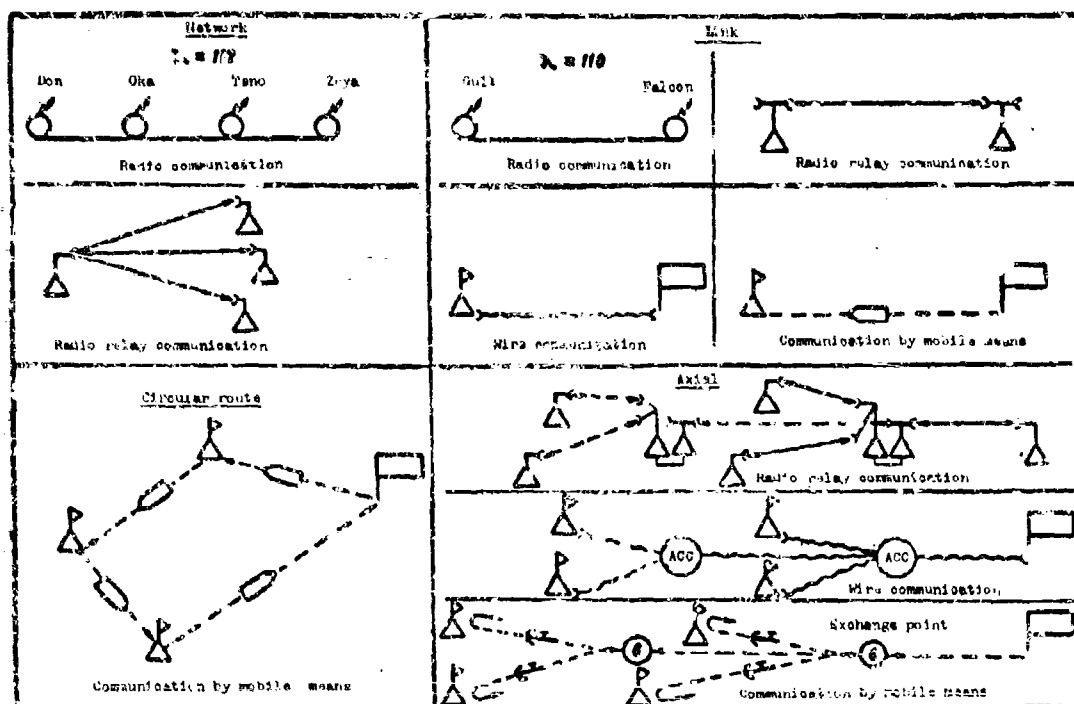


Fig. 7. Methods of organization of communications. [ACC - auxiliary communications center]

The system of communications in subunits is relatively simple. It unites in one or several radio networks an insignificant number of radio stations at the disposal of commanders of subunits; depending upon the situation, radio communication is supplemented with wire, mobile, and signal means of communications. At higher echelons the system of communication is characterized by great complexity. For example the system of communication of the "Net" type, widespread in foreign armies, connects the numerous communication centers of units, subordinated units, and higher elements of control by lateral and longitudinal lines of radio and radio-relay and sometimes wire communication (Fig. 8).

<sup>1</sup>"Armor," 1961, March-April; "Verkunde," 1961, January.

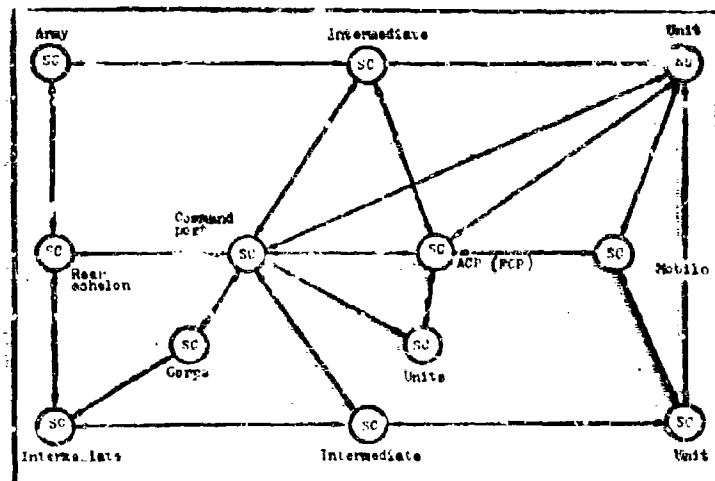


Fig. 8. Communications system of the "Net" type in the formation of the United States Army. [SC = signal center; ACP (FCP) = Alternate command post (forward command post)]

The communications system of every unit (subunit) will be coordinated or joined with the communications system of higher and lower control elements. This ensures the possibility of establishing communication through channels upwards and downwards and also permits officials to use centers and communication lines of a higher unit of control for communications with other subunits and adjacent units.

Besides the means of communication, the leadership of troops utilizes command-staff and various special vehicles equipped with modern technical means, allowing the commander and other officials to fulfill their duties without leaving the vehicles. The vehicles are equipped with everything necessary for work of the commander and staff officers; they possess high roadability, have great rated cruising range, ensure good protection of the personnel from enemy fire, and reduce the degree of influence of radiation during actions in zones of radioactive contamination.

The needs for the control of troops are served by means of radio and radar reconnaissance, various observation instruments, sound recording equipment, copying instruments, and duplicating machines.

The available material base lets the commander and staff successfully solve the majority of the problems connected with the leadership of troops in modern combat. However, certain problems of control, for instance the collection of data about a situation and the observation of actions of troops, are considerably complicated. Therefore, in many armies work is being conducted on the further improvement of the existing means of control.

Improvement of the existing means and introduction of the latest technical means will ensure the further mechanization and overall automation of processes of control of troops, will increase its operational effectiveness, and will allow more successful solving of problems arising in the areas of leadership of troops in combat and improving the techniques of the commander and staff in the control of subunits and units.

In the leadership of troops the means of control are used not only in the communications system, but also in the composition of control posts organized in a definite way for the period of combat operations.

#### Control Posts

The leadership of the subunits and units in combat is carried out from control

posts. The composition of the control post includes the officials associated with the directing of the troops, the necessary quantity of technical means, and also security and service subunits.

In a subunit one control post is created, including the commander and his deputy, the staff, communications men, and protection. All of them are located in one or several vehicles (armored carriers) equipped with means of communication and other means of control. The control post of the subunit is usually called the command-observation post, since from it not only command of the subunits but also observation of the field of battle and reconnaissance of the enemy are possible.

In higher control elements, in which command of troops is more complicated, the presence of officials and technical means makes it possible to create several simultaneously effective control posts. In foreign armies each such post has a different name, but they are essentially the same.

One of the posts, usually called the command post, is designed for the supervision of troops conducting a battle; it is considered the main control post, since it contains a large unit of the control apparatus, headed by the commander, and the major part of the technical means; the most important problems connected with the leadership of the troops are solved here.

From the command post there can be detached an observation (forward) post for the observation of the actions of friendly and enemy troops on the battlefield and for the directing of those troops which are away from the main forces or are operating on an important area.

Another post, called most frequently the rear (echelon) control post, has as its basic assignment the command of rear subunits.

To ensure stable control of troops in cases when their direction from the command post is hampered, or if it is put out of action, a post is created which is called either the reserve or forward or auxiliary command post depending upon the type of combat. Personnel of the reserve command post are constantly abreast of the situation, of all directives and orders issued to the troops, and are ready at any moment to take over command of the troops.

To guarantee stability of control in conditions of constant threat of the destruction of the control posts by enemy nuclear attacks, it is necessary to constantly disperse the created posts over a considerable area.

The composition of the control posts is usually inconstant and depends on the situation, mainly on the character of the mission and the availability of officers and means of control. As few control posts as possible are set up. However, under any conditions each post should include the necessary minimum of officers and technical means to ensure the needs of control and to allow at any moment the temporary assumption of command of the troops by a senior or subordinate command authority.

As a rule all control posts are highly mobile. Their makeup includes tanks, armored carriers, command-staff and special vehicles equipped with equipment for communication, observation, mechanization of the work of officers, and other modern technical equipment, ensuring the continuous directing of troops in any situation, with the commanders and staff both stationary and in motion. The high roadability and mobility of the vehicles ensure the quick close down, transfers and deployment of control posts in new areas.

The distance of control posts from the forward edge of the battle area [FERA] in the last war was most diverse. For subunits it was from several tens to several hundreds of meters; for units and formations, from one to several kilometers. The control posts were as close as possible to the subunits and units conducting combat operations and were located at a short distance from each other, since the possibilities for observations of actions of the enemy and their own troops on the battlefield and for maintaining reliable communications with the subordinate troops and with each other were very limited. This led to a great



oversaturation of control posts in areas of troop actions very small in size.

In modern conditions, on the one hand, the possibilities for observation of the battlefield and for maintaining communications have increased considerably, while on the other hand there has appeared a constant threat of the control posts being put out of action during enemy nuclear attacks. All this makes it necessary to disperse the control posts to a greater degree than in the past and makes it possible to place them at considerably great distances from the troops under their direct command. At the same time, in contemporary conditions it is nevertheless expedient to deploy and transfer control posts in such a manner that they are as near as possible to the subordinate troops at the most critical periods of combat. Commanders of subunits are always where they can personally watch the actions of their subunits, the enemy, and the adjacent unit and maintain communications with their commander and subordinates.

The control posts are deployed away from outstanding reference points; protective properties of the terrain are used to ensure concealed sites, so that nothing is distinguished in the battle formation, and the posts are thoroughly camouflaged.

Transfer of control posts in the course of battle is carried out secretly, using terrain features for cover. During short stops the control posts are compactly disposed, and during prolonged location at one site they are dispersed (Fig. 9).

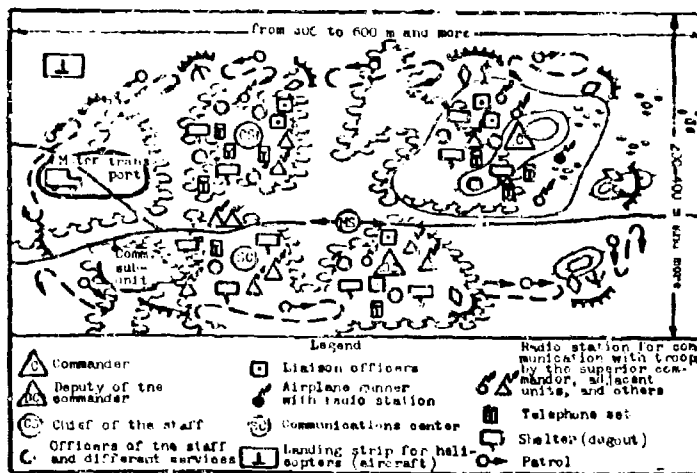


Fig. 9. Fundamental diagram of the location of a command post of a combined arms unit (the United States Army). (The diagram is taken from the work of D. A. Ivanov, P. V. Shemanskiy, and V. G. Yanov, "Upravleniye voyskami v sovremennom obshchevoyskovom boyu" ["Control of Troops in Contemporary Combined-Arms Combat"]). [MS = Message Center]

As a rule control posts move irregularly according to the change in the position of troops in the course of battle. In modern conditions it will be necessary to transfer control posts more frequently than before. With the fast tempo of the offensive and the rapid changes in the situation in conducting a defensive and a meeting engagement the duration of stay of the control posts at one site is reduced. In the offensive, for instance, the commanders of subunits will find themselves almost constantly in motion, while the control posts of higher echelons will move several times in twenty-four hours, remaining at any one place a short time.

### Collection and Processing of Data on a Situation

The control of troops constitutes, in essence, the process of obtaining definite information (combat mission, data on the enemy, friendly troops, and terrain, and other conditions of the situation), the arrival at a more precise definition of a decision and passing it to the troops, and also the control for the execution of the assigned missions. This process, in various forms and volumes, is repeated again and again through an entire battle, starting from the moment a mission is received and ending with the full achievement of the outlined goal of the operations.

Constant knowledge of the situations in which the combat activity of troops occurs is an indispensable condition for successful leadership of troops in combat. The more completely and reliably a commander knows the situation, the fewer will be his miscalculations in making a decision, the more successfully he will apply means of destruction, and the more effectively he will use subordinate subunits in combat. Therefore it is necessary to make every effort to see that at the moment of arriving at his decision the commander has at his disposal as much data as possible about the situation in which the troops are to execute the combat mission.

In the interests of control, various data on the conditions of the situation are collected, including information about: the composition, grouping and actions of the enemy; the position, state and protection of subordinate and attached subunits; the position and character of actions of adjacent units; the radiation and chemical situation; the terrain and meteorological conditions; and also the state of the region of combat operations and the political attitudes of the population.

Special attention is paid to obtaining data on the nuclear and chemical weapons of the enemy and on the radioactive and chemical contamination of the locality. One should gather information most quickly and in most detail about the enemy's means of mass destruction and about the actions of his air force and other highly mobile combat means.

In contemporary conditions the situation changes sharply, and therefore information is outdated very quickly; it loses its value and can even lead the commander to error. Therefore, data about a situation are gathered in as short a time as possible and are brought to the commander or other concerned persons without delay.

The collection and processing of situation information require considerable expenditure of forces, means, and time. Therefore the commander is often forced to make a decision with inadequate data on the conditions of the ground and air situation.

The collection of situation data is produced first of all by the commander, who personally obtains the most important information about it. But all the information about a situation cannot be collected in its entirety by one commander. He gets help in this from the officers of the staff and also other officials taking part in the control of troops. Each of them gathers data ensuing from the needs of fulfillment of functional duties placed on him.

Situation information is obtained by all available methods and from the most diverse sources (Fig. 10).

Data about a situation can be obtained by the commander and other officials through observation of the actions of the enemy and their own forces and by a survey or direct inspection of terrain and local objects. Of paramount importance are such methods as using technical means of communication to receive reports and dispatches from subordinates (including reconnaissance units) and information from the higher commander or staff and adjacent units, getting oral reports of subordinates during personal contact with them, the study of written documents obtained from subordinates and adjacent units and of visual and audio signals sent by them. Among the most important methods of obtaining information about a situation are the interrogation of prisoners and deserters, the interrogation of

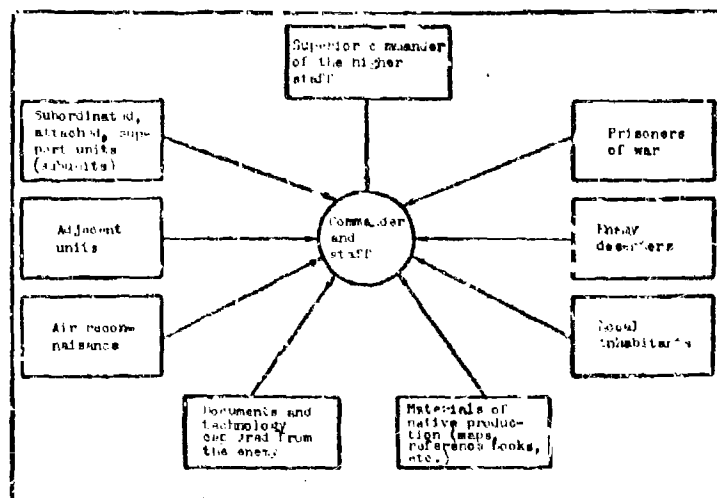


Fig. 10. Sources of situation data.

local inhabitants, and the study of documents and different materials captured from the enemy.

The basic sources from which the commander and staff can obtain data on a situation are air reconnaissance, commanders and staffs of subordinate, attached, and supporting subunits, the superior commander, higher staff and adjacent units. Not infrequently there is valuable information in the study of documents and equipment captured from the enemy.

The data obtained about a situation have various degrees of authenticity, accuracy, and completeness. Therefore, before a report is given to the commander the data are usually thoroughly analyzed: false and doubtful information is sifted out, those data which will be reported to the commander are systematized and generalized, and the probable (whose validity is uncertain), doubtful, and false data are refined and rechecked. The report to the commander, as a rule, gives both an appraisal of the situation and practical proposals. Information is reported to the commander either during personal contact or over means of communication.

In any circumstances the collection and processing of information about a situation should take as little time as possible; new information about the enemy, especially about his means of nuclear attack and his aviation, or other important data should be reported to the commander immediately, without processing, in the form in which the information is obtained from the source.

#### Decision of the Commander - the Basis of Control

All measures undertaken for the preparation of subunits and units for combat and their control in the course of fulfillment of the mission are conducted in accordance with the decision of the commander. The decision includes basic data for the development of these measures. The decision defines what must be done and when, where, and how it must be done so that the assigned problem is solved with a minimum of effort and least expenditure of time. This is why the decision of the commander is considered to be the basis of the control.

The decision determines the plan of actions, combat missions for the subunits, the order of interaction, and organization of control. The commander's plan concept is the basic idea of battle. It determines who the enemy is and how to destroy him, the direction of concentration of basic efforts, the objectives for defeat by the available means of combat and the order of their application, and

the grouping of forces and means and the character of their maneuver.

Until the commander makes the decision and passes it to the units (subunits), their preparation for forthcoming actions cannot be conducted with sufficient purpose. Therefore, the speed of making a decision and passing it to the units directly involved in many respects governs the success of the organization of combat operations. If the decision is made in the course of battle, even the speed and degree of achievement by the troops of the outlined goal depend on this.

The combat decision should be made and passed to the troops in the least amount of time and with such calculation that the subordinates succeed in developing and carrying out all the measures undertaken for the preparation to fulfill the combat mission. If in the course of development of combat operations it becomes necessary to alter the decision or to change to a new decision, this must be done quickly, with the least possible lag behind the changes in the situation which caused the revision.

The arrival at a decision to give battle is a complicated creative process. Since the combat operations of every subunit are essentially only the fulfillment of some definite part of the plan of the superior commander, the decision of the commander certainly includes the determination of the purpose of actions of the subordinate forces. In order to ensure their successful achievement of this goal, to organize the action of the troops, and to direct their efforts to the quickest fulfillment of the assigned task, the decision should include the determination of methods of achievement of the goal of battle.

The goal of combat operations ensues from the content of the combat mission assigned by the superior commander, and the methods of achievement of the goal are based on appraisal of those conditions of the situation in which the combat mission is to be carried out. Therefore, arrival at the decision usually includes analysis of the assigned problem and an appraisal of the situation.

In those cases when in the course of development of combat operations considerable changes in the situation compel the commander to make a new decision, but the mission of the subunit remains as before, the decision is made only as a result of an appraisal of the situation.

In analyzing the assigned problem, the commander tries distinctly to imagine just what is included in the plan of the superior commander, especially his intentions regarding the use of nuclear weapons and other means of destruction and the effect of the fulfillment of the combat mission; he attempts to understand the role which the subunit is intended to play in achieving the goal of the forthcoming combat operations.

The goal of combat actions is indicated by the superior commander in the form of those final results which are to be attained by the overall efforts. The role of each subunit in the achievement of the goal is determined by its place in the battle formation and by its assigned mission.

Through the understanding of the problem the commander obtains a clear concept of the goal towards which the superior commander directs efforts of the troops, and he is able to establish the degree to which the plan of the superior commander affects the concentration of the basic forces and the organization of the battle formation in combat. The general outlines of the decision are conceived in conformity with the plan of the superior commander, and certain outlines of methods of the fulfillment of the assigned mission are made.

All this permits the commander to determine the measures which must be taken immediately to prepare the troops for fulfillment of the assigned mission. It makes it possible to calculate the time allotted for the organization of combat in each of the control elements. The commander is able to issue instructions to the chief of staff for the organization of reconnaissance and on the necessary preliminary orders to the troops for early orientation of the subordinate commanders and staff regarding the forthcoming actions. Parallel work on the organization of combat is thereby immediately ensured in the several elements of control; the units and subunits have more time to prepare to fulfill the assigned mission.

In combat the troops meet with counteraction of the enemy, with difficulties caused by the character of the terrain, the political feelings of the local population, the state of the weather and other meteorological conditions. Therefore in order to attain the goal of battle and to select correctly the methods which best ensure the success of the operations, it is necessary to evaluate carefully the conditions in which the troops will have to execute the assigned mission. An appraisal of the situation permits the commander to establish how he should direct the efforts of the subunit and how best to organize, conduct, and support the battle.

During his evaluation of the situation the commander clarifies the position, composition, and status of the enemy grouping, its possible changes, and the character of the application of weapons of mass destruction and actions of the troops. The most important objects of the enemy are established and are marked as targets for nuclear and conventional weapons; note is also made of that part of the formation whose destruction will sharply lower its combat capabilities. The state, position, material readiness, and combat capabilities of his own troops are estimated, as well as the position and the character of actions and missions of adjacent units. The radiation and chemical situation, the character of the terrain, meteorological conditions, the state of the weather, the season and the time of day are thoroughly studied.

All these elements are interrelated and often have very contradictory effects on the fulfillment of the combat problem. They are not equal in weight in their influence on the success of the combat actions of the troops. In different situations some elements have a decisive influence on troop actions (in one case this will be the enemy, in another the time, in a third - the condition and material supply of your own troops or the terrain), while others affect the application of forces and means to a lesser extent in fulfilling the task. The commander must have a deep understanding of the situation and the skill to detect those principal elements in the given conditions whose calculation makes possible the best decision.

Usually the commander analyzes each of the elements of the situations consecutively and in detail, compares the conclusions, and determines which will most decisively affect the fulfillment of the combat problem. When the decision is made in the course of development of combat operations and even during the early organization of combat, but if time is extremely limited, the commander estimates with the greatest completeness the decisive element of the situation and through comparison with the obtained conclusions produces an appraisal of the remaining elements. It is expedient to appraise each of the elements of the situation immediately from the point of view of the most important elements of the decision - the area of concentration of the basic efforts, the grouping of forces and means, combat missions of the subunits, etc. (Fig. 11). This practice will not only save time, but will also make the whole process of arriving at a decision more purposeful.

In the process of appraising the situation the commander can demand the necessary data on problems of interest to him from the chief of staff, his deputies, and the chiefs of the service branches. Most frequently and in the largest volume more precise definition of individual problems will occur during the early preparation of combat, especially when troops arrive from another area. In the course of combat, when the time for refining a plan or accepting a new decision is extremely limited, the commander often will find it necessary to manage without hearing even his closest aides. Nevertheless, in any situation the staff and the chiefs of the service branches prepare data which may be of interest to the commander in making a decision, first of all on problems of countering the means for a nuclear attack, exploitation of the results of nuclear strikes, and the tasks of subunits and the order of their joint action.

As a rule the commander of a subunit organizes combat operations on site with a map. However, the situation does not always allow the commander of a subunit to carry out the organization of combat on the terrain. In such cases it will be necessary to make a decision according to the map and subsequently to refine it more accurately on the site.

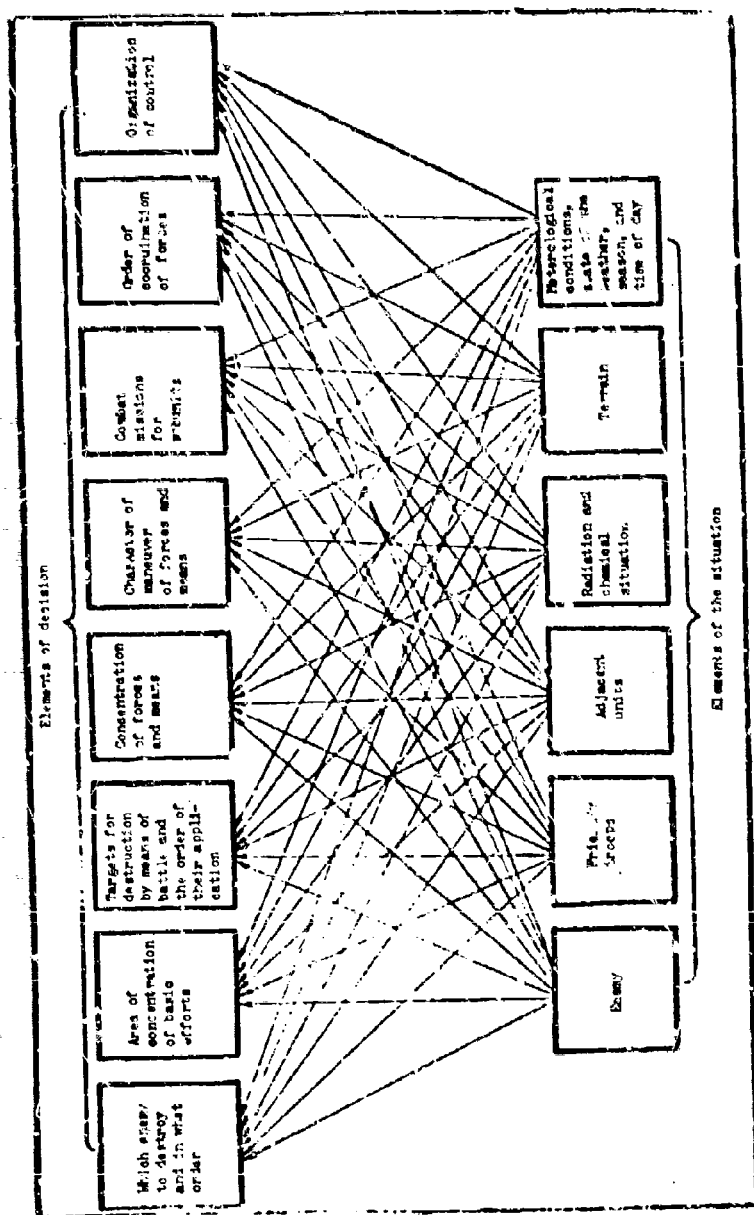


Fig. 11. Appraisal of a situation.

Simultaneously with the acceptance of a decision there is its formulation. The decision of the commander is plotted by him on his working map. This map is the basic combat document. With its help control of subordinates is accomplished in the course of battle, the situation and decision of the superior commander are reported, and adjacent units are informed. The necessary volume of data reflecting the decision of the commander are also plotted on the working map of other officers connected with the control.

#### Passing the Decision to the Troops

The arrival at an expedient decision, based on the situation, does not by itself ensure successful fulfillment of the assigned combat mission. It is necessary that it be passed correctly and promptly to the troops.

Until the decision of the commander reaches those who must implement it, it has no effect on the actions of the troops. Moreover, if the decision reaches them but only after a delay, it will not play its role in the achievement of the troops' combat goal. Its entire value will be lost because it does not correspond to the new conditions of the combat situation. Inaccurate information regarding a battle plan or a plan which is not understood identically by subordinates and commander can lead to incorrect actions, to the breakdown of fulfillment of the combat mission, to the destruction of many people, to loss of time, and to useless expenditure of material means. This is why much attention is given to the timeliness, regularity, and accuracy of passing a decision to the troops.

Implementation of a commander's decision, the fulfillment of a plan of operations outlined by him, is the result of the activity of a great number of subordinates. Each of the subordinate commanders, following the instructions of the senior commander, also makes a decision and conducts other measures for the organization of combat actions of his subunit.

For the best organization of action by subordinate troops, each of the commanders should know the decision of the senior commander in adequate detail. This scope is not something constant, set once and for all; it depends on the specific conditions of the situation. However, it should always be the goal that each subordinate commander has as far as possible everything that he needs for a correct understanding of the plan of the superior commander and of his own task, for the best organization of combat operations of his subunit.

For this purpose the subordinate can be given a brief appraisal of the formation and actions of the enemy, the order of application of nuclear weapons by the superior commander, the task of adjacent units and his own subunit, the plan of operations, and the combat mission of the subordinate subunit. He may also be informed about problems solvable by rocket troops, artillery, antiaircraft troops, reserves, and other means available to the superior commander with which it will be necessary to coordinate and whose actions will give results which he should consider during the organization of combat. Subordinates are given data on the time of readiness of troops for action, about places and time of the deploying and moving of control posts about deputies of the commander, and about the order of coordination, and instructions on different forms of the security of combat operations.

Transmission of an accepted decision to the subordinates is carried out in the form of combat missions and directives on the coordination and security of the combat operations of the troops.

Combat missions for subordinate, attached, and supporting subunits are assigned by means of combat orders and directives. A combat order includes the basic data from the decision of the commander necessary for the organization of combat operations. A combat instruction includes only the minimum information without which he cannot organize the action of the troops in accordance with the plan of the superior commander. Usually a combat instruction gives brief information about the enemy, the combat mission of the subunit, missions executed in his interests by the resources of the superior commander, and the time of readiness for fulfillment of the combat mission.

Combat missions are passed to the troops by means of personal assignment, transmission by technical means of communications or by dispatching combat documents (textual or graphic). It is very important to combine skillfully the different methods of transmitting combat missions to the troops, taking into

consideration the combat situation. The best method of passing combat missions to subordinates is always the one which in the given conditions ensures the maximum speed and accuracy of their transmission.

The basic method of assigning combat missions is considered to be the issuance of an oral combat order (instruction) personally by the commander or transmittal of the mission at his order by other officials by a personal visit to the corresponding subunit. With this method it is possible not only to give the subordinate his mission, but also to acquaint him fully with the mission of higher echelon and the order of application of nuclear weapons in its zone, with problems of adjacent units and of subunits of other branches, special troops, and aviation. This will help every commander more deeply to comprehend the role of his subunit in the mission decided by higher authority and to improve the coordination of the forces in the forthcoming battle.

Combat orders and instructions should be expounded most briefly (but not to the detriment of their clarity) in such a manner that the subordinates correctly comprehend their mission and there is no possibility of a different interpretation. Standard combat documents can be widely used for transmitting combat missions. They are an early-developed standard form in the form of a questionnaire or table into which the necessary data reflecting the decision are inserted. With the use of the standard documents the volume of text in the document decreases considerably and, consequently, so does the expenditure of time for its development; as a result, the time required to transmit the combat mission to the performer is reduced.

Coordination is organized in the interests of the subunits carrying out the main missions in battle and for maximum use of the results of nuclear weapons. Basically it consists in the coordination of actions of subunits of all fighting arms and means of destruction, especially with attacks inflicted by nuclear weapons. In the offensive coordination is organized with respect to missions, [assault] positions, and times, and in depth of detail appropriate to the immediate task. In defense coordination is organized in the subunit with respect to its tasks and the probable directions of the enemy offensive, taking into account the directions of counterattacks.

Problems of coordination of forces are solved by the commander and staff during the entire period of battle. The basic ones are determined by the commander when he makes a decision. In the course of subsequent work on the organization of combat operations they are developed, refined as necessary, and passed to the subordinates. In the assignment of combat missions the commander simultaneously organizes the coordination between the subordinate, attached, and supporting subunits, allotting special attention to the coordination of actions of the troops to make rapid use of the results of the application of nuclear weapons, artillery fire, and air attacks.

Coordination within the subunits is organized directly in the fields. If combat missions are passed down in a written combat order, then, in order not to overload it, instructions on coordination can be dispatched as a supplement. In the course of development of combat operations, when the missions are transmitted by means of combat orders, problems of coordination can be briefly reflected in them. Mostly this should be limited to merely the assigning to the subordinate his combat mission and indicating the adjacent units and those means of the superior commander with which he is to interact in combat.

The staff, on instructions of the commander, coordinates problems of joint action between subunits of different fighting arms and with adjacent units, coordinates the work of the staffs, transmits to the subordinates the signals for joint action, the order of orientation, and methods of mutual identification, and organizes the communications of the troops acting jointly.

Coordination is maintained by all commanders and staffs during the whole battle. The main attention is given to supporting continuous coordination between subunits which use nuclear weapons and those troops which operate in the areas of nuclear attacks. If coordination is disrupted all necessary measures for its restoration are immediately applied.

To maintain coordination, the commanders and staffs of jointly operating subunits should correctly understand the purpose of the combat operations and combat missions and the methods of their fulfillment, should constantly know the situation, have reliable communication among themselves, and systematically exchange mutual information. For timely restoration of disrupted coordination it



is necessary to see that the subunits observe the fixed order for coordination, rapidly clarify the cause of any disruption, and restore communications between the coordinating troops. The commander and staff will be required to determine quickly the measures which will allow the restoration of coordination and the quick transmittal to the troops of a new system of coordination during the fulfillment of the combat mission.

Missions of political work, intelligence, protection from weapons of mass destruction, and engineering, rear, and other forms of security are expounded in the form of separate instructions with respect to the security of combat operations of the troops.

Instructions for the support of combat operations are passed to subordinates as needed. Most often these instructions are given after the assignment of combat missions and the organization of coordination. In the subunits instructions on the security of combat operations are given by the commanders themselves.

#### Monitoring [of Performance]

The transmittal of a decision to the responsible person still does not mean that it will be implemented in exact conformity with the will of the commander. After all, from the moment of some change in the situation until the decision of the commander of the subunit is carried out there is a definite interval of time; let us assume that it is calculated in minutes. In the higher links of control this interval becomes even more considerable and can attain several tens of minutes.

But the situation on the battlefield changes constantly. Consequently, often at the very moment that a decision of the commander is implemented it may no longer fully correspond to the true state of things on the battlefield.

It is impossible to ignore the fact that the troops may meet not only with unforeseen enemy counteractions, but also with various difficulties caused by sudden changes in the weather and in the character of the terrain (as a result of the application of nuclear weapons in the area of operations of the troops); sometimes there is simply lack of ability or delay on the part of some responsible persons, the incorrect understanding of their missions by others, etc. The most varied surprises and accidents, which can negatively influence the implementation of the accepted decision, are always possible.

This is why supervision of exact and timely fulfillment of the assigned missions by subunits is the most important link in control of the troops. To exert control without concern for or not the ability to keep an eye on execution, as V. I. Lenin indicated, "...in military affairs this is sheer ruin."<sup>1</sup>

The history of war is filled with similar examples.

In modern combined-arms combat, one of whose characteristic features is the abrupt and sharp changes in the situation, the role of monitoring as compared to the past has increased immeasurably. Of special importance is monitoring of the application of nuclear weapons and the timely use by subunits of the results of nuclear attacks inflicted on the enemy.

Monitoring should be constant, purposeful, and directed toward preventing untimely or inaccurate fulfillment of assigned missions by the troops. The main attention is paid to checking the fulfillment of those combat missions which are of primary importance for achieving the purpose of combat operations. Monitoring organically includes the rendering of help to subordinate commanders and staff in the organization of combat operations, in the leadership of subunits,

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<sup>1</sup>Lenin, V. I. Polnoye sobraniye sochineniy (Complete collected works), Vol. 51, p. 50.

and in the course of battle. However, it should not bear the character of petty dictatorship or displace commanders in problems of control of troops during the fulfillment of the assigned missions.

The methods of monitoring can be most diverse. Depending upon the conditions of the situation monitoring can be accomplished first of all by means of personal visits of the commander and other officials to the subunit, by conversations over technical means of communication, and through study of combat documents presented by subordinates. Also important are such methods as observation of actions of troops from the air and from ground observation posts, aerial photography, and listening in on conversations and transmissions over radio and radio relay communications means. The best method of supervision is by direct personal visits of the commander and other officials to the troops to study the activities of subunits on the site.

Monitoring can also be carried out by officers of the staff, deputies of the commander, and chiefs of services. Of great help to the commander in this matter are the party and Komsomol organizations, especially on questions of maintaining high combat-readiness of the troops, observing measures of camouflage, rules for secret control of troops, radio discipline, and the preservation of military secrets.

In the course of supervising, officers should always manifest inquisitiveness of mind, provide leadership in profound knowledge of the principles of contemporary combat, know the situation and the decision of the commander, take timely note of deficiencies and be irreconcilable to them, providing commanders of subunits with assistance in eliminating them. It is their duty to set examples of personal courage, resolutions, and initiative.

The improvement of existing equipment and introduction of the latest technical means will allow successful solution of problems connected with the acceptance, formulation, and transmission to the troops of a decision of the commander and problems of monitoring their activities. This improvement will ensure rapid production of any calculations in the interests of the application of forces and means in combat, as well as the possibility of their accumulation and prompt dispatch by requirement of the commander or an officer of the staff. The techniques of formulating documentation will be simplified, and its transmission will be accelerated in time. In general the need for written documents to transmit the decision of the commander to the person who must execute it can be dropped. The potential for control over actions of troops and over the exact and timely fulfillment by them of the assigned mission will be expanded.

The latest technology will enhance human capabilities to an enormous degree. It will facilitate human labor and will accelerate by many times the whole work on the control of troops.

## CHAPTER IV

### SUPPORT OF COMBAT OPERATIONS

#### Essence of Combat Operations Support

Success in battle has always depended on thorough and comprehensive support. The volume and content of measures connected with combat support have constantly changed in proportion to its complexity. This is manifest in the fact that there has arisen a need for carrying out new measures and that the content of those taken earlier has expanded.

Prior to the First World War the basic support functions included combat security and engineering, material and medical support. Combat support at that time was limited only to reconnaissance, security, and camouflage. Material support was reduced basically to supplying the troops with ammunition, rations, and forage. Medical support consisted in rendering help to the injured and sick. Engineering support even in that period included a large number of measures connected with engineering organization of terrain and surmounting of natural obstacles and barriers.

In the course of the First World War, in connection with application on the battlefield of new forms of weapons and combat equipment and the resultant sharp change in the very character of war, there was both rapid development of earlier existing forms of combat support and the appearance of new forms. There were changes not only in the extent and content but also in the objectives and missions of combat support.

Thus, prior to the First World War the goal of combat support was to enable troops to enter battle in good time and in an organized manner and to ensure them against surprise attack by a ground enemy; then in the course of the First World War protection of troops from surprise attack from the air was included, since hostile aviation began to operate over the battlefield and troops were on the battlefield and the use of chemical weapons brought into existence new forms of combat support — antitank defense and antigas protection of troops. The expanded capabilities of reconnaissance and means of destruction noticeably increased the role of camouflage of troops and military objects. Thus, toward the end of the First World War combat support of troops included reconnaissance, protection, antiaircraft and antitank defense, antigas protection of troops, and camouflage of troops and military objects.

Engineering support underwent wide development in the course of the First World War. The volume of work on engineering organization of terrain on the creation of powerful defensive constructions, on installation of minefields and other barriers, and also on undermining of the defensive constructions of the enemy increased significantly. Furthermore there was the need for engineering support of new forms of combat materiel.

The appearance of combat and transport machines added technical support to material support, while medical aid was required not only by the sick and wounded, but also by those attacked by poisonous substances.

Firing of artillery from concealed firing sites and appearance of aerial vehicles demanded the organization of meteorological support.

The increase in means of destruction applied in the Second World War and especially in the Great Patriotic War and the resultant sharp growth in maneuverability and speed of development of combat operations made necessary constant security of unit interfaces and flanks, while the application of airborne landings created a new form of combat support -- opposition to enemy airborne landings. Along with subunits specially designated for this purpose, all troops came to be involved in the solution of problems of combat.

In the course of the Second World War the role of engineering support of combat sharply increased. Engineering troops now no longer only conducted measures of a support character but also took direct part in battle, especially during attacks on strongly fortified defensive constructions of the enemy. Minefields and mining found wide application.

The increase in the expenditure of ammunition and the use in battle of large quantities of materiel led to increased volume of work on material and technical support, while a sharp increase in the numbers of wounded changed the volume of work on medical support.

Postwar armament with nuclear weapons and the rising threat of application of bacterial means by the armies of the aggressive states led to a new form of combat support -- antinuclear and antibacteriological protection of troops -- while the considerable improvement of flame-throwing and incendiary means demanded special measures to protect troops from their effects. All those factors meant that the scope of chemical protection was considerably expanded.

With the adoption of nuclear weapons and other means of mass destruction in certain armies of the world the volume of measures undertaken for support of combat actions was so expanded, and the weight and role of each of these measures were so changed, that their reexamination and the creation of a new classification appeared necessary. The number of forms of support of combat actions reached ten in some armies and in others even exceeded this number. This began to have a negative effect on the work of commanders and staffs organizing combat. Furthermore, certain types of support of combat actions moved beyond the framework of supporting measures and became a basic content of battle, while others became interwoven, making their unification necessary.

The changes in the character of combined-arms combat in the postwar period caused by the appearance of new means of armed struggle not only demanded the organization of new forms of support of combat operations and changes in the content of earlier measures, but also led to considerable expansion of the objectives pursued by them. The previous goals sought through support of combat actions were now insufficient. The task now no longer ended with timely and organized entry of the troops into battle and their protection against surprise attack by enemy ground and air forces; it was necessary also to ensure the successful fulfillment of the given mission. This goal can be attained not by the application of means of protection and by liquidation of the consequences of an attack, but by the use of means of destruction. This means that in contemporary conditions support of combat actions is organically connected with battle and is its most important element.

Proceeding from this the overall goal of support of combat actions in contemporary conditions can be formulated as follows: support of combat actions is a complex of measures whose goal is to prevent surprise attack by enemy ground and air forces, to minimize the effectiveness of enemy means of mass destruction on the troops, and to give them the capability, in any conditions of the situation, to enter battle in good time and in an organized manner and successfully to conduct combat operations.

A study of the views of the major armies of the world regarding the content of support of combat operations in contemporary conditions shows that there is no question about referring to reconnaissance, protection, and camouflage as types of combat security of combat operations. Regarding, however, the remaining forms of combat support, all of them have been subjected to critical reconsideration.

As is known, security of junctions and flanks as a form of combat support appeared during the Second World War. Measures undertaken to secure junctions between units and flanks were allotted great significance at that time, and even then their scope not infrequently exceeded the limits of security measures. In conditions of contemporary high-maneuver actions the presence of junctions and open flanks will be a normal phenomenon, one which cannot be neglected during the organization of any battle. Support of junctions and flanks became the most important element of the battle itself and so it became necessary to exclude measures undertaken for such security from the class of support of combat operations. A number of these measures fall in the area of reconnaissance and organization of protection on the flanks and in the rear. Creation of a system of fire and obstacles on flanks and junctions essentially differs in no way from the organization of such a system on the rest of the front of troop actions and therefore it can undoubtedly be relegated to the organization of battle in general.

Antitank defense was dropped from the scope support of combat actions because modern combat is inconceivable without the participation of tanks. Combat with enemy tanks has become a basic feature of contemporary combat.

Antiaircraft defense remains, as before, a measure taken in support of combat operations of subunits. Its objective is attained not only by active measures, but also by passive measures such as dispersion, thorough camouflage, use of natural shelter, equipping shelters for personnel and protected areas for combat equipment, etc.

The growth in the importance of airborne troops and the sharply increased possibilities for use of regular motorized infantry subunits as airborne (air-lifted?) for various purposes meant that countering of enemy airborne landings ceased to be a support measure and became a basic part of combat. It is conducted by all troops, and once this is the case we are speaking of battle itself and not its support.

Considering the common features of measures conducted in interests of anti-nuclear, antichemical, and antibacterial protection, they are united into one type of support of combat operations - protection of troops from weapons of mass destruction.

Application of means of mass destruction and complete motorization and mechanization of troops strongly changed the scope of engineering and rear support. Their measures must now be directed toward the maximum degree of protection of personnel, combat equipment and materiel from weapons of mass destruction and the action of swiftly advancing forces.

#### Reconnaissance

Reconnaissance is a most important form of support of combat action. It includes measures taken by commanders and headquarters and also the operations of special subunits and troops concerned with procuring information about the enemy's nuclear weapons and other means of mass destruction, his grouping and intentions, about the terrain, weather, and the region of forthcoming operations, all of which is necessary for the organization and successful accomplishment of combat actions.

Experience of the Great Patriotic War shows that successful fulfillment of assigned missions by troops is possible only when they have available to them reliable, relatively complete, and timely data about the enemy, the terrain, weather, and the area of forthcoming actions. Only when he has all these data can a commander make a decision which is appropriate for the concrete conditions of the combat situation and anticipate the character of forthcoming actions and probable changes of the situation in the course of battle.

To obtain exact data about the enemy in contemporary conditions is very complicated, since the enemy will supplement protection of his own troops, counteraction against our reconnaissance, and various measures undertaken for camouflage with false measures to deceive our troops. To prevent this deception by the enemy it is necessary to conduct reconnaissance by various means which allow not only obtaining data about enemy but also checking their authenticity. Thorough generalization and strict analysis of available facts makes it possible to sift out false data about the enemy.

In conditions of contemporary high-maneuvering combat, reconnaissance will be successful in accomplishing its mission only if it is conducted actively and continuously under any conditions. Continuity of reconnaissance and timeliness, authenticity, and accuracy of reconnaissance data are basic requirements placed on reconnaissance.

Activity of reconnaissance is expressed in efforts of commanders and headquarters to obtain necessary information by any means and also in decisive actions and initiative in subunits designated for conducting reconnaissance.

Continuity of reconnaissance is attained by conducting it constantly in all forms of combat activity of troops, by day and at night, in any conditions of terrain, regardless of the season of the year and meteorological conditions. Here it is important that established contact with the enemy not be lost and observation of exposed formations and objects of the enemy not be interrupted.

Timeliness consists in procuring reconnaissance data with a view toward ensuring the infliction of forestalling strikes on the enemy, making it possible to anticipate the character of his actions and to take necessary measures in time. Timeliness of intelligence is inconceivable without constant anticipation of the need for whatever information is required for the organization of forthcoming combat actions of troops. Delayed information, even though important, loses its value.

Reliability of intelligence is the degree to which the obtained reconnaissance information corresponds to reality. This is ascertained by complex use of different means, systematic checking of received information by comparison with data obtained from other sources, and assigning of additional reconnaissance missions for more precise definition of this or that bit of information.

Accuracy of reconnaissance data has special significance during determination of coordinates of such important and small-size targets of enemy as guided and unguided missile installations, nuclear artillery, depots of nuclear ammunition, etc. The effectiveness of their destruction depends on it exclusively.

Besides these basic requirements imposed on reconnaissance, its success is attained by maintaining secrecy of all preparatory measures, thorough training of personnel of reconnaissance subunits, knowledge of the organization and tactics of the enemy, and thorough analysis of reconnaissance data received.

Military reconnaissance is conducted both by reconnaissance subunits (units) and also by combat actions of troops.

Combined-arms subunits and units conduct only ground intelligence, making wide use of data of aerial intelligence, and, during action in maritime areas, data from naval intelligence.

Ground reconnaissance is conducted by all types of troops and by special troops. It makes it possible to establish the location, force, composition, and formation of the enemy, the presence and location of means of mass destruction, the combat capability of hostile troops, and the presence and strength of defensive constructions, systems of fire, obstacles, etc. Furthermore, it permits watching for all shifts occurring in the disposition of the enemy and changes in his formations and allows timely discovery of his preparations to apply weapons of mass destruction or to shift to active operations.

Methods of conducting ground reconnaissance are varied. They are determined by the forces and means available for conducting reconnaissance and by the character of the mission to be executed. The basic methods of ground reconnaissance are observation, photography, monitoring, radio direction finding and infrared direction finding, search, ambush, operations of patrols and reconnaissance groups in the enemy rear, and reconnaissance in force. Furthermore, reconnaissance data are obtained directly by combat actions of troops, by interrogation of prisoners and deserters, interrogation of local inhabitants, study of captured documents and samples of weapons and equipment, and also by direct inspection and study of the territory and objects of enemy.

Observation is the most widely used method of conducting reconnaissance in subunits and units of all types of forces and special troops. It is organized in all forms of combat, in any situation, and is conducted continuously by commanders at all levels and by specially designated observers from all observation posts. For conducting reconnaissance by observation every subunit is assigned a zone (sector) of the area, selected so as to ensure the best surveillance of the enemy and the terrain in the entire zone of combat operations and on the flanks. For observation one observer is designated in a squad or team; in a platoon or company - one to two observers; in a battalion, depending upon the character of the terrain and the width of the zone of action one to two posts consisting of two to three observers each are set up. Battalion observation posts are equipped with instruments for observation and orientation, maps, diagrams, and observer's logs, in which the data of observation are entered.

In contemporary conditions observation of the enemy is conducted not only from ground observation posts and points, but also from helicopters (aircraft) and also aerial observation balloons. Artillery and engineering reconnaissance and radar means are also widely used. For observation at night use is made of instruments of night vision and means for illumination of the terrain, with instruments of night vision being applied both for observation of personnel, combat materiel, and terrain in enemy territory and also for detection of infrared equipment.

An essential supplement to observation with help of technical means is photography. Photography is divided into aerial and ground.

Aerial photography is the basic form of aerial reconnaissance. It is conducted by specially equipped aircraft and by all branches of combat aviation. Aerial photography permits a quick fix of the position of enemy troops in position or in motion and gives information about the location of his means of combat and military objects.

Ground photography is conducted with the equipment of artillery and engineering troops within the limits of optical visibility. Sometimes for photographing important objects located in the depth of the enemy area it is expedient to utilize scouts with appropriate equipment, comprising reconnaissance groups dispatched to the rear of the enemy.

Photography as a method of reconnaissance is not, however, without essential deficiencies. The camera lens, regardless of where it is located, cannot always establish the presence of an enemy who is located in woods or inhabited localities or is well camouflaged, so that one cannot always be sure that the enemy is absent because he does not show up on the film. Photographs show mainly the general outlines of objects, and it is not always possible to distinguish false objects from real. Photographs cannot reveal the attitude and political and moral state of troops and cannot expose the plan of action of the enemy. The range of ground photography is very insignificant. Moreover it can be executed only within limits of direct line of sight. Anything behind natural or artificial cover is not photographed.

Finally, photographing objects in enemy territory is not always possible.

Aerial photography possesses immeasurably greater possibilities, but under certain conditions it also may be impossible. Well-organized enemy antiaircraft defense can not only hamper flights of reconnaissance aviation, but also essentially limit its sphere action in a number of areas.

Thus, it is impossible to count on the use of photography as a method of reconnaissance in all cases and the obtained data, even if at first glance they seem fully reliable, must be compared with data obtained by other methods.

Listening can give important information about the enemy, especially at night and in other conditions of limited visibility. It is carried out by observers from observation posts and specially detailed posts of a number of soldiers, sergeants and officers, possessing keen hearing and knowing how to identify by sound both various objects and targets in enemy territory and also the character of his activity. In conditions of poor visibility listening posts are advanced as close as possible to the enemy.

In contemporary conditions wide use is made of radio intercept, which is carried out with specially designated radio stations and receivers working at the same wavelengths as those of the enemy. With the help of radio intercept it is possible not only to establish the content of radiograms transmitted by radio stations of enemy, but also to reveal the diagram of his radio communications and technical data stations. But these data are still insufficient.

In order to evaluate the formation and disposition of the enemy, it is necessary also to establish the location of his radio stations. For this the interception of radiograms is combined with a special method of radiotechnical intelligence -- radio direction finding.

Radio direction finding is carried out by direction finder stations which determine the direction (bearing) of an operating enemy radio station so as to detect its location and consequently also to determine the area in which the headquarters serviced by the given radio station is located.

In combination with radio direction finding, radio intercept helps to reveal the composition, formation, and intentions of the enemy. However, during appraisal of information obtained by radio intelligence it is necessary to consider the possibility of misinformation sent by the enemy. Therefore all information obtained by radio intelligence should always be compared with data obtained by other methods.

Special infrared detection equipment permits establishing the location of tanks and other machines while their engines are operating.

Sound ranging reconnaissance equipment can also be used for this purpose.

The above-considered forms and methods of reconnaissance permit obtaining important information about the enemy and the terrain and region of forthcoming actions, but they cannot be used to recognize the attitude of hostile troops or the level of their combat effectiveness, nor is it always possible to determine the enemy's plan of action. Obtaining of these data requires prisoners, who can be captured mainly by carrying out raids and organizing ambushes and reconnaissance in force, and also through the operations of combat reconnaissance patrols and reconnaissance groups.

A raid consists in stealthy approach and surprise attack by a reconnaissance subunit on a previously outlined and studied enemy object for the purpose of capturing prisoners, documents, and samples of weapons, combat materiel and equipment, and also for reconnaissance of various objects.

Raids are carried out by subunits ranging in size from a squad to a reinforced platoon and also by reconnaissance groups of specially selected soldiers, sergeants, and officers. The complement of subunits designated for carrying out raids usually includes scouts of other branches of forces and special troops.

Raids are conducted both in the area of the advanced subunits of the enemy and also in the depth of his combat formation. The objectives of raids can be entrenchments or dugouts (occupied by the enemy), sentries, and sometimes an enemy communications center or headquarters and other objectives.



Ambush consists of a concealed reconnaissance subunit lying in wait for the purpose of seizing captives, documents, or samples of weapons, combat materiel, and equipment. In distinction from a raid, the objectives of the actions of the reconnaissance subunit are small enemy groups or single soldiers and officers or combat and transport machines found in movement over a definite route. Therefore, a reconnaissance subunit set out in ambush is secretly disposed on the route of probable movement of the enemy and attacks at a suitable moment.

For ambush operations anything from a section to a reinforced platoon or reconnaissance group is selected. An ambush can be organized not only for reconnaissance purposes but also for destruction of enemy subunits or to inflict large losses on him.

Combat reconnaissance patrols are dispatched to conduct reconnaissance of the enemy and terrain on the front and on the flanks of subunits for distances up to 10 km. Depending upon the mission, the character of the terrain, and other conditions of the situation, combat reconnaissance patrols can range in strength from a squad to a reinforced platoon.

Besides combat reconnaissance patrols, patrol vehicles are also dispatched, and during dismounted actions — scouts. Patrol vehicles (scouts) are dispatched from subunits designated for reconnaissance and from subunits accomplishing other tasks.

Reconnaissance groups dispatched to the enemy rear can have anyone of a number of very different missions, and so their composition also can be different. In contemporary conditions an especially important problem posed to such groups is reconnaissance of enemy nuclear means. Basic methods of reconnaissance by such groups are observation, photography, and listening. In individual cases they can resort to the organization of ambushes and carrying out of raids, but these two methods are applied only in extreme cases, since they reveal the presence of the reconnaissance group behind the enemy lines.

The reconnaissance in force found wide application during the years of the Great Patriotic War and was one of the most effective methods of military reconnaissance. It allowed obtaining valuable data about enemy. At the same time reconnaissance in force is connected with expenditure of large forces and means; furthermore, if unskillfully carried out it can inform the enemy of the start of a prepared offensive. Therefore reconnaissance in force now, as earlier, is conducted only on the decision of senior commanders: its objective is to check and more precisely define data about the enemy or to obtain such data when there is no possibility of getting them by other methods. Reconnaissance in force is conducted by reinforced motorized infantry and tank subunits.

During a reconnaissance in force observation of the actions of the enemy is conducted from all effective observation points and posts, from posts specially organized at this time, and from the air. Simultaneously air, radio, radar and artillery instrument reconnaissance is conducted, and also reconnaissance with the means of engineering and chemical troops.

All methods of reconnaissance in the end pursue one goal — to obtain needed data about the enemy and the terrain and area of forthcoming operations. Therefore they are intimately interconnected and supplement one another. Only skillful application of all methods of reconnaissance with wide use of new technical means will make it possible to obtain the data necessary to ensure successful operations of troops in contemporary combined-arms combat.

### Security

Prior to the appearance of nuclear weapons security pursued the objective of preventing enemy reconnaissance of the protected troops, preventing unexpected ground and air attacks and providing friendly troops with the necessary time and suitable conditions for deployment and entry into battle.

The sharp increase in the speed of aircraft led to the removal of the mission of safeguarding troops from surprise enemy air attack from security, since it was not able to accomplish this. These functions were transferred to antisircraft defense. But still security had to guarantee the protected troops from surprise attack not only by ground troops, but also by air and naval landings of the enemy, and also to prevent enemy reconnaissance.

Depending upon the character of the combat activity of the troops security can be: on the march - march security; during a halt (outside field of battle) - security at the halt; in battle - combat security.

In combat, when troops are already deployed in combat formation, the mission of security reduces mainly to that of repelling reconnaissance and preventing surprise attack by enemy ground forces. Therefore combat security is assigned to small forces necessary for execution of these tasks.

On the march and during a halt, where the protected troops must be given time and suitable conditions for deployment and entry into battle, security is advanced to a greater distance from the troops and the security subunits are made stronger.

During direct contact with enemy combat, security may or may not be sent out; its function in this case is executed by subunits located on the forward perimeter.

On the defensive in certain cases intensive combat security can be organized. Such security in distinction from the usual type, has as its goal not only to prevent enemy reconnaissance on the main line of resistance and to give friendly troops the possibility of timely and organized entry into combat, but also to lead the enemy into error, to force him to take positions occupied by reinforced combat security behind the first position of the zone of defense. In this case the composition of the reinforced combat security includes a larger than usual quantity of forces and means and it is disposed further from the friendly troops than combat security.

Besides combat and march security and security at the halt, troops in every situation organize local security, whose basic mission is to warn of the appearance of the enemy and to prevent penetration by hostile spies and saboteurs. Local security is accomplished as follows: in battle by observation from combat formation; in defense at night during direct contact with enemy, by advanced forward observation and listening posts; on the march, by scouts and by observers directly from vehicles; during halts, by sentry posts and patrolling.

#### Protection from Weapons of Mass Destruction

Protection from weapons of mass destruction includes a complex of tactical and special technical measures, organized in all forms of combat activity of troops to prevent destruction of troops and rear objects by nuclear, chemical and bacteriological weapons or to reduce their effect as much as possible and thereby to preserve the combat effectiveness of the troops and viability of the rear and to ensure successful fulfillment of missions.

For timely establishment of the impending threat of enemy use of means of mass destruction reconnaissance is constantly conducted and warning is organized.

Radiation, chemical, and bacteriological reconnaissance is conducted continuously by all subunits of branches of troops and special troops. In battalion (company) and corresponding subunits it is conducted by specially prepared squads (crews) with use of special instruments. In certain cases radiation and chemical reconnaissance squad may be assigned to the battalion for this purpose.

Radiation and chemical reconnaissance is called upon to immediately ascertain sites contaminated by radioactive and chemical substances, their boundaries, the levels of radiation, type of toxic substances, any bypass routes or the most suitable routes for surmounting of these regions and to determine the degree of radioactive contamination of air, water, and ground in the contaminated region and the available local means which can be used for protection.

Radiation and chemical reconnaissance subunits detach chemical troops to conduct reconnaissance, set up chemical observation posts, and conduct chemical reconnaissance patrols to execute more complicated missions of reconnaissance. Furthermore, radiation reconnaissance can be conducted from aircraft and helicopters operating at low altitude.

Bacteriological reconnaissance establishes the beginning of enemy use of bacterial means, determines the type of agent used and designates contaminated areas, finds local means which can be used for protection, and conducts continuous medical-epidemiological observation of the region of location of its troops.

Alerting personnel about radioactive, chemical and bacterial contamination is carried out with a single and permanent signal established by the senior office and given by order of commanders of subunits immediately upon detection of contamination. In sections and platoons warning signals are given by voice, sound and visual means, and in companies and battalions radio is also used.

At this signal personnel, without ceasing combat actions, quickly don gas masks, protective raincoats, capes, stockings and gloves, while those in shelters and in closed vehicles put on gas masks only. Individual means of protection are removed only on the orders of subunit commanders, after the danger has passed.

Dispersion of troops, combat materiel, and objects in the rear reduces losses from nuclear weapon and is an effective measure of protection. The degree of dispersion is determined by the commander on the basis of the specific situation.

Camouflage, which hampers the enemy's selection of targets for attack by nuclear and chemical weapons, also promotes reduction of losses; not infrequently skillful camouflage can lead the enemy to inflict blows on empty areas.

Periodic shift of areas of deployment of subunits, firing sites and objects in the rear can, like dispersion and camouflage, hamper the enemy's selection of objectives for attack and force him to strike at empty areas. Replacement of areas of disposition is conducted only on the instructions of a senior commander. It must be conducted secretly and quickly; otherwise this can place the troops in a still more difficult position. The enemy can strike during the transfer itself, i.e., when the troops have left their old areas but have not yet succeeded in occupying the new ones. For carrying out periodic transfers alternate regions and positions, and also areas for location of rear objects, are organized beforehand.

Individual means of protection, protective properties of tanks and other vehicles, terrain, and engineering constructions considerably decrease troop losses from nuclear attacks, while specially equipped shelters protect them from radioactive and toxic substances and bacterial means. Good natural shelters include ravines, ditches, various underground workings, structures, and forests. Skillful use of protective properties of terrain will sharply reduce loss of personnel and materiel even on unorganized terrain and also considerably decreases the volume of engineering works which must be accomplished in the interests of protection from weapon of mass attack.

As a rule subunits bypass contaminated sections of terrain or if this is not possible, they cross them. Methods of crossing contaminated terrain in all cases are selected so as to ensure fulfillment of the combat mission with minimum irradiation and contamination of personnel. Therefore crossings of contaminated sections are made in those directions which allow advancing at the highest possible speeds and where personnel will receive the smallest dose of irradiation or the least contamination. Before a crossing of contaminated areas is made radiation, chemical, and bacteriological reconnaissance is conducted for finding either a bypass of the areas with the lowest levels of radiation and least degree of contamination of ground and air by toxic substances. Also the passability of chosen routes is established. Movement through contaminated sections by a subunit can be started without waiting for a drop in levels of radiation or it can be delayed until after such a drop occurs. When crossing contaminated areas personnel in armored carriers and motor vehicles don gas masks and protective suits, while crews of tanks put on gas masks. Hatches and louvers in tanks are closed and fans are turned off.

During prolonged operations of subunits in a contaminated area protection of personnel is attained by their removal from regions of dangerous infection, bypassing contaminated sections, the use of individual means of protection and the protective properties of combat material, transport, terrain, and engineering constructions, the application of antiradiation preparations, antidotes, and inoculations, periodic carrying out of partial and complete special treatment, and also by the strictest observance of measures of precaution and correct organization of rest and diet.

For movement routes with the lowest level of contamination are used. Distances between machines should be increased and as far as possible movement over sections of terrain with thick brush and high grass should be avoided.

During prolonged operations of subunits in areas of radioactive contamination with levels of radiation up to 5 roentgens per hour, commanders of battalions and companies can permit personnel periodically to remove their gas masks. In regions with higher levels of radiation and on terrain contaminated by toxic chemical substances and bacterial means, gas masks can be removed only inside specially equipped vehicles and in shelters in which meals are eaten. Rations used are primarily products in airtight packages.

Monitoring of radioactive irradiation of personnel is conducted by group and individual methods with the help of dosimetric equipment. It is conducted to determine the combat effectiveness of subunits and the degree of irradiation of personnel, and also to determine the necessity of carrying out prophylactic medical measures or evacuation.

Group radiation monitoring is conducted in sections, squads and crews with the help of one or two dosimeters.

Individual control is carried out also with help of dosimeters, which are issued to all officers, and also to sergeants and soldiers, who must operate away from their units.

The SOP for taking readings from dosimeters and for their recharging is given to the chemical instructor, the health physicist [CPR officer] of the battalion.

Calculation of doses of radioactive irradiation of soldiers and sergeants is conducted by company commanders and monitoring of officers is done by the battalion chief of staff. Special logs are kept for calculation of doses of radioactive irradiation. The results of the monitoring are reported by the battalion commander to the superior commander for every company and individual platoon, and by a company commander for every platoon. Dispatches about radioactive irradiation are issued daily, and for a single-dose irradiation of over 100 roentgens notice is issued immediately.

In case of enemy use of bacterial means antiepidemic measures are conducted to prevent the spread of contagious diseases among personnel of subunits. For this purpose the state of regions of disposition and actions of troops are checked, personnel are given preventive inoculations, special preventive means are used, and also contact with the population is limited. Commanders of subunits must prohibit deployment of troops in areas where there are personnel contaminated by bacterial means and forbid the use of property and provisions captured from the enemy and also water from untested sources.

Carrying out of medical hygienic measures consists in strict observance by all of rules of personal hygiene, in maintenance of sanitary conditions in occupied regions and in carrying out medical monitoring.

Special preventive measures are conducted to increase the resistance of personnel to radioactive radiation, the effects of poisonous substances, and bacterial means.

Support with protective means of subunits is performed in accordance with established norms. For replenishment of expended means reserves are created; their size is established by the superior commander. In subunits operating apart from main forces increased reserves are created.

Liquidation of the consequences of enemy use of weapons of mass destruction is organized by commanders at all levels and is carried out by forces of all branches and services. Basic measures undertaken to liquidate the consequences of enemy weapons of mass destruction are: rendering of first aid, removal of casualties to uncontaminated areas and their evacuation to medical points, special treatment of personnel, weapons, combat materiel and engineering constructions clearing of obstacles blocking removal of materiel from destroyed shelters, and quenching of fires.

After attack by weapons of mass destruction commanders of subunits take measures to restore control and combat effectiveness of troops subordinate to them and, when necessary, to organize their resupply material means.

Medical help is rendered first to the seriously injured at the place of the attack, and then at medical points, where the wounded are removed to special places.

First aid is rendered both by self-help and mutual assistance and also by medical workers directly at centers of attack. It consists in donning gas masks, injecting antidotes, and treating exposed sections of the body and clothing with individual packs. Evacuation of casualties is performed by the transport of the medical service and of subunits subjected to nuclear and chemical attack.

Clearing of obstructions preventing removal of people and of materiel from damaged shelters is performed by engineering troops, tank technical service, and subunits of other types of troops.

Special treatment of troops consists of carrying out of medical treatment of personnel and deactivation, degassing, and disinfection of weapons, combat materiel, means of protection, and uniforms. It is conducted both directly in the subunits and also at special treatment points and is divided into partial and complete treatment.

Partial special treatment is accomplished by personnel of the subunits under the direct leadership of their commanders. Both standard and improvised means are used. When there is contamination by toxic substances partial treatment is conducted immediately. In a combat situation partial special treatment will find the widest application, since it does not require the troops to cease to execute their mission. In partial treatment only those parts of weapons and combat materiel which the men touch during fulfillment of the combat mission are degassed and decontaminated. Personal weapons and other small objects are processed completely in all cases with the help of individual degassing packs.

After carrying out of partial treatment individual means of protection are removed: (a) during contamination by radioactive substances — after leaving the contaminated section; (b) during contamination by toxic chemical substances and bacterial means — after carrying out of complete special treatment.

Complete special treatment is conducted on the order of superior commander directly in the subunit areas with use of organic means and the resources of chemical protection subunits or at special treatment points.

In complete medical treatment, the entire body is washed with hot water and soap, linen is changed, and when necessary the uniform is also washed. Total decontamination, degassing, and disinfection of combat materiel, weapons, equipment, means of protection, and uniforms consists in treatment of the entire surface of the contaminated object until safe limits are attained.

When carrying out complete treatment combat materiel and weapons are disinfected first and then medical treatment of personnel is conducted.

Upon detection of contaminated insects, ticks, and other disease carriers disinfection of engineering constructions, locations, and when necessary, of linen and uniforms can be conducted under the leadership of the medical service.

Fires are extinguished by specially detailed subunits, which first eliminate fires impeding the fulfillment of the combat mission and also fires creating threats to personnel, combat materiel, ammunition, fuel, lubricating materials and other material means. When the number of fires is large not only specially detailed subunits but also [line] troops can be used.

#### Antiaircraft Defense

Antiaircraft defense is organized for the purpose of timely detection of enemy air and warning of personnel; destruction of aircraft, winged rockets, and helicopters in flight along approaches to the protected troops and above them; prevention of enemy reconnaissance; and destruction of enemy airborne force in flight and during landings. Furthermore, the mission of antiaircraft defense includes counteraction against enemy drifting balloons and illuminating means.

The system of antiaircraft defense includes reconnaissance of enemy aerial forces and warnings about it; combat actions of interceptor aircraft; firing of antiaircraft guided missiles and artillery; and also small-arms fire in the destruction of low-flying enemy aircraft and helicopters.

Additionally in the interests of antiaircraft defense such measures are taken as dispersion of troops and objects, thorough camouflage, use of protective properties of terrain, digging of trenches, and preparation of special shelters for personnel and for combat materiel.

Observation of enemy aircraft is organized in all subunits and is conducted continuously. In the battalion (company) it is conducted by an observer. To ensure timely detection of enemy aircraft and accomplishment of appropriate measures, it is very important that all personnel of subunits know the external criteria and identification markings of the aircraft and helicopters of the enemy and be able to distinguish them from their own.

Warning about enemy aircraft is carried out by radio and signal means.

Combat actions of interceptor aircraft are an active, and one of the most reliable, means of protecting troops from the blows of enemy aircraft. Interceptor cover is organized in close coordination with other means of antiaircraft defense of troops. The equipping of contemporary fighter airplanes with aeronautical instruments permits them to fly cover for the troops at any time of day or night and under any meteorological condition.

The fire of antiaircraft guided missiles and artillery is an effective means of destroying the air enemy or inflicting such severe losses that he either cannot fulfill the mission at hand or his effectiveness is sharply reduced. Antiaircraft guided missiles and artillery can battle enemy air independently and in coordination with interceptor aircraft and other means of antiaircraft defense. Their basic missions can include prohibition of enemy aerial reconnaissance over the region of action of the covered troops; protection of troops and important objects from enemy air strikes by destroying aircraft and pilotless means of air attack on the approaches to the covered troops and above them; and creation of an aerial blockade of surrounded enemy formations. Antiaircraft artillery is brought to bear in combatting air drops of the enemy, and even occasionally for fighting tanks.

Fire of antiaircraft machine guns and small arms is used to combat low-flying aerial targets and is an essential supplement to the fire of antiaircraft rockets and artillery. Small-arms fire is usually conducted by groups of submachine gunners no smaller than a squad.

The application for combat with enemy aircraft of various resources possessing vastly different tactical and technical characteristics and being subordinated to different commanders (from commanders of subunits to commanders of formations) requires especially thorough maintenance of coordination, which is organized by zones, altitudes, and targets.

The most complex problem is the organization of coordination of antiaircraft means with interceptor aircraft. This complexity derives from the fact that if there is the smallest failure to observe safety measures the antiaircraft fire can hit its own fighter airplanes. With establishment of too wide ranges of altitudes to avoid the danger of hitting friendly own fighter airplanes, the antiaircraft means cannot utilize its capabilities in full measure and as a result the enemy can move outside the sphere of action of the means of antiaircraft defense. Therefore it is necessary to organize coordination in such a manner that the application of each means of antiaircraft defense does not limit the application of another, but supplements it and strengthens its capabilities.

With organization of coordination by zones, fighter aircraft usually operate outside the field of fire of AA means; hence there is attained complete freedom of action for both fighter aircraft and antiaircraft means. However, this method is not always applicable. It cannot be used for air cover of troops, when it is necessary for fighter airplanes and AA means to operate in a single zone. In this case coordination between fighter airplanes and AA means must be organized in terms of altitudes and targets.

In coordination by altitude the fighter airplanes attack targets found outside the zone of fire of AA means, or the zone of their actions is limited in altitude.

Coordination by targets consists of distributing targets between fighter aircraft and AA means. In this case the most important targets are destroyed, as a rule, by those resources which possess the greatest capabilities in given conditions of the situation.

Fighter airplanes equipped with long-range weapons can sometimes attack the same targets as the AA means. But it is possible to resort to this only if complete safety of friendly fighter airplanes is ensured.

Coordination between subunits of AA rockets and AA artillery is attained by coordination of their fire during repulsion of enemy air raids, which is ensured by the organization of a single system of reconnaissance and identification, by ensuring fire liaison between adjacent subunits, and also by continuous mutual exchange of information.

The complexity of coordination and control of antiaircraft defense resources requires especially clear organization in all elements.

In organizing antiaircraft defense commanders of battalions and companies establish continuous 360° observation of the air, inform all personnel about enemy air and determine the order of operations regarding this information, give the order for use of AA means and small arms against aerial targets, and determine measures to be undertaken to ensure camouflage of subunits and shelter of personnel and combat materiel.

Warning of commanders of subunits about enemy aerial action is carried out by radio and signal means.

During enemy air attack the personnel of subunits take the necessary measures of protection without ceasing fulfillment of the mission. During halts the crews of tanks usually occupy their places in the tanks; while motorized infantry subunits use armored carriers, trenches, and the nearest shelters for protection. The designated fire means fire on the aerial targets.

### Camouflage

The basic objective of camouflage is to conceal from the enemy the true position of our troops and to give him a false idea of it and thereby to lead him into error and force him to a conclusion which does not correspond to the situation. Furthermore, camouflage constitutes the most important means of achieving surprise, which is one of the basic conditions for success in battle.

Camouflage in contemporary combat is very complicated. This is explained on the one hand by the fact that combat formations now are more saturated with various kinds of weapons and combat materiel, and control rooms with radiotechnical means, in consequence of which the quantity of exposed indicators is noticeably increased; and on the other hand by the fact that there have appeared improved means of reconnaissance whose capabilities, in connection with the development of radio-electronics, instruments of night vision, and reconnaissance aviation, are continuously increasing. Therefore in contemporary conditions camouflage should be continuous and active, should include varied measures, and be conducted in secret.

In carrying out camouflage the troops use darkness, smoke, and other conditions of lowered visibility and the condition of terrain and local objects; they apply standard and improvised means of camouflage, organize sound damping and imitational noises, conduct antiradar measures, and construct false objects.

The use of darkness, smoke, and other conditions of lowered visibility (fog, cloudy and overcast weather, rain, snowfall) with observance of strict camouflage discipline and training of troops to take cover from enemy illuminating means has until recently permitted complete concealment of movement and location of troops and combat materiel. At present the use of these conditions, although still of great value, can no longer completely conceal movement and location of troops, because radar and infrared technology permit the enemy to conduct observation in any conditions of visibility. Therefore, now even during poor visibility the troops should constantly take measures to counteract observation by an enemy using radar and infrared instruments.

The character of the terrain and local objects have important value for camouflage. With correct use of terrain and local objects it is possible to completely conceal troops and combat materiel both from visual observation and photography and also from the radar, IR direction finders, and infrared equipment of the enemy. Here one should consider that by no means of the local objects which conceal a target from visual observation and photoreconnaissance can conceal it from the radar, heat detectors and infrared instruments of the enemy. For instance motor vehicles which are located and well masked on the edge of a wood may be hidden from visual observation and the camera, but they will easily be revealed by radar and infrared direction finders, because they give characteristic reflections on the screens. If, however, these motor vehicles are moved deep into the woods and are thoroughly camouflaged they cannot be detected by these means. Therefore when determining the methods for using conditions of terrain for camouflage it is necessary to consider all the possible technical means of reconnaissance available to the enemy.

Standard and improvised means compensate for the absence or deficiency of natural cover. Such means were widely applied in the Great Patriotic War and fully justified themselves. However, in contemporary conditions much of the standard camouflage and also the improvised camouflage successfully used in the last war cannot be used to camouflage combat materiel, since they do not conceal objects from radar, IR heat detectors, and infrared instruments. To provide reliable camouflage from all means of reconnaissance definite requirements must be met. For instance, mats of dry brushwood must be no less than 6 cm thick and mats of fresh-cut branches, at least 4 cm thick, and so forth.

Consequently, during application of standard and improvised means, just as during use of folds of the terrain and local objects, it is necessary to seek concealment from the capabilities of all the enemy's means of reconnaissance.



Antiradar measures and measures undertaken to counteract enemy use of infrared instruments and heat detectors have great significance for success of camouflage. They consist in concealment of one's own troops and objects from observation by enemy radar, infrared instruments, and heat detectors and also in destruction of these means or disturbance of their normal operation by the creation of technical interference. Destruction or suppression of all these means is produced by rocket and artillery fire, air strikes, and sometimes by special actions of reconnaissance organs.

Sound camouflage is used to conceal noise by its elimination or muffling by different means, and also to lead the enemy into error by imitation of noises in places not occupied by troops and combat materiel.

In modern conditions there is special significance in the observance of the rules of coded communications and in taking measures for radio camouflage, because the quantity of radio stations continuously increases and the means of radio direction finding, radio intercept, and sound recording applied by the enemy permit him to fix even short signals of radio stations.

All the considered measures pursue one goal - to conceal revealing signs and thereby to keep the enemy from detecting the true position of our troops. Skillful implementation of these measures can give very good results, but even so it does not always lead to full achievement of the objectives of camouflage. Empty areas always will appear suspicious to the enemy and he of course will look still more persistently for camouflaged objects and will not hurry to a conclusion which he knows does not correspond to the concrete conditions of combat situation. Therefore, along with concealment of camouflaged objects it is necessary to set up false objects and to create false impressions about our actions and intentions. During the creation of false objects, just as during use of the various means of camouflage, it is necessary to consider the capability of the means of reconnaissance applied by enemy. Otherwise a false object which creates a false image during detection by any of these means, can be identified by other means which detect it by its other properties.

Measures undertaken for leading the enemy into error - demonstrations, arrangement of false objects, imitation of noises and demonstrative smoke launching, operation of false radio networks, spreading of false rumors and documents, and so forth - have to be conducted in the forces only in accordance with instructions of the superior commander and according to the plan of higher headquarters.

Camouflage works are executed basically by the forces and means of all types of troops, special troops, and combined arms subunits and units. Engineering troops are detailed to execute the most complicated measures requiring special training and the use of special equipment, and also for technical leadership of camouflage operations.

The state of camouflage of troops is checked periodically by ground monitor observation, observation from the air, radar, infrared equipment, and heat detectors. Monitoring of the timely fulfillment by troops of measures undertaken for camouflage is assigned to headquarters of all types of troops, the chiefs of services, and the subunit commandants.

#### Engineering Support

Engineering support of combined-arms combat is the totality of the various engineering measures directed to ensure for friendly troops advantageous conditions for successful conducting of battle, application of combat materiel, timely accomplishment of maneuver and achievement of secrecy of troop actions, increasing their protection from weapons of mass destruction, and in every way possible to hamper the activity of enemy and to assist in inflicting maximum losses on him.

In contemporary conditions the role and significance of engineering support of combined-arms combat is essentially increased. This is explained first by the need for protection from means of mass destruction and second by the necessity to ensure highly mobile combat actions of troops equipped with various types of combat materiel.

The volume of problems of engineering support of modern battle is very great. In each case the problem of engineering support and the volume of accomplished engineering works will be determined by the type of battle and the content of the combat missions to be executed by the subunits and units, the character of the terrain and local objects, the presence of available materials, and other conditions of the combat situation.

Among these problems are some without whose solution support of combat actions of troops in the engineering sense is inconceivable. One such problem is engineering reconnaissance, without which it is impossible to outline correctly all the remaining measures of engineering support. Furthermore, no matter what missions are carried out by the troops and no matter what their formation, it is always necessary to maintain roads and cross-country routes in passable condition (or if there are none, to lay them), to equip water supply points, and to organize the obtaining and purification of water. In order to reduce troop losses due to the enemy's means of destruction, especially nuclear weapons, it is necessary to make wide use of natural shelters and to build various engineering constructions. To confuse the enemy relative to the true location of these constructions and to conceal them from his observation it is necessary to create false objects and to perform necessary camouflage to ensure secrecy of actions of troops.

For the purpose of impeding the approach of the enemy to regions of the positions of our troops and important objects and to create favorable conditions for his destruction by fire barriers are constructed and demolition is performed. At the same time, in order to facilitate the approach of our troops to the positions of the enemy passages are made in minefields, log obstacles, and wind-fallen trees, as well as passages through natural obstacles. In the case of forced crossing of water barriers the primary task is the preparation and servicing of crossings through these barriers. And, finally, the most important and pressing problem in all situations is to carry out engineering measures to liquidate the consequences of a nuclear attack by the enemy.

Engineering reconnaissance is organized for the purpose of obtaining timely data about engineering measures conducted by the enemy and about the character of the terrain in an area of military action.

Reconnaissance of the engineering measures of the enemy establishes the degree of organization of terrain in the engineering sense, the location of his constructions and their equipment, places occupied by enemy minefields and other barriers, and also the presence of natural obstacles. The mission of reconnaissance also includes study of the terrain in the area of the enemy troop disposition, in order to reveal its protective and camouflaging properties, the presence of building materials and sources of water, passability of roads, determination of the character of natural obstacles, and methods of surmounting them. Furthermore, an important mission of reconnaissance is to obtain data about new means of military engineering and methods of engineering organization of the terrain applied by the enemy.

Reconnaissance of terrain reveals convenient approaches to the FERA and to enemy defensive objects located in depth; the character of barriers, their location and extent on the front and in depth, the presence of passages and how they are covered by the fire means of the enemy; the location and character of entrenchments, trenches, and concealed fire constructions; the location and degree of fortification of observation and command posts; and passability of the terrain.

Roads are reconnoitered to determine their condition and the volume of work necessary to assure passage over them. This includes the establishment of the width of the passable part, the type of surface, and the state of the road subgrade; the condition and load capacity of road structures; the presence of destroyed, mined, contaminated, and poorly passable sections and possibility of detours; and the presence near roads of natural shelters and road building materials.

Reconnaissance of a cross-country route is conducted along a path outlined on the map; the route is staked and is marked by special indicators. During reconnaissance of a cross-country route the degree of passability of terrain is determined and sites where it is necessary to construct bridges or to strengthen existing bridges and which local materials to use for this are established.

For a forced crossing the mission of reconnaissance includes the following: study of approaches to crossings; detection of natural camouflage which will permit secret deployment of transport subunits and transport means; establishment of the existence of bridges or fords and determination of the possibility of using them for crossing; determination of the sections most suitable for forced crossing in amphibious vehicles, self-propelled river-crossing means, crossing on the bottom, and for crossing of tanks over fords.

On the section chosen for crossing thorough reconnaissance of the water barrier and its shores is carried out. The presence and character of barriers and contaminated sections and their width and depth are established, their boundaries are marked, and the character of bottom, the speed of the current, the steepness of the banks, and the quality of the bottom ground are determined.

Reconnaissance of sources of water is conducted to locate them and determine the possibility of using them, and also to find the most convenient places for construction of new sources of water supply.

Engineering reconnaissance is conducted by reconnaissance subunits of the engineering troops, either independently or jointly with reconnaissance subunits of combined-arms units and formations. Engineering reconnaissance subunits are equipped with the necessary means, including those for conducting radiation reconnaissance, and also with means for mine clearing and with transport of high cross-country capability. The most widely used methods of conducting of engineering reconnaissance are observation, photography, direct inspection, and raids.

The preparation of routes for movement of troops and their maintenance in passable condition are carried out by road-engineering and combat engineer subunits. In isolated cases, with a large volume of road works and a shortage of engineering troops, the latter can be reinforced with mobile infantry subunits.

Construction of roads for movement in contemporary conditions consists first of all in strengthening weak sections of roads and constructing passages through narrow obstacles, with wide use of engineering technology and prefabricated elements of road surfacing and bridges. Engineering machines are also applied for filling in ditches and craters and making passages through sections of terrain contaminated by radioactive material and persistent toxic substances.

As cross-country routes are laid out the width of passable roads and sections of terrain under enemy observation and fire are marked. Passages are made in blocking barriers. Crossings over ravines, streams, ditches, trenches, and communications lines and other small obstacles are prepared. The roadway is cleared of trees and brush and sections with soft ground are strengthened by laying down prefabricated treadway tread surfaces, panels made of planks and poles or flexible treadway surfaces of poles or fascines. To improve the passability of sections with loose sands special metallic grids or mats of reeds and other building materials are used. On marshy sections tracks and solid coverings of lumber are made for the passage of heavy equipment.

On slopes with inclines of more than  $12^{\circ}$ , graders and bulldozers are used to make horizontal cuts; in rocky terrain blasting is also conducted for this purpose.

When there is time the surveyed sections of terrain are camouflaged from enemy ground and sometimes aerial observation.

Prepared routes are designated by special road signs which are as far as possible visible at night also.

Passages in minefields and other barriers and obstacles are made only when there is no possibility of bypassing them.

Passages in minefields are made by different methods. The most widely used are mechanized, explosive, and manual. The mechanized method consists of sweeping of the minefield by tank minesweepers. Each tank sweeps two tracks; therefore to produce solid passages tank minesweepers proceed in echelon, separated by no less than 25 m. The explosive method consists of detonation of mines along the line

of passage by specially prepared explosive charges. The manual method is used by combat engineers equipped with mine detectors, probes, etc., who make passages through the minefield.

To ensure safe passage of combat equipment and personnel the width of the gaps should be no less than 6 m.

On terrain contaminated by radioactive substances passages are made by means of deactivation, which can be conducted by cutting and removing the upper layer of ground to a depth of 5-10 cm, by covering the contaminated surface with earth layer of no less than 8-10 cm, by washing and sweeping radioactive dust from hard surfaces, and by laying down solid and tread-width road coverings. The basic and the most widely used of these methods is cutting away a layer of ground with the help of engineering machines.

Passages are made through antitank ditches, scarps, and counterscarps, chiefly by the explosive method, or bridges are thrown across them.

Passages in abatis in woods, barricades, and wind-fallen trees are made by knocking down and dragging aside the trees, which can be done either with bulldozers or manually. To facilitate making gaps in such barriers blasting is done.

Passages in wire barriers are made by tanks, artillery fire, or explosive charges and manually with clippers and individual entrenching tools.

On precipices and in ravines with precipitous and steep banks approaches and entrances are set up.

The preparation and maintenance of crossings through water barriers is a very complicated and responsible mission of subunits of engineering troops. In each case the need for preparation of the crossing will be determined by the character of water barrier, the availability of bridges and crossings, the possibility for troops and equipment to cross fording, the availability of standard and improvised means (both of engineer and attached units), and by the possibilities of organized crossings.

Subunits of a motorized infantry battalion usually force water barriers in their authorized amphibious armored carriers or on attached transport means, and if possible, by fording. Tank subunits cross rivers by fording, by running on the bottom, on self-propelled ferries or pontoons and over bridges captured from the enemy or prepared by the forces and means of superior commanders.

The erection of different constructions which provide protection of personnel and combat materiel from means of destruction is an especially labor-consuming process. Therefore, wide use is made of mechanized equipment for this work. This reduces the time required to prepare the necessary engineering constructions and reliably to protect troops, especially from the nuclear strikes of the enemy.

Camouflage measures are conducted both by subunits of all types of troops and also by special subunits of the engineering troops, using both improvised and standard means.

Obstructions and demolition can find wide application in contemporary conditions in spite of the highly mobile forms of battle. Obstacles are subdivided into explosive and unexplosive. Explosive obstacles not only hamper and limit the advance of the enemy but also inflict severe destruction on him. They are established by subunits of the engineering troops. Nonexplosive barriers, such as antitank ditches, scarps and counterscarps, log barriers, barricades, post obstacles, etc. cannot by themselves inflict damage on the enemy, but they will force him to stop for a certain time and thereby will create profitable conditions for application of our fire means.

Equipment of water-supply points and the organization of the obtaining and purification of water take on especially great meaning when the enemy uses nuclear weapons and other means of mass destruction. In the course of combat actions available sources of water are used first, but if they are lacking or cannot be used, the forces of engineering, subunits prepare special water-supply points.

At these points water is obtained, purified, stored, and distributed.

Engineering measures undertaken to liquidate the consequences of an enemy nuclear attack consist in restoration of defensive constructions, clearing and restoration of supply and evacuation routes, in clearing of avalanches preventing removal of people from damaged structures, and extinguishing of fires.

Such a great volume of missions can be carried out only if engineering operations are conducted not only by engineering troops, but also by troops of all branches and by special troops. For this personnel of all branches and special troops must be instructed in engineering practices and subunits must be equipped with the necessary engineering equipment and property to enable them to independently execute a number of works. Subunits of all branches have to know how to erect simple structures for observation and conducting fire and to organize shelters for personnel and combat materiel; to restore and deactivate existing structures and to make them combat ready; to clear avalanches and to extinguish fires appearing as a result of enemy use of nuclear weapons; to surmount simple barriers and obstacles, to lay out cross-country routes, to cross water barriers on improvised and standard means; to camouflage occupied positions and troop areas; and to use local sources of water supply.

As a rule engineering troops execute the more complicated missions, which line troops cannot handle because they do not have special engineering equipment or their personnel are not trained for this. Engineering troops can also be assigned missions which are executed by line troops manually and with simple tools; by applying highly productive equipment, engineering troops can perform the same work several times faster.

In view of the great variety of problems solved by engineering troops, these forces are nonuniform: every subunit of engineering troops has its own specialization and its own purpose. The composition of engineering troops includes combat engineers, road engineers, assault, pontoon-bridge and installation engineers, field water supply subunits, and others. Although engineering subunits are specialized, this does not mean that if necessary they cannot be drawn on for execution of other operations.

In contemporary conditions the outlined measures of engineering support must be conducted in very short periods, and this can be achieved only when wide use is made of highly productive engineering equipment for carrying out engineering operations.

The basic organizer of engineering support of battle is the combined-arms commander. He establishes the character of barriers and the presence of engineering constructions in enemy territory and determines the necessary measures to be undertaken to make passages in the barriers, the methods of overcoming obstacles, and the engineering support of subunits attacking the engineering constructions of the enemy. In defense the commander determines the location of engineering constructions and establishes the order of their equipping. He outlines the necessary volume of engineering works and distributes them among the subunits, details the necessary personnel of the battalion (company) for carrying out engineering operations, and establishes the order of use of various tractor-drawn equipment.

During determination of the volume of engineering works and the time for their fulfillment the commander of the battalion (company) considers the level of education and training of his subunits, their equipment with engineering means, and also the capabilities of attached subunits of engineering troops and their military engineering equipment. The commander always takes into account those operations which will be carried out in the interests of his subunit by the forces and by means of the superior commander.

After establishing the combat missions, the commander of the battalion (company) issues orders for engineering support together with instructions on other forms of combat support of fight. In the course of battle he alters earlier established missions or sets new missions of engineering support as necessary.

## Rear Support

Successful actions of subunits depend in many respects on well-organized and steady work in the rear. The high degree of outfitting of troops with various combat equipment and the change in this connection in the methods of conducting battle have complicated and increased the volume problems of rear support. Contemporary combat requires a large quantity of different material means. The availability in subunits of numerous and varied items of equipment makes it necessary to employ special forces and means for service and repair. Large personnel losses require an increased volume of medical aid and evacuation of wounded and sick from the battlefield.

To satisfy the needs of the troops in terms of material means, repair of weapons and equipment, and evacuation and aid to casualties it is necessary to include in the composition of forces special units and subunits to resolve these problems. These include various depots for storage of material means, repair shops, medical units (subunits), and also the necessary transport and evacuation subunits. Moreover the composition of the battalion and regiment includes rear subunits and the division; rear units. All these units and subunits, taken in totality, compose the division and regiment service areas.

In an active army the service element is the lowest element directly supporting troops in combat; therefore the success of combat actions is influenced most of all by the precision and coordination of the work of the service element.

The work of the service element in contemporary conditions should be organized so as to make it possible to carry out continuous delivery to the troops of everything needed, to take measures for maintaining weapons and combat equipment in full combat readiness, to take hygienic and antiepidemic measures, and also so that preservation of the viability of service units and subunits is ensured.

Depending upon their missions, service units and subunits are subdivided into supply, motor transport, repair, medical, and, when the forces include animals, also veterinary service.

Supply subunits include depots, administrative subunits, and bakeries. Depots are classified according to the type of supply as follows: artillery, fuel and lubricating materials, food, clothing, armored, and military technical. They are designed for the reception, storage, accounting, and issuing of material means and property, and also for reception from subunits and units of inoperative and surplus Soviet and captured arms, materiel, and other property and its preparation for shipment to the appropriate higher depots or workshops. Administrative and supply subunits are concerned with the delivery of certain forms of material means and the preparation of hot food for those subunits which do not have permanent field kitchens. Bakeries are intended for baking bread; if necessary they also produce dry crackers.

Motor transport units and subunits include motor transport platoons, companies, and battalions. They are assigned the delivery of material means, maintenance and transfer of mobile reserves, and also evacuation of casualties and the evacuation of weapons requiring repair, surplus weapons and other military property.

Repair units and subunits are broken down according to the character of their work into artillery, armored, and automotive workshops, workshops for repair of clothing and personal equipment and others. They conduct current minor and major repairs. Armored workshops possess evacuation means and, besides repair, carry out retrieval of damaged equipment.

Medical subunits include battalion medical post (BMP), regimental medical post (RMP), and the medical-sanitary battalion of division. These subunits and units are intended for the collection, removal from the battlefield, and evacuation of sick and wounded, rendering them the necessary medical help, and their treatment and preparation for further evacuation. They also participate in measures undertaken for antigas, antiepidemic and antibacteriological protection of troops.

Veterinary subunits are included in units, in which animals are maintained. They treat and evacuate sick and injured animals.

Service subunits of a motorized infantry battalion supply the companies with various types of ammunition and permit deploying food and clothing supply point (FCSP) and the (HMP). For maintenance of the machines in the battalion there is a repair workshop. Hot food is prepared for the entire personnel of the battalion at the FCSP and when necessary dry rations are issued there to the subunits. The battalion medical post is intended for pickup and evacuation of casualties from the battlefield and from the companies, rendering medical first aid; for carrying out of medical hygiene and antiepidemic measures in the battalion; and for supplying the subunits of the battalion with medical supplies. The repair workshop is intended for maintenance and current repair of the motor vehicles and armored carriers of the battalion.

Organization of the service area consists in preparing it for uninterrupted support of the troops, distributing and shifting service units and subunits, designating preparing and protecting of routes for supply delivery and evacuation, and in ensuring the protection of the service area.

Normal conditions for the work of the service element depend in many respects on successful selection of the areas for deployment of service subunits and the selection and preparation of roads for supply delivery and evacuation.

In setting up the disposition it is very important to consider the assignment, composition, and necessary conditions for work of one or another service subunit.

Depots require accessibility and the possibility of simultaneous unloading and loading of several machines, while artillery depots and depots of fuel and lubricating materials also require reliable fire-fighting protection.

For motor transport subunits there is particular value in the availability of natural shelters, which in many respects reduce the volume of work required to prepare shelters for motor vehicles and for camouflage, especially from the air. But it is also very important to select shelters from which motor vehicles can rapidly emerge onto routes indicated to them.

For repair subunits the proximity of roads and their condition is of great significance, since without roads the evacuation of inoperable tanks, armored carriers and motor vehicles is difficult and sometimes impossible.

Medical posts are best located in the direction of the basic flow of casualties and on terrain which is fully safe in medical-epidemic respects.

Kitchens and bakeries should be placed near sources of water suitable for preparation of food and bread and also in areas convenient to fuel stockpiles.

Transfer of service units and subunits in the course of battle is carried out in such a manner that the uninterrupted support of troops conducting combat operations will not be disrupted.

Subunits are supplied with material means from unit depots and the units are supplied from formation depots. Delivery is carried out by the transport means of superior commanders. For instance, materiel is carried to the battalion unit transport and even that of the formation, and the regiment is supplied via the transport of the formation and army. Timely and uninterrupted supply of troops is attained not only by delivery of material means, but also by the creation of fixed reserves directly in formations, units, and subunits. In view of the rapidly maneuvering character of contemporary combat actions, materiel reserves in the forces are placed on transport and are called mobile. They form the basis for supplying troops with materiel means in combat. As materiel is used the mobile reserves are supplemented from depots of the higher supply element. In turn mobile reserves in the battalion and company are subdivided into expendable and emergency reserves. The emergency reserve is expended, as a rule, on the decision of the regimental commander, but when delay is not permissible the battalion commander can order their use.

Refueling and loading of ammunition onto tanks and armored carriers is performed as follows: on the march - in regions of halts and upon arrival at the destination; in the course of battle - by delivery directly to combat machines in combat formation, without sending them to the rear for this purpose.

Normally subunits are provided with reserves of rations for several days. To protect food from contamination by radioactive or toxic substances and bacterial means they are stored and transported in special hermetic crating (packing).

Hot food is prepared and delivered to the companies by battalion supply platoon. When it is impossible to deliver hot food to the company personnel are supplied with dry rations.

In contemporary conditions, when the use of weapons of mass destruction leaves the majority of reservoirs and water sources either contaminated or destroyed, and also during combat actions in waterless and semiarid regions supplying troops with water takes on great significance. Water requirements are now sharply increased because, besides personnel and technical needs, operations connected with medical treatment of personnel and deactivation of equipment and other property require water.

During delivery of material means to subunits it is necessary in all cases to see that automotive transport brings these means, especially ammunition, as near as possible to the front, up to the companies and the fire positions of the artillery. If the conditions of the situation and the character of the terrain prevent this, armored carriers can be used for delivery of material means to companies.

During organization of delivery and evacuation it is necessary to avoid sending single machines (vehicles). For joint travel of several machines a column chief is designated. When dispatching a machine it is necessary to check the driver's knowledge of the composition of routes and the instructions for passage of difficult legs and sections exposed to fire; to check the correctness of loading of dangerous cargo such as ammunition and explosives; to prevent mechanically defective vehicles from being sent; and when necessary to organize protection of transport columns.

Technical maintenance emerged as one of the most important problems of the service element in the First World War, when the troops received tanks, armored cars, and motor vehicles along with rifles, artillery, and mortars. In the course of the Second World War, in connection with the sharp increase in the forces of the total quantity of combat and transport equipment and also the greater structural complexity of armaments, the volume of maintenance problems increased considerably. Motor vehicles completely displaced animal-drawn transport in all units of the service area. In the final analysis this meant that the need arose for technical maintenance in the motorized infantry down to the unit and even subunit level.

Technical maintenance consists in maintaining all forms of combat equipment and armament in proper condition and in constant combat readiness. It involves the organization and realization of technically correct use, servicing, and storage of weapons and combat equipment and in carrying out their timely repair and evacuation.

Realization of the full complex of measures undertaken for maintenance support of troops requires considerable forces and means. This was clearly revealed in the last war, in the course of which breakdowns of combat equipment and weapons reached huge dimensions. Under conditions of nuclear war the loss and damage of combat equipment and weapons will be immeasurably greater; this will undoubtedly increase the volume and complicate the problem of technical maintenance and hence will demand even greater attention on the part of commanders at all levels.

For restoration of worn and damaged equipment and weapons, formations, units and subunits have corresponding repair workshops.



Maintenance is conducted in the subunits directly by the crews of tanks, drivers of motor vehicles and also by the crews of cannons and mortars. To assist the subunits in the maintenance of machines and weapons, personnel and equipment can be sent to them from the repair shops of battalions and regiments.

In the tank (motorized) battalion the observation of tanks (armored carriers) on the battlefield is assigned to the technical observation post of the battalion, the organization of which is the responsibility of the deputy battalion commander for the technical unit (autotechnology of battalion). The duties of this post include determination of the character of damage and taking necessary measures for evacuation and repair of damaged equipment.

The basic mission of medical support is to preserve the combat capability and strengthen the health of personnel, cure the injured and sick as fast as possible, and prevent the appearance and propagation of diseases.

Medical support of troops, just as other problems of service elements, has become noticeably more complicated in contemporary conditions. The military medical service now must deal not only with injured and sick, but also with persons stricken with thermal radiation (burns) and radioactive and toxic substances. In connection with the sharp growth in the number of personnel needed in the medical service, the volume of problems of medical support will increase immeasurably. For these reasons medical support of troops should be studied not only by the medical service, but also by commanders and headquarters of formations, units and subunits.

First aid is given to the sick and wounded directly on the battlefield and in centers of destruction by the personnel themselves, by orders of self-help and mutual assistance. It can be rendered also by medical orderlies and sanitation instructors of companies at the place of injury or in the nearest shelter. For medical first aid in mobile infantry subunits use is normally made of individual bandage packs; crews of combat machines also use medicine chests located in tanks and armored carriers.

In direct proximity to the place at which a wound is received or at the battalion medical post the medical assistants of the battalion give field treatment to all casualties. The first professional treatment is done by physicians at regimental medical posts, without regard to what units personnel come from or what branch of the forces they belong to.

In the medical battalions of formations qualified medical help is given by physicians and specialists strictly according to vital indications. Then the casualties are evacuated to special hospitals. As a rule their evacuation is carried out from front to the rear by the transport of higher echelons.

Besides treatment of sick and injured and their evacuation, medical support of troops includes reconnaissance of the medical and epidemic state of areas of combat actions; carrying out antiepidemic measures and providing antigas protection of troops; determining types of bacterial means applied by the enemy and establishing boundaries of centers of infection; monitoring of medical treatment within the forces and also medical monitoring of food, water, billeting and laundry services of personnel; checking the quality of sanitary processing of combatants, the deactivation and disinfection of clothing, equipment, materiel, and terrain, and the disinfection of food and water.

As troops conduct contemporary high-maneuver actions their service units and subunits will have to accomplish their work under constant threat of enemy attack. For this reason all service activity should be combined with well-organized protection and defense and reliable protection from the effects of the enemy's weapons of mass destruction.

Protection of the rear is organized for the purpose of warning personnel of service units and subunits of surprise ground and air attack and also to protect the command's materiel responsibilities and supplies from losses and plundering. It is carried out by the organization of patrol service and direct protection. In the deployment area of service subunits observation and watch posts are set up, patrols are sent out, and escorts for transport on the line of march are organized.

Defense of the rear area consists in the preparation of the rear to repulse ground and air attack and in direct repulsion of attack.

For organization of defense all personnel of service subunits are split into sections and platoons. Every section and platoon is given a position and told of the list of its equipment. A duty unit is designated and force and means are detailed for destruction of small airborne landings, lone tanks, and low-flying aircraft of the enemy. In tank-endangered areas antic tank barriers can be organized. Near the work areas of personnel trenches are dug. The direct responsibility for defense of the subunit falls on its commander (chief), who develops a plan for security, defense and protection of objects.

When several service units and subunits are located in one point their defense is organized by the senior commander, who at the same time is the commander of the given post.

Antiaircraft defense of the rear is organized in a common system, since service units and subunits are distributed in the zone of actions of troops. Warning signals are the same as those used in other forces; when necessary additional, individual signals can be designated. Personnel are obligated to know the established signals.

All personnel of service subunits must be trained in conducting combat with enemy ground forces and in conducting fire against low-flying aircraft. They must also be trained to equip and camouflage simple defensive structures and shelters for materiel, supplies and property, and to construct barriers from available materials.

In individual cases, when there is a clear threat of attack of enemy on the rear, motorized infantry and other subunits can be detached for its defense on order of the commander. Furthermore, during an enemy attack, use is made of all weapons and combat machines in the repair shop and their crews, and vehicle drivers are pressed into service. When necessary, the commander can order an escort for transport carrying materiel and evacuating casualties. Motorized infantry and tank subunits can be enlisted for this purpose.

Protection of rear from weapons of mass destruction is achieved by dispersal and camouflage of rear objects, maximum use of protective properties of terrain, equipment of shelters, ensuring uninterrupted movement of transport over delivery and evacuation routes, supplying personnel with means of protection, timely warning, continuous chemical, radiation and bacteriological reconnaissance, and measures undertaken to liquidate the consequences of enemy use of means of mass destruction. Dispersal is carried out not only to distribute individual rear objects at considerable distances from each other, but also to locate them at a safe distance from the most probable targets of enemy nuclear attack.

Control of the service rear area is a component of troop control and requires constant leadership for the activity of service units and subunits with regard to timely and complete support of troops.

The direct organizer of the rear is the commander, who carries out this control through for service areas. A battalion commander controls the service area personally and with the help of his staff.

Control of the service area is maintained from the battalion command post and control of the regimental and division rear from the rear control post. The chief of the rear control post is the deputy of the commander for the rear and therefore all officials comprising the rear control post obey him with regard to questions of disposition and transfer, internal order, protection and defense. The rear control post, as a rule, is set up in the area of the rear service subunits (units) and moves with them. The SOP for deployment and transfer of the rear control post is established by the commander.

## CHAPTER V

### TROOP MOVEMENTS

#### Methods and Conditions of Troop Movements

By the term troop movement we understand their organized movement, by some method, from one region to another (on a defined line).

Combat experience bears witness to the fact that troop movements have always been of importance. Therefore, outstanding commanders in the past considered the art of accomplishing a troop movement one of those decisive factors in achieving victory.

In contemporary conditions the value of troop movements has increased immeasurably. Troop movement is of great importance in the combat activity of forces. It is inseparably connected with any form of combat activity.

Troops can move in a march, i.e., on mechanized equipment (tanks, armored carriers, motor vehicles) or on foot (in winter — on skis) in columns over roads and cross country routes. Movement of tracked machines (tanks, self-propelled artillery equipment) is possible on heavy-duty tractor trailers. As before, the march is considered to be the basic method of movement. It is the most accessible for all combatants in almost any situation and will find wide use not only during combat operations, but also in the deep rear of its own troops. Therefore, march training of troops is given very great significance.

Along with march movements troops may be transported by rail, air and water (ocean, river). Movement by railroad and waterways preserves the strength of personnel, protects machines from wear, and saves resources. Air transport, ensures speed of troop movement over considerable distances.

Also possible is combined movement, i.e., a simultaneous or by-order combination of march and transport of troops. One or another method is applied, depending upon the problem at hand, the number of troops and the distance they must be moved, the availability of transport, weather conditions and the condition of movement routes. All troops learn to move by any method and are constantly ready for this.

Regardless of the method of movement, troops should always arrive at the designated region (at the point) in good time, maintaining full combat-readiness throughout the journey and upon arrival at a given region (at the point).

Conditions of troop movements in a future war have been considerably complicated. Even in the deep rear it will be necessary to move troops under the threat of nuclear and chemical attack by an enemy, his aircraft, airborne troops and the actions of sabotage-reconnaissance groups. From enemy blows, especially those by nuclear weapons, the troops which are being moved may sustain considerable losses.

As a result of the enemy using weapons of mass destruction on troop movement routes, strong radioactive, chemical or bacterial contamination of the locality, surrounding air, local objects, and water sources is possible. Troops will have to pass through or surmount the encountered zones of contamination. Personnel will be subjected to the harmful influence of radioactive radiation, poisoning substances, and bacterial means. Coupled with poor organization and provisions for troop movements, all this can hamper their progress, lower their combat-readiness, and lead to a delay in reaching a designated region or line of deployment.

It may be necessary to move troops at any time of the year or day and, in any weather on varying locales, for example, on plain and partially broken, mountain-forest, woody-marshy and desert-steppe areas. Enemy nuclear blows can lead to the destruction (on troop routes) of inhabited localities, road junctions, crossings, and defiles, as well as to flooding of considerable areas, and to the appearance of large burning areas. Movement will often have to be accomplished without roads, laying cross-country routes and fully using the high passability of combat vehicles and means of transportation.

In contemporary conditions, the significance of troop movement over large distances, lasting for several days, is increasing. This is caused by the sharp increase in the scale of combat operations, the character of their maneuver, and high rate of development, full mechanization of troops, and increasing enemy abilities to disrupt the transport of troops by railroad.

The complicated conditions under which troop movements occur require thorough organization and skillful execution.

#### The March

March capabilities. The march is accomplished after considering the capability of personnel and combat materiel to sustain a defined load for a prolonged period. Any march, especially one made on foot, is a great strain on the physical strength of all personnel. If troops move on vehicles, then the greatest load must be borne by the drivers of tanks, armored carriers, tractor trailers and other motor vehicles. Combat and transport vehicles also experience considerable strain.

During the years of the past war, march on foot was accomplished by subunits, units, large formations and even whole armies. Thus, for instance, from 13 thru 18 January 1945, the 21st Army (comprised of three rifle corps) accomplished a march over a distance of 210 km.

In contemporary conditions, when troops are completely motorized and mechanized, a march on foot or on skis is accomplished only by subunits, and even then only for short distances. Most frequently, troops on the battle field and in their rear move on vehicles. The duration of a march on vehicles can last for several days. During this period, troops can move hundreds of kilometers.

Speed on a march depends on many factors: the degree of enemy action, the level of driver training, makeup of the column, the condition of vehicles, transportation, the route and weather, time of day, etc.

In those areas where troops are subjected to nuclear attack or to aviation strikes or where they are forced to surmount areas of destruction, fires, or flooding, the speed of column movement is considerably lower than it is outside enemy influence and in areas which are free of obstacles.

Columns consisting of wheeled machines move with greater speed than do columns of tracked machines or mixed columns. At night, during a snow fall, in slush or rain, and during thick fog, speed is essentially lowered, especially if the movement takes place on bad roads or over cross-country routes.

When planning a march and deciding other aspects of its organization, the average speed of the troop movement serves as the starting point. This speed is determined by dividing the entire (planned) route by the expended (planned) time of movement, without considering delays.

Modern day forces can move on vehicles over roads with an average speed of 25 km/hr and higher by day, and 20 km/hr and higher at night and in other conditions of limited visibility. Here, over certain sections the speed of a troop movement can sometimes considerably exceed the average speed of movement and during movement over bridges, fords, marsh-ridden sections and during deployment into prebattle order, speed is lowered approximately by half, as compared to the average. During movement on foot, average speed can reach 4-5 km/hr, and on skis, 5-7 km/hr.

The average speed with which troops accomplish their march greatly determines the distance of their daily movement. Additionally, the distance of daily movement also depends on the physical capabilities of the drivers of transport and combat vehicles, and their ability to endure the strain of a march while maintaining full combat-readiness. If we accept the work period of driver personnel as being 8-10 hours per day and the average speed of the movement as being 25 km/hr, then the distance of a 24-hr movement can be from 200-250 km.

The distance of daily movement and the average speed of troops on a march are established by the senior commander. In the process of planning a march, the amount of daily movement is measured on a map from the initial boundary (point) to the terminal point in the new area of troop deployment or to a designated boundary of deployment (with an addition of from 2 to 15% to the total length of the movement, obtained through measurements on a map, depending upon site relief and map scale).

Lines and points. In order to guarantee good march organization, an initial point and control points are established, and the time of their passage is determined. During a troop movement over several routes, the initial line and control lines are established (Fig. 12).

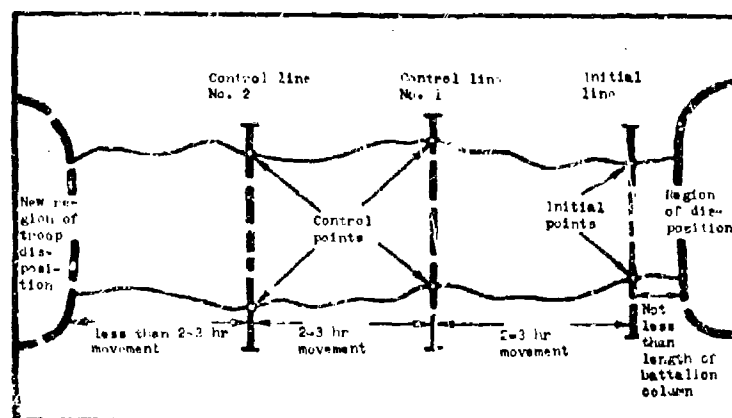


Fig. 12. Lines and points.

The initial line (point) is designated for a timely beginning of the march, for preventing delay and mixing of subunits, and for ensuring that they rapidly occupy their place in the march order. The moment when the head of the main force column passes the initial line (point) is considered the beginning of the march. Therefore, columns of subunits are formed in the staging area and are drawn out to the initial line (point) prior to the beginning of the march, taking into account its passage exactly at a fixed time.

The initial line (point) is selected at a distance from the staging area, which ensures drawing out the column and building up the speed necessary for the movement. Every subsequent subunit passes this line (point) in that time interval necessary to maintain the established distance from the tail of the preceding column.

The initial line (point) is designated on a line of clearly expressed, easily recognizable (for moving troops) local objects; on a dark night it can be designated by lighted reference-points. At the same time, the initial line (point) must not

attract the attention of the enemy. If the chosen local objects prove to be suitable reference-points for the enemy, he can inflict strikes with nuclear or chemical weapons and can use aircraft to strike the forces at the moment of their approach to the initial line (point). Therefore, assigning the initial line (point) along a river, channel, pass, gorge, or other sharply delineated objects should be avoided.

Control points are designated in order to ensure regularity and organization of the troop movement and to facilitate regulating the column's speed so that it will arrive at the designated area (at the assigned point) at the proper time. Their number and distance from one another can be quite diverse, depending upon total duration of the march, type of locale, state of the roads, and the weather. Control points are designated every few hours of the movement (usually 2-3 hr). Like the initial line (point), they are designated by highly noticeable local objects, but beyond such distinguishing objects in whose area an enemy might inflict blows on moving soldiers. Designated control points are passed by each of the subunits at exactly the established time.

Halts and rest. A march places great strain on personnel as well as on combat and transport vehicles. Therefore, without constant concern for the preservation of strength of the men and the state of equipment, it is difficult to count on the success of a march, preservation of combat readiness of subunits, and timeliness of their arrival at a designated area or at the point of deployment.

To preserve the strength of personnel and to save equipment, long and short halts and a day and night rest are called (Fig. 13).

In a mechanized march, short halts are designated for every 2-3 hours of the movement; halt duration is 20-30 minutes. When the march is performed on foot, short halts (10 minutes in duration) are designated for every 50 minutes of movement.

In a short halt, column formation is not disturbed. All subunits halt simultaneously, and the distances fixed between them are maintained. Combat and transport vehicles stop on the right side of the road at distances established by the commander (but not less than 10 m). The condition of machines and equipment is checked and malfunctions are eliminated. Vehicle refueling can be performed, and partial medical treatment of personnel, partial degassing, deactivation or decontamination of arms and other objects can be performed. Personnel disembark from the vehicles and rest on the right side of the road. Signal observers, antiaircraft crews (on duty), radio operators, and subunit commanders remain in the vehicles.

Long halts during a mechanized march are designated at the beginning of the second half of the daily movement; halt duration is 2-4 hr. Long halts are not made at night, so as to make maximum use of movement in the dark, especially in the short summer night, and also in winter (in severe frosts), so as not to subject personnel to the danger of freezing. When marching for short distances (less than twenty-four hours duration), long halts are not designated. If a subunit moves on foot, then a halt of 2-4 hours is provided at the beginning of the second half of the route.

During a long halt, subunits leave the road and disperse along the march route. Here subunits make use of protective and camouflage properties of the locale, and they put up simple shelters. The operating condition of combat and transport vehicles is checked, maintenance is performed on them, and when necessary, they are also repaired. At this point full special treatment of personnel, arms, combat material, and other objects can be carried out. Personnel are given a hot meal and allowed to rest for several hours. When necessary, a change in the configuration of march order can be made.

Day rest is called after a night march, and night rest is called after a day march. Troops rest under cover, dispersed, and in such a manner so that the column might be rapidly assembled to continue the march. Here rest and feeding of personnel, technical servicing and repair of damaged machines and combat equipment are organized. Simple shelters (trenches) are prepared for personnel; sometimes shelter is prepared for combat material as well.

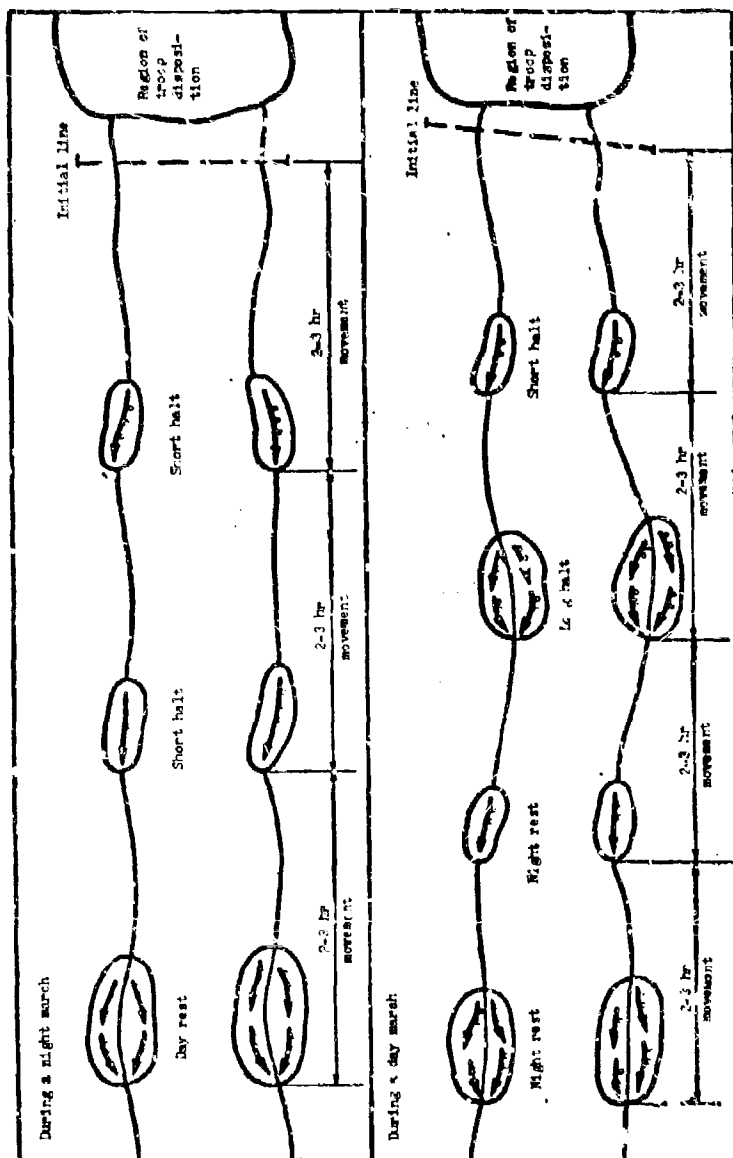


Fig. 13. Halts and rest.

The rest period, especially a night rest period, is used for necessary reassembly of the march columns. Such reassembly, as experience of the last war shows, can be performed for instance, when surmounting large water barriers or during a sharp change of the situation. Thus, in 1945 the 55th Rifle Corps marched to the Visla River by three routes. But there were only two river crossing routes, and for further march there were also two routes. For this reason, it was necessary during the rest before crossing to reconstruct the march columns of corps formations. Similar reorganizations can now frequently be performed, even in the course of a march, and this requires high operational quality in the work of the commander and the headquarters.

Areas of halts and of day and night rest should previously be reconnoitered. They are selected where approaches and exits are hidden and where it is possible to disperse the troops, taking into account the required protection from weapons of mass destruction. It is desirable that areas selected for halts and especially day (night) rest ensure not only good camouflage from aerial observation, but also cover of the flanks and the rear of resting troops by tankproof obstacles. Places for halts and rests are selected where there is a sufficient amount of water, but outside inhabited points and areas which are unfavorable for sanitary or medical reasons.

In areas of halts and of day and night rest, local security is organized in each subunit. Antiaircraft equipment and specially assigned (on duty) machine guns are kept in readiness to repulse enemy air attacks. Subunits are constantly ready to repulse an attack by ground forces, especially if the area of halt or rest is located at a short distance from the enemy lines.

March order. Troops march in a march order. The march order is a grouping of forces and materiel which has been created for the movement. It is formed in such a manner so as to ensure high speed, rapid deployment of troops and their entry into combat, conservation of the strength of personnel and preservation of machines, as well as stable control. These requirements placed on march order are not equally important in any situation: depending upon concrete conditions, on the first plan one or another requirement comes to light first. For instance, when marching in the deep rear, when there is no direct threat of encountering an enemy ground force, it is possible to subordinate all other considerations to the interests of conserving the strength of personnel, maintaining equipment, and achieving high speed. For this purpose columns are formed from similar vehicles with identical speeds and maneuverability. Not infrequently temporary disturbance of the organizational integrity of units (subunits) is resorted to sending heavy equipment, rear forces, etc., in independent columns along separate routes, out of contact with those troops with which they are organizationally connected.

If however, troops march under the threat of encountering an enemy ground force, in anticipation of a meeting engagement, the execution of other requirements is of paramount importance. In such a situation the interests of conducting the forthcoming fight with the enemy are of principal interest. Therefore, the march order is arranged so that each of the columns include subunits of different kinds of troops and possess the ability to solve independently arising combat problems, so that speed of troop deployment, their entry into combat from the march, and execution of a maneuver to hit the flanks and rear of an enemy are ensured. Subunits are deployed in the column so that with the initial engagement there was no need to draw out those subunits which were in the depth of the column, and to have then overtake other subunits which were proceeding in the forward section. Tanks usually move in the forward part of a march column, while artillery moves nearer to the forward part, and antiaircraft equipment is distributed throughout the entire column. Some of the tanks, artillery, and antiaircraft equipment is used as security forces.

The march order of troops consists of a varied number of columns. The number of columns depends mainly on the military echelon of command scale and the number of routes given for troop movement.

March order of the subunit always consists of one column. The march order of higher military echelons of command can consist of one or several march columns, each of which includes all the troops moving over a single march route. Regardless of the distance from the engagement line of the troops of both sides at which the march is accomplished, the distance between two adjacent march columns during the movement and during halts and rests should exclude the simultaneous defeat of both



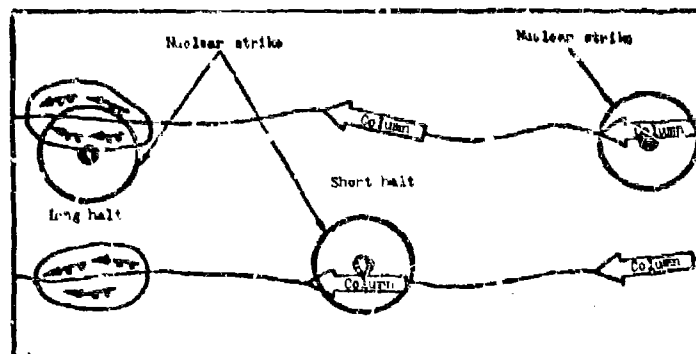


Fig. 14. Dispersion of troops along a front.

columns in case the enemy inflicts a nuclear blow on one of them (Fig. 14).

The routes along which troops move are selected to bypass, as far as possible, large inhabited localities, road crossings, gorges and other narrow places where troops can be the suitable objects for nuclear attacks and the use of enemy chemical weapons.

Each of the march columns is separated in depth into columns of subunits of the battalion (division), command, and logistical types. This decreases the vulnerability of forces from an enemy blow, and it facilitates their deployment in combat formation and their concealment. In the course of a march, between two columns following one after another a distance is maintained which excludes a loss of both columns due to an explosion of one nuclear weapon (Fig. 15).

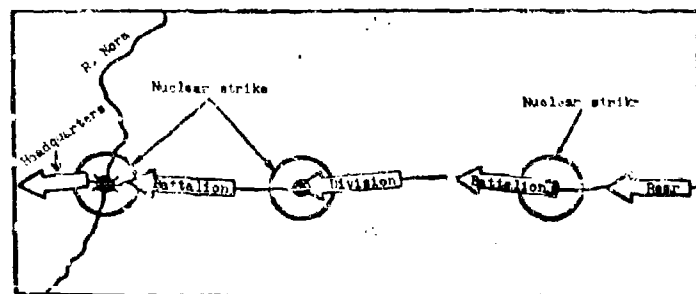


Fig. 15. Dispersion of troops in depth.

Clearly, when maintaining such distances and with such a large quantity of subunits, a march column of troops, moving along one route, can reach a length of several tens of kilometers. This hampers troop control in the course of the march as well as their deployment upon the necessity for a rapid entry into combat. Therefore, to reduce the depth of a march column of troops one should always strive for maximum use of all highways and dirt roads available in the march zone.

For convenience of movement, maintenance of order, and best preservation of combat and transport vehicles during the march, definite distances between machines are maintained. The amount of distance depends mainly on the degree of training of the drivers, speed of movement of the column, and visibility conditions. As a rule, distances between machines are established at from 25 to 50 m; during a night movement, the distance can be reduced. During movement in a thick fog, over ice-covered ground, on very rugged terrain, and also in radioactive contamination, especially in the presence of heavy dust in hot summer weather and in other cases of movement at higher speeds, distances are usually increased. However, one should always bear in mind that any increase of distances between machines leads to an

elongation of the column, it disturbs the uniformity of march, complicates troop control, and hampers their deployment for combat.

The composition of march columns depends not only on its distance from the enemy, but also often on relief of the locale, and the condition of routes and weather. Great complexity of relief, poor road passability, and all the more so impassable roads in poor weather can force the inclusion in each column of vehicles of the most diverse type, both on wheels and on tracks.

March security. During the march, great attention is given to full security of troop movements. These measures are taken to create favorable conditions for the troops for movement and organized entry into combat, to provide timely warning for them regarding any threat of attack by enemy ground and air forces, to preserve the high combat readiness of troops, and to supply them with everything necessary for successful march completion. The number of important types of march security usually includes intelligence, protection from weapons of mass destruction, antiaircraft defense, security, concealment, engineering, and logistical support. Under any march conditions, of paramount importance is movement control.

Reconnaissance is conducted continuously throughout the entire depth of the march, along routes of movement and on the flanks. Its problems are, first of all, timely detection of the enemy and location of his forces and their composition, especially the presence of tanks and the means of nuclear attack. The most important problems of intelligence also include determining the state of the march route, the degree of passability of local off-the-road areas and its character at points of probable encounter with the enemy. Of great importance is clarifying the radiation, chemical, and bacteriological situation in the movement zone as well as detecting contaminated sections and finding ways to bypass them.

The problems of intelligence are resolved by observation, direct inspection of the locale, and by other methods. For conducting intelligence observers are assigned, and patrols, patrol vehicles, combat reconnaissance patrols, reconnaissance groups, engineering and chemical reconnaissance groups, and engineering and chemical reconnaissance patrols are dispatched. The scope of their activity should always be great enough to ensure their successful execution of the problem at hand.

Protection from weapons of mass destruction is ensured, first of all, by dispersing the march order along the front and in depth, by skillful selection of march routes, areas of halts and day (night) rest, timely detection of radioactive, chemical and bacterial infection and its announcement to the troops, skillful use of protective equipment, protective properties of the locale, and combat and transport vehicles. Of great value is the strict observance of concealment, prevention of troop accumulations by initial points and control points, in the areas of halts or day and night rests, in passes and fords, and in gorges and inhabited points. Troops must always be ready to surmount extensive zones of contamination.

Liquidating the consequences of the enemy using weapons of mass destruction must not delay the troop movement. The part of the road being used is rapidly cleared of burning and damaged machines. Regions of nuclear strikes and contaminated sections are to be avoided. When it is not possible to bypass contaminated sections, they are to be crossed in protective means at maximum speeds, along the march route or bypassing areas of strong contamination. When dust is present, it is necessary to take measures which ensure better hermetic sealing of combat and transport vehicles; hatches, vents and louvers of machines should be closed, and materiel should be thoroughly covered. Partial special processing is conducted after leaving the contaminated areas, and complete processing usually takes place during long halts, in the area of a day (night) rest, or upon arrival at a designated region.

Antiaircraft defense in the last war played a very important role in ensuring the success of troop movements. As an example, let us recite the accomplishment of the march of the 44th Guards Rifle Regiment, transferred in the summer of 1943 from the city of Volchanak to Neklyudovo in connection with the enemy breakthrough in our troops' defenses on the North Donets River in the region of Belgorod. From the 6th to the 8th of June, the regiment during its march was repeatedly subjected to raids by aircraft. But thanks to a skillful organization of antiaircraft defense,

especially timely detection and announcements to subunits regarding the appearance of enemy aircraft, the regiment was able to accomplish its march without losses.

Under contemporary conditions the value of antiaircraft defense for the success of a march increases immeasurably.

Antiaircraft defense is organized considering the measures for troop cover taken by the senior commander. Special attention must be allotted to troop cover as they pass over bridges and crossings, during their halts and during a day (night) rest. With this goal, separate antiaircraft subunits are previously dispatched to cover the troops in almost impassable areas. In all subunits, and on every vehicle an around-the-clock air observation is established which is conducted continuously throughout the entire march. Repulsing enemy raids is the responsibility of on-duty firepower subunits. During enemy air attack the columns, as a rule, continue their march. Antiaircraft equipment and other fire power, also especially designated for firing on air targets, repulse the enemy air raid, firing in stride and from brief stops.

Camouflage during a march is directed toward assuring secrecy of movement and the concentration of troops in a new area or their pullout to a designated line. This concealment is attained mainly by using (for movement) the camouflaging properties of a locale, dark periods, and other conditions of limited visibility, by preserving military secrecy, and by strict observance of march discipline. Of great value is the skillful application of standard and improvised means for concealing combat and transport vehicles and combat equipment during movement and during halts and rests, and by using smoke when traversing crossings and gorges. Radio transmission is limited. Antiradar measures, and measure for light and sound concealment are taken.

March security is organized with the purpose of ensuring unhindered movement of the main forces, preventing an enemy surprise attack on the guarded troops and the penetration to them by his reconnaissance, and ensuring advantageous conditions for their deployment.

From the front, troops are protected by a vanguard or an advance party; threatened flanks are protected by lateral detachments or flank parties, and the rear is protected by a rear guard or rear party<sup>1</sup> (Fig. 16). When necessary, in the most important directions on the sides from movement routes stationary flank outposts (detachments) can be placed. They occupy advantageous points or objects and hold them until passage of the march column, after which they join the latter.

Forces and the composition of march security as well as its distance from the guarded troops can be quite diverse. They depend on the concrete conditions of a situation, mainly on the distance of the enemy, the composition of protected troops, and conditions of the locale.

During the years of the Great Patriotic War, in the vanguard of a division a reinforced rifle regiment was usually dispatched; from a regiment - a reinforced rifle battalion; in the head march party - a reinforced rifle company and in the flank and rear parties - reinforced rifle platoons.

March security, sent in the direction of troop movement, is separated from the main forces at a distance which ensures them the time and space necessary for deployment and executing a maneuver to inflict a blow in the enemy's flank. Flank and rear protection follows at a distance so that it might protect the march column from a sudden enemy attack from a threatened flank or from the rear.

When the troops stop for a long halt, the vanguard (forward party), flank detachment (flank party), and rear guard (rear party) remain at tactically

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<sup>1</sup>When marching over long distances, march security up to the approach of the troops to the region of possible enemy encounter is accomplished, as a rule, only by march parties.

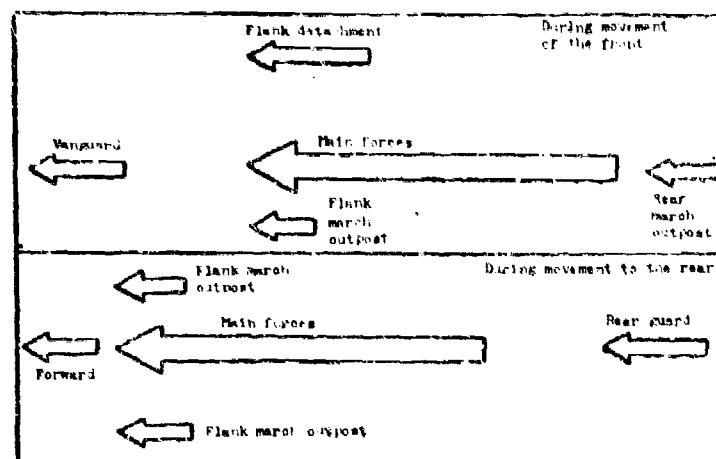


Fig. 16. March security.

advantageous points and continue to execute protection. When troops stop for a day or night rest, march security is turned into watch security or is replaced again by designated watch security.

Engineering support has as its goal guaranteeing the successful accomplishment of a march and the timely arrival of troops at a designated region or to a point of deployment. It includes engineering reconnaissance and the clearing of routes, troop staging areas and probable points of their deployment, repair of roads and bridges, preparation of cross-country routes, and the laying of bridges. Important measures of engineering support are arranging obstacle detours, the preparation of routes to bypass contaminated parts of an area, to arrange troop passage on almost impassable sections of roads, to prepare shelters in staging areas, to set up water supply points, and to perform concealment works.

On each of the routes a movement security detachment is assigned which prepares the movement route. It follows behind the march security unit or is previously advanced forward. A part of the engineering subunits is distributed along the columns.

**Rear support.** During preparation for the march, reserves of all material means are supplemented up to their norm, technical servicing of armament and machines is performed, and the wounded and the sick are evacuated to medical points. In order to render technical assistance to out-of-order machines, their repair, evacuation and refueling and lubrication, as well as for medical help to personnel, the rear is brought up. Taking part in bringing up the rear are repair and evacuation units, the medical staff, and machines with armored weapons and tractor equipment, and POL.

During a march, augmentation of the reserves of materiel is accomplished, as a rule, in areas of long halts, or a day or night rest. Combat and transport vehicles can also be refueled during short halts.

During the march, maintenance of machines is conducted in a degree which ensures their reliable operation during the movement and their arrival at the designated region or to a point of deployment in good technical working order and ready for further actions.

Machines which have broken down during the march are taken to the right of the road and are usually repaired at the place of their breakdown.

In a march the wounded and the sick are rendered medical help in place. After being treated they follow with their own subunits. In unavoidable cases, the wounded and the sick are evacuated to the nearest medical points (establishments).

Control of the movement has as its goal ensuring the systematic, nonstop and rapid movement of troops, their timely arrival at a designated area or to a point of deployment, control over observance by the troops of a fixed march order and measures for concealment during the march. Movement control is executed on movement routes, in areas of halts and rests, in a new staging area, and at points of troop deployment. It is organized ahead of time by the headquarters, before beginning the march.

For movement control, all important points (at initial points, control points, crossings, passes, road junctions, and defiles) command posts and movement control posts are set up. In order to reduce the number of posts, road markers and signs can be used. Detours of important localities and almost impassable sections of roads are noted.

**March discipline.** For the success of a troop movement, march discipline has always been of great significance. This is clearly shown by experience gained in marches carried out in the years of the last war. Thus, high march discipline was one of the important conditions for successful accomplishment of the 200 kilometer march by troops of the 21st Army in January of 1945. During this march, troop movement, especially during the first half of the march, was accomplished chiefly at night. With the onset of dawn, the march most frequently stopped. During halts and day rests, troops were disposed only in areas where it was possible to use natural camouflage from aerial observation. Campfires were forbidden. As a result, all large formations of the army successfully completed this march without being subjected to strikes by enemy aircraft.

Under contemporary conditions, since the enemy has increased his capabilities for conducting reconnaissance and inflicting blows on troops, even those moving a considerable distance away from the battle line of forces, march discipline takes on a significance even greater than before.

Personnel take their places in a vehicle according to plan, and every vehicle follows in a subunit column according to the accepted structure of forces. Columns pass the initial point and control points strictly at a fixed time. They stop for short and long halts, or a day or night rest, and they arrive at a designated staging area or a deployment point also at a strict time.

During a march a fixed order of movement is exactly maintained, especially that of speed and distance. Machines move only on the right side of the road; the left side of the road is kept free for oncoming traffic and for passing the column.

Passing is allowed only by permission of the senior commander. When one column passes another, the column being passed remains on the right shoulder of the road or to the right of it to accelerate passing, and to exclude mixing of forces and collision of vehicles. Those vehicles lagging behind (from malfunctions) rejoin their column at the next halt.

During a march all measures are taken to avoid delaying the column and the accumulation of troops in inhabited localities, at crossings, passes, and in front of gorges. Troops pass these places nonstop, at the highest possible speed. If a delay occurs in the troop movement through some narrow or almost impassable place in the route, then the next column stops ahead of this in a covered area and remains there until the problem is resolved. During movement over bridges, measures are taken to ensure safety.

During stops for a long halt, or a day or night rest, upon arrival at the designated area and during combat, in the shortest period the road is freed of all combat and transport vehicles in order to facilitate the movement of other troops. Subunits rapidly disperse along the front and in depth, and take measures for concealment.

During a night march, special attention must be given to strict observance of black-out requirements. Movement of combat and transport vehicles with undarkened headlights or with headlights on is prohibited. Vehicles move using night vision instruments, black-out devices, or under body lighting. Campfires are not allowed during halts and when stopping for a night's rest.

Troop control. The success of a march is inseparably connected with the art of troop control.

During a march, the subunit commander rides in a tank, armored carrier, or motor vehicle, usually at the head of the column, and strictly observes the fixed order of march. To control the subunit commands and signals are used. Commands (signals) given during the movement and a stop should be rapidly received, exactly executed, and transmitted to neighboring vehicles. For the transmission of orders and dispatches, mobile means of communication are widely used.

In higher command echelons, for instance, in the United States Army, troop leadership in a march is performed from mobile control points. The number, composition, and place in a column of points during a movement and their location during stops for rest and upon arrival at a designated area (at a deployment point) depend on the problem executed and conditions of the situation. In many armies it is accepted that the command point of a unit moves behind the vanguard, and that of a large formation moves at the head of the column of main forces.

Communication is ensured mainly by mobile means, including helicopters. Radio silence is maintained until contact with the enemy. Radio relay and wire communication is used on troop movement routes.

The passage of initial point and control points, arrival at a designated area or an approach to an indicated deployment point, and encounter with the enemy is immediately reported to the senior commander.

#### Transport of Troops by Railroad and Waterways

Preparing troops for transport. Transporting troops by railroad or by water transport is performed when movement by march or transport by air are unsuitable or are impossible. It ensures high speed of troop transport, and when utilizing transport by rail, several hundreds of kilometers per day can be covered. A high speed of troop transport is achieved regardless of the time of day and year, or the physical state of personnel before the beginning of their movement; this speed is almost independent of meteorological conditions or state of the weather. However, railroads, stations, docks, and ports, the location of which are known by the enemy, are very vulnerable to his strikes by nuclear missiles and aircraft.

Before loading, the troops remain in a waiting area. This area is selected near that station or port in which they will be loaded for transport by railroad or by water transport. At the same time, the distance of the waiting area from the loading place should be such that in case the enemy inflicts nuclear blows on the station (port) the troops which are then in the waiting area will not be injured.

The location of the waiting area depends to a great degree on the character of the locale. The waiting area is selected to ensure good troop concealment, especially from aerial observation, and to provide natural shelters and convenient access routes. In addition to the basic area, a reserve waiting area will be designated in case the area appears (according to conditions of the situation) to be inexpedient or the necessity arises to leave an occupied area due to strong contamination, destruction, or fires.

If the enemy detects preparation of troops for transport by railroad or waterway, he can then inflict nuclear strikes on them when they are in waiting areas, and wreck their transport. In order to preclude this, first of all exercising great vigilance and keeping secret all the preparatory measures is necessary. Troops are dispersed, covered and thoroughly concealed. Radiation and chemical reconnaissance is organized, the troops are informed about enemy air attack, and about radioactive and chemical contamination. Measures are taken to extinguish fires, remove avalanches, and to protect personnel from being hit by falling trees.

Shelter is prepared for personnel and combat equipment. In all subunits observation and direct security is organized. To repulse an enemy air raid, duty machine guns are assigned, which, together with antiaircraft weapons, are in constant readiness for combat.

In order to guarantee regularity of troop loading in short periods and to avoid an accumulation of personnel and combat materiel in loading places, control of the movement on routes of troop advancement is organized and the priority is established prior to their loading on railroad or water transport. Subunits are distributed by trains and by railroad cars (by vessels and ship compartments).

By military echelon we understand the subunit which is organized for transport in one train or on one vessel (self-propelled or not); this designation also includes a group of combat materiel. A military train is considered to be a train having 20 railroad cars or more (in biaxial count) occupied by subunits. Subunits are formed in echelons in such a manner so as not to disturb organizational integrity, to ensure the preservation of constant combat readiness of the transported troops, and, when necessary, independent conduct of a battle after unloading.

The fixed order of subunit distribution by echelons (vessels) and the priority of their advancement to loading places are considered when the troops are in staging areas. Subunits are placed in such a way so that those which are loaded first are near the advance routes to loading places. This excludes the necessity of some subunits passing others, and the possibility of forming blockages on movement routes, or an accumulation of personnel and combat materiel at loading-unloading places, waiting for loading (by a loading-unloading place we understand the totality of all devices intended for loading and unloading of troops).

In waiting areas, the final preparation of troops for boarding and loading on railroad or water transport. Combat materiel is prepared for transport and for subsequent actions. Technical inspection and the necessary repair of combat and transport vehicles and arms is performed. All disabled materiel is put in order prior to loading. Fuel tanks of vehicles are completely filled. Medical examinations of personnel are made, and, when necessary, other medical and antiepidemic measures are taken. Supply status of personnel is checked with individual means of protection.

Troops situated in the waiting area constantly maintain communications with the chief of the echelon. Exactly at a fixed time, directly before loading of the echelon, they are called from the waiting area to the loading-unloading area. Troops are advanced by subunits in the order of their loading priority. The advance is carried out so that they can immediately, upon arrival at the loading place, begin loading without a prolonged wait.

For loading, the troops are assigned a place or an area of loading. Besides the basic area, a reserve loading area will be designated. A change in the loading area can become necessary by a sharp change of the situation, when due to enemy nuclear and aircraft strike or the activity of his sabotage groups, the use of the basic loading area is excluded.

A subunit is loaded on railroad (water) transport at one station (dock) of loading. At each of the stations (docks) loading of several echelons is possible in twenty-four hours. Concretely, the number of stations or docks designated for loading depends on the number and qualitative composition of transported troops, the presence of stations (docks), and the degree to which they are equipped with loading-unloading devices.

Under contemporary conditions, an enemy who has diverse means of intelligence and powerful weapons is quite capable to detect and disrupt the loading of troops at any, even very great, distance from the battle line. Therefore, in any conditions, boarding of personnel, the loading of machines, arms, or materiel must be carried out secretly and in the shortest periods of time.

The speed of troop loading depends on many factors. Rapid loading requires a sufficient number of loading-unloading places with good equipment. Periods of loading are greatly dependent on the character of enemy activity, meteorological conditions, state of the weather, and time of the year and day. Also of importance is the degree of troop training, their skill in rapidly and correctly loading combat and transport vehicles, arms, and materiel under complicated conditions of a situation.

During transport by railroad, troops are loaded in covered railroad cars (personnel performing enroute cooking and provision reserves), on platforms and in open, highwalled railroad cars (combat equipment). Material means and other property of the echelon are placed in transport vehicles and covered railroad cars. Fuel and lubricants and other dangerous loads in crates and special containers can be transported on covered railroad cars, open, highwalled railroad cars, and platforms or by filling into railroad cisterns, tank trucks, refueling trucks, and also in special rolling stock.

When forming a military train, the covered railroad cars occupied by personnel and by operating kitchens are placed in the middle part of the train, while platforms and open, highwalled railroad cars with combat equipment are in the forward and rear parts. Railroad cars with dangerous loads are isolated by special shields from the locomotive, the tail of the train, passenger cars, railroad cars with operating kitchens, and, when necessary, from one another. Platforms with antiaircraft equipment are placed in the forward and rear parts of the train; for convenience of firing they are separated from the locomotive and from covered railroad cars or open, highwalled railroad cars by one or several platforms with loads of small height dimensions.

During transport by waterways, troops are loaded on self-propelled or non-self-propelled naval and river vessels, having accommodations and decks suitable for personnel and combat equipment.

The greatest expenditure of time is made by loading combat equipment, and the lowest by boarding of personnel. Therefore, boarding the personnel of an echelon in railroad cars or on vessel is done last, immediately before embarking.

The first to be loaded on the rolling stock or on a vessel is all the material of the transported troops - combat materiel, special and transport vehicles, cannon, and others. Directly before loading for transport by railroad, combat equipment is prepared for transport. Before loading for transport by waterway, combat equipment is set up in the designated place and is prepared for packing (motors are muffled, tank turrets are swung with barrels of their cannon back, etc.).

Loading combat materiel on rolling stock is usually done under its own power and by cranes; on naval and river vessels it is done by shore and floating cranes, ship derricks, winches, under its own power and tractors (on decks). For loading an echelon on naval vessels at anchor floating equipment is used, by which personnel, combat materiel and property are transported from shore on to the vessel standing at anchor.

Loading of an echelon begins by a command from the echelon chief. It is performed by subunits, as a rule, on a wide front, using all the available loading-unloading devices, attachments and mechanisms. Transported loads are usually loaded in all hatches of the vessel simultaneously, always starting from the holds.

The commander of a subunit is responsible for loading his subordinate subunit. When loading combat materiel under its own power, he personally directs the passage of every machine or cannon onto the rolling stock or vessel. Further movement of a machine (cannon) along the rolling stock or deck of a vessel and the distribution of it is directed by the commander of the vehicle (crew). During loading, machines must move only according to signals of the subunit commander, without jerks and sharp turns, in low gear. Turns of a machine on transfer bridges is generally not allowed.

The combat materiel of an echelon is placed on rolling stock or on a vessel uniformly, in order to use most fully the load capacity and useful area of railroad cars, platforms, decks, and vessel compartments. But here it is necessary to consider ensuring its rapid unloading under complicated conditions of a situation.

Combat, special and transport machines, cannon and other bulky combat equipment as well as the equipment of troops being transported are arranged on platforms, in open, highwalled railroad cars, and on decks in such a manner so as to prevent them from extending beyond the limits of the vessel dimensions and so as not to disturb the passage safety of trains on a neighboring track. After distribution on rolling stock or on a vessel, combat materiel and property are made fast to avoid longitudinal



and transverse shifts. Securing the combat materiel is done by crews of the machines, drivers, and crews of cannons under the leadership of commanders of the subunits transported in the echelon. Brakes are set on the machines. In winter, the cooling systems of engines are drained.

For bracing the combat materiel and property we use fastening materials (wire, wooden bars, inserts, struts, stanches and lining, brackets and nails) and adjusting gear (metallic thrust shoes, rope or chain stretchers, wooden bars). Securing materials during troop transport by rail are provided by the railroad and the military unit; during transport by water, they are provided by the loading port. Fastening attachments are a part of the machines or cannons and are used repeatedly for bracing them on rolling stock (and when possible, on vessels).

Upon completion of loading the combat materiel and property of the echelon, the sides of the platforms are raised and secured by locks. In those cases when, due to the combat materiel extending beyond the limits of the floor of a platform (for instance, overhang of tank tracks) and its sides cannot be raised, then they remain lowered, but are fastened by wire or are secured by rings and hooks to girder beams of the platforms.

After loading of combat technology and property is completed, loading of echelon personnel is carried out. In covered tetraaxial railroad cars 64-72 persons are placed, but with a transport duration of less than twenty-four hours, 100 persons. In two-axle railroad cars accordingly 32-36 persons or 50 persons are carried. The number of personnel placed in cargo ship compartments, not equipped with plank beds, is determined on the basis of 0.5-1.3 square meters per man. With the installation in ship compartments of plank beds, the quantity of people can be increased from 1.4-2 times. Loading of personnel should be completed no later than 10 minutes prior to departure of the train or vessel.

Light small arms are placed on plank beds, under plank beds, or in specially equipped arms racks. Heavy small arms are placed (in railroad cars) on the floor, but on vessels - in living quarters in the areas between plank beds and on the decks (except the upper deck).

Loading of personnel, loading of arms, machines and cargo are performed taking precautionary measures, in order to avoid accidents and damage to the transport equipment. After termination of boarding and loading of passenger railroad cars, combat materiel and the property of the transported troops are thoroughly concealed.

If when loading combat materiel and property at a station or in a port the signal is given warning of an air raid, the loading is immediately halted. Personnel and combat materiel located at the loading-unloading place are dispersed and are covered. If the air raid signal is given when the echelon had already completed its loading, then it is taken out of the station and the vessel is removed from its mooring. When this is not possible, personnel debark and are taken to shelters; for protection of the combat materiel and property of the echelon, a guard is left.

If when at the waiting area or in loading places the troops are hit by blows from nuclear or chemical weapons or by aircraft, then they are led from areas of contamination, destruction, and fires, and the consequence of enemy blows is eliminated. After restoring their combat capability, the troops, depending upon conditions, can advance to a new waiting area, continue loading at their former station (dock, port), or start loading the remaining combat materiel, property, and boarding of personnel at a new station (dock).

Realization of transport. Troop transport by a railroad and waterway can require a long time, sometimes amounting to several days. Over such a prolonged period the enemy can discover this transport operation and at any of its stages can attack the troops with aircraft or missiles with nuclear or chemical warheads, especially during passage of the troops being transported through large stations or over bridges, which cross wide water barriers and mountain passes. Also possible are airborne landings and the action of enemy sabotage groups along the troop route, and at a small distance from the contact line of forces - even an approach to these routes and actions of its mobile groups.

In order to exclude sudden enemy air and ground strikes, to preclude the defeat of forces or to reduce greatly their losses during strikes and to enable the echelon to arrive in good time at a designated region, thorough and manifold support in the course of the movement is necessary. Here most important precautions are observation, direct security, protection from weapons of mass destruction, antiaircraft defense, and concealment. Support of the echelon is carried out by the forces and equipment of transported subunits.

Observation and direct security of an echelon along its route are ensured by observation posts (forward, rear, and intermediate), antiaircraft duty crews, a guard designated to protect combat materiel and property, patrols, and an on-duty subunit. To repel an enemy ground attack, separate cannon and tanks beforehand are designated which must be ready to fire on a moving train, directly from the platform. For this purpose the antiaircraft weapons of the echelon are also adapted.

An announcement to the personnel of the echelon regarding a chemical attack, radioactive contamination and the use of bacteriological means by the enemy is carried out by means of a special signal, established by the echelon commander, and also by a signal used on the transport (one long and one short locomotive whistle between stations or blows on a piece of rail at the stations). Upon hearing the signal, personnel don their gasmasks, their skin protection equipment, and they occupy (as far as possible) the middle and upper berths. Doors, windows (portholes) and hatches of passenger railroad cars or ship compartments are tightly closed, and slots are stuffed with rags, paper, and other improvised means. Food preparation in kitchens is prohibited, and reserves of drinking water, foodstuffs, and the kitchen are thoroughly covered. Combat materiel is covered as well as possible.

Contaminated sections on a railroad or waterway are passed by the train or vessel without stopping, at a fixed speed. Movement through an area which is contaminated by radioactive substances is permitted only if for the time the echelon remains within the limits of this section the dose of personnel radiation does not exceed the permissible norms. For the passage time over a contaminated section, crews of armored machines can occupy their vehicles. Personnel radiation is monitored, and after passing the contaminated section, the degree of personnel contamination, railroad cars or ship compartment or combat materiel and echelon property contamination is monitored. After leaving the contaminated area, partial special treatment immediately is conducted without detaining the train or vessel. Radiation and chemical reconnaissance during passage along a railroad or waterway is conducted by the forces and means of transported troops. For reconnaissance of contaminated sections, chemical reconnaissance patrols can be designated from personnel of the echelon.

Antiaircraft troop defense along the route is executed by the antiaircraft crews and equipment of subunits, as well as by the means of the senior commander who organized the transport. At the appearance of enemy aircraft, a warning signal is given. At this signal the train or vessel continues its movement. All the fire power designated for firing at enemy aircraft as the train moves is made ready for immediate opening of fire. Doors, windows (portholes) and hatches of railroad cars or ship compartments are closed. Personnel take measures for individual protection in the "ready" position.

Concealment is carried out directly by subunits. For executing the measures undertaken for concealment we widely use not only standard but improvised means; here one should consider that concealment covering should be fireproof and should not be ignited by sparks from the locomotive. The state of concealment along the route is constantly observed by the commanders and headquarters of all levels.

A complicated ground and air situation, in which it may be necessary to transport troops under conditions of a nuclear missile war, can compel interrupting the transport, altering the means of movement, repelling an enemy air attack, and sometimes fighting with his ground forces, and only defeating the enemy, continuing transport by railroad or by waterway. Therefore, troops must always be ready for sudden and rapid unloading at previously unprepared places, to accomplish further movement by march to bypass destroyed and contaminated areas or to a place of repeated loading and entry into combat with the enemy.

During movement by railroad, all personnel must be vigilant, they must maintain the secrecy of transport, and they must comply with fixed rules. It is prohibited to conduct conversations with outside persons, to mention the transports in letters, or to transport outside persons in the echelon. Exit of personnel from the railroad cars or vessels is limited. Over defined sections it is forbidden to open the doors and hatches of railroad cars, and on vessels it is forbidden to come on deck. The destination point and the route are not reported to personnel in the echelon.

Personnel are prohibited to mix in the work of transport officials, to delay or without cause to stop the train, to write on railroad cars or vessels, to post slogans and decorations, or to use without permission the property of the station or port. During stops at stations and in ports, the rules of personal safety must be observed.

The discipline and observance by subunit personnel of fixed rules of transport is supervised by the subunit commander. During transport he is located in the echelon with his own subunit. Leadership over subordinates is carried out with the help of messengers and by means of personal contact at stops. The echelon commander also uses wire communication means. Use of radio communications in the echelon en route is prohibited.

In the course of a troop movement by railroad and waterways, of great significance is the material and medical support of an echelon. Supplying personnel with hot food en route is done, as a rule, from operative kitchens of the echelon or ship kitchens (galleys). Hot food is issued not less than two times per day, during a halt of the train.

The wounded and the sick are rendered necessary medical help. The sick who cannot move further are sent to the nearest medical facility. Upon detection of individual diseases among personnel of the echelon which are caused by bacterial means (besides the plague, cholera, or smallpox), intensive medical observation of personnel is established. Revealed contagious patients are sent to an isolation car or cabin, and, when necessary, to the appropriate medical facility. Contact of personnel with persons outside the echelon is strictly limited. Upon detecting 2-5% of those sickened by contagious sicknesses or at even one case of plague, cholera, or smallpox, the echelon is unloaded and sent to an observation point.

At the approach to the unloading station (port) personnel, combat and transport vehicles are prepared for unloading. At one of the nearest stops before the unloading station and on vessels before the port of assignment, drivers service their vehicles with water (heating in winter) and test the engines. But removing the bracing of combat materiel prior to arrival of the echelon at the unloading point is prohibited.

Unloading of troops. For the unloading of troops stations, docks, and ports of unloading are designated, but for unloading large military units there are unloading areas, including several stations or docks.

Upon arrival at the station or the port of unloading, personnel (by command from the echelon commander) debark from the railroad cars or from the vessel and, in subunit order, are rapidly taken to the unloading areas of combat materiel and property. Personnel of those subunits which are not taken for unloading materiel and cargo are immediately taken from the station (dock) area to a determined assembly area.

Unloading is performed in a strictly fixed time and in secret.

It is quite clear that for a prolonged period it is impossible to hold personnel, combat materiel and property at a station or a dock. As unloading progresses, combat materiel and property, to avoid delay, are sent to the assembly area.

In the unloading area measures are taken for protection from weapons of mass destruction, antiaircraft defenses, direct security, and commandant's service are organized. If en route the troops passed contaminated areas, at points of special treatment full medical treatment of personnel, full deactivation, degassing or

decontamination of combat materiel, clothing, footwear and equipment are performed.

During personnel landing, unloading of machines, arms and cargo, precautionary measures are observed to avoid accidents. Under any conditions of the situation, all measures necessary are taken in order to exclude ruining the rolling stock and to ensure maintenance of transport means.

If upon arrival at a station or at a port, at the time when unloading of troops has not yet begun, and the air raid signal is sounded, then the train with the echelon is removed from the station, and the vessel is taken from its moorage. When it is impossible to remove the echelon, personnel debark and are taken to the nearest shelter. At the train a guard is left for the protection of combat materiel and property of the echelon.

In the case when an echelon, during unloading, was subjected to radioactive, chemical or bacterial infection, then its unloading, as a rule, does not stop; on the contrary, all measures are taken to fully accelerate the unloading. Subunits, according to their unloading, without delay are taken to the assembly area or to a point of special treatment, deployed in the unloading area. There they conduct partial or full special treatment.

The assembly area is designated close to the troop unloading area. Its distance from the unloading places is mainly determined by conditions of the locale and the requirements of troop protection from weapons of mass destruction. Besides the basic area, a reserve assembly area is designated in the event that, because of the situation, a troop pullout to the basic area will prove impossible or if it is necessary to change the occupied assembly area.

In the assembly area the troops are brought to combat readiness. It is possible that in a number of cases troops will receive a combat mission prior to the full termination of their unloading and concentration in the assembly area.

#### Air Transport of Troops

Air transport is a new method of troop movement. In the years of the past war, in separate cases, only small subunits were moved by air transport; now in many armies air transport is anticipated of units and even large formations. Air transport is used for the rapid transfer of troops over large distances. Air transport gives a time gain as compared to other methods of transport; it does not depend on a road system and can be performed both over territory occupied by friendly troops, as well as over the front lines for dropping troops on territory captured in the enemy's rear.

In spite of the definite advantages of air transport, the use of this method is still very limited by its deficiencies. Troop transfer requires a considerable quantity of transport equipment, and for their cover a large amount of combat aircraft is needed. Also very great are the aviation requirements at airfields or sites. The existing means of air transport, however, do permit moving tanks with troops.

At present, in foreign armies, work is in process on creating vertical takeoff and landing aircraft, and on increasing load capacity of aviation equipment. Hence it is possible to expect that in the future, the use of troop transport by air will be considerably expanded.

For troop transport by air special aircraft are used of military-transport aviation, converted passenger and cargo aircraft, and helicopters, and in certain armies, military-transport gliders are also used.

Troop transport can be carried out in one or several trips. A subunit is transported in one trip, while larger military units are transported in several trips.

During troop transport by air, airports or sites of loading and unloading are designated. Their number may differ, depending mainly on the mission of the troops,

the presence of airports (sites) and the composition of the aircraft used in the transport. A subunit with reinforcements is transported from one airport (site).

For the preparation of troops for air transport, waiting areas are designated. In these areas, personnel and combat materiel are distributed by trips and by aircraft (helicopters, gliders). Subunits are prepared for boarding and loading, and then study the rules of behavior in flight, and during unloading and landing.

At the appointed time, subunits move out of the waiting areas to the initial position for loading. At a fixed signal, the troops begin to board the aircraft (helicopters). Loading of equipment and cargo and boarding of personnel are performed according to instructions from the commanders of the aviation units.

The subunit commander flies in the same aircraft with his subordinates. If a subunit is transported on several aircraft, then the necessary means of communication is located in one of them, and the staff is in another.

Debarcation of personnel and unloading of combat materiel are usually accomplished immediately after an aircraft lands and taxis off, and when a helicopter or glider lands. In order to accelerate the unloading of combat materiel and cargo, the aircraft crew can be used.

After unloading, subunits are quickly made combat ready so that troops, soon after transport, can begin to execute a combat mission. This is most probable when troops debar in areas captured in the enemy's rear.

So that under the complicated conditions of a nuclear missile war it would be possible to correctly and rapidly load and unload combat, special and transport vehicles or arms, other combat materiel and goods into aircraft, helicopters, railroad cars, gliders, and ships, the personnel of all transport units must study the rules for loading, transport, and unloading of rail, water, and air transport. Subunits learn boarding on means of transport. All this training contributes to keeping the troops in constant readiness for transport.

Troop instruction regarding transport is performed periodically. On the day before anticipated transport, subunits are trained in the practical loading, bracing and unloading of their own arms, combat materiel and transport under complex conditions.

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## CHAPTER VI

### THE MEETING ENGAGEMENT

#### Conditions Leading to a Meeting Engagement

The meeting engagement appeared in armed combat toward the end of the 18th century (battles on the rivers Tidone and Trebbia in 1799), when linear tactics were replaced by column action in combination with loose formation, and troops obtained wider maneuverability and could enter combat directly from march columns. However, with use of the smooth-bore firearm the meeting engagement was a very rare phenomenon. Due to the relatively small size of armies and their weak technical equipment and insufficient fire power, battles developed on fronts totaling a few kilometers. The whole army, representing the armed forces of the state, acted as a single unit. The advance as a rule was preceded by preliminary concentration of all forces of both sides on the battlefield. Maneuver was sharply separated in time from battle. First the troops in marching order approached the enemy, then when near him shifted into combat formation, conducted the necessary preparatory measures (not yet under fire), and, finally, entered into battle.

In the second half of the 19th century the appearance of mass armies, the creation of permanent combined-arms formations in the form of divisions and corps, the development of railroad transport, the acceptance of the rifled firing weapon, and the appearance of the telegraph, led to changes in the character of armed conflict. The single general battle over a limited section of ground with all forces participating disappeared. There came to be a number of battles, developing over several hundreds of kilometers of front. Thanks to the considerably increased range of the rifled weapon and greater firepower it became possible to strike the enemy from a greater distance than before.

In these conditions both sides not infrequently were forced, especially in an unclear situation, to enter combat directly from march, omitting preliminary concentration. Maneuver and the beginning of battle began to merge into a single process. The transition from march to combat action began to be accomplished without any interruption, and meeting engagements came to be a regular occurrence. Such battles required organization of marches, different construction of the marching order, and new combat techniques.

The advantages accruing to the side which could surprise an enemy who was not prepared to fight on the march, when his troops are not deployed, were revealed. Resoluteness and speed of action in these conditions and preventing or limiting the ability of the enemy to deploy were important prerequisites of success.

The existence of essential peculiarities in the organization and conduct of a meeting engagement which developed simultaneously with deployment of troops from march columns into combat formation made necessary its special study and the practical instruction of troops for actions during an encounter with the enemy.

At the end of the 19th century the concept of "meeting engagement" appeared in the field regulations of the armies of the European states and the basic principles for its organization and conduct were expounded, for the first time.

It was considered that the meeting engagement could occur only under conditions of an encounter with the enemy during a march. It is characterized by confusion of the situation, intense struggle for the initiative, and by mobility and fluidity. To achieve success it would be necessary to anticipate the enemy in deployment of troops and plotting the attack. The regulations stressed the need for rapid decision, without waiting for full clarification of the situation, and the importance of independence, initiative and resoluteness on the part of the commanders.

The wars of the first half of the 20th century also were characterized by numerous meeting engagements. The conditions of their appearance were varied. Meeting engagements always appeared everywhere that both sides simultaneously strove to achieve their aims by offensive actions. (Fig. 17).

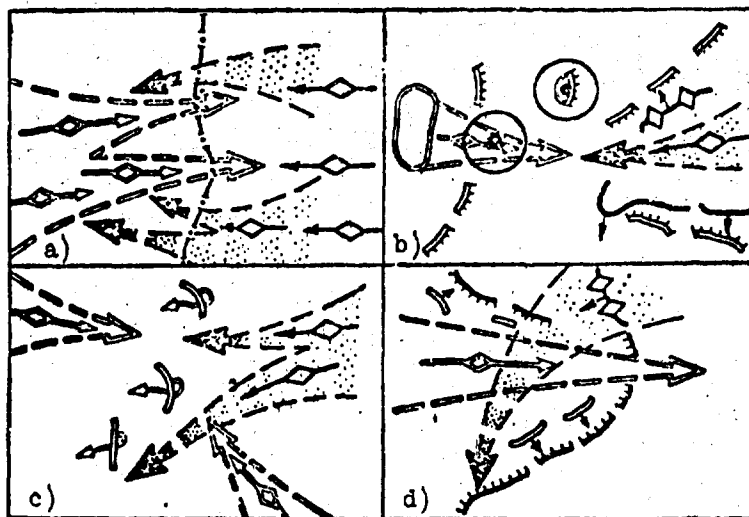


Fig. 17. Conditions of appearance of meeting engagement: a) beginning of war; b) overcoming tactical depth of enemy defense; c) during pursuit; d) during counterattack.

As the history of wars and military art verifies, meeting engagements are most inherent to the initial period of war. In this period both sides strive to seize and to hold the initiative, to shift military actions into enemy territory and to penetrate as fast as possible in order to wreck his mobilization, deployment, approach, and organized introduction of main forces into battle, to disorganize control, and also to master vitally important objects (regions) and thus to create profitable conditions for deployment of subsequent decisive action and the final destruction of the enemy.

It is natural that in such a situation, when both sides move forward with equally decisive purposes - to destroy the enemy by offensive action - conditions are created for a number of meeting engagements even in the very beginning of military action. By virtue of these circumstances, meeting engagements appeared at the beginning of the Austro-Prussian War of 1866 near Nachod and Trutnov (on the second day of the war), and also in the Franco-Prussian War of 1870 near Saarbrücken, Weissenburg, Spichern (on the fourth day of the war). An especially large number of meeting engagements characterized the initial (maneuvering) period of the First World War (meeting engagements in the regions of Humlitten, Guldap, Krásnik, Tomaszów, on the rivers Zolotaya Lipa, Semois, Marne, etc. and others).

Meeting engagements in the First World War arose when deployed armies moved toward one other, separated by distances of from 60 to 200 km. In such a situation troops of both sides, before coming in contact, had marched for several days. Therefore, meeting engagements were joined from the march with the successive commitment of troops marching from depth. First there was an engagement of reconnaissance, subunits, then elements of march security, and, finally, the main forces were deployed and entered into combat. Deployment of an infantry division, whose depth of columns during movement along one road attained 12-14 km, took 5-6 hours.<sup>1</sup> Inasmuch as the technical means of reconnaissance at that time did not ensure advance detection of the enemy, meeting engagements appeared, as a rule, unexpectedly and suddenly, and chiefly were of the character of a frontal encounter.

With the formation of a solid front, when war became a war of position, conditions for meeting engagements usually were not created. Insufficient fire power and the absence of strong mobile firing means resulted in a low tempo of combat action. The problem of penetrating a position defense was not completely solved. Moreover the defending side, pursuing only the purpose of preserving stability of the defense front, did not usually attempt to destroy an advancing enemy by active, decisive actions, and in view of this a head-on attack was not launched. Numerous reserves of defense in the First World War were used basically for concentrating the defense front for a projected breakthrough or for replacing the lost combat capability of large formations and units.

The civil war of the Soviet people against the forces of foreign intervention and internal counterrevolution was a war, for the most part, of maneuver and was characterized by many meeting engagements, mainly during cavalry action (meeting engagements near Orel and Kromy, Voronezh, and Kantornaya in 1919, in the region of the village of Yegorlykhnaya, near Volkovyskiy in 1920, and others).

The absence of solid and stable fronts, and the actions of troops in separate directions when there usually was no direct contact between sides meant that meeting engagements (in almost all cases) developed from the march. They were characterized by an intense battle for the initiative, by the consecutive entry into combat of troops from depth, rapid changes of the situation and, as a rule, surprise of appearance.

In the period preceding the Great Patriotic War, study of the meeting engagement received considerable attention. All field regulations of the Red Army considered the meeting engagement thoroughly in an independent chapter along with other forms of combat action. In the temporary field regulations of the RKKA<sup>2</sup> 1925, field regulations RKKA 1929, and temporary field regulations RKKA 1936, consideration of the meeting engagement preceded the discussion regarding an offensive on the defending enemy. This stressed the actual importance of studying the meeting engagement and instructing troops regarding actions during encounters with the enemy.

The meeting engagement, both in regulations as well as on the pages of the military press, was considered under the conditions that both sides, prior to the encounter, are separated by a defined space and move toward each other in columns.

It was believed that an especially large number of meeting engagements will characterize the initial period of a war, when there will be no direct contact of sides and no strong front, and both sides will strive to achieve the initiative. It was believed that troops must make several marches before they encounter the main enemy forces. In these conditions meeting engagements had to be developed according to: march-approach, fight of the vanguards, deployment and entry of main forces into combat.

<sup>1</sup>Snaflovich, F. Vetrechnyy boy 10-go armeynskogo korpusa 1914 g. (Meeting engagement of the tenth army corps, 1914), Moscow, Voenizdat, 1938, p. 53.

<sup>2</sup>RKKA -- Workers and Peasants Red Army.



The Great Patriotic War confirmed the basic prewar positions of the theory of Soviet military art and introduced many new things into all of its area, including a considerably expanded concept regarding the conditions of the appearance and character of a meeting engagement.

The initial period of the Great Patriotic War was indeed filled with a large number of meeting engagements (meeting engagements of the third and twelfth mechanized corps in the region Southwest of Shaulyay, of the sixth and eleventh mechanized corps in the region of Grodno, the eight, ninth, fifteenth and nineteenth mechanized corps in the region of Lutsk, Rovno, Brody and others). However, due to changes of character of the beginning of the war, the free maneuvering space which existed in the First World War and which was taken for granted in theory, actually did not exist. Miscalculations and errors in appraising the strategic situation were significant. As a result mobile shock groups of the German-Fascist troops were deployed ahead of the rear the national boundary and suddenly entered the offensive. Combat action essentially was immediately developed under conditions of direct contact of both sides. Soviet troops, located near the boundary, were surprised, deprived of the possibility of immediately organizing and inflicting counterattacks, and were forced to conduct heavy defensive combat and to withdraw. Therefore meeting engagements appeared not as the sides approached in march columns in the beginning of military actions, as occurred in the First World War, but, as a rule, during counterattacks by our troops, advancing from the depth of border areas (front lines) or from internal areas.

In spite of the special conditions for the appearance of meeting engagements in the beginning of the war, experience with it once again convincingly confirmed that this form of combat action is typical for the initial period of a war. Here, with the increased mobility of troops, the time from the moment of initiation of a war to the beginning of the first meeting engagements is decreased. In the First World War, when offensive groups were up to 500 km apart, the first encounters took place on the fifth to seventh day (in Eastern Prussia and Galicia) and even on the fifteenth day (in the region of the Franco-Belgian boundary, after the beginning of military action). In the Great Patriotic War, in spite of unfavorable conditions at the beginning for Soviet troops, meeting engagements appeared in the very first days: in the first day of the war -- in the region of Grodno, on the second day of the war -- in the region of Shaulyay, and where troops had to march from the depth of border districts up to 500 km, -- on the fourth day of the war (in the region of Lutsk, Rovno, Dubno).

In a future war, if it is unleashed by the imperialistic aggressors, the initial period will be especially important.

After mass nuclear strategic blows, using their results and acting with them, ground forces immediately will begin active and decisive combat operations. Their action will be characterized by a large scope of operations, performance, swift development in separate directions, wide application of different forms of maneuvers, and the absence of solid fronts. Combat will take on an extraordinarily intense character. The basic problems of sides will be solved by a decisive offensive, as a consequence of which meeting engagements and battles will frequently occur.

The situation in which meeting engagements will appear and be conducted in the initial period of a war will be characterized by exceptional complexity, the wide application of nuclear weapons by both sides, great destruction, floods, the creation of wide zones of radioactive contamination, a continuous approach of troops from depth and their entry into combat, intense combat to capture and retain the initiative, irregularity of the development of combat actions, and deep mutual penetration by opposing sides.

Meeting engagements in the beginning of a war will develop, as a rule, with the deployment of main forces from the march, since a direct encounter of the troops of both sides will precede their approach in march order. In these conditions the entire organization of combat will be executed in extremely limited periods, under enemy influence, passing over or bypassing zones of contamination and areas of mass destruction.

The absence of a solid front, the presence of considerable breaks, open flanks and intervals in the combat formation of troops and the high maneuverability of combat operations create especially favorable conditions for inflicting swift blows along the flanks and rear of hostile groups. At the same time it will be necessary to protect our own flanks from possible blows by the enemy.

One feature of meeting engagements of the initial period of a war is that they will occur when personnel lack combat experience, especially experienced in operations under conditions of mass destruction. This will demand high organizational abilities and resolute qualities from command personnel, as well as steadfastness and skill in directing the troops' effort to achieve decisive goals in complicated conditions.

Experience of the Great Patriotic War shows that meeting engagements appear not only in the beginning of a war, but also throughout it, a situation which appeared, first of all, as the result of a change of the material-technical base of a war.

In connection with the increasing combat capabilities of troops, the mass use of artillery, aviation, and tanks, an advancing force is now able to carry out a breakthrough of a solid defense front, while the introduction of tank and mechanized formations has permitted success of a great depth. In turn, defense activity has considerably increased. The defending side, setting up powerful fire means, and also mobile and deep reserves and second echelons, introduced them for executing counterattacks and for inflicting counterblows with decisive goals. As a result of such actions, meeting engagements began to appear in both offensive and defensive operations at all stages and under the most highly varied conditions of a situation.

Meeting engagements occurred especially often among tank and mechanized formations possessing high mobility, great fire power and shock force. In an offensive they acted, as a rule, in front of rifle formations and were first to engage advanced enemy reserves, while in defense they were the main means of inflicting counterblows along breached hostile groups.

In the offensive, meeting engagements appeared when repulsing enemy counterattacks and counterblows and when overcoming the tactical zone of his defense (troop offensive of the South-Western front in the direction of Kharkov in May of 1942); during the development of success in a strategic depth (meeting engagements and combat of the Voronezh front in the Belgorod-Kharkov operation in August, 1943, and the fourth guards tank army in the Sandomirsk-Silesian operation in January, 1945, and others); during pursuit (meeting engagements of the 38th and 3rd tank armies in November, 1943, toward Zhitomir and Kazatin); in repelling enemy attempts to break the internal or external front of an encirclement (meeting engagements of large formations of the 2nd and 6th tank armies in the Korsun'-Shevchenko operation, the fifth guards tank army in the Eastern-Prussian operation, and others).

Under contemporary conditions, meeting engagements also can appear at different stages of the offensive. In connection with the use of nuclear weapons, deeper defense structure, the presence of strong and highly mobile enemy reserves, moreover those which have been dispersed, meeting engagements can occur more frequently than in the past, even at the very beginning of an offensive. After inflicting nuclear blows, breaches and breaks will be formed in the enemy defense which the advancing forces will attempt to use for decisive and rapid forward movement in depth. The defenders will advance their reserves for the purpose of closing breaches and eliminating breaks, and also for carrying out decisive counterattacks and inflicting counterblows. Bold and decisive actions to destroy these reserves undoubtedly will lead to meeting engagements.

According to views accepted in the armies of the aggressive NATO block, a mobile defense is the most responsive to contemporary conditions. The backbone of such a defense are strong and highly mobile reserves. When organizing a mobile defense, in the advance defensive area only a minimum of forces is disposed as well as the means necessary to delay the advance of troops and to compel them to move in the direction desired by the defense. Basic defense forces are intended for

counterattacks and counterblows, to destroy a group penetrating the defenses of advancing troops. It is clear that a breakthrough of such defenses will inevitably lead to meeting engagements.

The peculiarities of the situation at the appearance of a meeting engagement, within the limits of the tactical depth of defense, is that advancing troops (prior to the moment of the meeting engagement) have a previously created offensive grouping and act in a combat or prebattle order with the support of air and long-range fire power, deployed in position. This favors a transition to a meeting engagement, especially if the possibility was previously anticipated and corresponding measures were taken. At the same time, certain difficulties are created in the meeting engagement. Advancing troops, prior to encountering the enemy reserves, must overcome the resistance of the defending troops. During the troop actions, in the spaces between them, various unsuppressed centers of enemy resistance can remain which will require separating a unit of forces for their destruction, and which will also hamper execution of the maneuver. At the same time, enemy reserves will advance under the cover of their own defending troops, then will deploy most frequently to previously chosen and organized positions and inflict blows on well planned targets. It follows then that advancing subunits, under such conditions, should (as rapidly as possible) overcome the resistance of defending troops, keep the enemy from capturing important positions, and wreck his deployment, not allowing his organized entry into combat, and by a swift blow (in stride) attempt to destroy the enemy reserves during his forward movement.

The most frequent meeting engagements will apparently occur, as it was in the past war, during the development of an offensive in the depth of an enemy defense, when there are especially favorable conditions for wide maneuvering actions for both sides. To stop the offensive and to destroy advancing troops, the enemy will inflict nuclear blows, he will advance fresh forces from the rear, he will mount a counterattack, and will inflict counterblows, which will lead to meeting engagements.

The situation in these conditions will be characterized by the fact that prior to the meeting engagement, troops of both sides must draw near and take all measures to create profitable conditions for destruction of the enemy during the advance and during the combat action preceding the meeting engagement. Some subunits can conduct combat action with an enemy who is resisting, and be in combat formation; others at this time have already begun pursuit and will act in their prebattle order. Sometimes they will be closed in columns for a rapid thrust forward, or to be able to maneuver in order to keep the enemy from capturing a profitable position, or to inflict a blow on the flank or rear of his basic group. Rocket and artillery batteries can also be activated, which will affect the character of suppressing the enemy by fire.

As reinforcement for a successful offensive or to repulse enemy reserve counterattacks in stride, the advancing force will introduce its second echelons and reserves. Therefore, meeting engagements will be typical both for subunits acting in the first as well as in the second (reserve) echelon when it goes into combat.

In contemporary conditions the probability of a meeting engagement during pursuit has considerably increased. Most frequently this can be when the pursuing troops encounter advanced enemy reserves.

Attempting to halt the pursuing subunits, the enemy will take decisive counteractive measures, he will advance his reserves from the rear for counterattacks, and will inflict counterblows on pursuing troops or occupy defenses at a profitable position. In both cases meeting engagements are possible.

During pursuit, subunits can operate at different distances from each other. Some will be advanced far forward, while others may lag behind or conduct pursuit along routes parallel to the fleeing enemy. The appearance of enemy reserves, advanced from the rear, may necessitate a regrouping of forces and equipment during the pursuit, in accordance with a new decision, which should be anticipated even when organizing the pursuit.

As in the last war, the meeting engagement can occur during a maneuver to encircle the enemy, in an encounter with his reserves (attempting to counterattack encirclement), or when repelling an enemy blow to release a surrounded or cutoff group.

In defense, as experience of the last war shows, meeting engagements can occur chiefly during counterattacks and counterblows on advancing enemy groups.

The use of nuclear weapons, other contemporary combat material, and highly mobile troops has increased not only the decisiveness of an attack, its tempo and depth, but also the capabilities of defense. The defending side, using nuclear weapons, can almost instantly change the relationship of forces in its favor, rapidly change from the defense to the offense and, using the results of nuclear attacks, achieve decisive goals. The tendency of both sides to achieve their goals by offensive action, naturally, inevitably and more frequently than before, will lead to meeting engagements in defense.

A peculiarity of meeting engagements in defense is the fact that they occur, as a rule, in more complicated conditions of a situation than in an offensive, since the advancing enemy has a superiority in force and equipment and possesses the initiative, at least prior to the turning point in the course of a defensive battle. Furthermore, as a result of nuclear and fire strikes by the enemy, defending troops suffer considerable losses, which seriously reduces the possibility of inflicting a surprise counterblow. Therefore, exceptional operational efficiency is required in the work of commanders and headquarters for more accurate decisions, for delivering combat missions to troops in the shortest periods, and for realizing a maneuver against enemy operations.

Additionally, one should consider that the defending side, especially in the presence of a previously organized defense, has advantages which promote successful solution of problems in the meeting engagement. These advantages result from good knowledge of the locale and its preparation in the engineering sense, which favor secrecy and suddenness of maneuver. The defender can better select the direction of a strike, more accurately inflict nuclear attacks, and more effectively use artillery fire against the advancing enemy. He can also create various kinds of barriers against a probable enemy offensive. The defender equips beforehand deployment positions for counterattacks in the probable directions of an enemy offensive, and he prepares routes favoring the rapid advancing and deployment of troops in order to inflict a surprise counterblow against a penetrating force.

In contemporary conditions, meeting engagements in defense can occur not only during counterattacks against a penetrating enemy, but also when encountering an advancing enemy with subunits which have advanced to shut off breaches and breaks which have formed the combat deployment of troops, and to cover important positions and directions.

The aggressive plans of the imperialists allot much attention to the use of large-scale air and naval landings. After landing, their initial problem is to expand a captured bridgehead by means of a decisive offensive. At the same time, immediate liquidation will also be carried out by decisive offensive actions which will lead to meeting engagements under these conditions.

The variety of conditions of the appearance of meeting engagements depends not only on the form of combat action in which they appear, but also on the location of units and subunits in the combat construction of troops, which will influence the grouping of forces and equipment, the preparation for combat action, and the character of deployment and entry into combat.

Even in the Great Patriotic War, large tank mechanized formations and units sometimes conducted meeting engagements at night. In contemporary conditions both sides will attempt the maximum use of night: the advancing troops will use it to achieve continuity of attack, and the defending troops will use it to advance reserves for the purpose of counterattacks and counterblows, or to occupy defensive positions. It is natural that the tendency of both sides to use the night for

marches and combat action will lead to night meeting engagements.

In every specific case of a meeting engagement, conditions of the situation which will influence its organization and conduct are different. However, the essence of the meeting engagement of the simultaneous solution by both sides of their own problems by active offensive action — will be constant. In view of this, it is possible to determine the overall, most important characteristic features of a meeting engagement and the basic conditions for achieving success as it is being conducted.

#### Characteristic Features of the Contemporary Meeting Engagement

One of the most important characteristic features of the meeting engagement is continuous and intense combat to capture and retain the initiative. Combat is a bilateral process. Its dialectics are such that if one side advances, the other defends, withdraws, or in turn also advances.

The side which must defend or is forced to withdraw beforehand gives up the initiative; here the initiative and the resulting advantage are entirely on the advancing side. It is a completely different matter when both sides simultaneously advance, i.e., in the meeting engagement. Both consider themselves equally strong, and capable of destroying their enemy by active offensive action. To achieve this goal each side attempts to seize the initiative in order to ensure freedom of movement, and to dictate its will to the enemy and force him to act in conditions unfavorable for him.

Thus, in the meeting engagement, from the beginning there is an intense struggle to capture the initiative, which can be conducted by different means and methods and at various stages of the meeting engagement.

In contemporary conditions this struggle starts even at some distance by inflicting nuclear missile attacks and by the use of air and long-range artillery. However, the main role in this struggle is played by nuclear weapons, since they are the most powerful. Each side will attempt to inflict the first advance nuclear blows against advanced groups and enemy nuclear attack equipment in order to deprive him of the possibility of using nuclear weapons or to lower considerably the effect of their use.

With the approach of troops of both sides, the struggle to capture the initiative is intensified. Along with inflicting nuclear and powerful fire strikes, of great importance is forestalling the enemy in deploying his troops and inflicting blows in stride, and preventing him from occupying useful positions and areas, the possession of which ensures successful development of further combat action.

The presence of nuclear weapons in the arsenals of contemporary armies permits, with skillful use, a rapid change in the ratio of forces, and the deep echeloning and high mobility of troops ensure rapid arrival of new units and subdivisions onto the battlefield. Therefore, the side losing the initiative will try to regain it in the course of a meeting engagement, first of all, by the use of nuclear weapons, and also by means of bringing up troop advancing from the rear and from other directions and sections of the front. Great possibilities for the maneuver of both a nuclear attack as well as troops will lead to such attempts being repeated. In turn, the other side will take all possible measures to hold the captured initiative until full destruction of the opposing side. Thus, there will be an intense and continuous fight to capture and retain the initiative.

The outcome of the fight for the initiative determines the final result of the entire battle. As soon as one enemy gives up the initiative and changes to defense or begins to withdraw, the meeting engagement immediately loses its specific character and grows into other forms of combat action — into defense for one side and offense against the defending troops for the other, or into withdrawal for one and pursuit for the other side.

We must consider, however, that in the course of a meeting engagement, developing over a wide front, transition of separate units to the defense or even their withdrawal still does not mean a loss of initiative and the end of the meeting engagement, if during this time other units, and especially the main forces, in accordance with the battleplan of the commanding officer and with the support of the senior commander, attempt an offensive, and fight for the initiative. Defense and withdrawal of separate subunits within the meeting engagement can only be a maneuver to create conditions for capturing the initiative. An index of the full and final loss of initiative by the enemy is the full destruction of all his forces participating in the meeting engagement and his giving up of offensive action.

A characteristic trait of the meeting engagement is also that deployment of troops in combat formation occurs chiefly from a column, simultaneously with the initiation of combat.

During an offensive against a defending enemy, advancing troops must act against troops previously deployed in combat formation and disposed in a locale which is equipped, to one degree or another, in an engineering sense. The enemy usually has his prepared fire system, his combat material and personnel thoroughly camouflaged. To overcome such a defense, the advancing forces create beforehand a corresponding grouping of forces and equipment, and, when necessary, prior to transition to the offensive, they can deploy their own first echelon troops and attack the enemy directly in combat formation.

A completely different position develops in a meeting engagement, where troops of both sides, completely motorized, advance and enter combat in stride. Deployment into combat formation is carried out chiefly from march columns and simultaneously with the conduct of combat operations. Thus, deployment of troops and the conduct of combat, as it were, merge. From this there follows a special complexity of the meeting engagement as compared to other forms of combat operation.

When conditions for the meeting engagement were created only when enemies encountered each other on the march, troop deployment from the march columns simultaneously with initiation of combat action was considered to be the most characteristic trait of the meeting engagement.

In contemporary conditions, in a number of cases, especially when a meeting engagement developed when overcoming the tactical depth of an enemy defense, troops of both sides or of one side can be previously deployed in combat formation. During a simultaneous offensive by troops of both sides, the essence of the meeting engagement is not changed. However, what is most typical of a meeting engagement is its initiation from the march. In view of this battle with simultaneous troop deployment is considered to be characteristic of the contemporary meeting engagement.

In a meeting engagement troops from both sides enter in stride. Data regarding the enemy prior to beginning the encounter are usually by far incomplete, and the time for reconnaissance and clarification of conditions of the situation is extremely limited. Furthermore, troops of both sides, possessing great mobility and maneuverability, move rapidly, and can quickly change the grouping of forces and equipment and direction of action, which hampers reconnaissance even with contemporary means for it. Therefore, insufficient clarity of the situation at the initiation and in the course of the meeting engagement is also one of its characteristic traits.

It is obvious that with well organized intelligence and timely information throughout, confusion of the situation can be brought to a minimum. However, it is doubtful whether it can be excluded completely, even taking into account the increasing possibilities of intelligence, since simultaneously mobility and maneuverability of troops increases, and methods of combat improve. In the meeting engagement, which differs by especially high action, even recently obtained intelligence about the enemy, although reliable and exhaustive, rapidly becomes old and loses its value. Moreover, neighboring troops can also be continuously moving, and information from them by far need not always reflect their exact position. It will not always be possible to obtain in time complete information about the situation for the senior commander. These problems causes insufficient

clarity of the situation, both at the initiation of and during the meeting engagement.

A troop encounter at night, and in fog, snow, etc., conditions, is characterized by still greater confusion of the situation, since the difficulty of gathering intelligence, positioning, and observing troop action is considerably amplified. At the same time, night and fog create the best conditions for inflicting sudden blows against the enemy. Therefore, in conditions of limited visibility is necessary to organize intelligence and protection more thoroughly, and also to allot special attention to maintaining high troop combat readiness.

Insufficient clarity of the situation at the initiation of a meeting engagement does not mean, however, that in all cases it appears suddenly and randomly. Contemporary means and methods of intelligence permit prior detection of advanced enemy groups, observation of their movement, determination of the composition and direction of movement, and, consequently, make it possible to predict the onset of a meeting engagement, the place and time of its initiation, and, in accordance with this, make the necessary calculations and pose troop problems.

Thus, a meeting engagement in contemporary conditions ceases to be a random, spontaneous, and sudden phenomenon. It is possible and necessary to expect it. Suddenness of encounter, although not excluded, is not a typical trait of the meeting engagement.

Possession of powerful resources by modern armies, speed of action, high mobility of troops and the tendency of both sides to solve their own problems by an offensive determine such a trait of the meeting engagement such as continuous, rapid and sharp changes of the situation. This trait is inherent to modern combat in general, but in the meeting engagement it takes on a special meaning.

During an offensive against a defending or withdrawing enemy, changes in the situation, although characterized by speed and sharpness, still occur under conditions when the initiative is undividedly in the hands of the advancing troops. They are free in selecting the place and time of attack and dictate their own will to the enemy.

In a meeting engagement there is a continuous and intense fight for the initiative. Both sides show high combat activity and decisiveness, and inflict powerful blows on the enemy. Combat is initiated and develops under the conditions of movement by both sides to contact, suddenness and high speed. The efforts of troops of both sides, thanks to high mobility, are rapidly increased from depth. In view of the absence of a solid front, favorable conditions for inflicting swift blows on the flanks and rear of mutually advancing groups are created. Blows from troops of either side can, in a short time, move along the front and in depth. Therefore, changes in the situation occur more rapidly and are expressed not only in a change of position and condition of the troops of both sides, but also in a change of the character and methods of action, and in a transition from one form of combat to another.

The meeting engagement usually develops on terrain which is unprepared by the engineering corps, where troops of both sides are outside shelters. In connection with this, the effectiveness and radius of defeat of an active force and combat technology by nuclear weapons will be considerably larger than when they are in shelters. A corollary of this is the acceleration of offensive actions, an increase of the possibilities to maneuver, and creation of conditions for decisive penetration where enemy troops are located, which also promote rapid and sharp changes of the situation.

Use in the meeting engagement of contemporary means of combat with great destructive power, combat in an open area, high troop mobility, and decisiveness of action cause the high speed of the meeting engagement. Certainly, its duration, as in other forms of combat, usually will be determined by the combat capabilities of participating troops, their morale, the ratio of forces and means, area conditions, and other data of the situation, as well as by skill shown by the

commander. However, the objective possibilities of rapid initiation of a meeting engagement are embodied in its very essence. If one side anticipates the other in inflicting fire and nuclear attacks and transition to the attack, and it skillfully inflicts a powerful blow to the flank and rear of the enemy, then the outcome of the meeting engagement will be determined in a short time. The other side (if not destroyed completely) carrying considerable losses, will be forced to switch to a defense or begin withdrawal, and, consequently, the meeting engagement will change to another form combat.

However, we must consider that the enemy will attempt the same decisive action. Therefore, the high-speed of the meeting engagement does not mean that it is finished by the encounter of troops at one point or another. In the Great Patriotic War, meeting engagements of tank and mechanized formations developed at a depth of 15-25 km and continued for 10-20 hours and longer. Even upon suffering failure in the initial encounter, the sides did not give up the action until all their combat possibilities were exhausted. A persistent, complicated and intense struggle continued throughout the fight, until one side, by more skillful and decisive action, forced the other to give up pursuing its goals by an offensive and to switch to a defense or to begin withdrawal.

In contemporary conditions there are objective possibilities for quickly destroying the enemy in a meeting engagement. Nonetheless, the meeting engagement, as before, can be conducted at great depth. Therefore, during its study it is impossible to be limited only to acceptance of a decision of deployment and entry of main forces into combat, but it is necessary to study the specific character of troop action during development of the fight in depth, up to the final destruction of the enemy.

By conditions of organization and character, conduct of the meeting engagement is a more complicated form of combat than an offensive against a defending enemy. It is true that such a comparison is relative, since every fight is complicated and requires from the troops great effort and force, and from the commander - strong will, persistence and skill. Complexity of the battle, furthermore, is determined not only by its belonging to some form of combat, but also by the ratio of forces of both sides and other factors in every specific case.

Nonetheless, during an offensive against the enemy, all preparatory measures are usually conducted ahead of time. The advancing forces separately possess the initiative in selecting a place and time of attack. After the infliction of nuclear attacks and powerful fire preparation, the enemy suffers physical and moral damage to a great depth. Troops go into an offensive in a previously created grouping, a change of which prior to execution of the defined combat problems, as a rule, is not necessary.

The situation is different in the meeting engagement. It is direct organization is carried out in the course of preceding actions in extremely limited periods. Between both sides there is a continuous, intense fight for the initiative. Active operations by the enemy require immediate return action, without waiting for favorable conditions.

Initiation and conduct of the meeting engagement are connected with the necessity of a rapid change in the grouping of forces and equipment for an attack along the flanks and rear of the enemy or for parrying his attacks, developing the selected success, and also transferring a troop effort to a new direction or accomplishing an envelopment and bypass. By virtue of these causes, rapid changes of the combat formation of troops are characteristic of a meeting engagement.

The beginning of the meeting engagement usually precedes advancement and approach of troops of both sides with open flanks. In order to get maximum use from the available roads, to create the best conditions for protecting troops from weapons of mass destruction, the column advances on a wide front. With the initiation of the meeting engagement both sides strive to deploy as fast as possible in the first echelon maximum forces and equipment, to inflict a strong initial blow, to accomplish



a turning maneuver, and to enclose the open flanks of the enemy in order to inflict blows and, at the same time, to protect their own flanks. By virtue of this, a characteristic trait of the meeting engagement is also development of combat action on a wide front, presence of open flanks for both sides, and freedom of maneuver.

Experience of the last war shows that if during the breakthrough of a hastily occupied enemy defense the mechanized and tank corps usually acted on a front of 4-6 km, then in the meeting engagement the front of their actions attained 8-12 km (Table 1).

Table 1. Span of Meeting Engagements of Tank and Mechanized Corps in the Great Patriotic War

Place and time of meeting engagement	Width of front, km	Depth of combat, km	Duration of combat in hours
Meeting engagement of 8th Guards Mechanized Corps with 20th Mechanized Division in the region of Shernorudok, 27-28 December, 1943 . . .	8	18	18
Meeting engagement of 29th Tank Corps with 3rd Tank Division in the region of Pokrovskoye, 5-6 January, 1944 . . . . .	10	15	12
Meeting engagement of 10th Guards Tank Corps with 17th Tank Division in region of Maleshova-Morevitsa, 13-14 January, 1944 . . . . .	10	25	30
Meeting engagement of 19th Tank Corps with 4th Tank Division in region of Zhagare, 22 August, 1944 . . . . .	12	14	16

A meeting engagement usually occurs with open flanks. Therefore, more favorable conditions for the realization of a wide maneuver are created than in any other form of combat. This condition also promotes the absence of a solid front. We must note that under contemporary conditions there will be no solid front during the enemy's transition to defense. However, during an offensive against a defending enemy, conditions for the maneuver are different than during an offensive against an advancing enemy, i.e., in a meeting engagement. In a defensive action, areas not occupied by troops are previously covered by organized fire and by barriers of different forms, which excludes the possibility of a maneuver without preliminary suppression of the enemy by fire and obstacle removal. In the meeting engagement such difficulties in a maneuver usually do not occur. Therefore, both sides have wide freedom of maneuver, which is one peculiarity of this form of combat.

Thus, the contemporary meeting engagement is characterized by: an intense fight to capture and retain the initiative; deployment of troops in combat formation chiefly from columns, simultaneously with the initiation of combat; insufficient clarity of the situation, sharp and rapid changes and high speed of combat; a rapid change of the combat formation of troops; the development of combat on a wide front; freedom of maneuver and the presence of open flanks for both sides.

The use of nuclear weapons and other contemporary means of combat, and also full motorization and high mechanization of troops, wide application of airborne landings and the increasing possibilities of troop transfer by air sharply strengthen these characteristic traits of the meeting engagement in modern war.

#### Conditions for a Successful Meeting Engagement

The contemporary meeting engagement, as mentioned above, can appear in different conditions of the combat situation and can occur very differently. Therefore, correct calculation, rapid and skillful use of specifically complex conditions of the situation, together with deep understanding of the nature of the meeting engagement and knowledge of enemy tactics have paramount value for success.

Military art and the tactical skill of the commander cannot be replaced by indisputable rules, recommendations and requirements. Any pattern of troop action here is absolutely impermissible. However, in spite of this, it is possible to indicate a series of factors ensuring success in the meeting engagement, inasmuch as, regardless of the conditions of their appearance, meeting engagements have inherent, general characteristic traits.

One of the most important conditions for success in the meeting engagement is continuous and thorough enemy intelligence. Troops not knowing the enemy can be suddenly attacked from any direction; their action takes on a spontaneous, disorganized and irresolute character, initiative is lost, and as a consequence, they are defeated.

In contemporary conditions, in connection with the appearance of nuclear weapons, increasing mobility of troops, great numbers of tanks, dispersion of advanced groups along the front and in depth, rapid movement and the possibility for a sharp change of the direction of movement to mislead the enemy, the role of intelligence increases even more. Intelligence should reveal the advancing enemy in good time, show his grouping, and predict and constantly watch all his actions, in order to ensure command of necessary data for inflicting forestalling fire and nuclear blows and for advance and manifold preparation of troops for a meeting engagement.

Timely detection of the enemy and the establishment of constant observation of him allow the commander to estimate the situation correctly and to make a well founded decision, and also to expect the probable changes of the situation in the course of combat.

The depth at which the advancing enemy is detected and the fullness and authenticity of intelligence determine the time gain and preparation conditions for the meeting engagement, timely detailing or acceptance by the commander of a decision, posing problems to troops and coordination of effort, speed of deployment and success of the fight as a whole.

Considering the great value of intelligence for success in the meeting engagement, information reports must be transmitted to commanders with the least delay, since in the meeting engagement they rapidly become old and can become useless.

The commander obtains data about the enemy from his own intelligence and ahead of effective security units of superior commanders, from security subunits, and also directly from reconnaissance and combat aircraft (helicopters), from airborne landings, nearby detachments, and from superior commanders. The commander's personal observation of the enemy is of special importance, especially regarding the battle of march security forces.

One important condition for success in the meeting engagement is speed in making a decision and passing it on to the troops. This results from the actual character of the meeting engagement, where the element of time has paramount value. The least delay in making a decision and passing it on to troops can lead to a delay in deployment and inflicting a blow, to loss of the initiative and loss of all the advantages ensuing from it, which finally can lead to unfavorable results. At the same time, speed in making a decision should not damage its tactical expediency.

A decision in the meeting engagement regarding the deployment of main forces should be calculated so that troops, after receiving their orders, perform the necessary maneuvers to create a grouping corresponding to the plan of the forthcoming fight, to anticipate the enemy in inflicting fire strikes, capturing profitable boundaries, and in deployment of main forces. It is obvious that if troops are not able to do this, a good decision, made without taking into account the possibilities of fulfillment by troops, may not be carried out. Therefore, an exact calculation of time, speed and operational quality in the work of commanders and headquarters is required, as well as exactitude and organization in troop actions.

"In the meeting engagement," wrote M. N. Tukhachevskiy, "a decision made at 12 o'clock according to data on the situation at 9 o'clock is in no way a fit or informed decision, even though it would have been a good and informed decision three hours before. And, conversely, it may not be such a correct decision with respect to an appraisal of enemy action and use of the area, but a decision made on the basis of the last data and corresponding to a given stage of battle development, is tactically more competent than in the first case. It is impossible to contrast mobility with tactics."<sup>1</sup>

Insufficient clarity of a situation, fragmentary and sometimes even contradictory available information about the enemy do not free the commander from the obligation (on the basis of the problem at hand and available data about the situation) of quickly making a specific, firm, and bold decision and seeing it through. To delay a decision until clarification of the situation, until new, more exhausting data on the enemy are obtained, means to doom the troops to passivity and indecision, and to allow the enemy in turn to reconnoiter our grouping, to make a nuclear attack on it, and be able to anticipate us in combat.

It is also necessary to consider that for the enemy, information about our troops will be, apparently, no more complete than we have about him. Therefore, a decision should be made on the basis of information which is available at the time. This is one peculiarity of the meeting engagement. Speed in making a decision, resoluteness and troop action are very important factors, determining victory in a meeting engagement, even over a numerically superior enemy. Any delay, wait, or indecision will be only favorable to the enemy, lead to a loss of the initiative and, in the end, to defeat.

A reduction of the organization time for destroying an enemy in the meeting engagement can be achieved by the decision of a number of questions ahead of time. Thus, when organizing a march in the expectation of a meeting engagement, the commander, on the basis of available data about the situation, can determine possible points of encounter with enemy and conditions for troop maneuver during deployment and in the course of the fight, and, proceeding from this, outline action during the encounter with the enemy at one point or another and the corresponding formation of the march order.

Certainly, in projecting the action in a meeting engagement in this case it is impossible to determine immediately all the questions with such accuracy, as, for instance, during an offensive against a defending enemy, inasmuch as the enemy grouping is still little known and can change prior to initiation of battle. However, even in these conditions one can determine the character of a maneuver, the possible grouping of forces and equipment, the direction of concentration of main efforts to positions of possible encounter with the enemy and outline in broad terms the problem to subunits. Subsequently, upon receiving reconnaissance data about the enemy, these questions will become more definite. Such an order of work promotes a rapid decision and its relay to the troops.

Since fire has become the most important means of damaging the enemy, being the first to open fire has been considered the main factor ensuring success in the meeting engagement. This position has been established by the regulations of all armies, which recommend that in every column the larger part of artillery be in the vanguard and at the head of the column of main forces. Where it was possible to anticipate the enemy in deployment of artillery and in opening mass fire, as a rule, success was attained. This is convincingly verified by the experience of meeting engagements of the two world wars. In contemporary conditions an effective means of destruction is the nuclear weapon. Therefore, to achieve success in a meeting engagement beating the enemy to the punch in nuclear attacks and winning fire superiority have primary value. The side which uses its nuclear weapons first ensures capturing the initiative in action and obtains indisputable advantages over the enemy. With a nuclear attack

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<sup>1</sup>Tukhachevskiy, M. N. Izbrannyye proizvedeniya (Selected works), Vol. 2, Moscow: Voenizdat, 1964, p. 49.

on the enemy it is possible to knock this "sword" from his hands, to deprive him of the possibility of using nuclear weapons or considerably lower this possibility, and in this way to ensure fire superiority. A nuclear attack can inflict great losses on enemy troops, disorganize control, disturb an advance, delay deployment and organized entry into battle, and create the most favorable condition for his full destruction by considerably smaller forces and in shorter periods.

Along with anticipating the enemy's use of nuclear weapons, initiative in launching air attacks and in opening artillery fire have important value.

In spite of the huge role of fire, completion of enemy destruction is ultimately attained by a direct blow by advancing troops. The force of the initial blow and its swiftness and continuity are of decisive value. In order to achieve these, it is necessary to deploy troops to a profitable position and without delay to inflict a shattering blow, using the results of fire suppression. A peculiarity of inflicting such a blow in the meeting engagement is that as a rule, rapid deployment from march columns into combat formation is necessary. Therefore, being first in deployment of main forces and transition to the attack is one important condition of success in the meeting engagement.

Being first in deployment permits gaining time to inflict a powerful initial blow on enemy troops when they still are unprepared for offensive action, to seize the initiative, and destroy the main forces of an enemy by units, without allowing him the possibility of complete deployment. Also in these conditions freedom of maneuver, organized entry of troops into combat, and the most effective use of the results of fire are ensured.

In attempting to anticipate the enemy, it is necessary, however, to avoid premature deployment, since the approach time is reduced, and energy of personnel is exhausted long before battle, so that realization of the maneuver is hampered.

Anticipation of the enemy in deployment is achieved by a timely decision, by creating a grouping of forces and equipment in accordance with the forthcoming battle, even prior to the approach to a point of possible encounter with enemy, by using for troop movement the highest possible number of routes, by suitable construction of the march order, and by reducing the depth of columns and by speed of action during deployment.

In making a decision regarding deployment, enemy forces must be considered. If, for instance, a battalion operating in the vanguard encounters reconnaissance parties or escort or security units of the enemy which are inferior to it in strength, it is possible to be limited to action of the advance party and to support it by fire from the main forces. Even when the advance party alone cannot destroy the enemy, it is not always necessary to deploy the main forces completely. In certain cases it will be sufficient for this purpose to deploy part of them, for instance one company.

Along with preceding the enemy in deploying forces and equipment, it is no less important to delay his advance and to wreck his deployment. This objective can be achieved by inflicting sudden and powerful missile and nuclear attacks, air attacks, and artillery attacks against advancing enemy troops, against large crossings, gorges, passes, road junctions, and other important objects along the route of an enemy's advance, the destruction of which leads to prolonged delay of the advance and deployment of troops; also important are the retention of such objects by airborne landings and creation of barrage barriers in the enemy's path. Of decisive importance for a breakdown of enemy deployment is inflicting nuclear attacks and powerful fire against his main grouping at the point of deployment, i.e., when the troops are in combat formations which are more compact along the front and in depth.

The success of troop actions in the meeting engagement is essentially influenced by the locale, especially points which are profitable for deploying troops. Usually there are such points which predominate over the forward area, promote the effective use of all kinds of troops, especially tanks, have hidden approaches and a sufficient number of frontal and lateral roads or permit troops to advance outside the roads,

and also allow inflicting a blow on the flanks and rear of the enemy. Therefore, anticipating the enemy in seizing profitable positions is an important condition for success in the meeting engagement. It permits the best use of favorable area condition for deployment and entry into combat of the main forces, it promotes systematic and organized entry of troops into combat, and permits carrying out a decisive maneuver - inflicting a swift blow on the flanks and rear of the enemy.

In the capture of profitable positions which ensure favorable conditions for the deployment and an offensive of main forces, a major role is played by advance detachments, vanguards, airborne landings and subunits which come in contact with the enemy. It is fully obvious that anticipating the enemy in capturing profitable positions can only be done by those subunits which possess great mobility and powerful fire and are capable of suddenly attacking and destroying advance subunits of the enemy in the shortest periods. Such capabilities are possessed, in the first place, by tank subunits, which usually are designed for such missions.

The presence of open flanks and spaces between subunits and units in the meeting engagement creates favorable conditions for a wide maneuver, for the purpose of inflicting sudden and deep blows on the flanks and rear of both sides. Therefore, the safety of flanks, the most vulnerable places in a combat deployment of troops, is of great importance for success in the meeting engagement. This is achieved by continuous intelligence on the flanks, timely detection of the danger of an enemy attack at the flank, and taking measures which exclude such a possibility, by echelon formation of the combat order, by locating the reserves and antitank equipment behind the flanks, and by organizing in a short period of time, counteraction against the enemy in case he inflicts a blow.

In caring for the safety of flanks, at the same time one should not fear open flanks and be excessively involved with their protection, assigning considerable forces for this, since this can lead to dispersion of forces and equipment. It is necessary to penetrate decisively into the enemy position, using intervals and breaks between his troops, to use a wide maneuver, to bypass the enemy grouping, to inflict blows from the flanks and the rear, to separate them into separate, isolated groups and to destroy them separately. By acting in this manner, it is possible to compel the enemy to guard his flanks constantly and to utilize a force for their safety.

In a meeting engagement conducted under conditions of active operations on the part of the enemy and in a rapidly and sharply changing situation, communication with the senior commander will be frequently hampered, and can be completely lacking at any time, whereas the situation will demand immediate action. In these conditions the commander must rely only on his own forces, knowledge and experience. Quickly and boldly he must make expedient decisions and persistently execute them. Consequently, the personal role and responsibility of the commander in the meeting engagement increase, and his display of wide initiative and independence becomes an important factor for success.

The initiative must be based on the correct understanding of a problem and the situation. It involves finding effective method to execute a combat problem, timely and rapid use of a favorable developing situation and taking immediate measures against an appearing threat. Development of the initiative should promote the best execution of a combat problem and not contradict the plan of the immediate superior.

Thus, success in the meeting engagement is attained by timely detection of an advanced enemy and establishment of continuous observation; by timely decision and rapid relay of missions to troops; by anticipating the enemy in nuclear attacks, air attacks and artillery attacks and gaining fire superiority; by anticipating him from capturing profitable positions and by deploying main forces in combat formation; by bold troop maneuvers and inflicting powerful forestalling attacks mainly on the flanks and rear of the main enemy grouping; by rapid separation of the enemy and his destruction by units; by reliable flank and rear security of one's own troops; by broad initiative and independence by all commanders.

The manifold conditions on which success depends in the meeting engagement are closely connected, and in a specifically formed situation any of them can be of decisive value. Therefore, it is important that commanders of subunits be able not only to create those or other conditions, but also to use them skilfully for decisive and rapid destruction of the enemy.

Along with the conditions for success which ensue from the actual nature of the meeting engagement, its progress and outcome are greatly influenced by other factors, such as: concentration of efforts in a decisive direction; suddenness; suppression of the enemy by fire over the entire depth of his concentration; continuity of development of the offensive at a high rate; coordinated use of forces and equipment by place, time and goal; unilateral security of troop combat action. A successful outcome of the meeting engagement is determined by the high morale of the men, which is a source of heroism, courage, and fortitude, and by high combat capability and discipline of the troops. Naturally, during a meeting engagement all these factors should be considered in full measure.

#### Organization of a Tactical March

There are certain requirements for organizing a march in anticipation of encountering the enemy which stem from the characteristics of a meeting engagement and the conditions on which its success depends.

A tactical march occurs when the problem at hand and preliminary calculations suggest the possibility of an encounter with the enemy. One of its most important features is that the basis of concentration of a march order is not convenience of movement, as it is in a march outside the threat of an encounter with the enemy, but first of all the interests of combat and constant readiness for defeating the enemy in a meeting engagement.

Proceeding from this, now in all armies, the march order created in anticipation of a meeting engagement has these requirements: it must ensure the highest combat-readiness, the highest speed of deployment and most rapid entry into combat, the realization of a wide maneuver for inflicting a blow to the flank and rear of the enemy and ease of movement, and it must exclude the possibility of a simultaneous defeat of two columns by one nuclear hit. It is absolutely obvious that execution of these requirements is connected with the specific structure of a march order, which depends, first of all, on the number of routes.

A tactical march depending upon the composition of the forces in the movement, the presence of roads and other relevant data can be conducted along one or several routes. Each of these variants has its own positive and negative sides, which are considered when organizing the march.

Thus, for instance, the basic deficiencies of a movement along one road when anticipating a meeting engagement are: great depth of the column, and, consequently, difficulty of rapid deployment and introduction of main forces into combat; great vulnerability of the march order to enemy strikes by air and ground forces; not infrequently the necessity of the main forces introducing into combat consecutively, by parts, according to the approach of subunits.

Movement along several routes permits reducing the depth of columns, faster deployment, simultaneous delivery of a blow by main forces, action on a wide front, faster introduction into combat of a large number of guns and tanks, greater ease in obtaining an enveloping position, immediate attack of the enemy by fire with a large part of the force and seizure of the initiative. In the presence of good roads, even large military units anticipating a meeting engagement always try to advance not along one, but along several routes.

The march order, when a meeting engagement is anticipated, usually includes an advance detachment, elements for march security, main forces, rear units and subunits (Fig. 18):

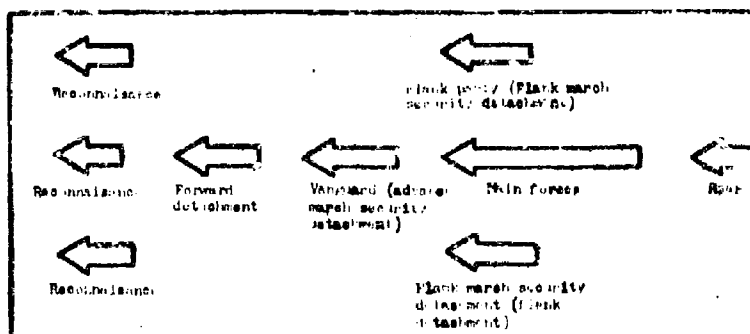


Fig. 18. Schematic diagram of march order in anticipation of a meeting engagement.

Reconnaissance on a tactical march must in good time establish the position, effective combat strength and direction of movement of enemy units, his reconnaissance and security subunits, and also their passage of certain tactical points; it must reveal the enemy's possession of weapons of mass destructions, tank units, their number and, as far as possible, their subordination and numbering. Reconnaissance is conducted by reconnaissance groups, combat reconnaissance patrols, and reconnaissance vehicles.

A reconnaissance group can be dispatched as a motorized infantry or tank company, which is usually reinforced by combat engineers and chemical scouts and, when necessary, is provided with a means of communication. Reconnaissance patrols or recon cars are dispatched for inspection of the area and local objects in the direction of movement and to the side of the route. The separation distance of reconnaissance patrols depends on the mission, composition of the patrol, and the area. Far from the enemy, when an encounter with him is not likely, the reconnaissance group moves with maximum speed, but in an area of possible enemy encounter it moves stealthily from one convenient observation point to another, usually away from roads, maintaining continuous communications with reconnaissance patrols (recon cars).

A combat reconnaissance patrol is usually dispatched in a platoon to conduct reconnaissance of the enemy and the area before the front or on the flanks of the column. Depending upon the missions, it, just as the reconnaissance group, can be strengthened by different means, subunits of chemical scouts and combat engineers. The distance of a combat reconnaissance patrol from the subunit sending it out is determined by its composition, the character of the mission, the area, and possibility of maintaining communication. On the average, it can be dispatched up to 10 km.

The advance detachment is dispatched to keep the enemy from capturing profitable positions and holding them until the main force arrives. It also must conduct reconnaissance for the commander who is sending the detachment.

March security, depending upon column composition, can be dispatched: in the direction of movement — in the form of a vanguard or an advance march security detachment; toward a threatened flank (flanks) — as a flank march security detachment; from the rear — as a rear march security detachment. March security usually involves four interconnected problems.

a) Ensure unhindered movement of the main forces by the destruction of small enemy groups. In executing this problem, march security prevents the necessity of deploying main forces and expenditures of time by them in deployment and pulling out; it also prevents premature exhaustion of the main forces and their movement to an unprofitable area.

b) Ensure favorable conditions for entry of the main forces into combat. In one case this can be achieved by the capture of a position which is profitable for deploying the main forces, for instance, a height which ensures observation of the

enemy (especially for artillery observation posts), and also sections of the area which conceal troop movements from an enemy ground force. In another case, this is achieved by capturing a defile, mountain gorges, bridges, roads through woods, etc., by the occupation of which the enemy can constrain freedom of action of the main forces, which then cannot immediately be deployed for combat and are first forced to penetrate these narrow areas.

- c) Warn the main forces of a surprise attack by an enemy ground force.
- d) Prevent penetration of the main forces by enemy ground reconnaissance.

In order to execute the mission posed, the vanguard (advance party) must move along the same route as the main force. Figuratively speaking, the vanguard (advance party) is a sentry at his post (the road), which he cannot leave under any circumstances. Truly, this is one of the main distinctions of the vanguard from the forward party, which to successfully fulfill its purpose - finding the fastest route to a designated position and its occupation - can leave the route of the main forces and avoid combat with the enemy.

The composition and distance away of the march security unit depend on its mission, the composition of guarded troops, local conditions and other data of the situation.

The advance party is usually dispatched in a company at a distance of 5-10 km from the guarded troops. Such a distance by the advance party permits its responsible commander to definitize in good time, that is, make a decision regarding the meeting engagement, present the problem, deploy subunit and enter combat in an organized manner. For direct security and enemy and area reconnaissance it dispatches reconcers.

The vanguard can vary in composition. Here we must consider that a strong vanguard can better cover the main forces, independently do battle with the enemy over a longer time, better reconnoiter him, act at a great distance from the main forces and, consequently, give them more time for deployment into combat formation, and give the commander who sent them more time to make a decision and relay it to the troops.

Experience of the last war and postwar teaching shows that the vanguard can usually successfully execute its tasks as a reinforced battalion. Such a vanguard is able to destroy enemy reconnaissance and security and when necessary, attack his advance subunits, knock him from an advantageous position, and seize and hold it until the approach of the main forces, thereby creating favorable conditions for their deployment and entry into combat. It can function at a distance of 20-30 km from the main forces. Such a distance, on the one hand, permits the vanguard to destroy small enemy groups, not affecting the uniform advance of the main forces, and on the other hand it ensures the responsible commander sufficient time to appraise the situation, make a decision, and assign missions to the troops, and it ensures the main forces of the guarded column time for deployment and organized entry into combat.

A variant of the march order setup of a vanguard in a reinforced motorized rifle battalion is shown in Fig. 19.

In separating units of march security, it is necessary simultaneously to see that this does not lead to a weakening of the main forces, and consequently also to an initial enemy blow. Therefore, forces and equipment in march security must be separated economically, at the same time attempting to increase the intensity of their combat use.

The column of main forces can be of various compositions. Proceeding from the necessity of forestalling the enemy in opening fire and his conquest of fire superiority, artillery should move into a place in the column where time for occupying firing sites and opening fire is at a minimum. For this, artillery should be at the head of the column of the main forces. Artillery of the vanguard also usually follows at the head of its column or after the advance party. Tank subunits can move at the head of the column of main forces or after the artillery (mortar) subunits. However, one should stress that here there is no pattern: everything



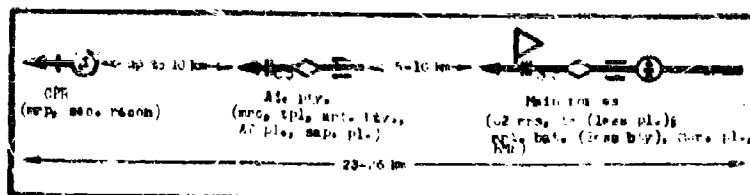


Fig. 19. March order of a vanguard (variant).

#### LEGEND

Adv. pty...advance party	mrc.....motorized rifle company
art. bty...artillery battery	mrp.....motorized rifle platoon
AT pl.....antitank platoon	sap. pl.....sapper platoon
B.....battalion	sec. recon....security reconnaissance
BMP.....battalion medical post	tc.....tank company
CPR.....combat reconnaissance patrol	tpl.....tank platoon
Mor. pl....mortar platoon	

depends on the specific conditions of a situation. If, for instance, a battalion moves in the direction of a nuclear attack with the mission of more rapidly exploiting its results, then, apparently, at the head of its column it is better to have the tanks, motorized rifle subunits on armored carriers, and after them the artillery, in readiness to support their deployment and attack. Furthermore, it is necessary to consider the probable direction of deployment. If it is toward the flank, then the artillery, obviously, is better in the center of the column, and if it is at the front — [it is better] at the head of it, which will allow rapid opening of fire by direct laying and from hidden positions.

Antiaircraft equipment is usually distributed along the column with the consideration that it is reliably screened from air attack.

Rear units and subunits usually follow in an independent column at a distance from the main forces, so that they can perform their own missions.

Thus, the basis of march order construction is the anticipation of battle. When a meeting engagement begins, there is no time for reforming the march order. Every subunit should be ready to enter combat in stride, directly from the march, without any reformation. Therefore, a march order (in anticipation of a meeting engagement) should represent essentially the same combat formation, only broken into columns.

#### Initiation of a Meeting Engagement

In contemporary conditions, a direct encounter of ground forces subunits in a meeting engagement, as a rule, will be preceded by nuclear strikes initiated by the senior commanders against an advancing enemy. Such attacks will occur upon detecting the advance of enemy groups, and their results will decisively influence the character of further combat. This is one of the chief characteristics of conducting a contemporary meeting engagement, distinguishing it from the past.

In past wars, routing an advancing enemy grouping by fire was achieved simultaneously with deployment of troops. The only means of firing on an enemy at a great depth in the two world wars was from the air. However, its action, due to insufficient combat capabilities even in the last war, could not always decisively influence the meeting engagement.

Modern combat means ensure defeating the enemy by means of surprise nuclear attacks and by powerful fire long before an encounter of ground forces. Nuclear attacks on troop columns as they pass road junctions, crossings, gorges, a defile and other narrow places can be especially effective. Such attacks make it possible

to inflict serious damage on an advance enemy grouping, to delay its advancement, and to create favorable conditions for forestalling the enemy in deployment and inflicting a coordinated blow for his final destruction.

Delaying an enemy advancement will ensure a time gain and will facilitate carrying out the necessary maneuvers of forces and equipment, deploying main forces to a profitable position, entering combat in an organized manner and inflicting a decisive blow. Now a time gain of even one hour gives a considerable advantage, since during that time it is possible to move troops 25-30 km and more and to inflict a sudden blow to the flank and rear of the enemy.

Thus, forestalling nuclear attacks will place advanced enemy troops in an unfavorable position even before entry into combat, it will allow seizing the initiative, overcoming fire superiority, and will create the prerequisite for a successful outcome of the meeting engagement.

The enemy will also constantly attempt to inflict forestalling nuclear attacks. Therefore it is very important to expect the possibility of such attacks, to consider their results, and anticipate measures ensuring the least vulnerability of forces and prevent their delay during an advance.

The meeting engagement usually starts with an encounter of reconnaissance subunits, advance detachments, and elements of march security with the security and advance subunits of the enemy.

The period of active combat operations from the encounter of reconnaissance subunits to entry of the main forces into combat is called the initiation of the meeting engagement. The most important problems in this period are capturing the initiative and ensuring favorable conditions for deployment and entrance of the main forces into combat. The duration of this period can be different in every case, depending upon the composition and distance away of elements of march security and advance detachments from the main forces, and also depending on the time necessary for the main forces to advance to the position of enemy encounter, deployment into combat formation and going into combat.

The actions of forces at the initiation of the meeting engagement must be decisive and swift. The initiation is not a period of "rocking" and less active combat action, but the most direct meeting engagement, its initial stage, on whose outcome capturing the initiative and the character of further troop actions greatly depend.

Reconnaissance subunits coming into contact with enemy subunits for reconnaissance, cover and protection, try to execute their task, which is in the shortest possible period, to obtain data about the enemy and thereby to ensure a timely decision or more precise determination in accordance with the situation. For this purpose they usually do not become involved in combat with the advanced enemy subunits, but bypass them, boldly penetrate the main forces, determine their composition, grouping, direction of movement, intervals, flanks, possible positions of deployment and character of action. The fundamental problem of reconnaissance is detecting nuclear equipment of the enemy, and also the means for inflicting nuclear and ordinary fire attacks. Under favorable conditions and in case of necessity, reconnaissance subunits attack separate advance enemy subunits, take prisoners, disorganize movement and introduce confusion in the enemy lines. Data obtained about the enemy are immediately reported to the responsible commander.

As advance detachment, advancing at maximum speed to its position, by decisive action destroys the small groups encountered along the way, swiftly seizes its position and holds it until the main forces arrive.

If the enemy forestalls the advanced detachment as it approaches its position, the advanced detachment swiftly attacks the enemy in the flank and rear, seizes the position, fires from position and holds it until the main forces arrive.

Certainly, a situation can develop in which an advance detachment cannot seize its target and must fight with the superior enemy forces conducting an offensive. In this case the advanced detachment holds the enemy at the subsequent

favorable positions, ensuring favorable conditions for deployment and entry of main forces into combat.

The character of operation of the march security elements depends on the situation. Here, as in all other cases in war, it is impossible to set a defined pattern. However, one should note that basically these actions must be aggressive and decisive. The march security combat is of importance for capturing the initiative, and every commander of a platoon, company, or battalion in march security should know that victory can depend on its decisive action.

The advance party, during an encounter with enemy reconnaissance and subunits of enemy security, rapidly destroys them and continues to carry out its mission. During an encounter with an enemy which is superior in force, it occupies a favorable position, and, persistently holding it, ensures the condition for deployment and entry into combat of the main battalion forces.

The vanguard, at the beginning of advance party combat, accelerates its movement.

Artillery swiftly sets up firing sites, usually along the route, regardless of convenience, and immediately opens fire, paving the way for advance party combat and advancement and deployment of the main forces of the vanguard. Tank-destroyer artillery and antitank guided missile emplacements are advanced to open firing sites to perform direct laying fire on tanks. In order to hamper the enemy deployment, and to constrain his maneuver, first the forward and rear vehicles of the enemy columns are fired upon.

Tanks and motorized rifle subunits on armored carriers, skillfully using geographical features, advance toward the attack, are swiftly deployed in combat formation, swiftly attack enemy cover subunits, destroy them or repel them, break through to the main forces, and in decisive action defeat them, ensuring favorable conditions for the deployment and entry into combat of their own main forces.

In past wars the task of the vanguard was limited exclusively to capturing and holding a position, the mastery of which ensured favorable conditions for the deployment of main forces, as was reflected in regulations of that time. This limitation was caused by the fact that subunits composing the vanguard possessed insufficient shock and fire power, the possibilities of fire support of their actions by means of sending a vanguard of the commander were limited, approach and deployment of main forces required a prolonged time, and a strike was thought of as nothing other than an attack on a solid front.

At present the position has essentially changed. Subunits assigned to the vanguard possess great shock force, high mobility and great fire power. The possibilities of their fire support by the senior commander have expanded considerably. Finally, conditions of the advance, the character of deployment, and the action of main forces have changed. Therefore, it is doubtful whether it is correct to limit the mission of vanguards in all cases only to capturing and holding of positions. Under favorable conditions, in our opinion, they must strive to ensure deployment and entry into combat of main forces, in the first place, not by a transition to defense, i.e., securing and holding a position, but by the most decisive offensive action. The vanguard can secure the captured position only in the case of an encounter with considerably numerically superior enemy forces, when the enemy is not able to advance and to ensure deployment of his main forces by aggressive offensive operations. In this situation it rapidly deploys to a favorable position and by fire from tanks, artillery, antitank equipment and small arms, delays a further advance by the enemy. Along tank-accessible routes a strong antitank defense is created, using all available antitank means. Combat engineer subunits organize antitank barriers, both in front of and on the flanks of the occupied position.

If advanced enemy subunits manage to keep the vanguard from capturing a favorable position, measures are taken to capture this position in stride. The enemy is put under fire from artillery, tanks, and air strikes, after which a swift attack is made. Seizing the position, subunits of the vanguard secure it and by active operations ensure deployment of the main forces.

Action of march security subunits and advance detachments predetermines the success of entry into combat of the main forces. Therefore, senior commanders must give combat maximum attention and give timely support, first of all by their fire power. The earlier the vanguard combat is supported by fire from depth, the more successfully the mission at hand will be carried out.

Simultaneously, it is necessary to take all measures for timely success by the main forces, to delay deployment of basic enemy forces, and to destroy his advance subunits before their action is supported by troops advancing from the rear.

#### Actions of Main Forces

A rapid and decisive transition to the attack by main forces can lead, in a meeting engagement, to the defeat of a stronger enemy group which cannot deploy itself. Therefore, subunits of the main forces must advance, be deployed, and enter combat without any delay.

Advancement and deployment of main forces is carried out taking into account the commander's concept, and, first of all, the character of this maneuver. Main forces in a meeting engagement can strike the enemy from the front, on one or both flanks, and from the rear (Fig. 20). The best results, as experience shows, can be attained by a swift blow to the flank (flanks) and to the rear of the enemy. A strike on the flank creates favorable conditions for defeating the enemy by fire using all means over a wide front. The enemy can deploy a smaller part of his facilities on the flank. With a secretive maneuver and swift blow to the enemy flank, he will have no time at all to prepare his repelling action.

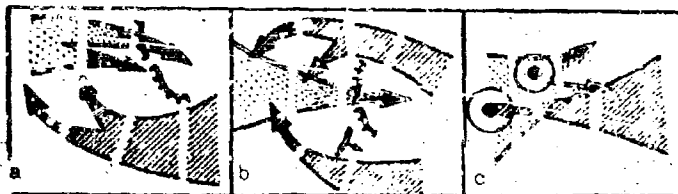


Fig. 20. Forms of attack in a meeting engagement:  
a) attack on one flank while part of the forces are pinned down from the front; b) attack on both flanks while part of forces are pinned down from the front; c) frontal attack.

At the same time it is necessary to consider that a blow to the flank sometimes can be impossible or undesirable, for instance, under unfavorable conditions of a locale, in the absence of time for a flank maneuver and the necessity of attacking in the shortest direction in order to exploit the results of a nuclear explosion, and also upon an encounter with passing enemy troops. It is known that armies of the capitalistic states also recommend making many attacks on the flank and rear in the meeting engagement; therefore, sometimes the direction of a bypass or an envelopment of Soviet troops and the enemy can coincide. Obviously, in all these cases it will be necessary to inflict a frontal blow to break up the enemy grouping and to destroy him by units. The use of nuclear weapons allows a successful strike, makes it possible to create flanks artificially and to achieve decisive results in short periods.

To carry out a maneuver and to inflict a blow to the flank (flanks) and rear of the enemy, it will often be necessary to pin him down from the front. Usually for this purpose only an insignificant part of the force is assigned, especially a motorized rifle unit, capable, however, of fulfilling the mission at hand. Main forces, especially tank subunits, are used for swift and sudden attacks on one or both flanks of the enemy. When attacking on the flank, subunits, advancing from the front, also act in order to prevent the enemy from maneuvering his own troops against a Soviet enveloping or by passing group.

The order of deployment of main forces and the time necessary for this depend on the composition of main forces, their concentration, their distance from the position of possible encounter with the enemy, the character of actions of march security elements and the enemy, and also on terrain conditions. In all cases deployment is recommended in as short a period as possible, so that forestalling the enemy deployment and a strongly coordinated and simultaneous strike against him is ensured. In view of this, during the deployment of main forces they attempt to avoid complicated and superfluous movements which lead to a time loss.

Depending upon the direction of enemy action, terrain conditions and the commander's concept of the meeting engagement, deployment of the main forces of a battalion can be conducted either by consecutive dispersal of columns (battalion into company, company into platoon columns and then into combat formation), or by a simultaneous turn in the direction of the offensive (Fig. 21).

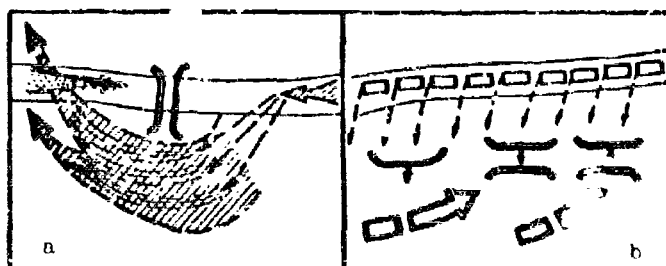


Fig. 21. Deployment of subunits for a meeting engagement from the march: a) consecutively; b) simultaneously.

Deployment position of the main forces is chosen, so that their secretive approach and rapid deployment for inflicting a powerful blow is ensured, the break out is made in the shortest directions, if this is possible under terrain conditions.

To gain time, to ensure rapidity of approach to the enemy, and also in the interests of protection from weapons of mass destruction, movement of the main forces of a battalion in a column can continue until the troops approach the enemy at a distance which would exclude the possibility of their defeat during deployment by fire from antitank guided missiles and direct laying enemy artillery. Thereby the possibility of consecutive reformation from the march into company and platoon columns and an organized pullout of subunits to the deployment position in combat formation is also ensured. Platoons are reformed in combat formations from the march, directly before the deployment position.

However, deployment of main forces by means of consecutive dispersal of columns can not always be done, sometimes this cannot be done because of the situation. Furthermore, such an order of deployment signifies nevertheless a unique methodism in the actions of forces; meanwhile the meeting engagement (in contemporary condition) is characterized by great maneuverability and a variety of initiation and conduct. Consequently, troop deployment should also be varied. If, for instance, conditions of the situation allow, and the terrain possesses good camouflage properties, the main forces of a battalion can be advanced in march order directly to the position of deployment and, after reformation into combat formation, attack without delay.

Deployment of the Artillery of main forces starts as early as possible, so that its fire can ensure deployment of battalion subunits and transition to the attack. Firing positions are at such a distance from the deployment position that artillery can strike the enemy at a depth of no less than half its range of fire. When batteries are deployed and ready to fire, they immediately open fire on the enemy, ensuring deployment of the main forces.

Sometimes, certain battalion commanders, during deployment of Artillery in a meeting engagement, delay opening fire, awaiting the readiness of all batteries. It is doubtful whether it is necessary to prove that in the meeting engagement this is impermissible, since time here is of great significance. If a battalion, from the moment of its arrival to the firing position area requires, let us say, up to 25-30 minutes for deploying and preparing to fire, then separate batteries on their own initiative can open fire in 8 to 10 minutes and earlier. Therefore one should not await the readiness of all batteries and lose precious time. When necessary, fire control can subsequently be centralized.

In contemporary conditions, very frequently it will be necessary to deploy in the direction of one or even both flanks. This is determined by the presence of large spaces and breaks between forces, high maneuverability and mobility of troops of both sides, and their mutual attempt to inflict blows to the flank and rear of the enemy. Obviously, such a situation will be one of the most complicated, since the enemy can simultaneously act from the front.

When deploying the main forces toward a flank, the flank guard acts just as an advance party, and the detachment - as a vanguard: it destroys the march security of the enemy, breaks through to his main forces, and by decisive action defeats him or is deployed to a favorable position, by fire and active operations pins the enemy down and ensures favorable conditions for the entry into combat of his own main forces. Depending upon the situation, a unit of the main forces can also be deployed to pin down the enemy from the front and to create favorable condition for an attack on the flank and rear of the enemy.

In the case of simultaneous enemy action from the front and from the flank, basic efforts are directed toward defeating the most dangerous enemy group, with simultaneous cover from the other.

Rapid and organized deployment of the main forces mostly depends on good organization of the commandant's service. Its task is to ensure timely pullout and deployment of subunits of the main forces, to prevent delay, bottlenecks and intersecting directions of column movement, to inform the commander on time regarding the location of subunits, to accelerate (and sometimes, possibly even to delay) the advance of separate columns. The commandant's service is organized so that at the beginning of the deployment of main forces at all change points of the direction of subunits, at crossroads and road junctions, near bridges, crossings and in other places where transport movement is hampered, there are control posts. An important value for the withdrawal of separate subunits in their particular directions lies in traffic-control officers on vehicles having high roadability, and on helicopters.

The moment of deployment of subunits of the main forces is the most dangerous, from the point of view of troop defeat by nuclear and air attacks. Therefore, antiaircraft defense and protection of troops from weapons of mass destruction during deployment is given special attention. The main part of antiaircraft equipment is used to cover the main grouping and other most important objects. Simultaneously, troop cover by fighter aircraft is reinforced.

Protection of the troops from weapons of mass destruction is ensured by continuous chemical and radiation reconnaissance, organizing fast troop warning, and by the highest possible dispersion and use of protective properties of the terrain under given conditions. If in the deployment period the enemy uses nuclear and chemical weapons, decisive measures are taken to restore combat capability of the subunits subjected to the onslaught, and to restore disrupted coordination and control.

The most important problem of reconnaissance in this period is detection of the means of enemy nuclear attack, determining the objectives for nuclear attacks, the timely beginning of an enemy attempt to attack open flanks, and determining breaks, spaces, and weak places in the enemy organization for attacking his flanks and rear.

Subunits of the main forces begin the attack without any preliminary stop. Termination of the deployment of main forces signifies the beginning of their attack.

Fire onslaught from artillery, preceding the attack by main forces, is an integral part of the period of their deployment and entry into combat. It is very important in the period of fire onslaught to destroy, in the first place, those combat means of the enemy on which stability of his combat formation depends - the tactical means of nuclear attack, installations for antitank guided missiles, tanks, and antitank pieces.

Main forces can enter into combat simultaneously or consecutively, by units.

Experience shows that during simultaneous transition into attack, inflicting a strong initial blow (which it is difficult for the enemy to repel) is ensured; the blow is inflicted simultaneously over a wide front, and the enemy has no possibility of accomplishing a maneuver by troops not subjected to the blow; such a blow can be better prepared by fire. However, for such an attack a specific defined time is required, which, in a number of cases, is not possible. To delay the advance of forward subunits, and even more so to stop them, is extremely unfavorable and dangerous.

The introduction into combat of main forces, according to the approach and deployment of subunits, is of important value for capturing the initiative; it permits a quick increase of the effort of elements on march security and maximum use of profitable situation conditions - but in this case, naturally, the force of an initial blow is lowered. There is also the danger that the enemy will easily rent separate subunits or will repel their isolated attacks and be in the best position.

Therefore, in attempting to inflict a simultaneous blow by the first echelon of main forces and taking measures necessary for this, one should consider that under favorable conditions the introduction of main forces into combat according to the approach of subunits, can be profitable. In particular, this advantage may occur when it is necessary to exploit immediately the result of a nuclear strike, when the enemy is not able to deploy his own troops, and profitable conditions are created for inflicting a swift blow on his flank and rear; and also if, under the influence of superior enemy forces, subunits of march security are forced to withdraw and it is necessary to increase their effort immediately, in order to stop the enemy and not allow him to succeed.

Motorized rifle subunits, having as their armament armored carriers which possess high roadability and heavy arms, can now attack jointly with tanks as a single "armored striking force." Firing from the march, they destroy the personnel and combat materiel of the enemy, attempting to penetrate into his position as deeply as possible. The attack will have the best results if the enemy is attacked during deployment, when his troops are in motion.

Fire support of an offensive is executed by artillery fire against objects which prevent the advance of troops, and also against the most important targets, the destruction and suppression of which will ensure swiftness of success. Enemy means of nuclear attack are destroyed immediately after their detection. To guarantee continuous troop support throughout the entire depth of action, artillery moves after the advancing subunits.

With the transition of main forces into an attack, they are not held at separate centers of enemy resistance, but swiftly advance in depth. The absence of prepared obstacles and defensive constructions on the battlefield considerably expands the ability of troops to penetrate deeply into the area of enemy deployment with the first blow. Advancing subunits penetrate in intervals between columns, disperse the enemy grouping, and destroy it by parts. Having achieved success, they do not allow an organized deployment of approaching enemy reserves, and do not enable him to begin his defense and regroup his forces.

Routing the enemy by parts is one of the important principles in the meeting engagement. This means, first, routing the troops of his first echelon prior to the approach and entry of reserves into combat; second, breaking off and isolating the columns and attacked groups from each other and their separate defeat.

For rapid, complete defeat of first echelon troops, the battlefield is isolated

from the flow of reserves and troops which move in from unattacked directions. This task is solved by inflicting nuclear and air strikes, by artillery fire to strike enemy reserves, to prevent or to hamper their approach, to destroy bridges, crossings, roads, and to create barriers. An important role can be played by ambushes, organized on the routes of enemy columns. Advancing troops must also act with exceptional speed and resolve to complete the destruction of resisting enemy forces prior to the approach of his reserves.

Conducting a meeting engagement when there are open flanks in the combat formation of troops requires their thorough protection, especially during a bypass or envelopment. For this purpose continuous reconnaissance is conducted on the flanks near brought-up reserves, which are in constant readiness for immediate advancement and action in any threatened direction.

During an enemy attempt to bypass or to envelop the flank (flanks) of our troops, the bypassing troops are put under fire, and necessary forces and means to cover the flank (flanks) are dispatched. Main forces fulfill their own basic mission. In destroying a flanking or enveloping enemy group we use, first of all, subunits moving as an echelon element to the threatened flank, and also those moving forward from the reserves, which, inflicting losses on the enemy by fire and by a decisive strike on the flank and rear of the flanking or enveloping group, complete its destruction.

In the course of a meeting engagement it is very important to succeed as early as possible. Probably nowhere is speed and timeliness of success as important as in the meeting engagement, because under these conditions enemy fire power and troops, especially second echelons and reserves, cannot always and everywhere be ready for action. This should be immediately used for exploitation of success and final destruction of an enemy in conditions which are unfavorable for him.

Success supported in time in one direction can be developed over the entire front into general success, and can lead to complete defeat of an enemy. At the same time, any delay and holdup in the exploitation of success will inevitably accelerate the growth of organized enemy resistance. Considering all this, in the meeting engagement the reserve (second echelon) can join the battle considerably earlier than in other forms of combat.

The meeting engagement should end in the complete defeat of the enemy. For this it is necessary to develop a nonstop offensive, not affording the enemy a possibility to regroup, to send out troops and begin his defense. However, such decisive results can not always be achieved. In a number of cases the enemy can begin withdrawal or shift to the defense. Therefore it is very important not to give the enemy time to consolidate or to begin his withdrawal in an organized manner.

Upon detecting enemy attempts to begin his defense (as a result of his losing the meeting engagement), there follows a swift blow on his flanks and from the front to prevent this. If the enemy tries to avoid complete defeat and begins withdrawal, a persistent pursuit is organized from both the front and along routes parallel to his withdrawal.

A night offensive is not a reason to decelerate or, even worse, to cease combat action.

#### Features of a Night Meeting Engagement

In contemporary warfare, more frequently than before, meeting engagements at night are possible. This is due to the exceptionally decisive character of contemporary combat, full motorization and high mechanization of troops, facilitating the conduct of active offensive operations at night, the use of nuclear weapons, which can sharply change the ratio of forces in a short period and can ensure conditions for the rapid advance of troops in depth, the attempt of both sides to make maximum use of the night for movements and combat actions, and finally, wide use of night vision instruments by troops.

Equipping troops with the means for illumination and night vision permits the



use of all combat material and all kinds of troops during night combat action. The use of instruments for driving different vehicles (tanks, armored carriers, motor vehicles) permits movement at speeds close to speeds achieved in daylight. With the help of night vision instruments it is possible to direct sighted tank and antitank fire successfully as well as that of small arms at a distance of from 100 to 400 m<sup>1</sup> and more. The presence of radar stations, infrared instruments for reconnaissance and observation, and other illuminating equipment facilitates reconnaissance of the enemy and observation of the battlefield at night.

All this equipment significantly expands the possibilities of conducting troop combat action at night in general, and meeting engagements in particular, and also decreases the negative influence of night conditions on troop action. In spite of this, organization and conduct of the meeting engagement have a number of peculiarities, the consideration of which is of importance for success.

Night renders a double influence on the character of combat action, both positive and negative. This also pertains completely to the meeting engagement. On one side, darkness favors secrecy of the advance and deployment of troops; it promotes the achievement of sudden attacks, it decreases the losses of one's own troops due to conventional firepower, and it promotes the defeat of a demoralized enemy by even smaller forces. On the other hand, night creates a number of serious difficulties. Poor visibility limits the observation of enemy action and the action of one's own subunits. The complexity of obtaining reliable reconnaissance data increases even more the confusion of the situation, it hampers detecting targets and the use of firepower. Night hampers orientation to terrain, the timely pullout of subunits, the organization of coordination, control, and all forms of safety. At night personnel fatigue is increased, driving combat vehicles is complicated, and surprise appearing both due to errors in orientation to terrain and also as a result of a secret reserved enemy maneuver are more frequently possible.

The enemy's use of nuclear weapons at night may cause great complications. According to American data, eye damage by the luminous radiation of a nuclear explosion of 20 kt in a clear atmosphere and clean air can be inflicted at distances up to 60 km.<sup>2</sup>

For maximum elimination of the negative influence of night on troop action, and to ensure successful destruction of the enemy, it is necessary (in anticipation of a meeting engagement with him at night) to take ahead of time, i.e., during the light of day, a number of preparatory measures. The basic measures are: preparing combat material for night operations, guaranteeing illumination and light-signaling means for subunits, organizing light security, developing and giving troops light signals for warning and coordination, and also the order of mutual identification and target designation at night.

Along with these measures are anticipated for protection from nuclear explosions, especially protecting the eyes, for conducting intensive reconnaissance, for troop formation, for ensuring the convenience of their movement at night and rapid entry into combat, and for clear organization of the commandant's service.

Upon initiating a meeting engagement at night, subunits for reconnaissance and security make maximum use of the advantage of a surprise attack. Considering the fact that the darkness of night strengthens the morale-psychological influence of decisive attacks on the enemy, reconnaissance subunits and elements of march security, coming in contact with the enemy, immediately swiftly attack and rapidly penetrate his position in depth, introducing disorganization and panic into his ranks. Unexpected and bold attacks on enemy cover troops, predetermine in many respects, the further development of the meeting engagement at night.

<sup>1</sup>Yeronin, N. *Boevyye deystviya noch'yu (po vzglya m inostrannykh armiy)* (Night combat (in opinion of foreign armies)). Moscow, Voenizdat, 1959, p. 91.

<sup>2</sup>*Deystviye yadernogo oruzhiya* (The action of nuclear weapons). Translation from English. Moscow, Voenizdat, 1963, p. 558.

Actions of advance subunits must be supported and well-developed by the main forces as fast as possible.

It is obvious that at night most frequently there will be no consecutive dispersion of main forces from the column, as by day. Under cover of night it is expedient to advance in columns as near as possible to the operation point of advance subunits, to deploy in stride near this boundary and immediately attack the enemy in the flank and rear. We do not exclude the fact that certain subunits of the main forces, to support the actions of advance subunits, will be able to attack directly in stride, deploying in the combat zone as they fight.

The deployment of main forces at night requires more time than by day. This increases the role of march security, the active operations of which must ensure their deployment. To accelerate the deployment of main forces at night, the routes of their advance to deployment positions (firing areas) are easily visible and designated in darkness by signs and arrows, but in subunits of the main forces, for their withdrawal to the deployment position, guides can be designated from the personnel of advance security subunits.

The role of ensuring combat action in a meeting engagement at night due to bad visibility considerably increases. All measures are directed to ensure the achievement of suddenness, to protect troops from an unexpected enemy attack from any direction, and especially to prevent the possibility of his sudden action on the flanks of our advancing troops, creating favorable conditions for his own troops. for the execution of combat missions.

A very important question regarding the night meeting engagement is that of guaranteeing light. Well organized light support creates the best conditions for maneuver, permits sighted fire, facilitates the control of troops and maintaining coordination between them. During an advance and the deployment of troops, illumination of the enemy is applied to such a degree that it does not reveal one's own troops. With the transition to attack by main forces, the means of illumination are applied without any limitation, so that all enemy movements are not hidden by the darkness of night, so that our troops can hit the enemy with sighted fire. Illumination should be especially intense and stable, to enable the troops to use rapidly the results of nuclear attacks. At the same time, in all cases, the use of means of illumination should not lead to illumination and disclosure of one's own troops. While widely applying illumination, it is necessary to wage decisive combat against the means of illumination used by the enemy.

Nuclear attacks against the enemy are used without delay. In view of the fact that the flash of a nuclear explosion at night can cause personnel (located at distances tens of times exceeding the limit of influence of all other striking factors) to be blinded for an extended time, prior consideration of measures for the protection of troops from blinding is quite important. The most important of these is a timely warning to troops by the senior commander about the infliction of their own nuclear attacks, giving them time to use protective means for their eyes.

In the course of the meeting engagement, subunits do not delay the destruction of separate resistance centers, but swiftly advance, using in full measure the advantage of a night offensive and the results of use of nuclear weapons. In the night meeting engagement more favorable conditions are created for secret advance through intervals and breaks in the combat formation to the open flanks of the enemy. Therefore, on the one hand, one should make maximum use of these possibilities for attacking the flank and rear of the enemy, and, on the other hand, one should more thoroughly protect his own open flanks from possible surprises.

In the night meeting engagement, more frequently than in daylight, it is possible to deny the enemy an offensive action and a temporary transition to defense or even withdrawal. Therefore, it is necessary to watch enemy actions thoroughly and to foil his intentions.

If the enemy begins his defense, his troops must be strongly illuminated by all forms of illumination, they must be suppressed by fire and destroyed by attack in stride. When enemy withdrawal is detected, the fire against it is intensified,

troops begin decisive pursuit, and carry it out until full destruction of the enemy is realized.

Complexity of conducting the meeting engagement requires great exertion of moral and physical forces of personnel, individual training and training in night operations, as well as, in the use of radiotechnical equipment and illumination equipment.

## CHAPTER VII

### OFFENSIVE COMBAT

#### Nature of Contemporary Offensive Combat

Attack, as a form of combat action, was born together with the appearance of war. Throughout history, the nature of the attack and the form and methods of its conduct have changed continuously.

Before the appearance of firearms, when the defending side could offer resistance only by force of direct physical action, the attack was actually expressed in a thrust, the force and power of which essentially decided the fate of the battle. Battle was conducted in a shallow manner and was characterized by a sluggishness of development.

With the appearance and rapid development of firearms, the defending side gained the ability to act on the enemy with firepower and to inflict losses to those advancing not only during a direct encounter with them, but also during their approach to the defenses. The more the range and power of combat means increased, the stronger and more deeply its influence was felt. Under these conditions, the offensive began to be subdivided into two independent stages — advance (approach) and attack. Subsequently, when the defense became echeloned in depth, to these stages of the offensive still another was added — combat in the depth of defense.

The improvement of firearms and growth of their striking power caused deep changes in the character of the offensive. The attacking side began to use the force of firepower for a decisive suppression of the defense and for a most rapid achievement of its own goals. Here the role of firepower in battle continuously increased, and the interconnection between firepower and the thrust became even closer. If, in the beginning, the thrust was inflicted somewhat separately from the firepower, then afterward they merged together and became closely interlaced. Firepower not only prepares for the thrust, playing a supporting role with respect to the latter, but remains active throughout the course of the whole offensive. Thus battle gradually obtained the character of fire combat. Success of the offensive was now entirely dependent upon the force and power of defeating an enemy by firepower.

Increased capability of firepower also caused an increase in the role of maneuvers, which had as their mission the creation of the most favorable grouping of troops and placing them in the best position (with respect to the enemy) for delivering a strike. Maneuver, like firepower, became an organic, inseparable part of the attack. It is accomplished not only prior to inflicting the blow, but also continuously during its course. Besides maneuvering forces and materiel, the attacker began to use more widely the maneuvering of firepower, for the purpose of concentrating the firing efforts or shifting them from one object to another.

Maneuver thus encompassed the whole content of offensive combat. Ever increasing maneuverability, as well as the continuous struggle for fire superiority, became the important traits of offensive combat.

The application in combat of different types of troops and combat means by whose coordinated efforts success was attained led to the fact that offensive combat in its character became the combined-arms type. The combined-arms character of offensive combat appeared especially distinctly in the First World War.

Participation in this war of multimillion-man armies expanded the boundaries and scale of armed combat as a whole. The possibility appeared of an offensive in all directions accessible for movement, which led to the creation of continuous front lines extending for several thousand kilometers and embracing whole continents. The formation of such front lines demanded surmounting the frontal resistance of the enemy and realizing a breakthrough of his defense. In order to destroy the enemy and to advance, it became necessary to create a gap in his defense. Without accomplishing a breakthrough or creating a unique "window" in the continuous position front, it was impossible to ensure favorable conditions for subsequent maneuvering actions for the purpose of developing success in depth and toward the flanks.

In the First World War, the breakthrough became the most important and, at the same time, most difficult problem of the offensive. The insignificant firing range of basic artillery units and the low maneuverability of cannon on the battlefield, the sparsity and imperfection of tanks and ineffective combat capabilities of aviation, along with other factors, led to the fact that breakthrough (in most cases) was executed by the method of consecutive "gnawing" of positions and defense perimeters, and it attenuated at one depth or another. The depth of troop advance was mainly determined by the actual firing range of the artillery, after which it was necessary to conduct new artillery preparations and to introduce new forces into battle.

The character of the offensive during the civil war, 1918-1920, was different. Offensive actions of the Red Army were distinguished by great maneuverability and decisiveness. This was explained mainly by the political conditions of the fighting and the uniqueness of the operational situation. Under conditions of an absence of a continuous front and the great rapidity of development of combat events, at the basis of offensive actions there lay the effort to accomplish great envelopments, to dismember the enemy's grouping and to encircle him, which were not observed at all in the First World War.

Soviet military thought in the 30's, estimating the character of armed combat, having changed in connection with the rapid development of armored technology and aviation and also with the appearance of mechanized and paratroop forces, developed the theory of deep offensive operation and deep combat (Fig. 22), in accordance with which the entire depth of the enemy defense was subjected to its influence. The success attained was developed in depth by mobile troops. The basic positions of this theory found their implementation in Soviet Army offensive operations and battles in the Great Patriotic war (AK II).

In the course of the Great Patriotic war, the theory and practice of the preparation and conducting of an offensive obtained further development. Soviet military art successfully solved the problem of breakthrough not only of the tactical but also of the entire operational depth of the enemy's defense by means of continuous buildup of fire efforts and the introduction into battle of the tank and mechanized formations from a depth. On the operational scale, breakthrough began to be executed, as a rule, simultaneously in a number of directions. Transition to the offensive usually started after a comparatively brief artillery and aircraft preparation for attack. Swiftens of breakthrough and a high advance rate of advancing troops were attained by inflicting sudden blows, in the beginning on a narrow front, with subsequent expansion of the breakthrough towards one or both flanks, and with development of success in depth.

At the same time, offensive combat in the period of this war was not limited only to breakthrough. In spite of the importance of its value and the complexity of fulfillment, breakthrough occupied only a small part of the time in offensive operations (from one tenth to one seventh of the total duration of the operation).

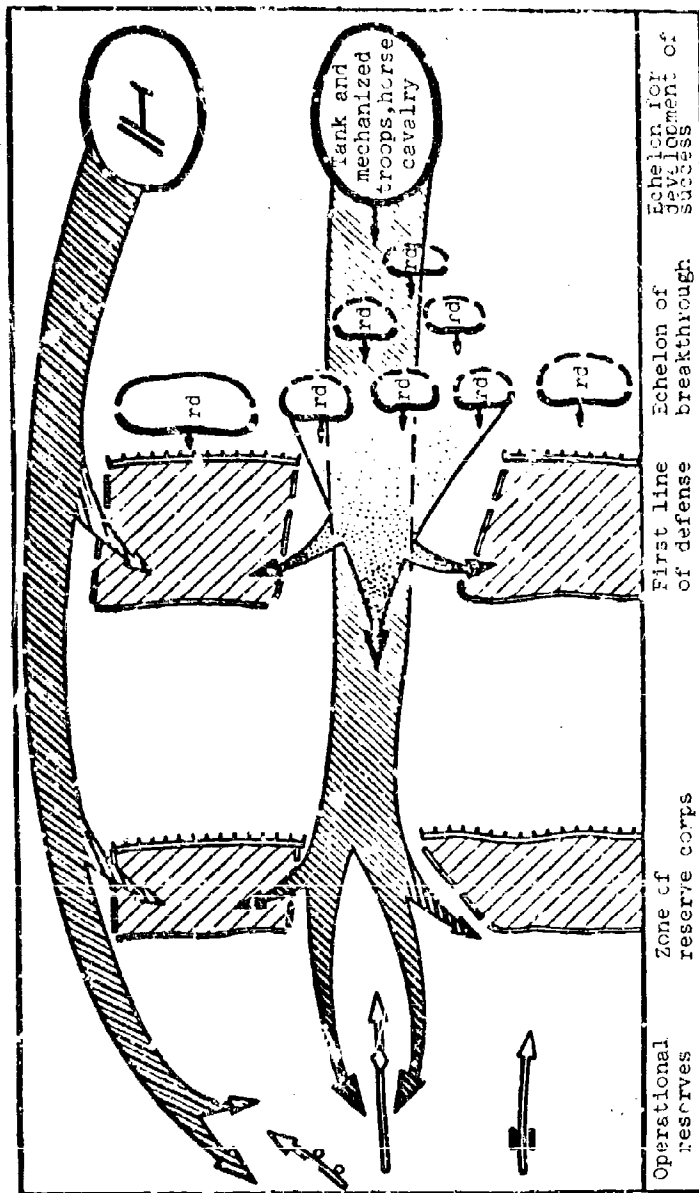


Fig. 22. Diagram of a deep offensive operation (according to prewar views). [rd = rifle division].

and had, moreover, a constant tendency toward the reduction of the time of its execution. After breakthrough, the advancing troops began a decisive pursuit of the enemy, fought violent battles with his advanced reserves, crossed various water barriers, surrounded and destroyed the enemy forces, and conducted other operations. In the course of these actions the advancing troops executed their maneuver more widely (than during breakthrough) and swiftly shifted their combat efforts to the depth of the enemy's defense or to other directions.

In the course of the war a tendency distinctly appeared to increase the rate of advance and depth of combat problems of the advancing troops. This can be seen from the data in Table 2, characterizing the development of tactics of offensive combat of a division during this war.

Table 2. Average Indices Characterizing the Development of Tactics of Offensive Combat of Rifle Division During the Great Patriotic War

	1941	1942	1943	1944	1945
Width of the offensive zone, in km.....	3-5	3-4	2-4	1.5-2	1.5-2
Depth of the combat mission, in km:					
immediate.....	1.5-2.5	2-3	2-4	3-5	3-5
subsequent.....	3-4	4-6	5-7	5-7	6-8
missions of the day.....	-	-	-	10-12	12-18
Density of forces and resources on 1 km of the front:					
infantry (rifle battalion - rb).....	1.5-2	2-3	3-4	3.5-4.5	3.5-5
artillery (cannons and mortars).....	10-15	20-60	80-150	180-200	200-250
tanks.....	5-7	10-15	15-20	15-25	20-30
Ratio of forces in sections of breakthrough (our troops:the enemy):					
infantry (rb, infantry battalion - ib).....	1.5:1	2.5:1	3:1	3-4:1	3-5:1
artillery.....	1-1.5:1	1.5-2:1	4-6:1	5-8:1	6-10:1
tanks.....	0.6-1.5:1	1.5:1	2-3:1	3-4:1	4.5-5:1

However, throughout this war, the influence of firepower nevertheless remained insufficient to reliably destroy the enemy defense throughout its depth. Attempting to replenish the insufficient capabilities of firepower, the advancing troops were forced to concentrate a large amount of firepower, troops, and combat materiel in narrow zones. To increase the force of a blow it became necessary to concentrate very large, compact troop formations. And despite the fact that the breakthrough of enemy defenses began to be executed in shorter periods than before and the action of troops at this point became more maneuverable, the well-known methodical and measured quality of offensive development was maintained. The deeply echeloned enemy defense was most frequently surmounted by troops seizing consecutively his positions and zones, more or less evenly advancing in a continuous front.

The appearance and rapid development of nuclear weaponry and the further improvement of all other combat resources have caused deep changes in the character of offensive combat and in the forms and methods of its conduct. Having powerful means of destruction, an enemy is now able, in short periods, to inflict decisive defeat on troop concentrations of his opponent, to destroy any fortifications and the most well-built defensive constructions, and to sharply and quickly change the ratio of forces.

The main purpose of offensive combat is the complete destruction of a defending enemy, and will now be achieved, first of all, by strikes of nuclear weapons and firepower of other means of destruction, and by the growing (in force) swift actions of the motorized infantry and tank troops coordinating with aviation and with paratroop drops. During the offensive the enemy combat means are destroyed (in the first place, his means of nuclear attack), and in a short period great losses are inflicted on his troops and defensive constructions, and other important objects are destroyed.

The offensive will now be conducted on an absolutely new material basis, with other combat means, by qualitatively different troops, and in more complicated situation conditions. Besides the nuclear weapon, the character of a contemporary offensive will also be influenced by a change in the character of the enemy's defense, the absence of a continuous front, complete mechanization of the forces, an increase of their shock force and firepower, and, as a result of this, the capability to solve pressing problems and to conduct an offensive at a high rate and on a wider front than previously.

The use of new, more powerful and more destructive firepower first of all influences the decisiveness of an offensive. The use of nuclear weapons opens (in this sense) especially broad possibilities for an attacker: conditions are created for rapid and reliable defeat of defenses on a wide front and, simultaneously, at great depth. An attacker is able, in short periods, to achieve destruction of large troop concentrations of his opponent, even in the absence of a numerical superiority over the latter.

The use of new combat means unconditionally increases the capabilities of an attacker. However, we must not forget that the defending side will also use nuclear weapons. The offensive will now be resisted by a qualitatively different defense, based on the force of contemporary firepower and broad maneuver. Advancing troops will be under the constant threat of nuclear attack by the enemy. All this creates extraordinarily complicated combat conditions. There are reasons to believe that now, even more than before, the intensity of combat will be increased.

The dynamic character of contemporary combat, the rapid transfer of combat forces to the depth of a hostile defense, the swift and high rate of troop advance using the results of a blow by firepower, cause a further increase in the spatial sweep of an offensive. This signifies that the tendency, distinctly appearing (in past wars), toward a growth in the rate of the offensive and depth of troop combat missions will now take on further development. To this will be added an increase in the width of the lines of advancing troops.

One of the important tendencies in the development of offensive combat in the past was the continuously increasing role of firepower in battle. The continuous and persistent struggle for conquest and retention of firepower superiority over the enemy was the most important and indispensable condition of achieving success in an offensive both in the First, and especially the Second, World Wars. Now the force of firepower has increased immeasurably, and its power and range has been repeatedly increased. Under these conditions the struggle for firepower superiority over an enemy becomes even more important, and, at the same time, the content of this struggle is changed. Of central importance in the course of conducting combat operations will be the destruction of the means of nuclear attack and maximum weakening of the nuclear power of the defending side, realized by preventing the enemy from inflicting nuclear or other blows. In connection with this, in order to keep the initiative and be able to influence the development of events in a desirable direction, it is constantly necessary to hold the defender under continuous fire throughout the entire depth of his combat formation.

The use of new combat means, full troop motorization, and the absence of a continuous front impart to contemporary offensive combat a highly maneuverable nature. In the past, possibilities for maneuvering operations in an offensive were not revealed immediately. In the beginning the advancing troops were forced to break through the enemy defenses, and only after that did they obtain favorable possibilities for conducting maneuvering operations. Because of this, the whole process of an offensive was subdivided into two phases — breakthrough and troop action in depth — and in each of them the nature and conditions of conducting combat operations were different.



The use of nuclear weapons erases these distinctions. For maneuver the widest space is now opened in the course of the whole offensive. The contemporary offensive can no longer be imagined as a consecutive, methodical battle of troops for defensive boundaries and positions. It takes on an exclusively maneuvering and dynamic character; it will be conducted simultaneously in a number of directions and at different depths and will consist of the most highly varied and rapidly changing forms and methods of combat operations.

In contrast to the past, when an offensive was conducted on a continuous front with direct close contact not only of subunits and units, but also of [larger] formations, the offensive in a contemporary war will be conducted on a wide front in separate directions. We must note that the rudiments of such an offensive appeared even during the last war. However, at that time an offensive in various directions was conducted only during action in the depth of the enemy defenses. Now actions in various directions can be executed throughout the entire offensive, both during breakthrough and in the course of its development. Such a character of the offensive arises first of all, from the use of nuclear weapons. Operations with dense, compact troop groupings have now become not only dangerous but also unnecessary. Advancing troops can now, by inflicting nuclear strikes, make a breach in the defenses on a wide front and can surmount them simultaneously in a number of directions with subunits and units which possess combat independence.

Operations in various directions give the troops a number of advantages. These actions enable the troops to change rapidly the direction of the strikes, to carry out flexible and bold maneuvers, inflicting sudden thrusts from different directions, to bypass unsuppressed resistance centers, areas of destruction and contamination, and barriers, and to transfer forces rapidly deep into enemy territory. Directions for the offensive are selected so that they lead out to the most vulnerable places of the enemy's defense and ensure close troop fire coordination. Operations in various directions do not mean, of course, that now the whole process of an offensive will be broken up into unconnected operations which are isolated and separated in a tactical sense. On the contrary, the absence of direct close contact between advancing subunits requires of the commanders the most thorough coordination of their combat efforts and an especially flexible control over the troops during combat.

A new factor having great influence on the nature of an offensive under conditions of the application of nuclear weapons will be the radioactive contamination of the area and air. In the course of an offensive, leading now into great depths, the troops will have to surmount not only separate areas of contamination, but in a number of cases will for a long time have to conduct combat operations on terrain contaminated by radioactive and poisonous substances. This will complicate the offensive and will make it necessary to take special measures to protect subunits from radioactive and poisonous substances. In connection with this, under conditions of contemporary combat it is impossible to make a single correct decision without considering the radiation situation.

The nature of contemporary offensive combat is influenced also by changes in the tactics of defensive combat. While in past wars an offensive was conducted against a defense dominated by linear-position forms directed towards repelling an enemy offensive, contemporary defense is no longer limited to passive, waiting measures, but pursues decisive goals - to disrupt the enemy offensive, to inflict on him a defeat which would force him to retreat from his offensive. The chief role in achieving this goal is assigned to nuclear weapons.

In the armies of the aggressive NATO block, considerable attention is given to the so-called defensive-offensive concepts. In accordance with this concept, the defender attempts to achieve his own goals not by persistent troop resistance at the positions, but by inflicting nuclear and other strikes in previously prepared regions, by broad and flexible troop maneuvers, and by carrying out heavy counter-attacks in depth to complete the destruction of the enemy. The high mobility of troop actions, combined with a skillful use of tactically useful site boundaries and deception of the enemy by the defender, should neutralize the advantage of the advancing side, which has the initiative of operations.

In the most important directions there is assumed creation of a defense in depth consisting of a number of defensive lines located at different distances

from one another. Usually such a defense does not have clearly expressed rectilinear positions and zones but consists mainly of support points and separate units of resistance, intercepting the most important directions of a possible enemy offensive.

One of the basic forms of defense enjoying wide use in foreign armies in postwar time is the mobile defense. Its essence is that the defender attempts, with relatively small forces, to immobilize the main grouping of advancing troops, to force them to fall into unfavorable conditions, to draw them into the fire pocket, and to inflict defeat on them by nuclear strikes and firepower, and then to complete the destruction by heavy counterattacks. In conformity with this a system of engineering structures is constructed, and firepower and maneuvering in defense are planned. By the entire system of these measures, conditions are created for an enemy which will force him to concentrate large forces in narrow areas.

In certain directions it is considered possible to use position defense (defense of a region). Its purpose is to durably hold the boundaries occupied, not allowing the advance of enemy troops. Theoreticians of the West German Bundeswehr prefer position defense, consisting of deeply echeloned positions and zones, but here they stress the necessity of wide dispersion of battle formations of subunits and the full use of firepower when conducting defensive combat.

With a wide range of views on the theory of defensive combat, it is possible to reveal certain general characteristic traits of contemporary defense. In connection with increased firepower, the decisiveness of defense goals increases, and the role of maneuvering and activity is increased. Battle formations of troops are even more dispersed along the front and in depth.

The basis of any defense is nuclear strikes. The presence of a large quantity of engineering materiel with the defender permits him in a short time to create a durable defense, even on previously unprepared boundaries. Therefore, if in the past it made sense to depend upon the preparedness of an enemy's defense and especially on the degree of his engineering equipment to differentiate the methods of an offensive on a prepared and on a hastily occupied defense, then under contemporary conditions such a division loses its meaning. The offensive must, in all cases, be thoroughly prepared. Units and subunits must always rely on the fact that they will have to overcome a powerful defense, even if the enemy has very little time for his preparation.

Under conditions when the front of combat actions is not continuous, the defense is of a local character and has great intervals; as a result of inflicting powerful nuclear strikes on it, inevitably enormous breaches and gaps are formed, and it can be expected that the offensive, from the very beginning, will be in the form of a swift advance of troops on a wide front and to a great depth. The basis of offensive combat will constitute maneuvering actions in all their diversity as a complex of rapidly changing, different methods of combat actions. Swift and deep envelopments and the bypassing of the defending troops will be combined with decisive and fleeting encounters with advanced enemy reserves, and march movements will be combined with occasional and brief deployment of separate troop groupings to destroy surviving centers of resistance. And, as a whole, these will be swift and dynamic actions, developing on a wide front, in separate directions, and being conducted at a high rate.

What has been said does not mean that a breakthrough as a form of the offensive will disappear. The necessity of carrying out the breakthrough can appear under the most diverse situation conditions, and especially in those directions where the enemy can create a deeply echeloned defense which will not always be possible to bypass or overcome in the available intervals. Not in all directions is it possible also to suppress it by firepower to such a degree that it would be possible to start the offensive immediately with maneuvering actions. The use of even very powerful and destructive firepower does not give reason to calculate an easy success. One should not forget that the enemy has firepower which is just as effective.

The breakthrough under contemporary conditions has new qualities. While in the past the breakthrough consisted of creating a narrow breach in the enemy defense and was carried out by troops acting in dense concentrations with adjacent flanks by the method of systematic consecutive capture of enemy defensive positions,

then now the new firepower and complete mechanization of troops are changing the character of the breakthrough and the methods of its accomplishment. A breakthrough of defenses is now achieved in short periods by nuclear weapon strikes and by fire from conventional weapons, which ensures a swift and rapid advance of motorized infantry and tank subunits in depth of the defense. If the goal of contemporary breakthrough as before consists of creating conditions for maneuvering and swift troop actions in depth, then this absolutely does not mean that the breakthrough takes the form of rectilinear and frontal troop advances with frontal attacks. Development of the breakthrough cannot be shown now as a uniform, methodical advance of troops. During breakthrough, subunits inflict not only frontal blows, but they also widely use bypasses, envelopments, penetrate to the rear of the defending enemy, and attack him from various directions, skillfully combining combat and approach march formations.

#### Methods of Troop Transfer to the Offensive

According to the development of combat means, the increase in firepower and maneuvering capabilities of troops, and also the change in character of the enemy defense, methods of troop transfer in an offensive have continuously improved and been developed. In the past, including the last war, a breakthrough of the enemy defense was usually carried out after prolonged preparation from a position occupied in direct contact with him. The essence of this method was that ahead of time (usually for three or four nights) the troops secretly occupied an initial position, replacing units which had previously defended here, and then after powerful artillery and aviation bombardment, the troops attacked. The entire preparation of the offensive was usually conducted in direct proximity to the first line of enemy defense: the commanders and staff, in organizing the battle, conducted reconnaissance, assigned combat problems to the troops on the spot and organized their coordination; formations and smaller units, in the guise of strengthening the defense, jointly with the defending troops prepared attack positions, stored material supplies, and prepared the way for the maneuver.

The necessity for such a method of the offensive was predetermined by a number of objective factors, first of all, by the insufficiently great firepower of the combat means existing at that time. Only by concentrating huge masses of destructive resources (up to 200-250 cannons and 20-30 tanks on 1 km of front at sections of the breakthrough) could the advancing troops achieve reliable destruction of defenses and ensure a successful attack. Another cause was low troop mobility. Moving basically on foot, rifle troops could not be advanced in good time from the rear and begin the attack on the run, directly after a fire attack. They were forced beforehand to concentrate and occupy an initial position for the offensive.

This tactic also required defense suppression by firepower. No matter how great the fire of the concentrated artillery was, it nevertheless appeared to be insufficient for a complete defeat of defense objects, even on the main line of resistance. The bringing in of the firepower of the advancing infantry - antitank guns, mortars, machine guns, and even small arms - increased and strengthened this attack and also ensured the continuity of firepower's influence on the enemy, especially with the beginning of the launch of the assault.

A relatively safe concentration of large masses of troops in limited (by dimensions) sectors of the front and their rather prolonged stay in direct proximity to the enemy were possible because the defending side did not have a sufficiently effective means of reconnaissance. In those cases when preparation of the offensive became for the enemy an evident fact, the counterpreparation which he conducted did not lead to a loss of combat readiness of the assault force and especially to a breakdown of the offensive. This did not signify, however, that the advancing side could painlessly disregard surprise and solve the problem of breakthrough only by increasing the striking means. On the contrary, combat experience showed that the success of an offensive was directly dependent on the secrecy of its preparation and the achievement of surprise.

In 1915-1917, the French and English, turning their main attention to concentrating a large number of troops and firepower on areas of a breakthrough, disregarded surprise and planned to destroy hostile defenses by artillery fire and strikes of the infantry. In connection with this, all the preparations for the offensive were

conducted openly, the artillery preparation lasted for a few days, and they equipped initial bridgeheads for location of the infantry before the attack without any measures of secrecy. As a result, the Germans, having discovered the place of breakthrough, rapidly took corresponding counteraction measures, and the superiority created by the enemy of forces and means was unrealized.

Having been convinced by their bitter experience of the great value of surprise, the English and French in 1918 extensively began using camouflage of all forms, reduced the duration of artillery bombardment to 4 or 5 hours, and in certain operations began their attack even without it, relying only on infantry support by tanks and artillery fire during the fight.

The role of surprise increased even more in the Second World War. The defenders, having large forces of artillery and aviation, were able to inflict heavy fire blows on the enemy even before his turn to the offensive. In connection with this, the measures undertaken to prevent a breakdown of the offensive and achieving surprise took on even greater importance.

During the Great Patriotic war, troops of the Soviet Army very often started their offensive by surprise. This was achieved by maximum reduction of preparation periods for the offensive and by the use of different methods to mislead the enemy. Much attention, in particular, was allotted to combatting enemy intelligence and to secret preparation of attack position. In spite of this the advancing troops did not always achieve complete tactical surprise. For various reasons the enemy often discovered the preparation for the offensive and took measures to strengthen his defenses and break down the attack. Therefore, during the war, along with measures taken to strengthen camouflage, various methods of concentrating main attack forces were persistently searched for which would allow reducing to a minimum the time of the troops' stay at the attack position.

Under conditions of using nuclear weapons a prolonged stay of troops at a short distance from the forward edge of the enemy defense has become extremely risky, especially as the means of intelligence are better than before.

As a result of searching for the solution to this important problem, in many armies of the world there has appeared a concept regarding the possibility of transition to the offensive from the march, with the advancement of subunits from depth (Fig. 23).

In principle, the idea of transition to the offensive from the march is not new. In the Soviet Army regulations, the possibility of such a method of transition to the offensive was indicated even in the 30's, and during the Great Patriotic war attack from the march found rather wide use, especially in tank and mechanized units. But such an attack was carried out only when overcoming the defense the enemy occupied hastily in the course of combat actions, who had a weakly developed firing system and insufficiently complete engineering equipment, when the advancing troops were not required to concentrate all their artillery firepower for its suppression.

In contemporary conditions the transition to the offensive from the march becomes possible with a breakthrough of defensive positions not only occupied by defending troops in the course of conducting combat actions, but also previously prepared, and well equipped in an engineering sense. In both cases the inflicting of powerful nuclear and conventional blows enables one to achieve a breach in the defense, to undermine its stability in a brief period, and to create favorable conditions for a swift attack. Consequently, the sharply increasing firepower of troops, first of all, the use of nuclear weapons, is the main factor which ensures the possibility of using this new method of transition to the offensive. The second most important prerequisite for an offensive from the march is the complete mechanization of the troops. By moving in high-speed armored vehicles of great passability, motorized rifle subunits can now execute rapid movements and swift maneuvers, using the results to defeat the enemy by firepower. The presence of these qualitative changes in the material basis of combat results in the fact that an offensive from the march will become, in all probability, a predominant method in a nuclear war.

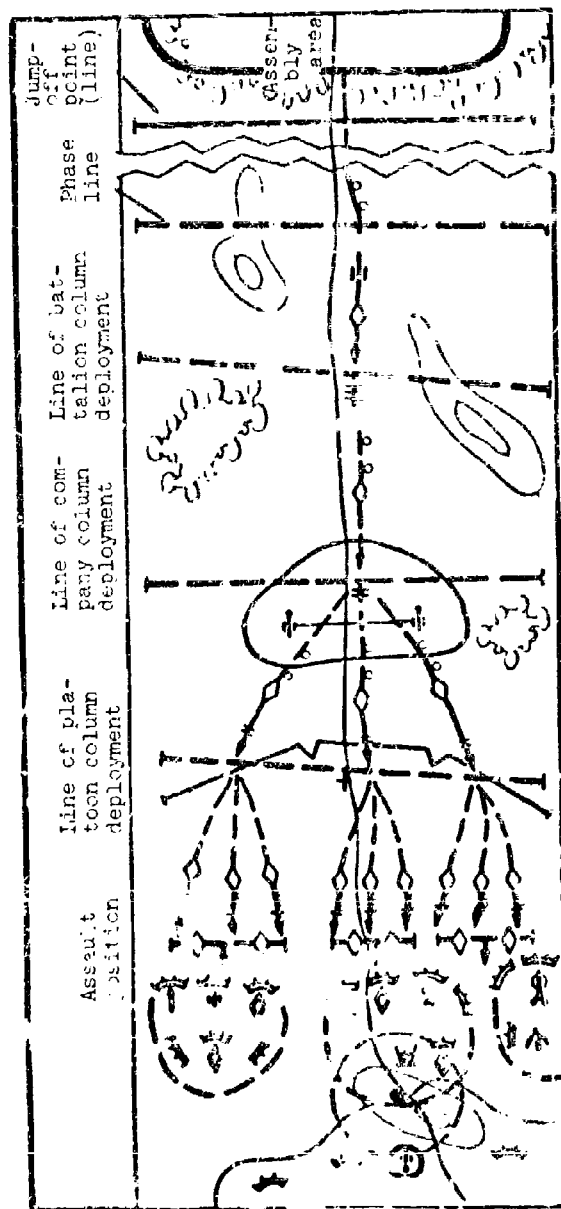


Fig. 23. Transition to the offensive from the march, with advance from depth (from the assembly area).

The transition to an offensive from the march, as is noted in the foreign press, affords maximum security to troops during the period of preparation for the offensive, permits excluding their prolonged stay in the sphere of influence of the most numerous and dangerous grouping of enemy firepower, and, at the same time, permits creating favorable conditions for achieving surprise. For this the advancing side calculates how to locate the main attack forces before transition to the offensive in order that they be in the rear as far as possible away from the chosen routes of operations, be located in a dispersed manner in concealments and at a distance from the main line of resistance which would ensure their safety from the thrusts of the first wave of tactical enemy nuclear weapons, and which would ensure that the advancement of subunits would require a minimum of time. The defenders in this case would find it difficult to conduct reconnaissance and to reveal the direction of the intended strikes.

Inasmuch as when advancing from the depth there is no need for time-consuming and very complicated preparation of the attack positions for direct contact with the enemy, it is possible to reduce (to a maximum degree) the preparation period of the offensive. This in turn promotes the achievement of secrecy in conducting preparatory measures. A great advantage of an offensive from the march is also the possibility of the rapid transfer of combat forces to new directions, if the situation at the portion of the front intended for attack becomes suddenly complicated.

At the same time, realization of such an offensive will entail considerable difficulties. Physical and moral tension of the personnel increases, the consumption of fuel and other supplies when advancing the troops to the forward edge of the enemy defense is increased, and the difficulties in replenishing the supplies are increased. Moreover, the advancement of subunits can occur in a situation of mass destruction, in fire areas, and in radioactive area contamination. We do not exclude the fact that as a result of nuclear strikes, separate elements of the combat formation of the advancing troops will be put out of action even prior to the beginning of the attack. To ensure continuous advancement and simultaneous transition to the offensive, subunits under these conditions must have high mobility, the ability to suppress rapidly the consequences of nuclear attack, to overcome or to bypass swiftly areas of destruction and contaminated zones, to accomplish marches at the highest speed, to be rapidly deployed in battle (approach march) formation, and to begin the attack without delay. All this requires careful organization of the offensive, reliable suppression of the defense by firepower, timely destruction or blinding of the technical means of the enemy's reconnaissance, and the execution of a whole complex of measures undertaken to ensure the secrecy of advancement and deluding of the enemy. It is most advantageous to advance the subunit at night or under conditions of limited visibility.

An offensive from the march with advance from depth can be successfully carried out in the presence of a sufficiently well-developed network of roads or on accessible terrain, ensuring rapid advance of the subunits or the possibility of executing a flexible maneuver for the purpose of bypassing destroyed sites or replacing subunits which have sustained considerable losses from enemy fire. It is more complicated to organize such an offensive on terrain difficult to cross (in mountains, in a wooded-lake area) and also in winter. Under these conditions the offensive from the march can be conducted chiefly in the most accessible directions.

In order to ensure organization of advance and the achievement of simultaneity of attack, the subunits are usually shown routes of movement, the starting point, phase and deployment lines, the boundary of safe distance, and the assault position. Boundaries of subunit deployment in approach march formation are calculated to decrease the probability of their destruction by nuclear weapons of the enemy, and at the same time to ensure a high rate of movement and simultaneity of attack on the forward edge of defense. With the arrival of subunits into the firing range of the main group of artillery fire, the probability of their destruction is sharply increased. Before this moment, this group must be reliably suppressed.

The basic criterion of determining the deployment boundary of a battalion into company columns should be the firing range of nuclear cannons of the "Davy Crockett" type, antitank guided missiles, cannons and tanks, firing by direct laying, and mortars. On the average this is from 3 to 5 km. Consequently, with the arrival

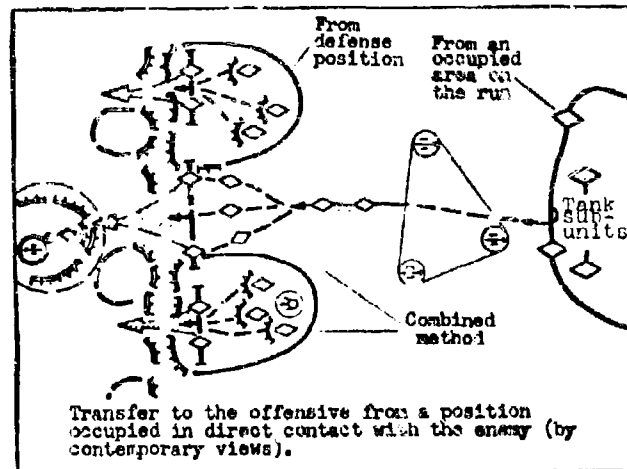
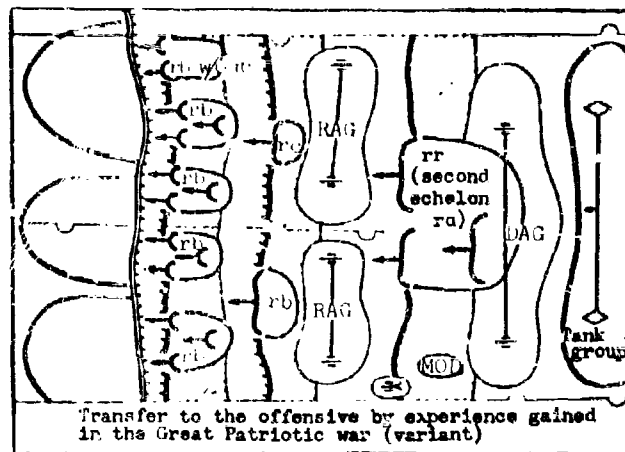


Fig. 24. Transfer to the offensive from a position occupied in direct contact with the enemy. [rb = rifle battalion; rr = rifle regiment; ra = rifle division; RAG = regimental artillery group; MOD = mobile obstacle detachment; DAG = division artillery group; rc = rifle company; rb w/o rc = rifle battalion less rifle company]

at this boundary battalions must assume the approach march formation. According to their approach to the main line of resistance, the companies and platoons are reconstructed into an approach march formation. The boundary of the safe distance zone is selected with the necessity to protect the advanced subunits from destruction by their own nuclear strikes.

The selection of an attack boundary is greatly influenced by terrain conditions, character of destruction of the enemy defenses, and also the method of attack. In all cases it is necessary that the assault position be designated as close as possible to the main line of resistance in order to decrease the time gap between the moments of inflicting a nuclear blow and the arrival of subunits at the areas of destruction. If the attack is carried out by armored carriers, then

this boundary can be selected somewhat further from the front, approximately at a distance of 800 to 1000 m. With an attack on foot the assault position should be brought as close as possible so that the attacking subunits are under enemy fire as little as possible, but in such a manner that the motorized rifle subunits are dismounted and deployed in a line behind the closest natural shelter (behind slopes of elevations, shrubs, etc.). In last case this boundary will often coincide with the forward edge of the defending troops. For tank subunits the attack boundary must be designated on a tank-accessible site.

The speed of deployment of subunits in battle (approach march) formation and the swiftness of their transfer into an attack in many respects depend on the formation accepted for advancement. For this purpose the means of reinforcement are expediently transferred with their subunits, and the tanks should be kept at the head of the column in order to execute deployment of motorized rifle subunits under their cover and to ensure a simultaneous attack on the enemy.

Along with the transfer of troops to the offensive from the march, there remains the possibility in contemporary conditions of a transfer from a position occupied in direct contact with the enemy (Fig. 24). Such a method can be used, for instance, in turning to the offensive after conducting a defense, with insufficient means of suppression and also with unfavorable terrain conditions. With this method of turning (transition) to an offensive, it is possible to study better the defenses of an enemy and the terrain, to organize coordination more clearly, and to ensure the simultaneity of attack.

However, the preparation of such an offensive under contemporary conditions is a difficult matter. A grouping of troops, concentrated for the offensive, will constantly be under the threat of an enemy nuclear attack, including that of his short range weapons. This requires skillful dispersion of troops, very short stay periods of subunits at the attack position, and its thorough preparation, as well as the execution of a whole complex of measures undertaken to delude the enemy and to achieve surprise.

The transfer of forces to the offensive from a defensive position can represent a partial regrouping, for example, for the purpose of drawing certain subunits from the rear, narrowing of zones, exploitation of the success of a neighboring unit, and so forth. Sometimes forces will be transferred to the offensive by combined means, i.e., on the main area - from the march, on a secondary area - from a position of direct proximity with the enemy. As a whole, the means of transfer to the offensive will be much more varied than earlier.

#### Troop Combat Missions

Determining combat missions, and, in accordance with this, the creation of the necessary grouping of forces and resources, is one of the important problems in organizing offensive combat. The combat mission is the initial basis which regulates combat operations; it is the basis of the organization of coordination and guarantee of a firm, continuous control over the troops. Execution of the combat mission is the main criterion in evaluating the actions of troops. Therefore, a correct determination of the content of the missions is of great importance.

When determining the content of combat missions each time in the concrete conditions of a situation, various factors are considered, especially the presence of nuclear weapons and the methods of their use, the nature of the enemy's defense, and the methods applicable to it of conducting a battle, the composition of one's own forces and means, and the combat ability of advancing subunits, terrain conditions, weather conditions, and others.

The basic content of troop combat missions in an offensive battle is the destruction of the enemy in the indicated zone or in the direction of operations and the capture of a certain boundary (area) or object. The enemy, his personnel, firepower, combat materiel, and especially his means of nuclear attack are first priority objects of actions of the advancing troops. Only with the destruction (or capture) of personnel, or the capture or destruction of his combat means, are conditions created for the achievement of victory. But the enemy must be in



the area. Every enemy troop grouping is located at a certain location; therefore, in the course of destroying the enemy, advancing troops simultaneously seize areas of the territory. Destruction of the enemy and capture of his territory compose a single, interconnected process which cannot be divided.

Conditions of the terrain affect the content of combat missions differently. They can facilitate or, on the contrary, they can complicate their execution. An especially important role is played by the capture of such tactically important, key objects and areas of a locality as road crossings, commanding heights, and mountain passes. With their loss the defending side is deprived of many advantages: maneuvers are sharply hindered, and more difficult conditions are created for organizing a firing plan, for carrying out counterattacks, and for supporting various coordination actions. Therefore, in determining the combat problem, the subunits must consider which objects of enemy territory must first be taken in order to disrupt the stability of the enemy's defense.

The execution of a combat mission is regulated by a definite time. It is possible to destroy completely an enemy troop grouping and capture the boundaries outlined, and yet not fulfill the combat mission, if it is done in an untimely manner with a delay. The execution time of any mission is calculated each time proceeding from concrete conditions of the tactical situation: the degree of expected enemy resistance, especially his capability to use nuclear weapons and maneuvers, the combat readiness of advancing troops and the expected rate of advance, and the nature of the terrain and weather. In all cases it is important to assure that destruction of the enemy is executed in the shortest time possible. The enemy must not be able to rally from blows inflicted on him. It is necessary to attempt, by all means, to keep him from accomplishing a countermovement, from strengthening his defenses, and from withdrawing his troops from under the nuclear strikes. Only under this condition will the advancing troops succeed rapidly and with minimum losses in executing their combat mission.

The importance of the time factor in contemporary conditions is ever increasing. This is connected with the power and high-speed operation of existing combat means, the high level of technical equipment available to troops, and their ability to accomplish a rapid maneuver. Proceeding from this, in contemporary combat, gaining time means winning the battle.

Calculation of the time necessary to fulfill a mission must be (as far as possible) exact, and at the same time, practical. Accuracy of the calculation is necessary for clearly posing combat missions and organizing coordinated action. The more accurate the calculation, the fewer will be the corrective actions needed for organization of the battle. The reality of the time calculation is based on a profound and thorough appraisal of the combat capabilities of one's own troops and those of the enemy and on accurate knowledge of the technical norms of the combat application of firepower.

Thus, determining a combat mission in an offensive means to establish what enemy troop grouping should be destroyed and in what sequence, and what boundary or area to seize and in what time period.

Historical experience shows that the substance of combat missions of troops in an offensive is directly dependent on their combat capabilities, morale, quantity and quality of available technical combat means, the nature of the enemy defense, and several other circumstances. In proportion to the increase in quantity and the improvement of combat means, firepower, maneuverability, and the shock force of troops have increased; and in accordance with this the depth of combat missions of formations and smaller units has increased.

Thus, for instance, in the battle near Moscow, (December, 1941), when combat capabilities of rifle divisions were comparatively limited, the average depth of their combat missions did not exceed 3-4 km and their execution often required not one, but two days. In the offensive operations of 1943, when in the divisions the quantity of authorized fire weapons was increased and their quality was improved, when they began to receive as reinforcement more artillery and tanks, the depth of their combat missions was increased approximately by one and a half to two times. But an especially sharp increase in the depth of missions occurred

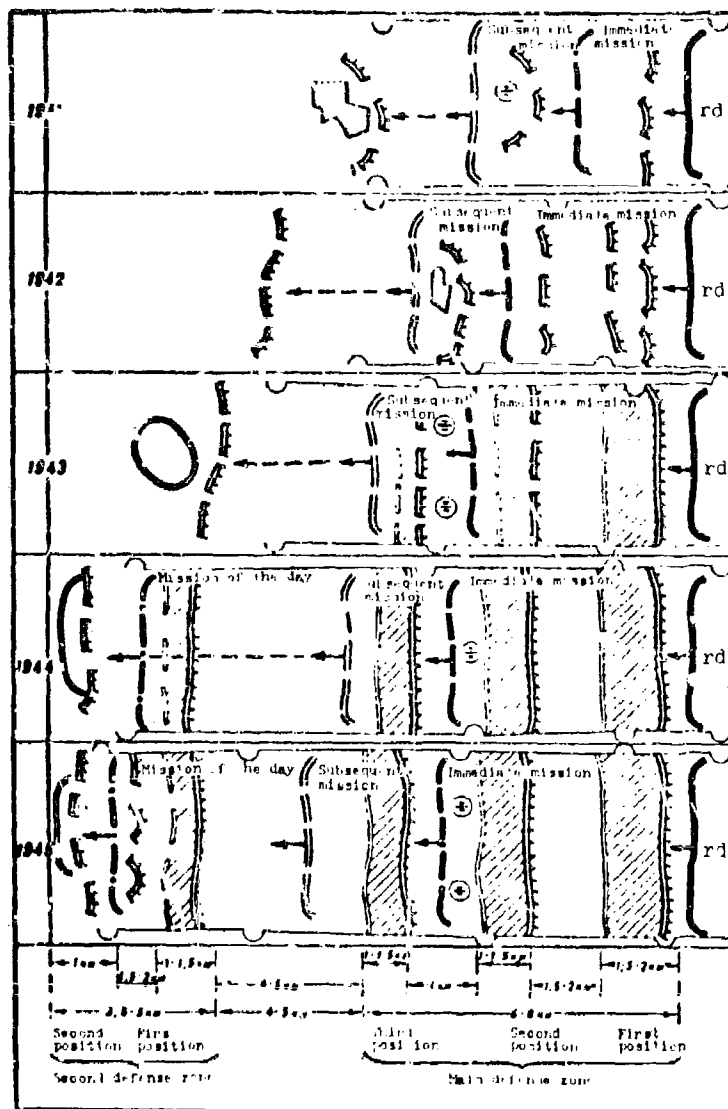


Fig. 25. Increase of depth of combat missions of a rifle division according to experience gained in the Great Patriotic war. [rd = rifle division].

in the operations of 1944 and in the final stages of the war. The combat mission of divisions in this period began to be established in depths of up to 12 to 15 km, and sometimes even from 16 to 18 km (Fig. 25).

Another important factor considerably affecting the substance of combat missions in offensive combat is the character of the enemy defense. In the course of the last war, the evolution of the defense of the German-fascist troops

proceeded along a line of transition from a shallow, local defense to the creation of continuous positions consisting of a system of trenches which were usually developed at great depth. In accordance with this the depth of combat missions of the advancing troops changed. Before 1944-1945, the tactical zone of the enemy defense had a depth of up to 13-18 km and consisted of two defensive zones. The first zone, considered the main zone, was the most thoroughly equipped. It consisted of two or three positions, each with a depth of 1.5-2 km. In the positions having continuous trenches, on elevations, and in inhabited localities, strong points and centers of resistance were created, and different barriers were widely used.

Under these conditions the immediate mission of the division consisted of a breakthrough of the first enemy defense position and in the most important directions, in an outlet into the area of the main artillery positions; the subsequent mission was to achieve a breakthrough in the whole main zone. Toward the end of the war, in connection with even greater increased combat capabilities of the troops, it was necessary to determine the mission of the day for rifle formations. For a division the mission of the day was determined (in this period) usually at a depth of 12-15 km, and sometimes even 16-18 km, and included capturing sectors in the second zone.

The basis for dividing a combat mission into a number of consecutively accomplished missions consisted of the following requirements:

- a) the possibility of destroying a definite unit of the enemy combat formation;
- b) the possibility of accomplishing each mission in a single strategic concentration and with one system of the organization of coordinated action;
- c) conformity of mission depth to the tactical-technical data of armament and combat capabilities of formations.

If we were to compare the evolution of tactics of defensive combat of the enemy and the change in content of combat missions of advancing troops, then we can note that they were developed in a close interrelationship. In the course of combat actions a unique competition was observed between the force of the defense, its ability to resist the growing force of attack of the advancing troops, and the capabilities of the side conducting the offensive in overcoming the deeply echeloned positions at a high rate. Being approximately equal in the amount of firepower, the advancing troops tried to solve this problem mainly by the skillful massing of forces and means and by creating a quantitative superiority over the defending enemy at the breakthrough areas.

Requirements of operational skill placed on tactics also influenced the substance of combat missions of large units. Operational skill, proceeding from the continuous growth of firepower, shock power, and mobility of troops, and considering the ever increasing depth and force of the defense, tactics was confronted with ever more complicated problems. To ensure the success of an operation, the rapid breakthrough of the tactical defense zone became especially important. This was important to achieve on the first day of the operation; otherwise the enemy, by using the pause, during the night could accomplish a rapid maneuver and suppress the established breach. By not having completed a breakthrough of tactical depth, on the second day the advancing troops had to organize the breakthrough again. The mission of accomplishing the breakthrough of the tactical defense zone was given to the rifle corps. Their success was developed by a mobile group of the army or a front which was introduced into the breakthrough, as a rule, on the second day of the operation. The increased possibilities of tactics and the skillful massing of forces and means at breakthrough areas promoted the realization of these goals. However, not in all operations, including even the final stage of the war, were the troops able to accomplish this mission. As a result there appeared a definite nonconformity between the requirements of operational skill and the possibilities of tactics which sometimes led to a premature introduction into battle of mobile forces and operational reserves.

An especially large break in this link was observed in the German-fascist army. By overestimating their own forces and underestimating the enemy forces,

the operational leadership of Hitler's army in a number of cases placed obviously impracticable missions before tactics. This led to a rapid exhaustion of troops, and the personnel of divisions and smaller units quickly lost faith in their own forces, and the authority of the orders was undermined. As a result, all this led to losses of battles.

In contemporary conditions, as a result of the appearance of qualitatively new weapons and the great mechanization and motorization of the army, combat and maneuvering capabilities of the troops, the force of their blows, and their firepower have all increased immeasurably. Under the influence of new combat means, in the development of the organizational structure of troops there are especially distinct tendencies such as the increase in tactical independence, mobility, and increase in shock power. As the Minister of Defense of the USSR noted in his speech at the XXII Congress of the CPSU, the fire volley of a contemporary motorized rifle division, even without considering the rocket weapons, has increased more than four times. Technical equipment of the troops has also increased. While before rifle forces did not have tanks authorized in their units, now there are as many tanks in a motorized rifle division as there were in the tank and mechanized corps during the last war.<sup>1</sup> Having great maneuverability, great shock force, and firepower, the troops are able to conduct independent actions at a considerable depth, not infrequently apart from the main forces, acting in various directions. But nuclear weapons have an especially great influence on the increase of troop combat capabilities. To suppress a battalion center of resistance it was formerly necessary to expend several thousand artillery ammunition rounds and to create great densities of artillery; now this problem has been solved more successfully and reliably by the use of a single nuclear round of corresponding power.

This, the combination of nuclear power and the increasing level of troop motorization and mechanization creates the prerequisite for a sharp increase in the advance rate of troops and an increase in the depth of their combat missions. Contemporary motorized rifle troops, moving on armored vehicles, can "...after nuclear strikes an offensive is developed at a rate which exceeds two or more times the rate of the offensive of tank units in the last operations of the Great Patriotic war."<sup>2</sup> This means that during a day of battle they can not only accomplish a breakthrough of the tactical zone of the enemy defense, but also advance to enemy locations at a considerably greater depth than was done during the years of the Great Patriotic war. But in order to break the will of the counterattacking enemy, exceptional tenacity will be required of all personnel, as well as maximum stress of moral and physical forces and the manifestation of initiative and courage. The conqueror in a nuclear war will be the one who has the stronger moral fibre, the better combat training, and complete mastery of the art of conquest.

The main problem of the contemporary offensive now is to ensure the possibility of the rapid transfer of combat forces to the depths of enemy defenses, in order to use more fully the power of inflicted nuclear and conventional fire strikes and at the same time not to let the defenders use effectively their own firepower, primarily nuclear weapons.

The principles distinctly appearing during the last war which expressed the dependence of the substance of combat missions on the nature and power of available means of destruction and the capabilities of a defending enemy, preserve completely their meaning under contemporary conditions. However, along with this there is the need for a principally different approach to the solution of certain problems.

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<sup>1</sup>See the Speech of Marshal of the Soviet Union N. Ya. Malinovsky at the XXII Congress of the CPSU. XXII s'yezd Kommunisticheskoy partii Sovetskogo Soyuza (XXII Congress of Communist Party of the Soviet Union) (stenographic account). Moscow, 1961.

<sup>2</sup>Yadernyy vek i voyna (Nuclear century and war), Moscow, izd-vo "Izvestiya", 1964, 47.

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<sup>2</sup>Yadernyy vek i voyna (Nuclear century and war), Moscow, izd-vo "Izvestiya," 1964, 47.

While in the past, the basic criterion for accomplishing a combat mission was the destruction of some enemy troop grouping and the seizing of his defensive positions, the present offensive mission cannot be considered accomplished unless there is also destroyed the concentration of the enemy's means of nuclear attack, the component of the basic framework of defense. This does not mean, of course, that capture of other defense objects is no longer of importance. In order to move into areas of the location of enemy nuclear attack means, it is necessary to overcome his defensive positions. Therefore, the object of immediate actions of advancing troops as before will be the resisting defensive troop grouping located at the positions. This is even more important in that with the destruction of this grouping a definite part of the tactical means of nuclear attack will be destroyed. But the accomplishment of a combat mission of troops in an offensive should not be limited to this. On the contrary, realization of a breakthrough in the defense will actually mean only the beginning of actions in whose course the necessary prerequisites must be created to penetrate into the depth of the enemy location and to provide conditions for maneuvering actions and swift development of the offensive at a high rate, which enables us to undermine the stability of the enemy defense, and, finally, to deprive him of the ability to resist.

The form of assigning combat missions also changes. In the past a combat mission of large formations and smaller units was subdivided into a number of consecutively accomplished missions because the objects for each mission were known beforehand and did not undergo essential changes in the course of the battle. In a situation of contemporary combat, for which exceptionally great dynamism is characteristic, it becomes all the more difficult to determine the concrete substance of combat missions of this or that troop grouping, especially during actions in a tactical and operational depth. Combat actions here can take on the most unexpected character. Therefore, with an offensive at great depth it is possible to determine comparatively accurately only objects of the immediate actions and to orient subunits to subsequent actions. Since the methods and nature of their actions during this time can be repeatedly changed, it is more favorable to determine a mission at such depth of the enemy defense which will be reconnoitered most completely, and the situation of which will not undergo essential changes during a battle. By virtue of this, subunits will find it expedient to determine only the immediate mission and direction of the furthest offensive. Such an assignment of missions will facilitate the organization of coordinated action and control over subunits during a battle.

Thus, for instance, the immediate mission of a motorized rifle (tank) battalion can include the destruction of enemy personnel and firepower at strong points of a battalion of the first echelon and their capture. Subsequently a battalion, advancing in its indicated direction, destroys the enemy in depth. Similarly we can assign the combat mission for a motorized rifle (tank) company.

We must stress that at all times the fulfillment of the immediate mission was given especially great importance, since as its object, as a rule, the strongest grouping was selected whose destruction ensured successful accomplishment of the combat mission as a whole. In the depth of the immediate problem coordinated action is organized in greatest detail, and the security of combat actions of troops is planned.

In close contact with the depth of a combat mission is the width of zones of the offensive. During the last war, the depth of combat missions of advancing troops had a clearly expressed tendency toward a greater and greater increase, while the width of zones, on the contrary, continuously narrowed. Thus, while in the offensive operations of the first period of the war (1941-1942) the offensive zone of a rifle division usually was 4-5 km, toward the end of the war a division accomplished breakthrough in a sector of only 1.5-2 km. The main reason for such a contradictory phenomenon, it would seem, was the continuous improvement of the enemy defenses. Maximum narrowing of zones permitted creating not only a decisive superiority over the enemy and a favorable (for advancing troops) relationship of forces and means at the beginning of an offensive, but also its support throughout the entire breakthrough, by means of increasing the force of a blow by introduction into the battle of second echelons and reserves.

However, the presence of a narrow zone influenced very negatively the conduct of offensive combat, since troop capabilities were sharply limited in accomplishing

maneuvers. By attacking the enemy on a continuous front, units and subunits were forced, in a number of cases, to use a frontal attack. Of course, this would be especially destructive under conditions of the use of nuclear weapons, not mentioning the fact that the necessary protection would not be ensured from weapons of mass destruction. This is why with the acceptance into arsenals of nuclear weapons in many armies of the world, a clearly expressed tendency is observed toward expanding the zones of troop offensives.

When determining the width of zones of an offensive under contemporary conditions, two interrelated and also contradictory requirements are considered: on the one hand, the width of a zone should be such to ensure as great as possible a dispersion of troops on the battlefield, thereby creating favorable conditions for protection from weapons of mass destruction; on the other hand, the zone should have such a width that the advancing troops are able to inflict sufficiently powerful blows on the enemy and to destroy him in a chosen direction. An escape from this contradiction has been found by certain military researchers in the formula "move separately and fight together,"<sup>1</sup> which means the highest possible dispersion of troops before the battle and during the approach to a defense, rapid concentration for inflicting the blow, and then dispersion again.

Thus, the zone of an offensive should not be unnecessarily narrow or excessively wide. Both conditions will hamper the execution of a combat mission: in a narrow zone the overconcentration of troops is inevitable, and the assignment of an unnecessarily wide zone will lead to weakening the force of a blow, it will hamper control over troops and support of coordination action.

The calculated unit for determining the zone width of an offense in a tactical link is the battalion. It usually advances along a front with a width of up to 1500-2000 m, but this magnitude is not constant. It depends on many variable factors, in particular, on whether nuclear weapons are used in the direction of battalion actions, in what composition the battalion advances, what the character of enemy defenses are, and what the terrain conditions are.

If the battalion is complete, if it is fortified by different combat means and a nuclear blow is inflicted in the direction of its offensive, then the front of its offensive will be larger than that of a battalion suffering losses and operating, moreover, without means of fortification. To determine the tentative width of the front of a battalion offensive we will make a simple arithmetical calculation. Intervals between soldiers in a line are determined as from 6 to 8 m. A rifle squad of 8 to 9 men will be deployed on a front of 48-72 m; a platoon, having three squads, will be on a front of 144-216 m; a company will be on a front of 432-648 m. But this calculation does not consider the disposition in the line of other firepower (company machine guns, accompanying cannons, self-propelled artillery devices, and others). Also not considered here were the intervals between squads (and they can be almost 20 m) and between platoons (up to 50 m). If we consider all this, then the front of an advancing company will be from 700 to 800 m wide, and of a battalion in combat formation (as a rule in one echelon) will be from 1500 to 2000 m.

As initial data for calculating the front of advance of tank subunits between tanks, we select an interval of 75-100 m; in accordance with this the tank company, composed of 10 tanks, will be deployed on a front of about 700-800 m. Of course, this magnitude is also not constant, and it can change in different directions.

The width of the offensive front is also directly dependent on the character of the enemy's defense. The more saturated the defense is with firepower and personnel, the greater the efforts will be required from the advancing troops to surmount it, and the narrower, consequently, will be the front of the offensive of the subunits. If a motorized rifle battalion advances against an infantry company defending an area of 1500-1800 m along the front, this enables it to create a two- or three-fold superiority of forces and means over the defenders.

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<sup>1</sup>Mikshe, F. O. Atomnoye oruzhiye i armii (Atomic weapons and armies), Translation from English. Moscow, Izdatel'stvo inostrannoy literatury, 1956.

which, as combat experience shows, is fully sufficient for successful execution of a combat mission under the condition that in the direction of its actions a nuclear blow will not be inflicted.

The dimensions of the offensive front of subunits are also changed depending upon the terrain conditions. On an open, even terrain the front can be wider than, for instance, in woods, where it is more difficult to control subunits, and where intervals between soldiers and subunits can be reduced. On sharply rugged terrain and in mountains, the front of a subunit offensive will be expended due to the poorly accessible areas where an offensive is hampered.

The expansion of the zones of advancing troops and the presence of great intervals and breaks in combat organization create a certain danger in the scattering of combat efforts of troops in many directions. In this sense one should consider the question of the selection of a direction of the main strike. Under contemporary conditions the use of nuclear weapons will have the most essential influence on the selecting of directions of strikes. Here, apparently, in many respects the very principle of selecting the direction of the main strike will be changed. From the point of view of achieving the greatest results and inflicting of damage on the enemy, nuclear weapons should be used on his most important concentrations in order, first of all, to break his main center of resistance. This will enable us to get to the area of nuclear weapon destruction by the shortest route, most fully use its results, and, in the end, more rapidly finally destroy the enemy.

In those cases when a nuclear weapon is not used by advancing troops, or it is used on a limited scale and chiefly on deep objects, it is advantageous to use (for penetration to the depths of the enemy's defense) areas and directions with small density of forces and means and also intervals and breaks in the combat formation of the defender. But in this case the final goal of actions of the advancing troops is also the destruction of the main enemy concentrations, and only the method of achieving this goal will be different.

Thus, Soviet military art, in assigning importance to the correct selection of the direction of concentration of basic troop efforts, assumes that it is important every time to find the main link in the enemy defenses and his main concentration, the quick and swift destruction of which will predetermine the accomplishment of the combat mission as a whole. Such links in contemporary defense are means of nuclear attack, mobile reserves and enemy control centers, and also the most important centers of resistance; the basic efforts of troops and firepower should be directed here. Regarding, however, the directions of troop actions, in some cases the troops will proceed to these objects by the shortest routes, using the results of nuclear strikes, and in others they will execute turning maneuvers, moving on the flanks and to the rear of the main enemy concentration. However, under all circumstances the directions selected should ensure the maximum use of results of nuclear blows inflicted by our troops, the realization of a flexible maneuver, and surprise and swiftness of the offensive.

#### Combat Troop Formation

Creating the necessary grouping of forces and equipment and selecting the most expedient form of combat troop formation are important and complicated tasks for the commander who organizes a battle. For the successful solution of combat problems and the execution of a certain maneuver in a battle, the corresponding distribution of subunits and firepower is required for the purpose of their best use to defeat the enemy.

Construction of the combat formation of troops in any situation should correspond, first of all, to the plan of the forthcoming battle and should ensure rapid and effective use of the results of nuclear and conventional weapon strikes, the inflicting of a decisive defeat on the enemy in a chosen direction, the possibility of accomplishing a flexible maneuver, close coordinated action, firm control over subunits on the battlefield, and a decrease in losses due to enemy fire.



The forms of troop combat formation in contemporary offensive combat are the result of their prolonged development. Before the First World War, troop combat formation in an offensive usually consisted of one combat echelon and a reserve. Such a formation was conditioned basically by two reasons: the necessity of the maximum use of available forces and means when inflicting the initial blow and the shallow combat formation of troops of the defending side. However, as defenses became more echeloned in depth, the shallow combat formation of the advancing troops ceased to correspond to increasing requirements. The efforts of one combat echelon were insufficient to overcome rapidly a defense consisting of several deeply echeloned positions and zones. Therefore, the deep defense formation of the advancing troops contrasts the deep formation of combat formations. The interdependence here is evident: the stronger the defense became, the more it was echeloned in depth, and the more powerful and deeper the thrusts of the advancing troops had to be. The consequence of such regularity in tactics of an offensive combat in two world wars has been affirmed and has become one of the leading principles of deep echeloning of combat formations.

Of course, the use of this principle, like others, requires the calculation of a concretely composed situation. Let us refer to one characteristic example in this sense.

In prewar regulations of the Soviet Army it was recommended to echelon combat formations beginning with the company and higher. This, by itself, as a correct theoretical position was found to be unfit in operations of the initial period of the war, when the defense of German fascist troops was shallow and consisted of separate strong points not connected together even by communication trenches. Under these conditions the deep echeloning of combat formations of the advancing troops led to oversaturation of the battlefield by troops. A considerable part of the forces and means of the advancing troops (70 to 80% in a division) was doomed to inaction and suffered unjustified losses even before entering the battle. In conditions which then existed, the advancing troops had to ensure the inflicting of a powerful simultaneous attack on the defense, which to a great degree corresponded to single echelon troop formation. Taking this into account, large formations and units of the Soviet Army, beginning with the fall of 1942, began to construct their combat formation in one echelon.

But about that time the situation changed. Having been convinced of the unsuitability of the central defense and suffering a number of serious defeats, the enemy, from the end of 1942 and especially in 1943, began to use the deep position defense. Combat formations of advancing divisions and regiments also began to be formed more deeply — in two, three, and sometimes even in one echelon with separation of the reserve (Fig. 26).

Most characteristic for that time was the two-echelon formation. It enabled troops to accumulate the force of an attack and successfully repel an enemy counterattack, and also in good time to accomplish the necessary regrouping of forces and means and maneuver during the battle in the depth of the defense. Here the first echelon was developed more powerfully. It included, as a rule, the main part of forces and means of a formation or unit (usually up to  $\frac{2}{3}$  of the entire combat strength). It had an especially difficult mission; to break quickly the strongest fortified positions of the enemy defense.

The second echelon, in contrast to the reserve, (which had a multipurpose assignment), was designed mainly to develop the success achieved by the first echelon. The mission was usually given to it simultaneously when formulating the mission for the first echelon still in the organization of the battle. In the course of the offensive this mission was made more definite. The composition of the second echelon usually included about one-third of all available forces and means.

Single echelon formation was most frequently used during an offensive on a defense consisting of separate strong points or one which was weakly developed in depth, and when the advancing troops lacked the sufficient amount of necessary means of suppression. Most often divisions and smaller units were formed in one echelon with an offensive in a secondary direction when they were assigned a wider zone of operations.

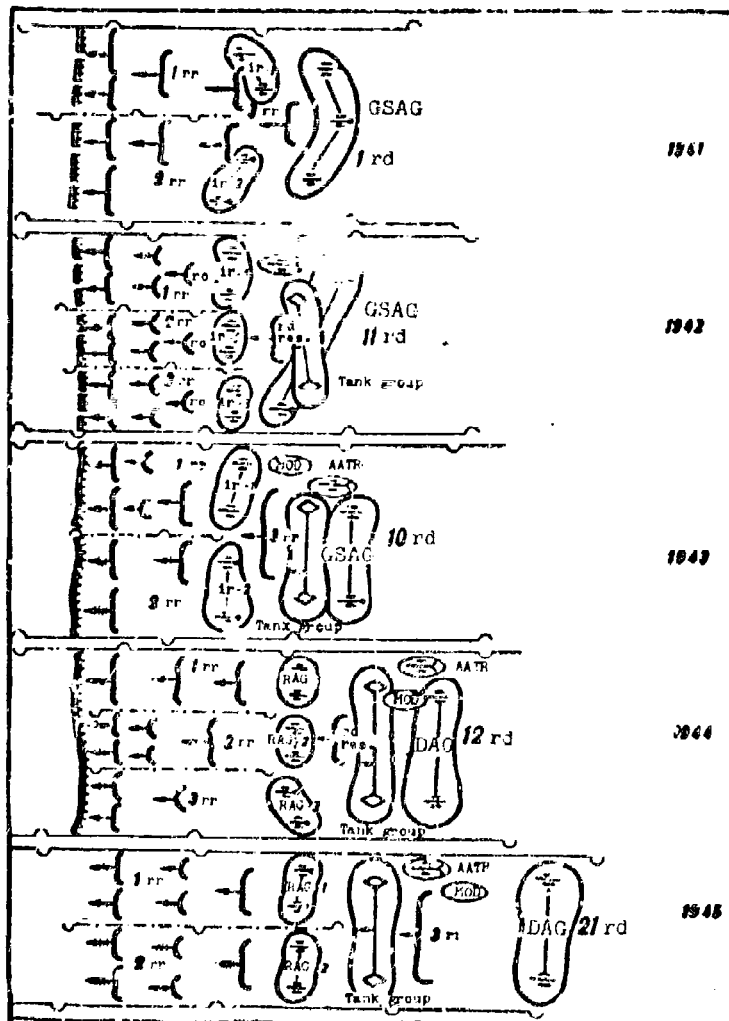


Fig. 26. Construction of combat formation of a rifle division according to experience gained in the Great Patriotic war. [rr = rifle regiment; ir = infantry regiment; GSAG = general support artillery group; rd = rifle division; rc = rifle company; AATR = artillery antitank reserve; rd res. = rifle division reserve; MOD = mobile obstacle detachment; RAG = regimental artillery group; DAG = division artillery group].

When forming the combat formation in one echelon, a combined arms reserve was created in divisions and smaller units. It was provided to develop success in the main direction and to repel counterattacks, to cover flanks, for combat with isolated troop groupings of the enemy, to protect communications, and to destroy enemy diversionary reconnaissance groups which might penetrate to the rear, and for coping with other problems which arise suddenly.

Three-echelon construction of combat formations during the last war was not widely used and was practiced only in separate cases. The necessity of using

such a formation usually arose in those cases when divisions and smaller units advanced along a narrow section of the front, chiefly during a breakthrough of fortified areas and also when it was necessary to be successful towards one or both flanks. Shortcomings of such a formation were the excessive overconsolidation of combat formations, the complexity of organizing coordinated action and supporting it during a battle, the difficulty of introduction into battle (especially the third echelon) in a narrow zone.

The specific element of combat formation of large formations and smaller units during a breakthrough of fortified areas and during an offensive in a city were assault units (groups), which had the mission of destroying or blocking permanent defensive fortifications and creating conditions for successful operations of the main forces.

Besides echelons and the combined arms reserve, the combat formation of a rifle division in an offensive also included such elements as artillery and tank groups, an antiaircraft artillery group, an advance detachment, and artillery-antitank, engineering and sometimes tank reserves as well as a mobile obstacle detachment.

The need for creating powerful artillery groups in an offensive was revealed even in the First World War. In prewar regulations of the Soviet Army, it was recommended that in divisions artillery groups be created to support the infantry, and in units - long-range artillery groups and counter battery artillery. Infantry support artillery groups were created from the authorized and attached artillery of a division according to the number of regiments of the first echelon. They were designed to solve problems in the interests of the division as a whole. Requirements of commanders of the support units could be fulfilled by these groups only when they were not occupied with the accomplishment of missions assigned by the senior artillery chief.

During the Great Patriotic war substantial correctives were introduced into this situation. The interests of closest troop coordinated action demanded converging artillery in problems of its combat use on combat formations of the attackers. As a result there appeared the necessity to create regimental and battalion artillery groups. This meant that artillery, from now on, began to be at the complete disposal of the corresponding commanders of divisions and smaller units and acted in the interests of troops from the beginning to the end of a combat mission. Such use of artillery considerably promoted the successful execution of missions in offensive battles.

Regarding the combat use of tanks, in the composition of rifle divisions and smaller units there were no authorized tanks at that time. In an offensive in the most important directions, rifle divisions usually were fortified by tanks from separate tank brigades and regiments. These tanks were used as direct infantry support tanks. Tanks assigned to a division, as a rule, were directly subordinate to the division commander, composing an independent element of combat formation - the tank group.

Although such a principle of centralized tank use in an offensive was maintained to the end of the war, nonetheless during combat actions changes were made in this respect which were directed towards ensuring close coordinated action of tanks with the advancing infantry. In certain offensive operations tanks were assigned to rifle regiments and sometimes to battalions, and they were used in close coordinated action with the advancing infantry, not being separated from it by more than 200-400 m.

Tanks were also widely used by the enemy; therefore, combat with them took on an even more important meaning during the war. Destruction of tanks was a first priority mission of all elements of a combat formation, the first and second echelons, and the combined arms reserves. For this purpose they were fortified with necessary antitank means. But, besides this, for the purpose of rapidly strengthening threatened directions during combat actions, the need was revealed for creating a special reserve in the division and the regiment - an artillery-antitank reserve. Being a flexible, maneuverable means in the commander's hands for parrying surprises, this reserve played an important role when repelling enemy tank attacks. In its composition there usually was the most maneuverable antitank artillery, self-propelled artillery weapons, and sometimes even tanks. When executing their mission of destroying enemy tanks by direct fire, the reserves closely interacted with mobile obstacle detachments, consisting of engineering subunits with mine-laying equipment.

The widest use in the execution of offensive actions during the last war was gained by advanced detachments of different composition and assignment. Being more mobile and maneuverable than the main forces, such detachments played an important role in increasing the rate of advance and increasing the depth of the thrust. War experience showed that the more decisive and maneuverable the actions of troops were in an offensive, the more imperative became the necessity for their wider use. Forward detachments were separated from rifle divisions in the composition of a regiment or battalion. They had the mission of capturing the most important objects available to the enemy (road junctions, command heights, inhabited localities, crossing, and so forth) and holding them until the arrival of the main forces.

In connection with the appearance of nuclear weapons in troop combat formations in an offensive, new requirements began to appear. Combat formation of the advancing troops should ensure, first of all, more effective use of nuclear and conventional strikes inflicted by our troops. This is the main task which is established when solving the problem of how to construct a combat formation. Practically, this means that the created grouping of forces and means should ensure a swift and continuous offensive at a high rate and at great depth, and should be able without losses and with minimum exposure of personnel to overcome zones of radioactive contamination and areas of fires and destruction and also to liquidate rapidly the consequences of nuclear enemy attack.

The other most important requirement of combat formation is the ensuring of the stability of the entire offensive grouping as a whole and each of its elements separately with respect to enemy nuclear strikes. Even greater requirements are placed on the maneuverability of all the elements of the combat formation, the ease of movement, and the ensuring of the closest coordinated action of troops in battle. A new requirement is also the necessity of the most complete use of terrain properties for protection from weapons of mass destruction.

In connection with the sharp change in the nature of combat actions and a number of new requirements placed on the combat formation, new tendencies appear in its further development. Striking defenses with nuclear weapons creates favorable conditions for a more rapid achievement of goals in an offensive than there were before. One would think that under these conditions the advancing troops would no longer need strong second echelons and reserves. However, an objective analysis of the available combat means and a comparison of the capabilities of opposing sides show that now, with the use of nuclear weapons, it is impossible to achieve destruction of a powerful defending troop grouping by a single-act effort. For this, besides the action of nuclear weapons and conventional firepower, we will require an increase in efforts by means of introducing fresh forces from the rear. Consequently, in order to be able to conduct an offensive at a rapid rate and at great depth, we will need a deeply echeloned combat formation.

The expediency of deep troop formation in an offensive ensues also from the necessity of rapid replacement of troops who have suffered great losses from enemy nuclear strikes, the guarantee of periodic replacement of subunits for operations in a contaminated area, and rapidly overcoming of zones of log obstacles and destructions. A deep combat formation will ensure swift maneuvering for the purpose of transferring combat forces in new directions. Now the composition of echelons and their design would be more different, the dispersal of a combat formation along the front and rear would be increased, and the composition of forces and means in echelons may not always be identical. This change was caused by a diversity in the formation of the defense, which very often would have its main troop grouping in the rear under cover of a support zone or a forward defense area.

In foreign literature the question was discussed regarding whether it is generally worthwhile to disregard second echelons and to replace them by reserves. Supporters of this opinion referred to the change in nature of the battle and to the impossibility (due to this) beforehand, when organizing the battle, to assign the second echelon a concrete mission, since this mission during the battle will be changed all the same, and the second echelon will have to be assigned the execution of new mission.

After studying the nature of a battle, we can come to the conclusion that under contemporary conditions the conditions which predetermine the necessity of

creating second echelons have not been eliminated. Thus, for instance, during a breakthrough of a deeply echeloned defense; a concrete mission for the second echelon can be determined beforehand simultaneously with the formulation of the mission for the first echelon. However, in not all cases is it obligatory to construct a combat formation of two echelons. For instance, when overcoming a shallow defense occupied by the enemy in the course of combat operations, a single-echelon formation can be more expedient.

One tendency in the development of combat formations during years of the last war consisted of imparting the greatest tactical independence to advancing troop concentrations. This obliged the commanders who were organizing the battle, in creating concentrations of forces and means, to see to it that the concentration had everything necessary for the successful solution of combat problems, that it could for a prolonged time act apart from the main forces, that it could destroy resisting troops, and that it could quickly accomplish a maneuver and swiftly turn its own forces to new directions.

Under contemporary conditions it is especially important in an offensive to create a strong concentration of firepower, which is capable of ensuring the combat actions of troops under complicated and changing conditions of a situation, capable without delay of destroying the means of an enemy nuclear attack and his reserves (especially tanks), to destroy control centers, and to combat radioelectronic devices of the defenders.

Combat formations of advancing troops must be reliably covered from the air. For this protection there must be an antiaircraft unit which is capable of ensuring thorough cover not only of separate objects, as was done before, but also of advancing troops as a whole throughout the depth of their formation.

Tanks have now become an organically inseparable part of the elements of combat formation not only of motorized rifle units but also subunits, and they operate jointly with them from the beginning of the battle to the end, accomplishing a single combat mission. This requires especially thorough organization and continuous coordinated action of motorized rifle and tank subunits. Essentially new in the combat application of tank subunits is the possibility of using them for independent actions, including in the composition of first echelons directed toward the main strike. In the last war only large tank forces acted independently in the composition of operational units, constituting a mobile group of an army or of a front, and they were introduced into battle only after a breakthrough or in the course of its execution. Now tank subunits will especially often operate in the first echelon in those directions where enemy defenses suffer nuclear strikes.

In connection with the increasing saturation by tanks both of the advancing and defending troops, the importance of antitank combat means has increased. Combat with tanks will now be conducted by qualitatively new means, first of all, with different systems of antitank guided missiles. They are now more and more finding use in troop combat formations in many armies. Organizationally different antitank means — antitank guided missiles, self-propelled antitank artillery, and tank subunits — can be joined in antitank reserves.

Despite the fact that now all troops, (both tank as well as motorized rifle) have become equally mobile, and combat actions have become more maneuverable, there are no bases to refuse to use forward detachments. Moreover, in a situation of dynamic and mobile operations, exclusively favorable prospects are opened for the use of forward detachments. The delivery of nuclear strikes on the most important defense units, the presence of large intervals and breaks in combat formation of the defenders, the actions of troops in directions — all these create very favorable prerequisites for the wider use of such detachments in an offensive than previously. Forward detachments have become an important means of the realization of nuclear strikes. By their swift action they promote the reduction to a minimum of breaks in time between the moment of delivery of a nuclear strike and the exit of troops into the destruction area. Besides the former missions regarding the capture of separate objects in enemy territory, they can be assigned such complicated missions as combat with enemy nuclear attack means, destruction of antiaircraft defense forces, control centers and communication units, i.e., more active and independent missions.

Regarding, however, the identical mobility of forward detachments and main forces, it is doubtful whether this circumstance can be a firm reason against the separation of forward detachments. Experience of the last war showed that forward detachments were separated not only from rifle formations, being less maneuverable, but also from tank and mechanized troops, whose mobility at that time was high. This was caused by the fact that all the main forces were far from being always able to move swiftly forward. The breakaway of forward detachments ensured the creation of more favorable conditions in the direction of their actions and reliable suppression of the enemy who disturb their advance. With an entire system of these and other measures the commander of a formation "pushed" the forward detachment. Dispatched detachments, not becoming involved in combat with the enemy, swiftly by-passed his strong points, moved to the rear of the defenders, seized important objects and held them until the approach of the main forces.

In the postwar period, in many armies, the composition of combined arms formations frequently began to include a new element of the combat formation - tactical airborne forces. The necessity of their use has been given especially considerable attention in the United States Army. As such forces they intend to use not specially trained paratroopers, but ordinary motorized infantry battalions and companies. This has become possible with the appearance of a qualitatively new air-transport means, the helicopter. Such landing forces receive an assignment, using the results of nuclear strikes to prohibit a maneuver of enemy reserves, to seize tactically favorable objects, crossings, road junctions, and mountain passes, and thereby assist in raising the tempo of an offensive.

The combat formations of motorized rifle and tank subunits are not unchanged. They will now be more flexible and varied. Besides operations in combat formations, subunits can often operate in approach march formations, and when pursuing the enemy, even in route formations. The use of a certain type of formation depends on enemy forces, the nature of his defense, the degree of his destruction by fire, and also terrain conditions.

Motorized rifle and tank subunits are deployed in combat formations chiefly in the period of attack in those directions where enemy defenses have been insufficiently broken. Variants of the makeup of combat formation of a battalion (of a company), depending upon concrete conditions of the situation, can be different: in line, echelon to the right and echelon to the left, and for a company, furthermore, angle forward or angle back (Fig. 27). Formation of a subunit by angle forward or echelon to the right (to the left) can be used, for instance, in those cases when it has been established that the basic forces of the defenders are concentrated in the depth of a defensive area or on the flanks, while on the forward edge there are only covering subunits.

Very often subunits will operate in approach march formations. Approach march formation as a form of troop formation appeared in the Soviet Army, in particular in tank troops, in the prewar years. Previously, however, subunits could use it only during an approach toward enemy defenses. In contemporary conditions there are possibilities of widely using approach march formation both during an offensive, especially in those directions where nuclear strikes are inflicted, and also in those cases when organized enemy resistance is broken. The approach march formation is a flexible form of the subunit formation. It consists of dispersed (along the front and in depth) company or platoon columns with their reinforcement means. Approach march composition is used for the purpose of ensuring high rates of advance and decreasing the vulnerability due to nuclear strikes, artillery fire, and air strikes. It creates favorable conditions for the rapid exploitation of nuclear strikes and a swift maneuver. A battalion (company) can advance having approach march formation in a line of companies, angle forward (back), and echelon to the right (to the left) (Fig. 28).

With an offensive in the tactical and operational depth subunits can also operate in route formations - battalion columns. A skillful combination of approach march, combat and route formations permits advancing at a high rate, rapidly using the results of nuclear and conventional fire strikes, and in a short time completing the destruction of the enemy.

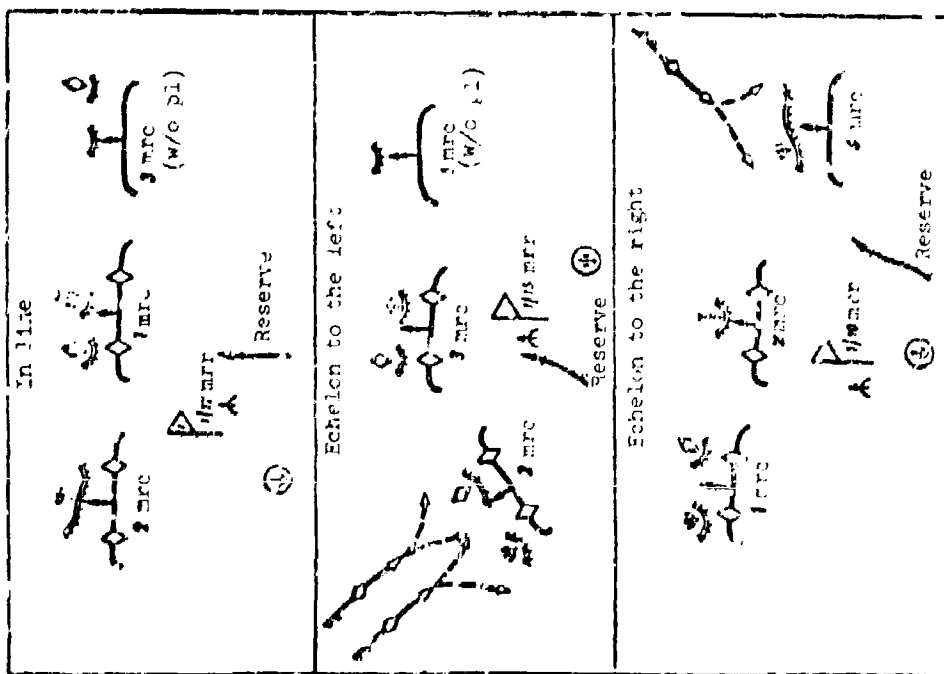


Fig. 27. Variants of the makeup of combat formation of a motorized rifle battalion.

[mrc = motorized rifle company; mrc w/o pl = motorized rifle company without a platoon; pl = platoon].

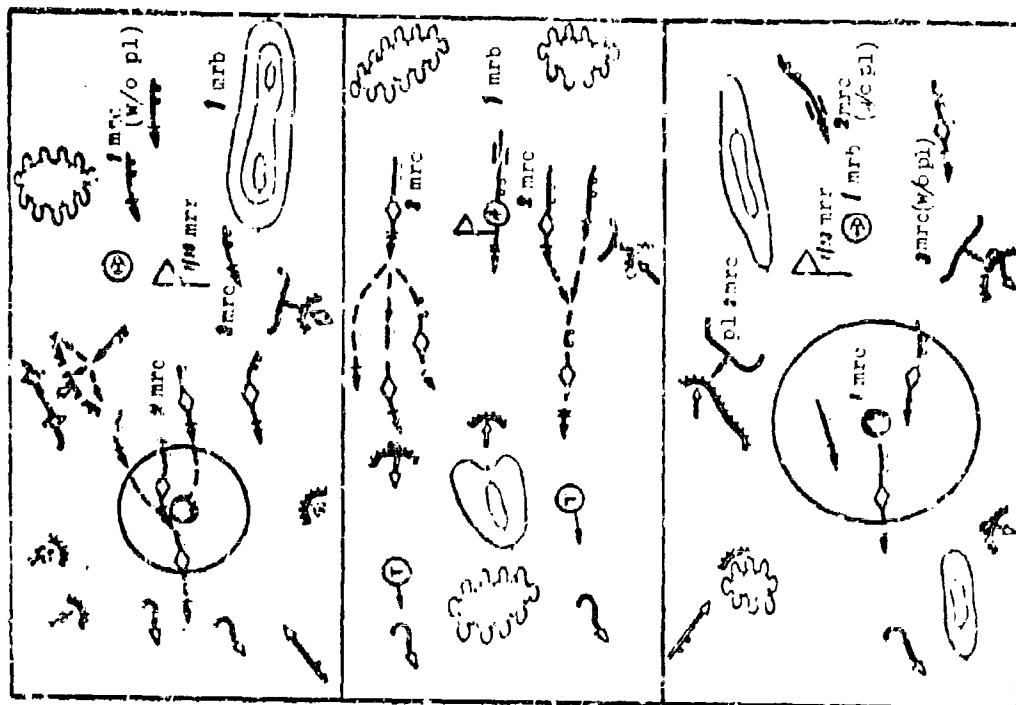


Fig. 28. Variants of the makeup of approach-march formation of a motorized rifle battalion.

[mrc = motorized rifle company; mrc w/o pl = motorized rifle company without a platoon; pl = platoon].

### Destruction of the Enemy by Fire

All of the most important changes in the nature of an offensive occurring during the last war are connected mainly with the increase in fire and the rapid growth of its role in combat. From a means of ensuring a strike, fire has become the basic means of destroying the enemy, the means of inflicting a decisive defeat upon him.

The need to reliably suppress the enemy by fire appeared especially sharply during the First World War, when the defenders began to use massed machine guns and rapid-firing artillery and the defense took on a positional character.

Under these conditions, ensuring the successful movement of advancing troops required, first of all, reliable suppression of the enemy by fire. Therefore, in the First World War the necessary element of an offensive became the artillery, and later the air preparation (bombardment) of an attack.

Methods of conducting artillery preparation in the various operations of the First World War were not the same. At first it seemed that the longer the artillery bombardment, the greater the effect it gave. Thus, for instance, the French during the offensive in Champagne in September of 1915 conducted a three-day artillery bombardment, during which an enormous amount of artillery shells was used. However, the French forces could not achieve a decisive success in the offensive, because enemy suppression by fire was executed on a comparatively narrow sector of the front at shallow depth and, moreover, for a prolonged time, which eliminated the surprise of the offensive. In the experience of a number of operations it became clear that conducting a prolonged (from three to seven and more days) artillery bombardment was not justified. Success and reliability of defeating the enemy by firepower depended not so much on the duration, as on the suddenness and intensity of the fire strike and the density of destruction. Therefore, during the First World War a tendency distinctly appeared toward reduction of the duration of artillery bombardment from several days to several hours. During the last war, as a rule, a comparatively short (1.5-2 hours) but powerful artillery and aviation bombardment of an attack was conducted, which enabled the advancing troops to a greater degree to achieve surprise and in a short period inflict great losses on the enemy, destroy his system of fire and control, and also render a strong moral influence on the enemy troops.

During the war the qualitative content of artillery bombardment was also changed; of great relative significance is the fact that it became less methodical. As a consequence of massed fire and fire barrage, high density of destruction was attained, and enemy losses increased. While, for instance, in the offensive operations of the Soviet Army, conducted from 1941 to 1942, during artillery preparation methodical fire (fire observation) occupied the predominant part of time (70-80%), then toward the end of the war its proportion was lowered to 20-30%. This made it possible in a short time to achieve a considerably greater effect than during prolonged artillery preparation.

However, no matter how powerful an artillery or aviation preparation was conducted, experience of the First World War showed that the single-act influence on the defense was nevertheless insufficient to guarantee success of the offensive. Attacking troops needed, besides that, a constant and continuous fire accompaniment during the whole offensive, from the beginning of the attack up to the execution of the mission of the day. Combat experience showed that an unsatisfactory solution of this most important problem was one of main causes of the failures of many attacks of the First World War. At that time, indeed, for this the necessary material basis was lacking. Neither horse-drawn artillery nor the tanks which appeared in the course of the war could fully ensure continuous accompaniment of the infantry in combat. Tanks themselves due to their imperfection and the intense development of antitank weapons, needed continuous fire accompaniment during an offensive. But even at that time ways of solving this problem appeared: there were accompanying artillery as well as the absolutely new (for that time), highly effective method of artillery accompaniment of an advancing infantry, the rolling barrage (1916).

In the Second World War, when the arsenals of armies included self-propelled artillery, motorized artillery and other weapons, the problem of troop fire



accompaniment was successfully solved. Besides direct infantry support tanks, in the combat formations of advancing subunits there were constantly accompanying guns. Troops were continuously supported by artillery fire and from the air, by powerful attacks from assault aircraft. The offensive, under these conditions, turned into a continuous combination of fire and motion, where the determining and leading factor became fire. With a breakthrough of tightly occupied enemy defenses, the offensive of the infantry and tanks was supported by a single or double rolling barrage, and during combat in depth, by a consecutive concentration of fire.

As a result of searching for the best forms of continuous combination of fire strikes and troop actions in an offensive, during the Great Patriotic war in the Soviet Army a new method appeared of the combat use of artillery and aviation - the artillery and aviation offensive. Its purpose was to ensure at maximum the continuity of support of infantry and tanks by massed effective artillery fire and by strikes of aircraft throughout the offensive. In accordance with this, the artillery offensive was subdivided into three periods: artillery attack preparation, attack support, and protecting the actions of the infantry and tanks in depth. During the artillery preparation the defense's fire system was destroyed, and artilleries and mortars of the enemy were knocked out along with his control points and communications. Artillery fire was strengthened and supplemented by aircraft strikes, which concentrated their efforts chiefly on objects located in the depth of the defense.

A large role in the reliable destruction of targets along the first line of enemy defense was played by cannons which were detailed for direct laying. For this purpose different systems were used, from antitank (45 mm) to heavy (155 mm) cannons, which were located at firing positions near the first line of defense.

Artillery preparation usually was completed by a powerful fire barrage along the forward edge and the immediate depth of the defense. The transfer of fire in depth at the beginning of the attack was made with the calculation in mind to exclude a break between the end of the artillery preparation and the beginning of artillery support. To delude the enemy repeated false fire transfers were practiced. During artillery support fire was conducted with unremitting force. This did not enable the defending enemy to restore his firing system and coordinated action. Depth of artillery support was, on the average, 2-3 km. The most important mission of the artillery was the suppression of newly revealed and revived enemy combat means. Assault and bomber aircraft continued the destruction of artillery and mortar batteries of the enemy, his control points and reserves.

During battle in the depth of the enemy defenses, artillery and aircraft inflicted fire strikes on the separate objects which hindered the advance of advancing troops. The basic method of conducting fire in this period was concentrated fire at separate targets, started by a signal from the commanders. The most complicated mission given to the artillery during combat in depth was to support the continuity of fire accompaniment. This was achieved by a timely shift of the artillery to new firing positions. The principle of this shift was as follows:  $\frac{2}{3}$  of the artillery conducted fire, and  $\frac{1}{3}$  was in motion, moving to new firing positions.

The method of artillery and aircraft offensive was entirely justified in the last war and signified a new stage in the development of military thought in this field.

In connection with the appearance and rapid development of nuclear weapons, naturally, the form and methods of destroying a defending enemy by fire have to be changed.

The delivery of nuclear strikes is the most important and decisive act of offensive combat. Nuclear weapons cannot be considered ordinary means of ensuring a battle, just as it is impossible to isolate the delivery of nuclear strikes from troop operations. Only the close combination and skillful application of the entire manifold complex of contemporary means of destruction and the rapid use of results of nuclear and conventional fire strikes by troops can lead to decisive success in a battle.

One of the most important problems of fire defeat of an enemy under contemporary conditions is combating the means of nuclear attack. It should be conducted continuously by all available means at the disposal of the attacking forces. The exposed means of nuclear attack are to be destroyed by the entire complex of available combat means immediately after their detection, in whatever position they may be -- on the march, in location in areas of concentration, or at the time of occupation of firing positions.

At present, even more so than before, it is necessary to increase the depth and guarantee the simultaneity of defeat of defending forces by fire because of the increasing echeloning of the defense and the presence in depth of the means of nuclear attack, mobile reserves (constituting the main shock power of the defense), and control centers. The tendency to achieve simultaneity of action throughout the depths of defense was observed earlier; however, the advancing troops did not have available at that time sufficiently reliable equipment to solve this problem. The only means of defeating objects at great depths during the Second World War was by aircraft. But by virtue of its limitations, it nevertheless could not render a decisive enough blow on the defenses to achieve their full suppression. Now the advancing forces' possession of long-range rockets as well as improved aircraft facilitates the solution of this complicated problem. The importance of this factor is difficult to overrate. Only by simultaneous defeat of the enemy throughout the depth of his combat formation is it possible to undermine decisively the stability of his defense and to destroy his fire system, control and coordinated action; this is the important condition of ensuring a high rate of offensive and the achievement of combat goals.

The use of nuclear weapons creates conditions for the further reduction of duration of fire preparation of an offensive. When using nuclear weapons it is possible (in a considerably shorter period than before) to deprive the defending enemy concentration of its combat capability. Duration of fire preparation will, in many respects, depend on the method of troop transfer to the offensive. If, for instance, the offensive is started on the run, then when determining the duration of fire preparation the time will certainly be considered which subunits need to overcome the zone of fire of the basic artillery mass and tactical means of short-range nuclear attack of the enemy. During transition to the offensive from a position of direct contact with the enemy, it will be determined, first of all, by the scope of the missions assigned to ordinary means of destruction, since the use of nuclear weapons in this case is possible only on objects which are located at a distance.

In many respects fire support of an offensive will be carried out in a new fashion under contemporary conditions. Having justified themselves in the last war, methods of artillery attack support -- the rolling barrage and consecutive concentration of fire -- will not always now be usable. A rolling barrage, for instance, under contemporary conditions can be inexpedient because the defense is not of a continuous but local character; it assumes linear operations of subunits, to a certain degree it forges their maneuver, which negatively affects the rate of the advance; for its use it is necessary to concentrate great densities of artillery, which is not always possible regarding conditions of ensuring protection from weapons of mass destruction. Therefore, in many armies new methods of fire accompaniment of advancing troops have been sought: previously planned, and sometimes unplanned fire, and fire on separate targets by a signal from the commanders, and others.

The most important requirement placed on fire support under contemporary conditions is its continuity. During the Great Patriotic war, troops of the Soviet Army succeeded (more or less) in satisfactorily solving this problem -- the offensive of units and subunits was practically continuously accompanied by artillery fire and aircraft strikes. Nonetheless, fire accompaniment was often of an occasional character. Advancing troops, revealing unsuppressed targets in the depth of the defense, "built" them up for infliction of a decisive strike at the most favorable time. Now such an "accumulation" of targets has become simply impossible, because many objects, especially the means of nuclear attack, cannot be left undestroyed. This obliges the advancing troops always to have a certain part of firepower in constant readiness for the solution of suddenly appearing problems. The main method of defeating a defending force will now be by inflicting

powerful and sudden massed blows, by all available firepower, simultaneously throughout the depth of the enemy combat formation. In the course of the offensive fire strikes will increase, and they will be strengthened according to the approach of advancing troops to the objects of attack.

Such a character of suppressing the enemy will render influence on methods of accomplishing a maneuver by fire in an offensive. Whereas before a maneuver by fire was conducted most often by means of shifting it from the front to the rear of an enemy, now such cases will be common when an enemy's defeat will begin with suppression of the deep, most dangerous targets, with a subsequent increase in firepower and its approach to the main line of resistance.

The most important method of achieving success in an offensive is now by a maneuver of nuclear strikes. It consists of quickly reaiming nuclear strikes from one object to another, and concentrating a number of blows on the one most important. The timely and skillful execution of such a maneuver permits (in a short period) changing the relationship of forces in their favor, rapidly destroying the stability of defenses, and creating conditions for the swift development of the offensive.

The application of principally new, very powerful means of destruction does not mean that the former, so-called conventional means of combat - artillery, tanks, and aircraft - will no longer play a role in combat. Achieving a reliable defeat of an enemy is possible only as a result of the skillful complex use of all available forces and means.

An important place in the suppression of an enemy by fire will be occupied by artillery. Its forces will be concentrated basically on defeating objects which are located in direct proximity from its troops. At the same time, artillery is a very effective means of destroying the enemy's mortars and artillery, his means of nuclear attack, reserves, radio stations, control centers, and other targets. Aircraft will be used chiefly to suppress and destroy objects which are located at great depths, outside the range of artillery fire. Being a highly maneuverable means, the aircraft can itself detect targets, including mobile and small-size ones, and rapidly destroy them. It can, in brief periods, transfer strikes from one object to another, preventing an enemy transfer to a defense at advantageous boundaries or its maneuver from the rear. But the main objects for aircraft action will be the means of enemy nuclear attack and his reserves.

In recent years, in foreign armies, there has been rapid development of antitank guided missiles. They are designed, in the first place, for combating tanks, but they can also destroy other, chiefly armored, targets. In the development of antitank guided missiles there has been observed a tendency to attempt to use them with low-yield nuclear warheads.

The effectiveness of nuclear and fire strikes and the final outcome of the struggle to achieve fire superiority over an enemy will, in many respects, depend on how quickly troops will manage to realize the results of nuclear and fire strikes. This imposes special responsibilities on the advancing troops. The swifter the rate of their advance, the more decisive their actions, and the greater their initiative, the less possibility will the enemy have to inflict a counterblow on the advancing troops and be able to accomplish a maneuver to fortify his defenses.

#### The Attack and Increasing Combat Efforts During an Offensive

The attack is one of the most important and responsible moments of offensive combat. Figuratively speaking, this is the destructive, sharp strike of the advancing force. The attack is called upon to complete the destruction of a resisting enemy in order to ensure successful development of the offensive in depth. Therefore, organization and achievement of attack impetus is always of paramount importance. According to the development of combat means, a change in the character of the enemy's defense, and other conditions, methods of attack were changed. The determining factor of these changes was the force of firepower. Firepower laid the way for attacking subunits, suppressing and destroying the firepower and personnel of the enemy, destroying the unity of the defense, and

wrecking all the enemy's measures undertaken for counteraction to an offensive. The less effective the firepower was on the defense, the greater were the efforts required from the attacking troops to overcome the defense, and the deeper and more dense were their combat formations during an attack. Thus, for instance, in the First World War, only by the efforts of several attacking waves of the infantry was it possible to overcome enemy defenses at a depth of one or two positions, after which the attack, as a rule, attenuated. At that time the attacking infantry, moreover, often had to complete the destruction of the enemy by using bayonets. This was indicative of the insufficient force of firepower on the defenses.

The increasing capabilities of firepower, primarily automatic weapons, and the mass participation of tanks in the Second World War gave the attack greater decisiveness and depth. The rates of attack were increased. The methods of its accomplishment became more varied. However, even in the last war, the insufficient firepower caused a need for the rather dense formation of attacking troops, and limited the depth of advance of subunits during the attack. The attack, as before, was characterized by great methodical quality and linearity of advance.

In connection with the appearance of nuclear weapons, certain military theoreticians expressed doubt as to whether an attack, in general, will be conducted under contemporary conditions, or whether it will yield its place to the swift actions of subunits, advancing chiefly in approach march and route formations. These considerations are connected with the changed character of firepower on a defending force. It is thought that as a result of inflicting nuclear strikes on a defending concentration, such damage will be inflicted that the enemy will practically be deprived of his combat ability: the interrelationship between elements of defense will be destroyed, as well as the fire system and coordinated action, and communications and control will be paralyzed. The loss of defense stability can be so great that the offensive will pour in, in a swift and nonstop advance of troops in march columns.

Actually, it is hardly necessary to doubt that in those directions where the advancing force, as a result of massed application of nuclear weapons, can achieve a reliable continuous defeat of the defense on a wide front and at great depth, the necessity for attack will cease to exist. Troops can advance in such directions in march formation practically at march speed.

However, this will not always be possible, and the attacking force should consider that contemporary defense possesses great viability; the defender is able to rapidly liquidate the consequences of a nuclear attack due to a wide maneuver by reserves and also by forces and means from unattacked and secondary directions. Therefore, it is not always possible to plan for an unhindered advance of troops through enemy defenses. An offensive which uses nuclear weapons will assume a tense and persistent character. In order to overcome the resistance of a defending enemy, the advancing force will now be forced repeatedly to attack his positions being deployed in combat formation.

Recognizing the capability and necessity for an attack under contemporary conditions, one should consider the essential changes in its character and methods of achievement. In distinction from the past, when an attack could be conducted only by infantry on foot, with obligatory deployment as skirmishes, now motorized subunits under favorable conditions can attack an enemy on armored carriers, without dismounting from the vehicles. This is a new method of attack. Its application is conditioned by the increasing capabilities of an attacking force to destroy a defense. It is most effective in directions where nuclear weapons are used and where enemy defenses, especially antitank defenses are reliably suppressed, and the terrain permits moving on vehicles. The advantages of such an attack are evident. A mechanized attack enables one swiftly, losing no time, to move into areas which have been subjected to a fire strike, keeping the enemy from rallying. But such an attack is not always possible. In directions where enemy defenses are insufficiently suppressed, and also on terrain which hampers movement on vehicles, the attack will be accomplished, as before, on foot.

In connection with the greatly dispersed nature of the defense and the possibility of a reliable and thorough suppression of it, the offensive will consist of

a number of attacks, alternating with operations of subunits in approach march formations. The depth of the attack will be determined by the depth of the object attacked - a strong point or a position; with the capture of such an object the subunits are deployed in approach march formation and advance resolutely forward. But this does not mean that the subsequent actions of subunits are unhindered. Advancing subunits can be under enemy fire not only during the attack, but also when they do not have attackable objects directly before them. This situation complicates the offensive and makes it more tense and unyielding. If, previously, the attack were characterized by a known methodical quality and linearity of advance, then the attack will now differ by great irregularity of development and great maneuverability. This is one of the distinctive peculiarities of attack under contemporary conditions. The absence of a continuous front, the different degree of enemy defeat by nuclear and fire blows, the presence of intervals and breaks in his combat formation - all these lead to an uneven development of the attack. This is promoted by the presence of zones of radioactive contamination destruction, obstructions, the destruction of the combat formation of attacking subunits upon infliction by the enemy of nuclear blows, and the execution of counterattacks. The irregularity of an advance creates profitable conditions for extensive use of wide envelopments, turning movements in the course of the attack, and inflicting blows on the enemy from various directions. Previously such conditions were usually created only after the attack, during development of the battle in depth.

In connection with the irregularity of attack development, the question arises whether it is now necessary to attempt to achieve simultaneity of the attack of first line of defense; this was of exceptional importance in the past.

Let us imagine such a picture of the battle. On one sector of the front, attacking subunits, acting in coordination with their adjacent units, managed to be rapidly deployed in combat formation on the attack line and move swiftly and simultaneously into the offensive. In another sector the attack is executed at different times, according to approach of the subunits from the rear. Obviously, other things being equal, the advancing side will appear to enjoy more advantageous conditions in the first case, because the enemy finds it more complicated to repel a unified, simultaneous attack on a wide front, more difficult to execute a maneuver by fire and by reserves in the immediate depth. A simultaneous attack strengthens the initial blow and ensures rapid and complete destruction of the enemy and effective use of the results of nuclear strikes. Furthermore, it promotes the support of continuity of troop control, and it increases the stability of coordinated action of motorized rifle and tank subunits with artillery and aircraft. Proceeding from this, we can conclude that simultaneity of the attack preserves its importance even now, especially at the beginning of the offensive.

Combat experience shows that in those cases when the infantry and tanks simultaneously and swiftly attacked the first line of enemy defense, a breakthrough in his defense was usually accomplished without a stop and at a high rate. Thus, in the Uassko-Kishinev offensive operation (August, 1944) formations of the 35th guards rifle corps simultaneously attacked the first line of defense, rapidly broke the enemy resistance, and in less than three hours of combat completed the breakthrough of the main zone of defense.

However, regarding combat in depth, here the situation can shape up differently. During a successfully developed offensive it is especially important to gain time and to maintain a high rate of advance, not enabling the defending enemy to create a firm defense at intermediate boundaries. In this case an immediate attack by even separate units, which arrived at the defensive boundary of the enemy, can produce a much greater effect than an attack by larger forces but executed after the enemy has managed to gain time and to organize his defenses. Consequently, the question of simultaneity of attack should be decided each time, taking into account the conditions which make up a situation.

The leading forces of an attack, as in the past, are tanks. With their firepower they open the way for motorized rifle subunits. The close and continuous coordinated action of tanks and motorized rifle subunits throughout the battle is the most important and indispensable condition of successful destruction of the enemy. Now their coordinated action is first of all directed at the rapid and complete use of results of nuclear strikes inflicted on the enemy and consists of

continuous mutual support and joint actions of subunits in destroying objects of the attack. Tanks, having great shock power and maneuverability, can arrive quicker at the area of nuclear and fire strikes and, by destroying the surviving enemy firepower, they can ensure the advance of motorized rifle subunits. The latter, in turn, do not act separately, but in close coordination with the tanks, destroying by their fire targets which hinder the advance of tanks, especially antitank guided missiles, and, by persistently following the tanks, help them to overcome different obstacles and barriers. In a timely manner they show the tanks those targets which must be destroyed.

An important role in ensuring the successful actions of tanks and motorized rifle subunits is played by artillery. By its fire it suppresses targets which directly hinder their advance, and also destroys the means of the enemy's nuclear attack, his artillery, and his reserves. Tanks and motorized rifle subunits, using the results of artillery fire, move swiftly forward, ensuring the possibility of a timely shift of the artillery to new firing positions.

The close coordinated action of tanks and motorized rifle subunits with engineering subunits promotes rapidly overcoming encountered barriers and obstacles and achieving a high rate of advance under conditions of mass destructions and obstruction.

During a battle in the depths of the defense motorized rifle and tank subunits support coordination with the subunits which are operating in their direction in the composition of advanced detachments and tactical airborne landing forces. Tactical airborne landing forces and advanced detachments, seizing road junctions, crossings, and bridges, promote the successful advance of attacking troops. According to their nearness to airborne landing forces and advanced detachments, the attacking subunits support their operations by long-range artillery fire, and then by a joint attack from various directions they destroy the most important enemy objects.

Success achieved during the offensive must certainly be gained in good time in order to transfer combat efforts quickly to the depth of operations. After a breakthrough of the forward edge of defense, as combat experience shows, the enemy strengthens his resistance to the limit, throws all his forces and means into battle from the immediate depth and also brings reserves and a part of his forces from unattacked sectors to the area of breakthrough, especially tanks, artillery, and infantry subunits, and he inflicts strikes with aircraft. Under contemporary conditions the defending side, furthermore, in the most important directions will inflict nuclear strikes, creating zones of radioactive contamination along the advance route of the attacking forces, as well as all kinds of destruction and flooding. Therefore, the attacking troops, in the development of the offensive, will be forced not only to overcome resistance of the defending enemy at positions which he occupies, but also to repel counterattacks of his tanks and infantry, continuously to combat his means of nuclear attack, artillery and reserves, and also to overcome zones of radioactive contamination and to fight separated concentrations of enemy troops.

The most important condition of ensuring high rates of advance conducted at great depth is the continuous increase of combat efforts. During the last war, an increase in efforts was executed mainly by means of introducing into combat fresh forces from the depth. Thus even when fighting for the first position of the enemy defense, usually not only a battalion but regimental reserves as well were introduced, and for completion of breakthrough of the main zone of defense, second echelons of divisions and corps. On the whole, when fighting for a tactical defense zone, both tactical as well as, not infrequently, operational reserves of the attacking forces were used. Only such a consecutive and methodical increase in forces could then lead to a "grinding" of the defending forces, the creation of decisive superiority over them, and a successful breakthrough of the defense.

A timely increase of efforts during an offensive under conditions of contemporary combat will have an even greater importance than in the past, since the defending side is now able to react operationally to an appearing danger, executing a rapid maneuver by forces and means along the front and from the rear.

The basic means of increasing combat efforts is now the nuclear weapon, as well as firepower of other means of destruction. Second echelons will be used to develop the success of subunits and units of the first echelon and for a rapid use of results of nuclear and fire strikes in the most important directions. In connection with the great irregularity and dynamic quality of development of the offensive, wider possibilities are created for the introduction of subunits acting in reserve or in the second echelon into intervals or from the flanks of subunits of the first echelon. Using breaks in the combat formation of the enemy, they swiftly penetrate to the depth of the enemy territory and strike suddenly on the flank and in the rear of his troop concentrations.

The selection of directions and calculation of the time of introduction into combat of second echelon subunits must be made in such a manner that they could fully and timely make use of the results of inflicted nuclear strikes. Besides them being effective in the most important direction, second echelons and reserve subunits during an offensive can be used to replace troops of the first echelon, to transfer forces to other directions, and to solve other problems. But here a scattering of efforts of the second echelon and the diverting of its forces to solve secondary, insignificant problems cannot be allowed.

Combat with defending reserves will now be conducted in a new manner. In the past combat with enemy reserves during an offensive was usually in the form of repelling counterattacks. The attacking forces were, as a rule, unsuccessful in destroying the reserves (especially large reserves) and in breaking their counterattack because of the insufficient strength and range of their firepower. Furthermore, due to the limitations of reconnaissance, the attacking forces could not opportunely discover the location of the reserves and their movements for counterattacks.

Now the advancing side, having nuclear weapons, will attempt to inflict the greatest possible defeat on the enemy reserves according to their exposure in areas of concentration before moving to a counterattack. Under certain conditions enemy reserves will suffer a partial defeat, or their advancement will lag to useful deployment points for counterattacks. Aircraft can be used very effectively for this purpose; they can strike troop columns during their passage through gorges, over river crossings, bridges, and road junctions. With the approach of reserves to the points of deployment, fire is increased to a maximum. At this instant, when the enemy is deployed in approach march and combat formation, the most favorable conditions are created for his destruction.

If destroying the enemy's reserves and disrupting his advancement is, nevertheless, impossible, subunits will be forced to repel the counterattack. And here the troops will also act in a new fashion. During the last war, the basic method of repelling a counterattack was by an early transfer of part of the advancing forces to the defense. Such a method can be applied even now, especially when repelling a counterattack of superior enemy forces which have not been hit by nuclear weapons, by firing from previously captured lines in order to inflict losses on the enemy, to weaken him, and to create conditions for a subsequent strike. But the most effective method of combating a counterattacking force is now by hitting it with a surprise counterblow, using advancing subunits. This will make it possible not only to destroy successfully the counterattacking reserves, but also to ensure rapid development of the offensive at a high rate. Of course, we will use such a method when the enemy has received a sufficiently powerful fire strike and we have sufficient forces for his destruction in a meeting engagement. Commonplace in contemporary conditions will be the so-called combined method of repelling counterattacks, i.e., a part of the forces will forge a counterattacking grouping from the front, while the main forces will attack the flank and rear.

An important condition of the successful development of an offensive and achievement of a high rate of advance is the continuity of its execution. The continuous development of an offensive is achieved by carrying out a number of measures: reliable fire suppression of the defense at all depths, constant support of superiority in forces and means over the enemy in the most important directions, persistent pursuit of the enemy, and conducting active combat actions at night.



### Peculiarities of a Night Offensive

Night offensive actions attained an especially wide scope during the Great Patriotic war. In contrast to the First World War, in the last war such actions (with a decisive purpose) were conducted not only by separate units and subunits, but also by large groupings of troops. Active night actions ensured the troops a number of advantages. They promoted more complete achievement of surprise of an attack, ensured rapid capture of the initiative and destruction of a defending enemy in a shorter period and with smaller losses.

Many of these advantages retain their importance even under contemporary conditions. Therefore, night combat actions in many armies of the world have now been given considerable attention. The intense development of lighting engineering and infrared technology has also promoted night actions.

Night, however, creates considerable difficulties for advancing troops. Darkness hampers orientation and observation of the battlefield. At night it is more difficult to support coordination and to control subunits; it is more complicated to surmount barriers and obstacles. Furthermore, at night the blinding action of a nuclear explosion is intensified. By virtue of this, success of a night offensive will be in direct dependence on the thoroughness of its organization, secrecy of preparation, skillful use of instruments of night vision, and organization of a light security.

A night offensive can be a continuation of the development of the day's combat actions. At night, a breakthrough in the defense can also be started. Preparations for the offensive must be made before nightfall. During this preparation it is important to outline the ground features which are visible at night for subunits, calculate the azimuths of directions of the offensive, and determine the order of illumination of the terrain and objects of attack and methods of setting the light markers to designate the direction of the offensive. Besides this, all personnel are given signals of mutual identification, target designation, and coordination.

An especially important matter is terrain illumination, which is organized for the purpose of ensuring a high rate of advance of the advancing troops and, at the same time, to hamper the operations of the enemy. The use of illumination should not complicate the use of night vision instruments. This complication is avoided by compiling a chart-calculation by which we determine which objects during the attack will be illuminated and at what time terrain illumination takes place.

The depth and content of combat problems of subunits during a night offensive depend on the degree of suppression of defenses by fire, the time of the start of the offensive, duration of the night, and nature of terrain illumination. The more reliable the suppression of defenses, the better trained the troops for night actions, and the greater the intensity of terrain illumination, the higher will be the rate of troop advance, and, consequently, the deeper their combat mission can be. As experience of the last war shows, well trained troops can execute at night a mission of the same depth as well as they can by day.

The combat formation of troops is so constructed that in the course of mission accomplishment at night they will avoid complicated reformations and the subunits will be ensured greater independence. For this purpose both battalions and companies are reinforced by tanks, artillery, and combat engineers. Under night conditions it is more complicated to organize coordinated action with forward detachments and tactical airborne landing forces placed in the enemy's rear area. With the advance of subunits in directions of the use of airborne landing forces, it is necessary to anticipate clear mutual identification and target designation signals.

Simplicity of maneuver is an important condition for the successful actions of subunits in night combat. The direction of actions of subunits is selected on accessible terrain having natural landmarks which are easily visible at night. It is important that the subunits be able to move to the outlined objects of attack over the shortest route. Intelligence, even before the beginning of a night attack, should reveal the presence at enemy positions of night vision instruments; it



must find the system of illumination as well as changes which the enemy can make in his defense with the approach of darkness. During the offensive basic efforts of intelligence are directed towards finding unsuppressed fire means, and means of nuclear attack, barriers, and zones of radioactive contamination.

Night attack is usually conducted after fire preparation or a powerful but short fire barrage. In order to achieve surprise in the attack, the duration of the fire preparation is as short as possible. During its course, along with the suppression and destruction of strong points and enemy firepower, attention is given to the destruction of night vision instruments, means of illumination, and enemy intelligence. Under fire cover openings are made in the barriers, which are then marked by signs which are visible in darkness.

A forward edge attack is sometimes profitably executed without illumination, by using night vision instruments, and also without fire preparation. This will make it possible to conceal from the enemy the beginning of the offensive. With limited use of means of illumination and instruments of night vision, the defending forces find it more difficult to reveal combat formations of attacking subunits. Illumination in this case can begin during combat in depth. It will reach its greatest intensity when capturing the most important defense strong points. In all cases the attack is supported by continuous artillery fire. Subunits swiftly develop the offensive in the directions indicated to them. These directions should be periodically designated by placing light markers. Tanks, using night vision instruments and light markers, usually advance ahead of the combat formation of motorized rifle subunits at a distance which ensures their signal communication and when surmounting barriers, directly in their combat formations. The close coordination of tanks and motorized rifle subunits will allow successfully combating the enemy firepower. Here the subunits attempt to hold exactly their indicated directions and opportunely designate their position by light signals.

During a night offensive, just as in a day offensive, the efforts of subunits are directed to the rapid use of results of nuclear strikes for a swift advance into the depth of the enemy territory. For this purpose areas of nuclear strikes should be designated by light markers, since the terrain after an explosion will be sharply changed, and natural landmarks can be destroyed.

Under conditions of night operations, the active and daring actions of the personnel can be of special importance. A disguised gaining of even small groups of the flanks and rear of the enemy renders a great moral influence on him and furthers his rapid destruction. The following example in this sense is characteristic. On the northwestern front, our advancing units (370th Rifle Division) in March of 1942 encountered a strong center of enemy resistance in the region of Kurlyandskoye. Attacking this unit from the front was futile. Then the commander of the 1232nd Rifle Regiment decided with the approach of darkness to send a company of submachine gunners to the enemy's rear. This company, under the command of Lieutenant V. Zelenev, secretly, along a deep ravine, penetrated to the depths of defense and at night attacked the center of resistance. The strike was not expected by the enemy, and he was forced in haste, suffering heavy losses, to leave advantageous positions.

During a transition from night to day operations it is important not to allow a reduction in the rate of the advance. With this goal, combat missions can be definitized for subunits. Often it will be necessary to organize additional reconnaissance, and the most advantageous boundaries of an area can be secured by part of the forces. Furthermore, it is important to tighten up firepower and also take necessary measures to disperse and camouflage combat formations.

#### Combat with Separated and Bypassed Enemy Subunits

The presence of intervals and considerable breaks between advancing troop groupings is an inevitable phenomenon in contemporary combat. Such intervals can be created on purpose in the interests of ensuring protection from weapons of mass destruction; they can appear in the course of combat operations as the result of the breakdown of separate units by enemy nuclear strikes, or due to the irregularity of advance of combat formations under different degrees of enemy resistance along

various sectors of the front. In connection with this, in the rear and on the flanks of advancing troops separate subunits and units of a defending enemy can remain.

Cutoff and bypassed enemy units can operate differently. Some of them (sometimes the majority), having lost control and communications with the main forces, being demoralized and stunned as a result of the infliction of powerful and sudden nuclear and fire strikes of advancing troops, cannot offer any serious resistance. However, it is impossible not to consider that separate troop groupings will begin active and decisive operations in order to breakthrough to the main forces or to inflict blows on the flank and rear of advancing subunits. In any event, the very fact of the presence of separate resistance centers on the flanks and in the rear of advancing troops cannot be disregarded by the advancing troops. The advancing troops, in all cases, must take measures to discover and destroy them.

During the last war, when an offensive was conducted on a continuous front, when holding direct, close lateral contact with advancing formations and smaller units, this problem did not confront advancing troops with such sharpness as at present, inasmuch as according to the advance of troops the territory was immediately cleared of the enemy. If separate bypassed groupings remained, then most frequently they were in intervals between large operational formations which executed the breakthrough. In accordance with this the battle was conducted with them, as a rule, by forces of an operational command. Now it is a different matter. During an offensive which is developed in different directions, combat with a cutoff and bypassed enemy will be conducted on a tactical scale.

During the Great Patriotic war, the most effective method of destroying similar enemy groupings was by encircling them. Under contemporary conditions, when conducting an offensive in different directions, even greater possibilities are created for the encirclement of different (in composition) enemy subunits. However, the nature and methods of encirclement and destruction of a surrounded enemy will be different. The exit of a surrounded enemy from under strikes can be prohibited by intercepting the basic routes of his departure. At the same time, delivering nuclear blows on a surrounded troop concentration makes it possible to destroy it quickly. Here completing the encirclement, dispersing the concentration into units, and destroying it will most probably coincide in time.

However, under all circumstances, encirclement nevertheless requires using a considerable amount of forces and means and can lead to a serious time loss, which negatively affects the rate of troop advance. By virtue of these circumstances, and also due to the presence of powerful means of destruction, the attacking force will use such methods in destroying the enemy, remaining at his flanks and in the rear, which to the greatest degree will correspond to conditions of the situation at hand, and, first of all, which eliminate the necessity of diverting forces from the solution of the basic problem, i.e., swift advance in depth. These methods will be determined by the formation of enemy troop groupings, the presence of our own forces or means, especially nuclear weapons, the conditions of their use, and also other data pertinent to the situation.

The main means of destroying the enemy forces, including those which appear in the rear and on the flanks of the attacking forces, is the nuclear weapon. Nuclear blows will be inflicted, first of all, on objects which present the greatest danger. However, the use of nuclear weapons is limited by a number of conditions. They can be used only in the presence of a considerable interval between combat formations of advancing groups. Therefore, along with this, an important role in the defeat of cutoff groupings will be played by aircraft and artillery fire. Aircraft strikes will be inflicted mainly by means of nuclear attack on the enemy and his reserves which can render aid to cutoff troops. Aircraft are an important means of reconnaissance of the enemy both of the terrain in intervals and on flanks of the attacking forces.

Artillery, by its barrage fire, will protect threatened flanks, suppress separate strong points and centers of the enemy's resistance, his command points, and also his means of nuclear attack. An important role in combating counter-attacking tanks will be played by antitank guided missiles, cannons, and tanks

conducting direct laying. Thus nuclear blows, aircraft strikes, and artillery fire will create conditions for a rapid destruction of the enemy. But destruction will not always be completed by inflicting nuclear and conventional fire strikes; in a number of cases this will require using motorized rifle and tank subunits. The methods of operation of these subunits regarding destruction of cutoff and bypassed enemy groupings can be most diverse: they can inflict simultaneous, coordinated blows on the enemy from various directions, reliably block cutoff subunits or temporarily neutralize them by sending out covering detachments, and sometimes comb over the area.

The greatest effect can be achieved by inflicting a number of simultaneous thrusts from the flanks, rear, and front on cutoff enemy units. In such a case it is not necessary to create a decisive superiority over the enemy in forces and means. It is important that such thrusts be sudden and swift and that they be inflicted after nuclear and conventional fire strikes. Attack from different directions has the advantage that it promotes confusion of the enemy, rapid dispersion of his combat formation into parts, and does not enable him purposefully to use his own reserves. The negative side of this method of operation is the fact that for inflicting such blows it nevertheless will be necessary to use a considerable quantity of forces and means, and this is not always possible according to conditions of the situation. Therefore, in a number of cases the attacking forces will have to be limited to less decisive measures — temporary neutralization or the blocking of bypassed enemy groups with their subsequent destruction.

The essence of this method is that attacking forces separate a certain part of their forces to intercept the most important routes of maneuvers, preventing the exit of bypassed subunits to the flanks or rear of the advancing troops. But blocking under contemporary conditions can only be reliable when it receives air support, i.e., when the enemy is deprived of the ability to strengthen his grouping by a transfer of subunits or materiel by air. Of course, even the most durable and reliable blocking does not lead, nevertheless, to a decisive defeat of the enemy. It is a temporary measure, and its importance is that it ensures the attacking forces the necessary time gain.

If cutoff enemy subunits do not conduct active operations and the necessary forces and means cannot be assigned for their destruction, then advancing units can be limited to such a measure as sending out separate covering detachments in the threatened directions. Covering detachments, in their methods of action, can be both mobile and stationary. Stationary covering detachments should be sent out to prevent an enemy exit to road junctions, crossings, and rear objects. Subunits which are detailed as covering detachments can operate as stationary flank guards. The widest dispersal can be enjoyed by mobile covering detachments which, being mobile, can control a more extensive area. Their composition should certainly include motorized rifle subunits, equipped with transport of high passability capable of operating under the impassability of roads.

During the Great Patriotic war a method of combating cutoff and reconnaissance-diversionary enemy groups was used which applied combing over certain areas of a site. It was usually applied to clean up a territory of remainders of different, cutoff enemy groups. Such a method can sometimes be applied under contemporary conditions, for instance, to clean the enemy out of placement areas of control points and out of the rear.

In order to prevent a surprise enemy attack on threatened flanks, patrols can be organized in separate directions. This can be executed both in the air, on helicopters, and by separate mobile groups. For patrolling, in a number of cases, it is useful to assign tank subunits, which have the greatest mobility.

The constant threat of operations against the flanks and rears of advancing troops by separated enemy groups remaining in the rear requires especially thorough organization of direct protection in all units. In subunits which advance on open flanks echelon formation of combat formations can be used, and observation and reconnaissance is stepped up. In all cases it is important to ensure the necessary independence of subunits which advance apart from the main forces and their ability to accomplish a flexible and bold maneuver in threatened directions for the purpose of combating a bypassed enemy.

Of special importance under these conditions is reconnaissance. It should be conducted by advancing subunits not only ahead of the front but also on the flanks, and sometimes even in the rear. The basic mission of reconnaissance is a timely discovery of the intentions of the enemy and the nature of his actions to enable timely measures to be taken for counteraction. Furthermore, reconnaissance, especially aerial reconnaissance, should reveal measures taken by main forces of enemy troops for the purpose of assisting cutoff groupings.

### Overcoming Zones of Radioactive Contamination

Radioactive area contamination in an offensive battle can occur as a result of enemy nuclear strikes with ground explosions both directly against advancing troops as well as especially for the purpose of creating zones of contamination ("nuclear barriers"). It is intended to create such barriers, according to the views of the NATO Command, mainly on almost insurmountable natural boundaries: rivers, mountain ranges, and defiles, where the rate of advance of the attacking forces is slowed and where the buildup of troops is possible.

Area contamination by radioactive substances can also occur as a result of inflicting nuclear strikes with a low airburst. Radioactive substances will often be put into the offensive zone from neighboring sectors.

Very powerful radioactive contamination can also occur during the explosion of nuclear land mines, the wide application of which is particularly insisted upon by the West German revanchists.

Subunits, executing an offensive mission, often must operate in zones of radioactive contamination where they must accomplish not only swift marches, but also conduct persistent, tense battles.

In order not to allow the destruction of personnel by radioactive radiation or at least to weaken the results of its influence, ensuring thereby a high rate of advance of troops and successful fulfillment of the combat mission, it follows first of all to organize thoroughly radiation reconnaissance and inform the subunits about radioactive danger. It is also very important to provide personnel beforehand with the necessary means of protection, which should be skillfully used in the course of battle. The degree of irradiation of personnel will, in many respects, depend on the method of overcoming the contamination zone and on the timeliness of carrying out special analysis and other measures to lower the influence of radioactive contamination.

Radiation reconnaissance in the course of an offensive is given the task of revealing beforehand the presence of radioactive contamination of the area and the air, determining the nature of the zone of contamination, its dimensions, levels of radiation in it, and also finding ways to bypass dangerous places and marking them. It is conducted by chemical observation posts and chemical reconnaissance patrols. Subunits, furthermore, additionally set out observers (observation posts) or dispatch patrols composed of specially prepared squads (crews, teams).

Warning the personnel of radioactive contamination is accomplished by technical communication means and with the help of sound and visual signals.

The subunit commander, having obtained data of the presence (in the direction of subunit operations) of the contaminated zone, estimates the radiation situation and makes the decision regarding surmounting the zone. Here he calculates what doses of radiation personnel can obtain when surmounting the zone, and he determines what protective measures must be taken.

In the decision to surmount the zone there are usually anticipated missions of radiation reconnaissance, methods of surmounting the zone, direction of actions of the subunits, formation of forces and means when surmounting the zone, the order of use of protection equipment, and also measures undertaken to execute special treatment of personnel.

Methods of surmounting a zone of radioactive contamination used by subunits can differ, depending upon the character of the zone, levels of radiation in it,

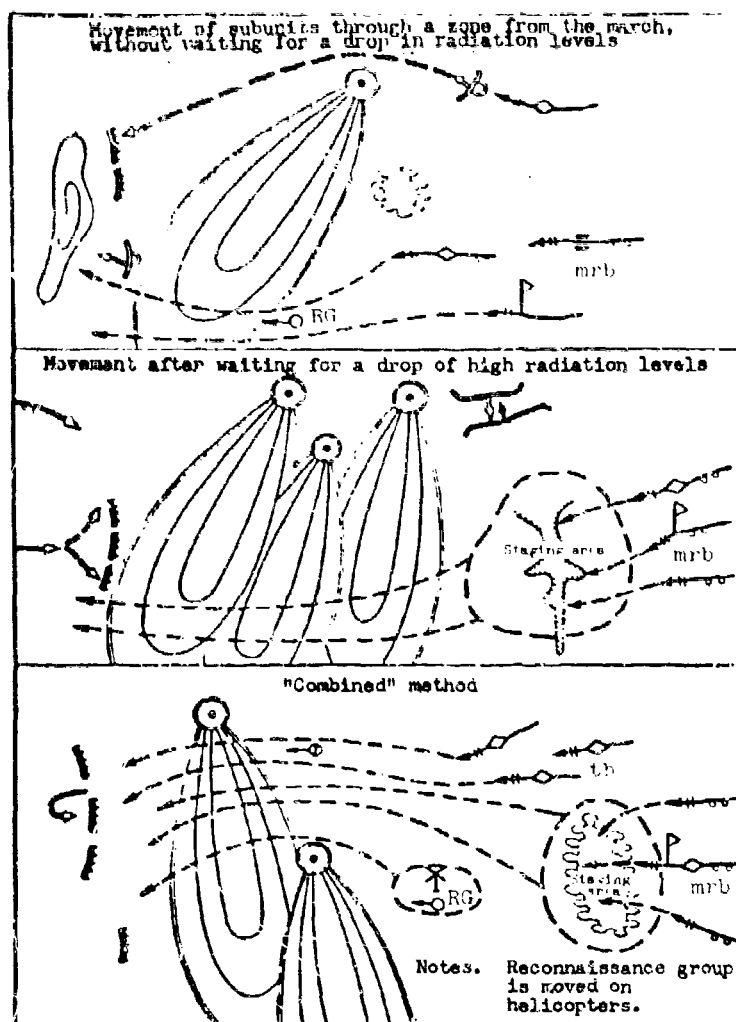


Fig. 29. Method of surmounting zones of radioactive contamination. [mrb = motorized rifle battalion; RG = reconnaissance group; tb = tank battalion].

its position with respect to the direction of actions of subunits, the presence of destruction, and terrain conditions. If the situation permits, the subunit must attempt to bypass the zone of contamination. However, detour of the zone is not possible in all cases. It is undertaken usually when it will not require much time, when a detour will not lead to a sharp deviation from the previous assigned mission and to a lowering of the rate of advance. For successful accomplishment of a detour a well developed network of roads is required.

The basic methods of surmounting a contaminated zone are movement of subunits through the zone from the march, without expecting a drop in the levels of radiation; movement through the zone after a drop in high levels of radiation. A combination of these methods (Fig. 29) is also possible.

Surmounting a zone from the march has a number of advantages. With such a method we maintain a high rate of advance, the enemy cannot break away from the

advancing troops and gain time or organize resistance during our exit from the zone. Depending upon conditions of the situation, surmounting on the run can be carried out along previously assigned or new routes and directions, ensuring the lowest exposure of personnel to radiation and achieving impetus of the offensive. To decrease doses of radiation, surmounting areas with high radiation levels is possible at first by tank subunits, since tanks possess the highest protective properties, and then by subunits on armored carriers and motor vehicles. Before the approach of the latter to the zone of contamination, levels of radiation in the zones will already be lowered, and this will ensure less exposure to radiation by the personnel.

The rate of surmounting a zone and the doses of radiation received by personnel will, in many respects, depend on the passability of the route and speed of reconstruction of damaged sections of the route. We must expect that, as a result of nuclear and conventional fire strikes, a considerable part of the roads will be destroyed. Furthermore, in directions of movement of the subunits, great destruction, floods, and the appearance of local fires are possible. If rebuilding the roads and obstacle clearing require a considerable expenditure of time, forces, and equipment, then the advance of the subunits must be organized along the most accessible areas of the terrain, bypassing the areas of destruction.

During movement in a contaminated area, especially in dry weather, tanks and vehicles should be driven at an increased distance from one another in order to eliminate (or lower) the spread of dust behind them. Protective means are used by personnel, depending upon the means of movement, nature of contamination, state of the terrain and weather conditions. Under conditions of dust formation, personnel who are in open motor vehicles, will surmount the contaminated areas in gas masks and skin protective equipment, and tank crews and personnel in machines with closed bodies will only wear gas masks. In damp weather and after a rain, when dust formation is absent, subunits in open vehicles can use only protective raincoats (cloaks), and tank crews can operate without protective means.

After leaving the zone of contamination at the first opportunity one should perform a partial special treatment of subunits and determine the dose of radioactive radiation received by personnel and also the degree of radioactive contamination of armament and equipment in the subunits. A partial medical treatment of personnel and the degassing and contamination of combat materiel are usually conducted directly in the subunits by using table and hand equipment. The execution of a combat mission need not stop here.

Surmounting a contaminated zone can be delayed until after a drop in radiation levels under two conditions: when personnel from the march can receive large doses of radiation, which will lead to their mass withdrawal from the formation, and when the wait for a drop in the radiation level will not lead to failure of execution of the assigned combat missions. Most often this method can be used by subunits which operate in the second echelons or in reserve, when according to conditions of the situation their immediate introduction into battle is not required. It is important to consider that during a forced stop subunits can become favorable objects for nuclear strikes of the enemy. Therefore they must be dispersed and thoroughly camouflaged, skillfully using the protective properties of the terrain. When possible they use the simplest shelter. It is inexpedient to halt subunits to wait in gorges, defiles, and on crossings where a considerable accumulation of troops is possible, as this could hamper a maneuver.

In the waiting period for a drop in high radiation levels it is necessary to perform reconnaissance of the enemy. With this goal certain reconnaissance groups or patrols can be moved through the contamination zone on helicopters. Surmounting the zones after a drop in radiation levels should be executed without considerable changes in the formation of subunits in order to ensure swiftness of their actions.

Protection of personnel during prolonged actions in contaminated areas is attained by the rapid withdrawal of subunits from areas of dangerous contamination. If such areas are in the directions of troop operations they must be bypassed. It is very important in this case to use fully individual and collective means of protection (armored carriers and other combat materiel), engineering constructions, and protective properties of the terrain, periodically alternating rest and action

of the troops and at the first opportunity conducting partial or complete special treatment of personnel.

In certain cases a stay in zones of radioactive area contamination will be connected with the surmounting of enemy resistance. By creating destruction, obstructions, and different barriers, the enemy will attempt with small detachments to delay the advancing troops and force them to retreat and remain for a long time in the zones of contamination. The most convenient exits from the zone can be protected by larger forces. The problem of advancing subunits in this case consists of how to ensure a swift and uninterrupted advance in a contaminated area and a rapid exit from it. When it is necessary to destroy separate centers of the enemy's resistance and also his rear guard, subunits should execute the attack using security elements on armored carriers without dismounting from the vehicles. Achievement of a high rate of advance, furthermore, is promoted by skillfully using breaks and intervals in the combat formation of defending troops. Decisive wedging into the enemy position and constant support of direct contact with him deprive him of the possibility of complicating the radiation situation, inflicting nuclear strikes on the advancing troops, and breaking away from them.

Regarding surmounting areas of aerial nuclear explosions, it is possible several minutes after the explosion. Here tank subunits and subunits which operate on armored carriers can advance directly through the epicenter, but personnel moving on motor vehicles and on foot must pass at a distance of 300-400 m from it. In both cases it is necessary to use individual protective equipment. The area of the epicenter of low air bursts should be avoided.

During an offensive such conditions can appear when the radioactive cloud will spread toward the advancing subunits. In such a situation, avoiding high irradiation is only possible by executing (in short periods) a maneuver in safe directions in order to bypass the zone of contamination or rapidly emerge from it. But such a maneuver is only possible in the presence of reliable data regarding the radiation situation and under conditions of a well-developed network of roads.

When liquidating the consequences of nuclear attack, commanders of subunits, in the first place, take measures to restore the destroyed control, combat formation, and combat capability of the subunits. When necessary, a part of the forces and means is detailed to perform rescue operations. Simultaneously radiation reconnaissance and control over the radioactive contamination of personnel, armament, and combat materiel are organized. Important tasks when conducting measures undertaken for the liquidation of consequences of a nuclear attack are the organization of aid to affected personnel, clearing of obstructions in the routes of movement, and also performing special treatment.

#### Assault Crossing of Water Barriers

During successful development of an offensive or pursuit, troops in any theater of military operations inevitably will have to surmount various water barriers. Often in the course of executing a mission it will be necessary to cross not one, but several different (in character) water barriers. Thus, in many cases successful execution of combat missions will now depend on how quickly advancing troops can surmount water barriers, depriving the defending troops of the capability of using them to create firm defensive lines.

Even in the period of the Great Patriotic war, attacking forces with all acuteness had to deal with the problem of as swift an assault crossing of water barriers as possible without a sharp decrease in the general rate of advance. In the solution of this important problem Soviet troops achieved considerable success. Thus, from the march in an unparalleled short period such great water barriers as the Dnieper, Dniester, Neman, Bug, Visla, Oder and others were crossed. However, the complete solving of the problem of uninterrupted assault crossing of rivers in the last war was, nevertheless, impossible for the troops. The imperfection of crossing equipment and the limited quality of possibilities for defeating by fire the enemy defending the river lines were influences. As a result a considerable number of rivers, sometimes small in dimensions, caused prolonged troop delay.

Under conditions of nuclear war, in spite of the presence of powerful means of destruction and greatly improved and varied crossing equipment, water barriers have not lost their significance as natural obstacles. In foreign armies much attention is allotted to the organization of defenses on river lines. It is especially widely assumed to use water obstacles to create nuclear barriers and floods and also as favorable natural boundaries for defense. The defense of water barriers, as experience of teachings in foreign armies shows, is mainly constructed on the strong retention of advantageous positions which can directly control the water. But sometimes the forward edge moves to the rear, for instance, in those cases when an area in a river valley does not favor the organization of a fire system. Most often subunits occupy defenses on a wide front. The system of fire and barriers is constructed with the calculation to facilitate striking the advancing troops on their approaches to the river, delaying them as much as possible before the river, forcing them to concentrate and causing an accumulation of troops, and inflicting nuclear blows on them. In the case of successful assault crossing of a river, we anticipate by fire and decisive counterattacks to destroy immediately the crossing subunits, not enabling them to be reinforced on the opposite shore and develop success in depth.

The main requirement for crossing water barriers under contemporary conditions is to carry it out in all cases at the same high rate as the advance is conducted. This mission is, undoubtedly, complicated. In the last war even during successful crossings of rivers from the march, the rate of troop advance was considerably delayed, and during battle on the opposite shore combat was of an exceptionally tense nature and often led to a gradual, systematic expansion of bridgeheads in depth and toward the flanks. During the war, in spite of all efforts, advancing troops were not able to get away from methodism, especially when conducting a battle to expand bridgeheads.

Under contemporary conditions, the possibility of crossing water barriers from the march at a high rate has been considerably increased. By inflicting nuclear and fire strikes, attacking forces can destroy enemy groupings even before their exit to the river line and even when the enemy is occupied by defense. Under these conditions, assault crossing from the march is the basic, most often used method of operations of troops. The presence of new combat means in many respects changes the nature of troop operations when crossing from the march (Fig. 30). Advancing troops will now move to the water barrier in dispersed formations on a wider front than they did before. Capturing favorable crossings, besides advanced detachments, can also be executed by tactical airborne landing forces. All this creates the possibility without any stop, according to the approach of subunits and using the results of nuclear blows, to surmount water barriers and thus swiftly and without stopping to develop the offensive on the opposite shore. The assault crossing of river lines from the march to the greatest degree ensures a time gain, promotes the protection of troops from weapons of mass destruction, and creates conditions for the rapid transfer of combat efforts to the opposite shore. Furthermore, the high rate of assault crossing of water barriers and the uninterrupted development of an offensive after crossing the water barrier lower the probability of an appearance of protracted battles at limited bridgeheads, which usually occurred in the past.

Especially favorable conditions for crossing from the march are created during pursuit when the retreating enemy suffers nuclear and conventional fire strikes. Under these conditions advancing troops attempt to prevent a breakaway of the enemy, prevent his exit to a water barrier, destroy his main grouping on its approach to the water barrier, and swiftly, on the shoulders of the retreating enemy, penetrate to the opposite shore, using the success of advanced detachments and tactical airborne landing forces.

The decision to cross should be made as early as possible, at distant approaches to the river, and thus it is favorable ahead of time to give assignments to subunits and to organize coordination. This makes it possible, not stopping the movement, to create the necessary grouping of forces and means. With the approach to the water barrier data are definitized regarding approaches to it, i.e., its width, depth, the presence of fords, velocity of current, nature of the bottom and the shores, and sections are also revealed which are best for crossing. Simultaneously continuous reconnaissance of the enemy is conducted. Here it is



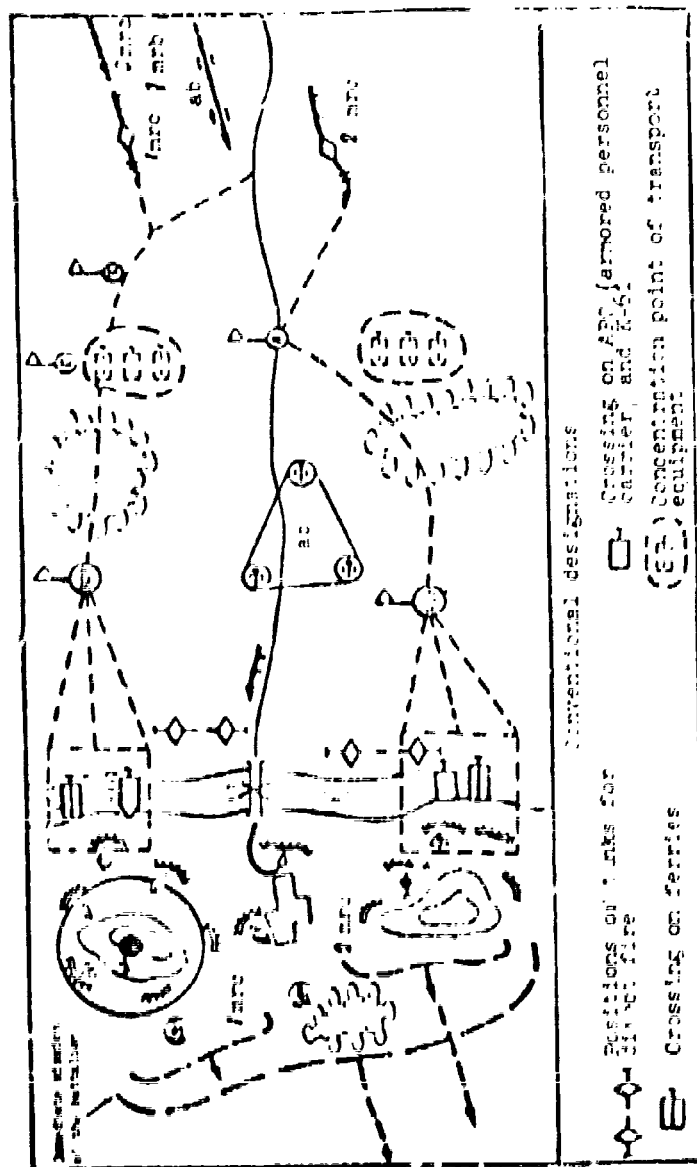


Fig. 30. Assault crossing of a water barrier from the north. [APC = motorized rifle company; K-61 = regimental command post; K = commander (command post); ab = artillery battalion; MRB = motorized rifle battalion; APC = armored personnel carrier; K-61 = type of tracked amphibian].

important to reveal the direction of his departure beyond the water barrier, his system of defense and grouping of troops on the opposite shore, and especially the location of his means of nuclear attack.

The content of subunits combat missions when crossing water barriers can be diverse. It depends each time on the conditions of the situation and, first of all, on the nature of the enemy's defense at the river line, the degree of the defense's suppression by nuclear weapons, the presence of one's own forces and means and also the width of the water barrier and nature of terrain adjacent to it. The line which is to be captured by subunits on the opposite shore should be determined as such that it would ensure first priority capture beyond the river of such objects whose capture would create advantageous conditions for laying on bridges and equipment of other crossings, and would also exclude the possibility of the enemy conducting mortar and artillery fire, observed from ground observation posts, on the crossings; at the same time it is necessary that advancing troops be able to subsequently develop their success in depth.

In accordance with the combat mission the necessary grouping of forces and means is created. The basic complexity of creating such a grouping is that it must ensure not only rapid surmounting of the water barrier but also an uninterrupted development of the offensive on the opposite shore at a high rate and at great depth. This is achieved by reliable suppression of the enemy's defenses on the opposite shore, the necessary echeloning of troops, creation of strong reserves, and expedient distribution of transport equipment.

A large role when crossing water barriers will be played by tactical airborne landing forces and advanced detachments. Tactical airborne landing forces have the following missions: using the results of a nuclear blow, seize crossings and areas which are convenient for assault crossings, cut off enemy reserves retreating beyond the water barrier, or not allow their approach from the rear, and ensure successful crossing of a water barrier by one's own main forces. The advantage of paratroop operations is that they can appear, faster than the other troops, at the water barrier and more quickly use the results of nuclear strikes. They can accomplish their own mission by means of capturing and strongly holding crossings and bridgeheads and by carrying out raids on the enemy's rear, executing brief and sudden strikes on his troop groupings.

Subunits, acting in the composition of advanced detachments, attempt to move as fast as possible to water barriers, bypassing the enemy which may be encountered along the route of movement. They engage the enemy in combat only when necessary. Their main mission is the most rapid seizure of available crossings or moving to the opposite shore and seizing a favorable line, the capture of which ensures successful crossing.

Subunits in the composition of vanguards act differently. Their responsibility is to clear the road for the main forces; therefore by decisive actions, they attempt to destroy the enemy who covers the approaches to a water barrier and his rear guard subunits. With an exit to the water boundary, the vanguards, using the success of advanced detachments and paratroop forces, not lagging behind, cross the water barrier from the march on their resources and develop the offensive in depth.

Suppressing the enemy by fire when crossing from the march is executed during the advance of subunits to the river. Nuclear blows are inflicted on the most important defense units on the opposite shore, or on enemy means of nuclear attack. It is most expedient to suppress objects which are located on the frontline and in the rear which hinder crossing. In ensuring a crossing, an important role can be played by the tanks and accompanying weapons of advancing troops, which, with a pullout to the water barrier will occupy firing sites on their own shore and will destroy enemy firepower, located on the frontline, which controls the water.

Motorized rifle subunits, under the fire cover of their own troops, from the march (according to their pullout to the river) on floating armored carriers and other means of transport and over captured bridges cross the water barrier, destroying the enemy by all available means. Tank subunits can now cross simultaneously with

the first echelon, using self-propelled ferries. Previously they crossed using only available fords, captured bridges, ferries, and bridges which they constructed.

Under contemporary conditions, the widest use also will be enjoyed by tank crossings across the bottom of a river, under water. This has become possible as a result of equipping the tank subunits with special organic equipment, ensuring rapidly hermetically sealing the tanks. Areas for hermetically sealing tanks are designated at a point from the river which ensures the secrecy of their location and which requires little time to reach the river. Such a method of crossing ensures the surprise of crossing and rapid growth of the force of the thrust on the opposite shore.

Most profitable for assault crossings are areas with accessible shores and a valley, having hidden approaches and ensuring good camouflage. During the Great Patriotic war, for river crossings we first of all made use of its sharp bends which pointed toward friendly troops. As combat experience shows, the greatest success when crossing from the march was achieved by those troops who were most fully capable of ensuring surprise of the crossing, and also who could continuously increase their efforts after arriving on the opposite shore. These factors — surprise of crossing, continuity of offensive development, and speed of capturing territory on the opposite shore — are still of importance in contemporary combat. Surprise in crossing is achieved by a number of measures, including swift pullout to the river on a wide front, the use of darkness, deluding the enemy with respect to the place and time of crossing, previous destruction of enemy reconnaissance forces, especially radiotechnical, and others.

Of special value is crossing continuity. Once begun, a crossing must be carried out uninterruptedly by all available forces and means. When crossing, subunits must be able to maneuver widely and to disperse their combat formations in order to ensure protection from weapons of mass destruction.

We believe that battles on the opposite shore in a number of cases will be persistent and intense. Once the crossing has begun, the defending side will attempt to strengthen its resistance wherever possible. Nuclear blows will be inflicted on the most important forces. Simultaneously the enemy, by fire and counterattacks, will attempt to destroy the crossing subunits. Combat at this time will take on the character of a unique contest of sides in firepower, speed of maneuver accomplishment, and increasing combat efforts.

Continuity of troop fire accompaniment in this situation is one of the important conditions for achieving success. With this goal, artillery and other firepower should be sent across in such a manner that continuity of offensive support by fire on the opposite shore was ensured. Simultaneously with the first echelon, part of the antiaircraft equipment crosses in order to defend from aircraft strikes subunits crossing to the opposite shore.

If assault crossing of a water barrier is not successfully developed in one directions, subunits must maneuver to other areas or to a neighboring area of operations where the offensive has been developed successfully. In all cases the crossing should be conducted actively, energetically, and persistently.

The possibility is not excluded, under contemporary conditions, of assault crossing of water barriers with deliberate preparation (Fig. 31). But now, of course, such an assault crossing will have little in common with similar methods of crossing water barriers in past wars. Means and methods of defeating the enemy on the opposite shore will be different, as well as ensuring the crossing of forces across a river; the density of created troop concentrations will be lessened, but the front of an assault crossing will become wider. Preparation time of an assault crossing will be considerably reduced.

During an assault crossing with deliberate preparation an especially reliable suppression of enemy defense will be required, inasmuch as it will be stronger than when crossing from the march. When determining the duration of bombardment, besides other factors, we consider the time required by subunits to advance from their initial areas to the water barrier and for crossing to the opposite shore.

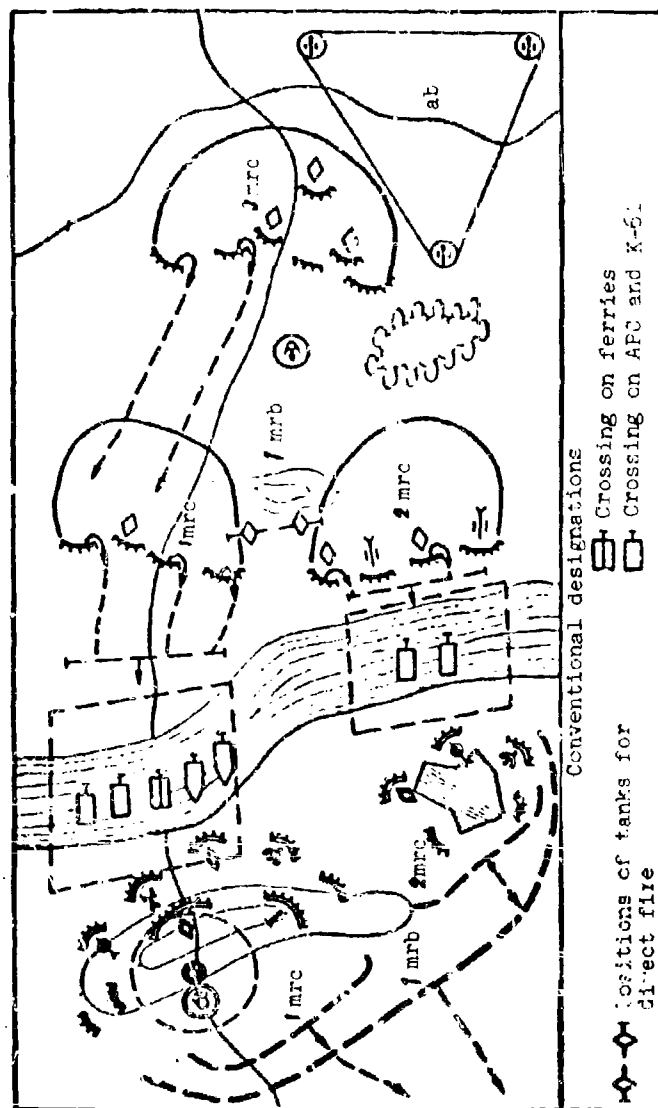


Fig. 31. Assault crossing of a water barrier with planned preparation. [mrc = motorized rifle company; mrk = motorized rifle battalion; ab = artillery battalion; APC = armored personnel carrier; K-61 = type of tracked amphibian].

Loading personnel on transport-landing equipment occurs in covered areas during the bombardment. Advancement of subunits is carried out under fire cover in such a manner that they might simultaneously, at a fixed time ("H"), begin the assault crossing along the entire front.

Under contemporary conditions it is especially important not to allow an accumulation of troops at crossings, and to anticipate measures to ensure the safety of crossing. Cover for subunits from the air must be especially reliable.

### Pursuit

Pursuit is an inalienable part of the offensive. Essentially it is a complex of the most highly-varied methods of combat operations, where the predominant place is occupied by swift troop movements, combined with a short deployment of a part of the forces to inflict short but powerful blows on a retreating enemy and his rear guards.

Historical experience shows that according to how the spatial scope of offensive operations and their resoluteness and maneuverability increased, the significance of pursuit in an offensive increased even more. Thus, in Soviet Army offensive operations, conducted in 1944-1945, approximately half of the time was spent in pursuit of the retreating enemy.

Conditions of the appearance of pursuit, the form and methods of conducting it at different stages of development of the military art, have been unequal. In the First World War, pursuit was carried out in a narrow zone, at shallow depth, at a low rate, and by its character did not usually exceed the tactical framework. In the Second World War, when advancing troops began to be placed in mass quantities by long range and highly mobile means, ensuring inflicting a deep and powerful blow on the enemy, pursuit took on a more decisive and varied character. It was conducted at considerably greater depth; pursuit zones were sharply expanded, and its duration increased. During pursuit, troops often were able to move deeply into the flanks and rear of the enemy, which created profitable conditions for his encirclement.

Along with frontal pursuit, usually not leading to decisive results, an even greater place began to be occupied by parallel pursuit. Pursuing troops were highly capable of inflicting flanking blows and disturbing deliberate enemy troop withdrawals, disrupting his retreating maneuver, and destroying the retreating group by elements. At the same time, the possibilities increased for the retreating side as to active counteraction against the advancing troops and a quick withdrawal of their own forces. Under these conditions, pursuit has taken on a more intense and dynamic character. Its success began to depend entirely on the time gain and the rate of advancing forces.

An important role is played in pursuit by tank and mechanized forces. Possessing greater mobility and shock force than rifle formations and units, they could accomplish swift thrusts, preventing the enemy from retreating to important objects in his rear; they blocked his departure route and with flank strikes smashed his retreating columns, preventing him from disengaging and moving to new areas and to prepared sites in his rear.

Support aircraft have inflicted assault and bombing strikes on retreating enemy columns and on his reserves (moving from the rear). It has prevented the enemy from occupying defense positions, it has disorganized traffic on roads, creating stoppages, and has thereby helped friendly ground forces to overtake and destroy the retreating enemy.

The widest use in pursuit has been enjoyed by advance detachments, dispatched from tank and rifle formations and units. Boldly and audaciously penetrating enemy positions, they destroyed his rear guard subunits, enveloped his routes of retreat, and seized important objects and areas in his rear, thereby ensuring the successful advance of primary forces. Furthermore, the capture and holding of defiles, crossings and passes by advance detachments on enemy retreat routes have led to the forced accumulation of retreating forces, lowered the rate of retreat, and promoted their disorganization and defeat.

Under contemporary conditions, considering the use of nuclear weapons and complete mechanization of forces, the value of pursuit has increased to an even greater degree. It has become the basic content for developing an offensive. At the same time, the conditions and methods of its execution have been essentially changed.

If in the past pursuit appeared only when an offensive was under development, chiefly during combat at an operational defense depth, then now, as a result of inflicting powerful nuclear and conventional fire strikes on enemy defense, its breakthrough can be achieved much faster; consequently, favorable conditions for pursuit can sometimes be created at the very beginning of an offensive.

Nuclear weapons and the mechanization of forces increase the capabilities of the pursuing side, as well as promote the realization of even more decisive goals than in past wars, and in shorter periods. Thus, if in past wars as a result of pursuit profitable prerequisites were usually created for defeating the enemy, destroying the retreating forces was very difficult and required much time; now, when pursuing an enemy, such losses can be inflicted that he will be deprived completely of his combat capability.

However, it would be erroneous to believe, under contemporary conditions, that success would be easily achieved, assuming that pursuit will occur in a nonstop, swift march. We must realize that the retreating side is quite capable of withdrawing forces from under an attack. It can inflict nuclear strikes on pursuing forces, create nuclear barriers along their routes, and create all manners of obstacles. All this will complicate the pursuit, and will increase its intensity.

Under contemporary conditions, when actions by the opposing sides turn into a unique contest of mobility, of paramount importance are the time gain and the guarantee of maximum pursuit tempo. Only then will pursuing troops be successful in defeating retreating forces, if they can keep the enemy from maneuvering, wreck his plans regarding the guarantee of a systematic retreat, and hamper his use of nuclear weapons. Otherwise, the retreating side will be free to act, and the pursuit will be unsuccessful. The greater the rate of pursuit, the greater the possibilities will be available to friendly forces to ruin the enemy plan for a maneuver, to break up his troop groupings, and destroy them; also, it will be more difficult for the retreating forces to use their nuclear weapons effectively.

To guarantee a high rate of pursuit, it is important to foresee ahead of time the possibility of an enemy retreat, and not to allow his breakaway from advancing forces; it is also important to move rapidly in the pursuit, and by swift actions to keep the retreating forces from moving to useful points; pursuit must be conducted with the full efforts of forces involved, allowing no short pauses or stops.

The basic efforts of reconnaissance are directed toward revealing the beginning of a retreat, the composition of a retreating force, and the direction of its movement.

Pursuit is begun immediately upon the initiative of the subunit commanders who discover the retreat. By their decisive actions they eliminate subunits of enemy cover and, making use of breaks and intervals in his combat formation, move swiftly to the flanks and to the rear, attempting to prevent the enemy from capturing important road junctions, commanding heights, and crossings. What is most important is not to give the enemy any respite, to block all his attempts to withdraw his troops from under attack, and to prevent him from systematically retreating or occupying defenses at useful sites. Strikes on separated groups are inflicted, as a rule, in stride and in short order. For this only a part of the pursuing forces is deployed. Primary forces, usually the most mobile and combat-ready, take the routes which are parallel to the retreat routes of primary enemy forces; they will sever these routes, isolate them, separate them into parts, and thereby create profitable conditions for their subsequent destruction. Such a *modus operandi* will become most characteristic in a nuclear war.

Under contemporary conditions we do not exclude the possibility of frontal pursuit, especially when due to prevailing conditions it is not immediately possible to move to the enemy's flank. But frontal pursuit need not lead to

rectilinear frontal strikes. It is best conducted on a wide front, in combination with pursuit along parallel routes; here attempts should be made to hinder the enemy and to strike suddenly on his flanks. A wide fire maneuver and the use of forces and materiel are necessary to attempt to cut off and to defeat enemy forces; these measures should be taken in interaction with forces which are engaged in parallel pursuit. Under contemporary conditions, when the advancing forces have nuclear weapons, frontal pursuit can quickly turn into parallel pursuit.

An important role in ensuring a decisive and swift pursuit is presently played by advance detachments and tactical airborne forces. The efforts of advance detachments are directed toward preventing the enemy from capturing useful objects along his retreat route — road junctions, crossings, and defiles — to disorganize his movement, to lower the rate of retreat, and to force the enemy to concentrate his forces, thereby ensuring profitable conditions for nuclear strikes on him. But if the mission of advance detachments is to capture the most important objects in the immediate rear of the retreating forces, then the depth of airborne landing operations can be more considerable. The basic goal of airborne landings is to disorganize any systematic enemy retreat, to delay the advancement of reserves, and to block their maneuvers. They must facilitate their own forces' rapid surmounting of natural obstacles and defensive boundaries. Maintaining close interaction with advance detachments, airborne units will render essential aid to forces pursuing the enemy from the front and the flanks, and will promote the enemy's quick dispersal and ultimate defeat. Located in the operational depth of the enemy's defense, they (in a number of cases) can successfully solve such important problems as destroying the means of enemy nuclear attack, his means of antiaircraft defense, and his control points. Besides capturing and holding various objects, airborne units can carry out surprise raids on rear areas of the enemy, his retreating columns and control points, causing panic among enemy forces.

Continuity plays an important role in successful pursuit. Decisive and persistent pursuit, carried out at a high rate and at great depth, demoralizes retreating forces and leads to their more rapid defeat. The experience gained in the Great Patriotic war is instructive in this sense. In such operations as the Byelorussian, Yassko-Kishinev, East Prussian, Vislo-Oder and certain others, pursuit was continuously conducted for several days. Pursuit continuity was achieved by different methods: by periodically alternating pursuing forces, by using second echelons and reserves, by the wide use of advance detachments, the use of dark, and by utilizing special detachments for night operations. Under contemporary conditions, pursuit continuity will be achieved mainly by increasing fire efforts, by continuously providing forces with air support, and also by introducing fresh forces from the rear to destroy advance enemy reserves, to destroy his separated forces, or to replace subunits of the first echelon which have suffered heavy losses and have lost their combat capability.

## CHAPTER VIII

### DEFENSE

#### The Essence of Defense

Defense as a form of combat action appeared simultaneously with offense. Usually the weaker side, or the one that considers it unprofitable to inflict the first blow, resorts to defense.

The purpose of defensive actions is to repel the attack of superior enemy forces, to inflict considerable losses on the enemy, to hold occupied positions and to create conditions for transition to the offensive — derived from the factor of inequality of forces. The defenders try to make up for a lack of forces and means by selecting tactically suitable terrain and fortifying it.

The importance of defense in different wars, and even in different stages of the same war, has not been equal, but has been determined mainly by the state of forces and means of armed combat. Thus, after a very short maneuvering period, the First World War took on a protracted positional character.

M. V. Frunze defines the reason for the appearance of positional forms of war thusly: "Position warfare developed through the inability of the combatants to find a solution through a direct mass attack. On the other hand, objective conditions in face of the limited territory and the latest technique allowed each side to reject a rapid solution and to defend stationary positions. The result of these factors was position tactics with its characteristic immobility and stability of front lines."<sup>1</sup>

Many bourgeois military theoreticians tried to base the offensive crisis during the First World War on the fact that such combat means as machine guns, rapid fire cannons, and tanks are considerably more powerful in defense than on offense, and therefore they affirmed that in the future all war would be positional.

However, when the poorly prepared and technically weak armies of bourgeois Poland, France and other capitalist states, directed by corrupt governments, in the very beginning of the Second World War did not resist the powerful forces of Fascist Germany, then certain bourgeois military theoreticians fell to the other extreme. They began to affirm that defense, as a form of combat actions, had lost its importance, that contemporary means of suppression permits an attacker to inflict strikes of such force that no defense can withstand them.

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<sup>1</sup>M. V. Frunze. Izbrannye proizvedeniya. (Collected works), Moscow, Voenizdat, 1950, p. 189



However, even these views were soon refuted by the experience of the Great Patriotic War. In violent fights and operations Soviet troops not only held their occupied lines but also inflicted great losses on the enemy, thereby bringing about a radical change in the situation and creating conditions for subsequent decisive offensive operations.

At the same time, the last war showed that defense is a forced and temporary phenomenon. It cannot be an end in itself. Only a decisive offensive can achieve victory over the enemy. Nuclear weapons, rockets of different ranges, great saturation of troops with tanks and other combat vehicles sharply increased the offensive possibilities of troops. In contemporary war the opposing sides will try to attain their objectives by a decisive offense. However, even in these conditions troops will be forced to resort temporarily to the defense in a number of cases.

Transition to the defensive can occur in those areas where offense is impossible or inexpedient and also when economy of forces and means in some areas is necessary to ensure an offensive in another, more important and advantageous area. This means that the defense will be used chiefly in secondary areas. In certain cases it can also be used in the most important areas, where offensive actions will be conducted, for instance, in an unsuccessful outcome of a meeting engagement or when repelling attacks, of superior enemy forces.

Some units can pass to the defense to support the flanks and rear of advancing groupings, to reinforce captured lines (objectives), and on the seacoast to repel amphibious landings and naval and airborne attacks of the enemy (Fig. 32).

The application of defense on a tactical scale is based on the fact that it has a number of strong aspects which have not lost their importance in contemporary conditions.

Thus, the defender can preliminarily select the site for the defense, effectively use its advantages, equip the occupied positions in the engineering sense, protect his forces and means from the nuclear strikes and fire of the attacker, and create favorable conditions for conducting battle. In defense troops can prepare beforehand for nuclear strikes, organize a fire and barrier system, maneuver their forces and means, and use different means of camouflage to conceal the true deployment and show a false one. Owing to this with smaller forces a defender can resist the attack of a stronger attacking group.

More often than not contemporary defense must be subordinated to the interests of the offense and must serve its purposes. Defending troops are called on to hold definite regions of terrain for an attack in other directions or a forthcoming offensive, to gain time for the concentration of additional forces and means and thereby to create conditions for transition to a decisive offensive and to inflict more powerful blows on the enemy.

Troop capabilities for achieving defensive objectives have presently increased considerably. While before defense was based primarily on artillery and small arms fire, now the defending troops have nuclear weapons, a large number of tanks, armored carriers, antitank weapons and other fire means, and also engineer vehicles. This equipment allows the creation on any terrain of a stable and active defense on a qualitatively new basis, wide maneuvering of forces and means, and the conducting of powerful counterattacks.

Analysis of possibilities of defending troops shows that nuclear weapons permit giving troops more decisive objectives to defend. Now they can not only repel the offensive of superior enemy forces, but they can also thwart the enemy on the approaches to defense and turn to the offensive in a brief period.

Thus the essence of contemporary defense consists of inflicting destruction on superior enemy forces with nuclear and conventional weapons in combination with counterattacks of forces from depth, in firm retention of occupied positions and regions and the creation thereby of conditions for transition of forces to offensive actions.

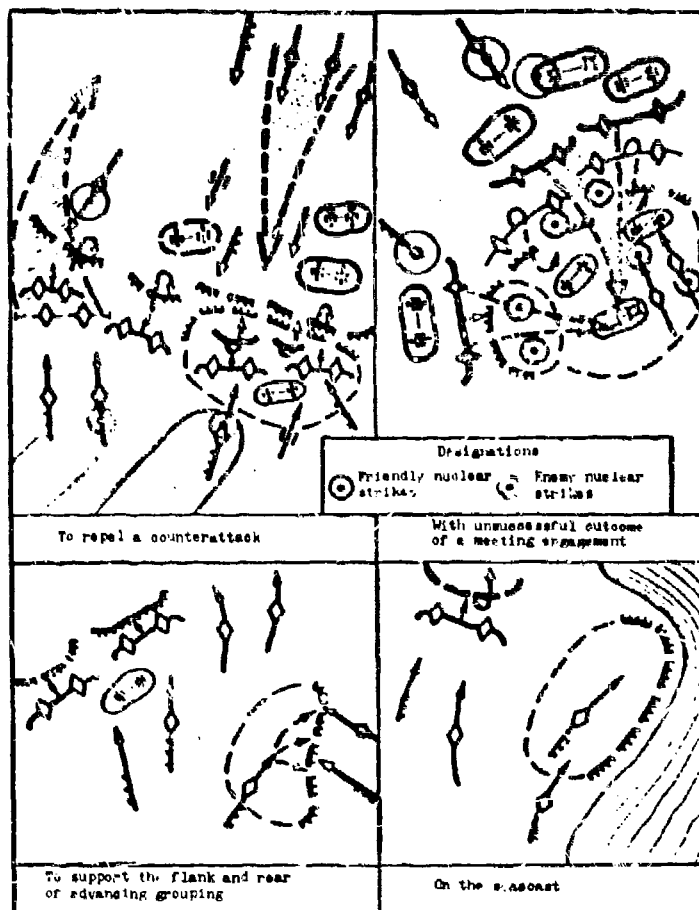


Fig. 32. Conditions for transition of troops to the defensive.

Depending upon the mission and situation the troops can shift to the defensive in conditions of direct contact with the enemy or while disengaged. In the Great Patriotic War transition to the defensive occurred most frequently in direct contact with the enemy under his active operations. This position is also characteristic for contemporary conditions. The influence of the enemy on troops turning to the defensive in direct contact with the enemy will be expressed in nuclear strikes, air strikes, artillery fire, and also in tank and motorized infantry attacks intended to disrupt the planned organization of the defense. As a result, simultaneously with the creation of the necessary grouping of forces and means and the organization of fire system and with engineer equipment of positions, in certain areas the defender must repel the attack of the enemy and take measures to reduce the consequences of a nuclear attack. It will often be necessary to fight to improve the occupied position and remove centers of enemy resistance in the rear.

Now the time for the creation of defense will be extremely limited. Whereas before no less than 3-4 days was required for an enemy grouping to approach the defense or foot over a distance of 100-120 km, now only 4-5 hours is needed (or about 6-7 hours, taking into account deployment into combat formation). With transition to the defensive as a result of an unsuccessful encounter the time for its organization will be even less.

Turning the forces to the defensive with no enemy contact is usually carried out in secondary areas and on the seacoast. Second echelons and reserves also pass to the defensive with no enemy contact.

In passing to the defensive with no enemy contact, as a rule, the troops have more time to develop the defense and also have the best conditions for a thorough study of the terrain both in depth and on approaches to the first line of defense, for the selection of the most favorable defensive lines, construction of the combat formation, organization of fire system and maneuver, and for operation of engineer facilities in fortification of the positions.

However, at present we must consider that the attacker has the means to deliver a nuclear weapon at any distance. Therefore, even in the organization of defense with no enemy contact the troops must be in constant readiness for quick liquidation of consequences of nuclear attack.

Along with these basic conditions troops will pass to the defensive when the activity of the enemy, the ratio of forces and means, the conditions of the terrain, the radiation situation, the season, climatic and meteorological conditions, and the time for organization of the defense will be the most diverse.

The influence of these conditions is always considered and is reflected in the decision of commander for the defense and in the determination of the order of its organization and conducting.

#### Nature of Contemporary Defense

With the appearance and development of nuclear weapons and other new means of combat, and also with the consequent increase in forces and depth, the strike of a defense underwent considerable changes.

The use by an attacker of nuclear weapons, rockets, large numbers of tanks, armored carriers and other means of combat increases the requirements for defense. At the same time a defender, sharing these means, can inflict a decisive defeat on the main grouping of the attacker and create conditions for rapid turning to the offensive. Nuclear weapons render the greatest influence on the nature of the defense and methods of conducting it. They have not only changed the outline of the defense, but they have also required the development of new methods for conducting it.

Such changes are quite regular. In the past, when the main force of advancing troops was infantry, the defense had mainly an anti-infantry character. With the appearance on the battlefield of massed quantities of tanks, aircraft, artillery, and poisonous gases the defense began to create antitank, antiaircraft, antiartillery, and antigas defenses. The application of these means considerably increased the possibilities of creating a firm defense.

Contemporary defense will be conducted in conditions of wide use by the advancing enemy of nuclear and chemical weapons, great forces of tanks, aviation, pilotless means of attack, and airborne landing forces. Therefore, the most important requirements for defense now are that it be stable and active, capable of antinuclear and antitank action, able first of all actively to counter an enemy nuclear attack, to resist strikes by means of mass destruction, to repel massed tank attacks, and, in the case of breakthrough of enemy tanks in depth, to destroy them. At the same time contemporary defense should be antiaircraft, antimissile, antiartillery and antiairborne landing.

Stability is the broadest requirement for defense. By stability we mean the ability of the defense to resist powerful strikes of the enemy by all types of attack, to repel the offensive of superior forces, not to allow drops and actions of airborne landing forces, to hold important areas of the site, and to destroy groupings of the enemy when he makes a wedge in the defense.

Defensive activity consists of constantly striking the enemy with all means,

imposing the will of the defender on the enemy, creating unfavorable (for the enemy) conditions of conducting battle, and carrying out wide maneuvers and counterattacks.

The use by the defender of nuclear and other new means of combat gives the defense a more active character. In contemporary conditions the activity of the defense is attained by decisive actions to break down or maximally weaken an offensive prepared or started by the enemy through nuclear strikes, air attacks and fire of conventional means on its basic grouping on the approaches to the defense and especially in the period of deployment for the offensive.

At the same time the strengthening of activity of the defense is connected with the increase in the role of maneuvers and counterattacks.

The importance of carrying out wide maneuver arises from the fact that the defense is carried out by limited forces and means against superior enemy forces. Inequality in the forces and means of the defending and advancing armies now can be sharply and rapidly changed as a result of nuclear strikes. The scale of military operations has also increased. In these conditions to effectively influence combat actions on the move, to affect a change in the ratio of forces and means in the more important areas at the decisive moment, and to change the situation in his favor the defender can first of all carry out maneuvers.

Of especially great importance in defense is a well organized and promptly and suddenly executed fire maneuver with which the defender can considerably improve the ratio of forces in the axis of the main attack of the enemy, inflicting considerable losses on him. At present, along with fire maneuver, the nuclear strike maneuver is attaining ever increasing importance.

Maneuver of forces and means is becoming wider in scale and more diverse in purpose. It is now necessary not only to reinforce forces that have sustained large losses and to counteract an enemy breakthrough to the rear and on the flanks, but also to close breaches in combat formations and to replace troops that have lost combat effectiveness as a result of enemy nuclear strikes. Maneuver of forces and means is also necessary for rapid and effective use of the results of nuclear strikes on the enemy through counterattacks, to destroy airborne landing forces and withdraw defending troops from under enemy nuclear strikes.

Because the fire power, the shock power, and the mobility of the attacker, and also his ability to concentrate his effort in definite areas, have all increased sharply, the speed of maneuver of forces and means has taken on special meaning in defense. Considering this, all armies give considerable attention to armored troops. They also search for other ways of increasing the mobility and maneuverability of troops.

One such way is the wide application of different means to ensure aerial maneuver of troops. Therefore, in the United States Army there is observed a considerable increase in the number of army aircraft and helicopters. Aircraft and helicopters provide fire support to destroy ground targets. It is assumed that this shock power, combining in itself fire power and aerial mobility, will be used for missions that have been carried out by armored troops. Different ways of gaining time to carry out a maneuver are also sought - for instance, the appropriate construction of defense, which would not only prevent an enemy advance but would also ensure favorable conditions for maneuver of forces and means. It is also believed that speed of organization of maneuver and effective application of engineering barriers can gain this time.

Possibility of the use by the defending troops of nuclear weapons to destroy enemy salient groupings and approaching reserves considerably increases the role of counterattacks. The purpose of counterattacks after nuclear strikes on the basic grouping of advancing troops can be not only restoration of the defense but also destruction of the enemy along the front.

However, even now it is considered that carrying out of counterattacks, especially by small units, will not always be expedient. In contemporary conditions powerful counterattacks, rendering a decisive influence on the outcome of defensive

actions, take on great importance. For instance, the most favorable in opinions accepted in foreign armies is the carrying out of counterattacks by large forces of armored troops in combination with actions of tactical airborne landings and helicopter assaults.

The capability of the defending troops to achieve more decisive objectives and the strengthening of the activity of the defense will lead to ever greater application of elements of offensive actions in it. As a result the earlier observed tendency of the interconnection of the defense and offense will be deepened and expanded even more.

However, in spite of the increase in the proportion of offensive methods of actions in the defense, the stable elements will not lose their importance. To ensure successful application of offensive actions in the defense, it is necessary to use not only nuclear weapons but also the force of a preliminarily organized fire system on definite lines, advantageous terrain conditions, engineer equipment, and also organized maneuvers of fire, forces, and means. Contemporary defense should be constructed on a combination of rigid holding of important areas and lines with maneuvering actions of troops.

An important feature of contemporary defense is the further dispersion of troops along the front and also in depth. Application of dispersion was one of the first methods of solving the problem of preservation of the active force and increasing the stability of defense in conditions when the attacker uses nuclear weapons. There is the opinion that as smaller nuclear warheads appear the degree of dispersion of troops on the battlefield will increase. At first, when the minimum power of nuclear warheads was limited to 20 kt, dispersion was conducted down to the battalions level, with intervals created between battalions.

With the appearance of nuclear warheads of less than 20 kt (down to 1 kt), further dispersion of defending troops was required and intervals were created between companies. Creation of nuclear warheads of less than 1 kt caused dispersion of subunits down to the platoon<sup>1</sup> (Fig. 33).

Thus, contemporary defense in the scale of units is organized on a discontinuous front.

However, dispersion cannot be infinite. It should not disturb the integrity of the defense or hamper coordination of fire or the coordination or control of subunits. With excessive dispersion of first echelon troops we cannot compel the advancing foe to concentrate his combat formations so that they present a good target for a nuclear strike. The presence of large intervals can facilitate the enemy in surmounting the defense. Therefore, when applying dispersion, we must always consider the possibility of successful fulfillment of combat missions.

Dispersion of defending troops along the front has brought about an extension of the defensive front. This has also been promoted by the increased combat capabilities of troops in connection with their being equipped with nuclear weapons, considerable tank concentrations, new antitank weapons, and other new means of combat.

The process of dispersion of defending troops in depth occurred simultaneously with dispersion along the front. This was caused by an attempt to decrease troop losses from nuclear strikes, to hamper the exposure of the defense system and consequently destruction of defending troops by a nuclear weapon, and to create an increasing counteraction against the advancing enemy.

Dispersion of defending troops along the front and in depth, the presence of considerable intervals between subunits and units, and also the increased ability of the attacker to inflict sudden thrusts from different directions and to use airborne landings has produced a situation in which the defense has taken on a

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<sup>1</sup>Matinich, T. and S. Goldberg. Pentomicheskaya diviziya (The Pentomic division.) M., Publishing House of Foreign Literature, 1959, pp. 10, 144, 145.

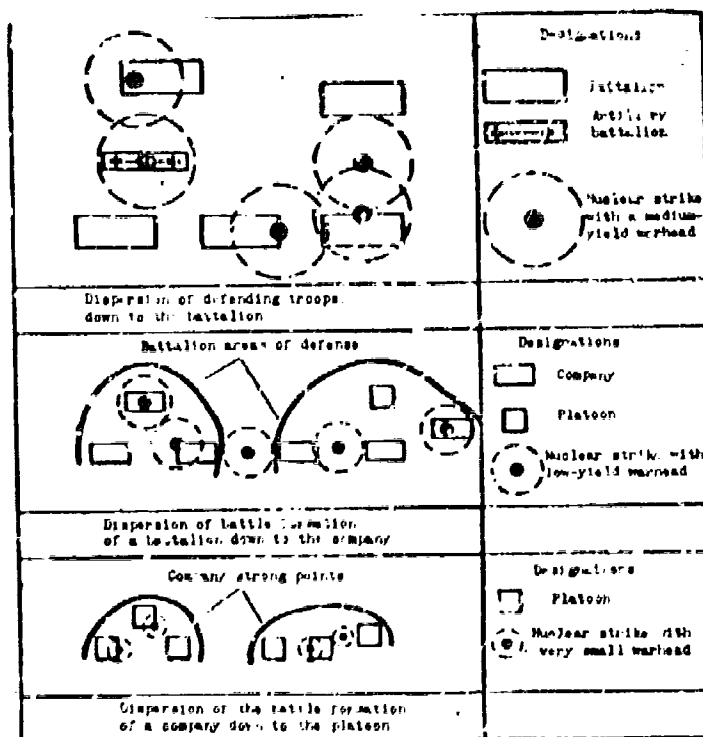


Fig. 33. Change in degree of dispersion of troops in defense with development of nuclear weapons.

circular character in all its units. Now it has no clearly expressed front or rear. The front will be where the enemy attacks.

The enormous firepower of the enemy now does not allow the defender to preliminarily concentrate his main forces and means in the areas upon whose retention depends the stability and reliability of the defense. During the years of the Second World War this was possible, since the power and the range of fire means were considerably smaller. Now the enemy, having established the area, where the main forces and means of the defender are concentrated, can inflict on them decisive nuclear and fire strikes.

Therefore, dispersion, wide maneuvers by nuclear weapons, by fire of conventional means, and by second echelons and reserves on decisive directions, and counterattack are now the basic methods of combat for holding areas upon which the stability of the defense depends.

The problem of protecting troops from weapons of mass destruction in all armies is solved not only through the dispersion of troops and their maneuver on the battlefield, but also through wide application of means of mechanization to fortify positions, quick raising of engineering constructions, and skillful use of the protective properties of the terrain. As a result contemporary defense is characterized by a reduction of the time for fortifying terrain and, consequently, a higher tempo of its creation.

To achieve stability of defense concealing the location of troops and using camouflage take on even greater meaning now than before. If the enemy can be fooled as to the true construction of the defense, the defender can compel him to deploy prematurely and to inflict nuclear strikes on empty areas. To deceive the enemy one can create zones of cover and false defense and conduct antinuclear maneuvers.

Antinuclear maneuvers consist of changing troop deployment, regions of defense, and positions in order to prevent the enemy from inflicting accurate nuclear strikes, lower the effectiveness of his fire effect, and thereby increase the combat ability of the troops.

The decisiveness of objectives fought for by both the attacker and the defender and the application of nuclear weapons by both sides in the basic areas will lead to fierceness and intensity of defensive actions, rapid and sharp changes of the situation, and deep mutual break-ins. Combat actions will be conducted simultaneously at different depths.

Deep break-in by the enemy after nuclear strikes along with an approach to the flanks and in the rear of the defending troops, air drops in depth of the defense, the possibility of cutting off certain units and subunits and their isolation will demand from commanders and staffs broad initiative at all levels. The absence of orders or instructions from the senior commander should not cause a delay in the decisive actions of subordinate commanders in a favorably complex situation.

This enormous power of contemporary means of destruction and the complex character of defensive actions require of all personnel the manifestation of high morale and combat characteristics to an ever greater degree. High political consciousness, organization and discipline, boldness, resourcefulness, firm stability, and the willingness to expend one's own forces and lives to accomplish the mission at hand are extremely important factors for the achievement of success in defense.

The bases of high stability and activity of defense are ensured in its construction. By construction of defense we usually mean the creation of a combat formation (battle order), the engineering organization of defensive positions, and also the organization of the fire system.

#### Combat Formation of Troops

For the defense of troops we apply the appropriate combat formation. The requirements of the combat formation, the composition of its elements, their purpose and on the order of the disposition on the terrain have changed continuously. This was determined mainly by the development of means of combat, the level of preparation and morale qualities of the personnel, and also by the methods of offense applied at different stages in the development of military art. Especially great changes in construction of combat formation of troops in defense occurred in the course of the First World War and the Great Patriotic War.

In the First World War in connection with the increase in fire power and attack force of the attacker the combat formation of troops in defense, in contrast to those applied earlier (combat unit and reserve), was dispersed into echelons. They were disposed one after the other in order to considerably lower the effectiveness of enemy artillery fire and to create growing counteraction during his advance in depth (Fig. 3-).

A division formed a combat formation in one or two echelons with separation of the general reserve, while a regiment most frequently formed in three echelons. Second echelons (reserves) of divisions prepared and occupied positions at such a distance that the attacker could not simultaneously conduct artillery preparation on regiments of the first and second echelons, and to attack the positions of regiments of the second echelon (reserve) he was forced to regroup his forces and transfer the artillery to a new firing site. The depth of combat formation of the division was 5-6 km, and in a number of cases, even more. Initially the second echelons (reserves) were used to replenish losses of the first echelons and subsequently to inflict counterattacks, although the latter did not obtain wide application.

The increased quantity of artillery required definite forms of its use in combat. Artillery groups started to be organized and, as in the offensive, were designated according to the nature of the missions accomplished by them: general purpose, counterbattery, firing on long-range targets. At the end of the war

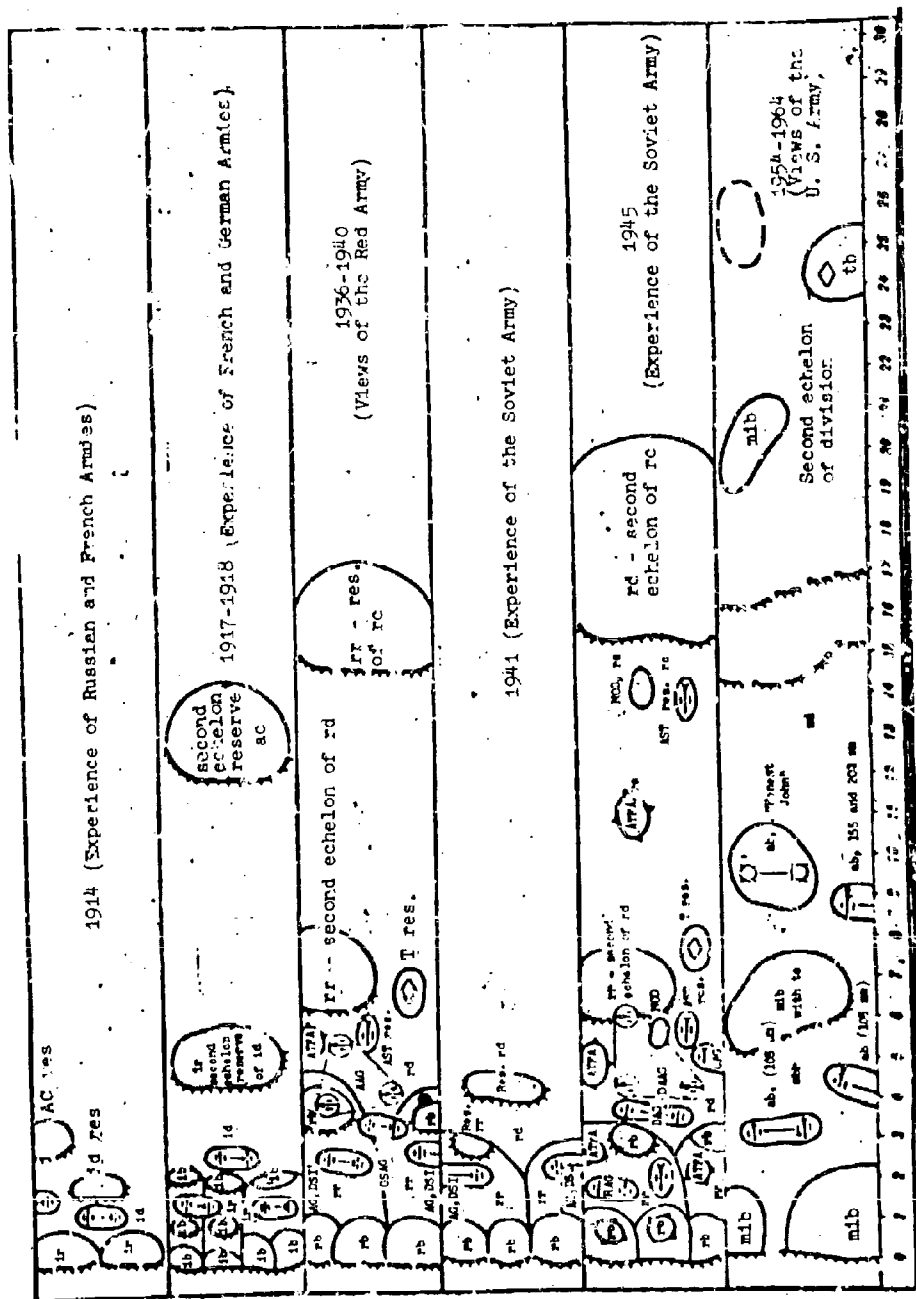


Fig. 34. Development of combat formation of defending troops.

# LEGEND

- AAG-----AA artillery group
- ac-----artillery corps
- AG, ASI-----artillery group, direct support of infantry
- ATA-----antitank fortified area
- DAG-----division artillery group
- ib-----infantry battalion
- ir-----infantry regiment
- md-----mechanized division
- MOD-----mobile obstacle detachment
- rb-----rifle battalion
- rd-----rifle division
- rr-----rifle regiment
- tc-----tank company
- CAG-----corps artillery group
- ab-----artillery battalion
- AC res-----artillery corps reserve
- AST res-----artillery, support of tank, reserve
- DAAC-----division AA artillery group
- OSAG-----general support artillery group
- id-----infantry division
- SB-----mechanized brigade
- mib-----motorized infantry battalion
- RAG-----regimental artillery group
- rc-----rifle corps
- res-----reserve
- tb-----tank battalion
- T res-----tank reserve



there were cases of holding back artillery units and using them as an antitank reserve.

After the First World War dispersal of the combat formation of divisions and units into echelons was finally fixed. Artillery groups (infantry support and long range) were also developed. Views on the creation of reserves were shaped more clearly. Along with the general reserve, artillery-antitank and tank reserves started to be formed.

In the Great Patriotic War the development of combat formation of troops in defense followed the line of their even greater echeloning in depth, an increase in the quantity of elements of the combat formation, and a change in their qualitative composition.

In the defensive battles of 1941, due to a deficiency in forces and means, Soviet troops acted on wide fronts. Therefore, combat formations of divisions and regiments were constructed in one echelon along with combined-arms reserves. Artillery was used only by artillery groups in support of infantry. Artillery antitank reserves usually were not formed in view of the low quantity of antitank artillery. With this construction of combat formation the enemy broke through the battle formation of divisions rather rapidly with tank groups, emerged on the flanks and in the rear of our troops, and compelled them to withdraw.

In 1942 in the defense of Stalingrad the increased combat capabilities of formations and units and also the increased amount of reinforcements given them, especially antitank, allowed combat formations of divisions defending in the main areas to pass to two echelons, to create more powerful artillery groups and to assign artillery antitank and tank reserves. Furthermore, in certain divisions as an element of the combat formation a fortified antitank area was created with the assigned antitank artillery. It was placed in the most critical avenue of tank approach in the depth, usually between the first and second echelons of a division.

In subsequent periods of the war similar organization of combat formations was not only secured but obtained further development. Restoration of the corps unit in 1943 created conditions for considerable increase in the depth of combat formations. The presence of three divisions in a corps permitted putting one division in the second echelon of the corps.

The first echelons of regiments, divisions and corps played, as a rule, the main role in repelling enemy attack and holding occupied positions and zones. Second echelons delayed the advance of the enemy by fire from prepared positions in the rear or, under favorable circumstances, staged a counterattack to destroy the enemy wedge in the defense and restore the position.

To support closer coordination of the artillery with the infantry and tanks, instead of infantry support and long range groups, regimental, battalion and corps artillery groups were formed with direct subordination to their respective commanders. Antitank fortified areas, artillery antitank reserves and mobile detachments were elements of the battle order of not only formations but also of smaller units. Antiaircraft artillery groups were created in the combat formation of the division and corps. Toward the end of the war the depth of the combat formation of a division was 6-8 km and of a corps, 15-20 km.

In the course of defensive battles the role of battalions was increased considerably. A battalion area occupied 2-3 km along the front and 1.5-2 km in depth and was the basis of the defense of every position. To increase their stability in an antitank sense battalion antitank nodes or powerful antitank strong points were created in battalion areas.

Upon the equipping of a number of armies with nuclear weapons the requirements for construction of combat formations increased considerably.

The combat formation of troops in the defense should ensure the following: the most effective application of nuclear and conventional fire means to destroy the enemy on approaches to the defense, in front of the FEB and with break-in into the

defense, and at the same time the least vulnerability of the defender to nuclear strikes and fire of the attacker; maximum use of favorable conditions of the terrain and its engineering organization; possibility of accomplishing wide maneuvers by forces and means in the course of battle, affecting a growing counteraction, and also a rapid destruction of an enemy that has penetrated into the depth of the defense; effective combat with the air enemy and airborne landing forces; convenience of control of the defending troops and possibility of supporting continuous coordinated action.

In conditions of contemporary combat a deeper and more echeloned structure of the combat formation is necessary, on the one hand, to decrease the vulnerability of troops to enemy nuclear and fire strikes and, on the other hand, to ensure conditions for wide maneuvers, and thereby not allowing the enemy to use results of nuclear strikes, to render growing counteraction, to force him to concentrate and create favorable targets for nuclear strikes, and to complete his destruction by counterattacks of second echelons from the depth.

Decisive destruction is now inflicted on an advancing enemy mainly by nuclear strikes, fire of all forms of weapons, and also by forces and means in the rear defense.

The mission of the first echelon is to inflict losses on the active force and material of the enemy, to hold important regions, to delay the advance of the enemy and to create favorable conditions for his destruction by nuclear weapons and counterattacks of the second echelon (reserve).

The main purpose of the second echelon (reserve) is to complete the destruction of an enemy break-in in a previously selected region by using results of nuclear strikes.

Consequently, the mission which previously was of secondary importance for the second echelon (reserve) now becomes a mission of paramount importance.

Of course, in conditions of the application of nuclear weapons counterattack is not always possible. Therefore when there are no favorable conditions for counterattacks, the second echelon (reserve) will solve the problem of destruction of the attacker by fire from a halt, from positions occupied previously or in the course of the fight.

As a result of nuclear strikes by the attacker considerable breaches can be formed in combat formations of the first echelon, and the troops in its composition will suffer such losses that they will not be able to fulfill their mission. In these conditions the use of the second echelon (reserve) can be required to provide part of its forces either to close the gaps in the first echelon or to replace separate subunits.

The wide possibilities for the attacker to use airborne landing forces after nuclear strikes to capture important objects of the defense can necessitate using subunits from the rear to destroy or block them.

Thus second echelons (reserves) in contemporary defense obtain multipurpose assignments: carrying out counterattacks; reinforcement or replacement of troops of the first echelon to close breaches formed by enemy nuclear strikes; holding positions in depth of the defense and carrying out other missions.

So that second echelons (reserves) can carry out such important and diverse missions, they are now given larger forces and means than before. A similar tendency is noted in a number of foreign armies. In some armies the basis of determining the composition of second echelons (reserves) is their ability to inflict powerful counterattacks after nuclear strikes. In particular, in the United States Army for a mobile defense in a mechanized division of ten battalions they recommend using five to six battalions in the second echelon (reserve).

In other armies (for instance, the FRG) it is considered necessary that the second echelon (reserve) be capable of creating a second line of defense which is no less strong than that of the first echelon. Therefore in its composition

they recommend having about 50% of all forces and means.<sup>1</sup>

When defending secondary lines, when there is a deficiency of forces and means or great losses in the course of preceding battles, and also when occupying positions in depth, the combat formation of defending troops can also have a single echelon formation. In this case troops of the first echelon, in combination with other fire means, will play a decisive role in defeating the attacker.

Armored troops are preferred in the composition of second echelons (reserves). This will ensure the possibility of carrying out varied missions quickly.

Echelons are disposed in depth in such a manner that an explosion of one nuclear warhead of a certain power will not immediately destroy two echelons. At the same time their interval should ensure the possibility of closing the breaches formed as a result of enemy nuclear strikes or of reinforcing troops of the first echelon with forces and means of the second echelon before the enemy manages to surmount the defense of the first echelon across areas of nuclear strikes. Similar requirements are also placed on the deployment of the reserves. Dispersion in depth and the increase in mobility of the troops means that the second echelons (reserves) can now be dispersed in greater depth. For instance, with a mobile defense, in the view accepted in the United States Army, the depth of location of second echelons (reserves) is 20-25 km, and the whole depth of the combat formation of a division is 30 km.

However, that which is characteristic for construction of a combat formation of defending troops as a whole (great depth, high maneuverability) is not completely applicable to combat formations of subunits. Even in conditions of the application of nuclear weapons a battalion conducts combat actions chiefly by conventional weapons. Therefore, the construction of its combat formation should ensure creation of high fire power along the front and on the flanks. On the other hand, measures undertaken for the protection of subunits from weapons of mass destruction take on great importance. All this is better attained with a single-echelon construction of the combat formation of subunits, which permits simultaneous use of the greatest amount of fire means to repel enemy attack. This produces a decrease in the depth of the combat formation, a greater concentration of it along the front and, consequently, less vulnerability to nuclear strikes of the enemy.

In a battalion area of defense a different disposition of companies is possible (Fig. 35): one of the companies can be set out forward or back, forming a fire pocket, and on an open flank they can be disposed in echelons. Platoons are disposed similarly in the company support point.

With construction of the combat formation of a battalion in one echelon a reserve is separated, as a rule, in the composition of a reinforced motorized rifle or tank platoon.

Two-echelon construction of the battalion combat formation is not excluded. In this case the front of defense of the battalion will decrease from 5 km to 3-4 km, and the depth of the battalion area will be increased somewhat, which will make it more stable in repelling enemy attacks. But it is necessary to consider that the battalion area in two-echelon construction of the combat formation is similar in form to a circle and therefore becomes a more profitable object for a nuclear strike. Therefore, it is expedient to construct the combat formation of a battalion in two echelons only when it is necessary to increase the depth of defense, for instance, in the defense of an important area on the forward edge of a defile cutoff from main forces of the regiment.

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<sup>1</sup>Middel'dorf, E. *Rukovodstvo po taktike* (Manual on tactics). Publishing House of Foreign Literature, 1960, p. 311.

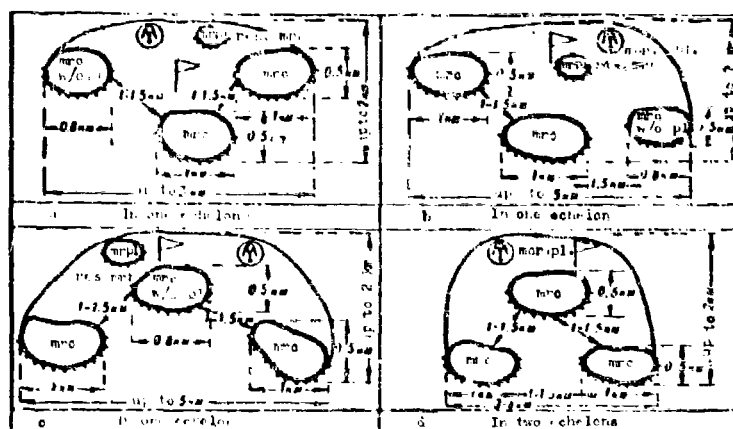


Fig. 35. Variants of construction of the combat formation of a motorized rifle battalion in defense.

#### LEGEND

mor. pl. = mortar platoon  
 mrc = motorized rifle company  
 mrc w/o pl = motorized rifle company less a platoon  
 mrpl = motorized rifle platoon  
 res. mrt = reserve of motorized rifle battalion  
 [Not confirmed - Trans. Ed.]

The combat formation of a battalion is dispersed along the front and in depth in such a manner that one nuclear warhead will not strike more than one company. The intervals between companies should ensure preservation of fire communication between the subunits, primarily antitank fire. These requirements correspond to intervals between companies along the front and in depth in a range of 1-1.5 km. A decrease in intervals will increase the vulnerability of the subunits to nuclear means, and a further increase in them will lead to disturbance of fire communication between the subunits. The defense will lose fire continuity, and the enemy will be able to destroy the subunits in detail.

Expansion of enemy capabilities to use nuclear weapons requires further dispersion of the combat formation of a company so that one nuclear explosion will not strike more than one platoon. Taking this into account, in the company strong point the platoons are now disposed with intervals up to 300 m, which are covered by fire of not only antitank means but also small arms of all forms.

Dispersion of subunits increases their role and independence in holding the designated strong points and in covering by fire the intervals with adjacent units. This also requires a circular formation of the defense of subunits up to a platoon inclusively.

It is necessary to consider that the smaller the subunit, the fewer are the advantages given by dispersion and construction of combat formations into a line. Thus, for instance, the platoon and the strong points it forms occupy on the site so small a section (300 m along the front and 200 m in depth) that the resistance of the platoon almost does not depend on the force of the nuclear warheads used or on the structure of the combat formation (Fig. 36). Therefore, it is inexpedient to disperse the platoon and attempt to put its position in a straight line.

In its combat capabilities the company is able to defend a strong point up to 1 km along the front and 500 m in depth. If it is considered that one tank or cannon in the defense can knock out at least two attacking tanks. A motorized rifle company, reinforced with a platoon of tanks and a platoon of other anti-tank means (taking into account hand antitank grenade launchers), can also knock out up to 20 tanks of the enemy.

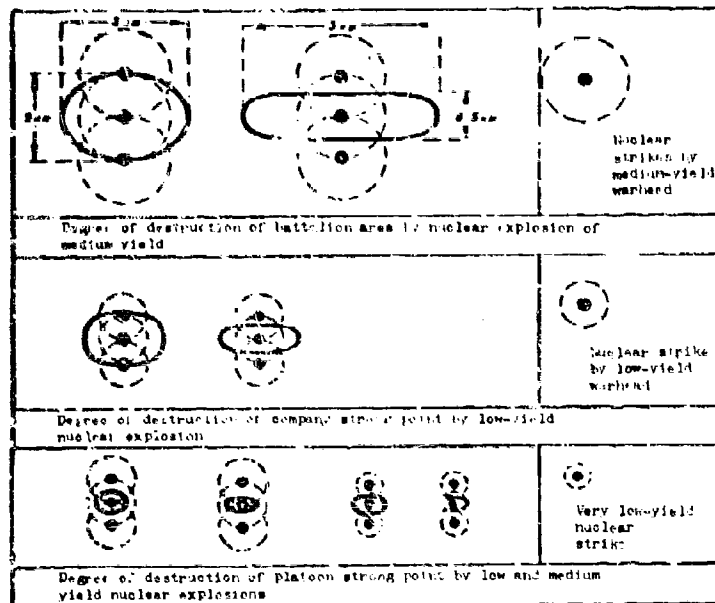


Fig. 36. Degree of destruction of defensive objects having circular and linear configuration by nuclear strikes of various yields (with identical position of the epicenter of the nuclear explosions).

On the front of the company defense and its flanks (1.5-2 km) one and a half or two tank companies of the enemy can attack. Inflicting 50% or more losses in tanks on the enemy, the defending company in coordination with adjacent units will be able to repel the attack of this number of enemy tank companies.

Taking into account combat possibilities of companies and intervals between strong points (up to 1-1.5 km), with a single echelon formation a battalion can defend a region of up to 5 km, and with construction of the combat formation in two echelons, 3-4 km along the front. On tank-accessible terrain a motorized rifle battalion can repel the attack of up to one tank battalion, and a tank battalion, that of one and a half tank battalions, acting independently or jointly with motorized infantry on a front of 4-5 km. The density of small arms fire with a 5 km front of defense of a motorized rifle battalion ensures repelling an attack of enemy infantry. The depth of defense of a battalion with both two-echelon and single echelon formation of combat formation can be up to 2 km (see Fig. 35).

Battalions constituting the second echelons (reserves) set up combat formations on occupied positions according to these principles. They also prepare to carry out counterattacks in prescribed directions and fulfill missions in covering of areas subject to nuclear blows. For this purpose a battalion is given one or two firing lines. Furthermore, battalions can be designated to destroy enemy airborne landing forces.

Development of nuclear weapons and means of their delivery caused the appearance of a qualitatively new element of combat formation of defending forces; groupings that can apply nuclear weapons. In the United States Army such groupings are Honest John battalions. At the same time there are created in combat formations powerful groupings of conventional fire means, including permanent and attached artillery and also antiaircraft artillery groups, which are used to cover the most important objects from enemy air attacks.

The importance of special reserves has increased sharply. They have become highly mobile and are designed to cover breaches from nuclear attacks, reinforce

troops on threatened directions, and to protect open flanks and intervals.

Thus the combat formation of defending troops at present usually includes one or two echelons, the means of application of nuclear weapons, artillery, antiaircraft artillery, and different reserves. The width of the front and the depth of combat formations of forces in defense have increased as compared to those of the Second World War.

Further improvement of the means of combat, especially nuclear weapons, tanks, armored carriers and other means, and also helicopters, will lead to increases in fire power and troop mobility on the field of battle and, consequently, to further changes in strategic concentration, and to the strengthening of the role of small but highly mobile subunits with high fire power. In combat formations, as has been noted in the foreign press, aircraft groupings can appear, as can units moved by air or fighting with use of helicopters, aircraft and other flying means.

### Defensive Positions and Their Engineering Organization

As weaponry and combat technology have developed and as troops have been equipped with more weapons, the fire power and shock power of an attacking force have increased, as have the role of engineer organization of terrain and the use of the protective properties of the terrain.

Before the appearance of firearms engineer organization of a position consisted mainly in the creation of a camp encircled by a ditch in which troops were disposed prior to battle and could be protected after an unsuccessful battle. Along with this fortress towns and castles were built.

The application by troops of firearms required erecting of redoubts, lunettes and fleches, which made possible the effective use of fire means and ensured cover for the troops from the rifle and artillery fire of the advancing foe. Due to their great vulnerability to artillery fire, fortresses were moated and their defense was combined with field fortifications.

With the further increase in fire power it turned out that redoubts and lunettes were rapidly destroyed and the infantry in them had poor protection. The best protection from fire of an attacker was ensured by entrenchments. They also permitted dense rifle fire to repel an enemy attack, since soldiers could stand shoulder to shoulder in the entrenchments. During the Crimean, Russo-Turkish, and especially the Russo-Japanese Wars, during engineer organization of terrain entrenchments obtained wide application. To have the possibility of stopping an enemy who had seized the first line of entrenchments, Russian troops in the course the Russo-Japanese War made another two or three lines of entrenchments. Their total depth attained 2-3 km. Wire and high explosive barriers were placed in front of the first line of entrenchments. Thus a defensive position equipped with several lines of entrenchments and ensuring the disposition of the combat formation of a division appeared.

In the First World War we observed a further increase in artillery and machine gun fire power. Therefore, when troops passed to the defensive under the influence of heavy artillery and machine gun fire, soldiers spontaneously, without orders from officers, organized entrenchments and developed them into trenches. A position of 2-4 trenches, united by communication trenches, was developed. With the increase in depth of echeloning of the combat formation the number of positions increased. Zones of defense appeared, each of which consisted of several positions made up of a system of strong points connected by trenches (Fig. 37). Toward the end of the war in the defense three zones were created: advanced (covering), combat (main), and rear. The strength of the created positions and constructions was increased. During organization of positions favorable conditions of the terrain were widely used; the reverse slopes of hills, making observation more difficult, were used as well as camouflage.

Based on the experience of the First World War, Soviet military theory in considering postwar development of means of combat and methods of attack, on the eve of the Second World War anticipated the creation of a deep, multizone and

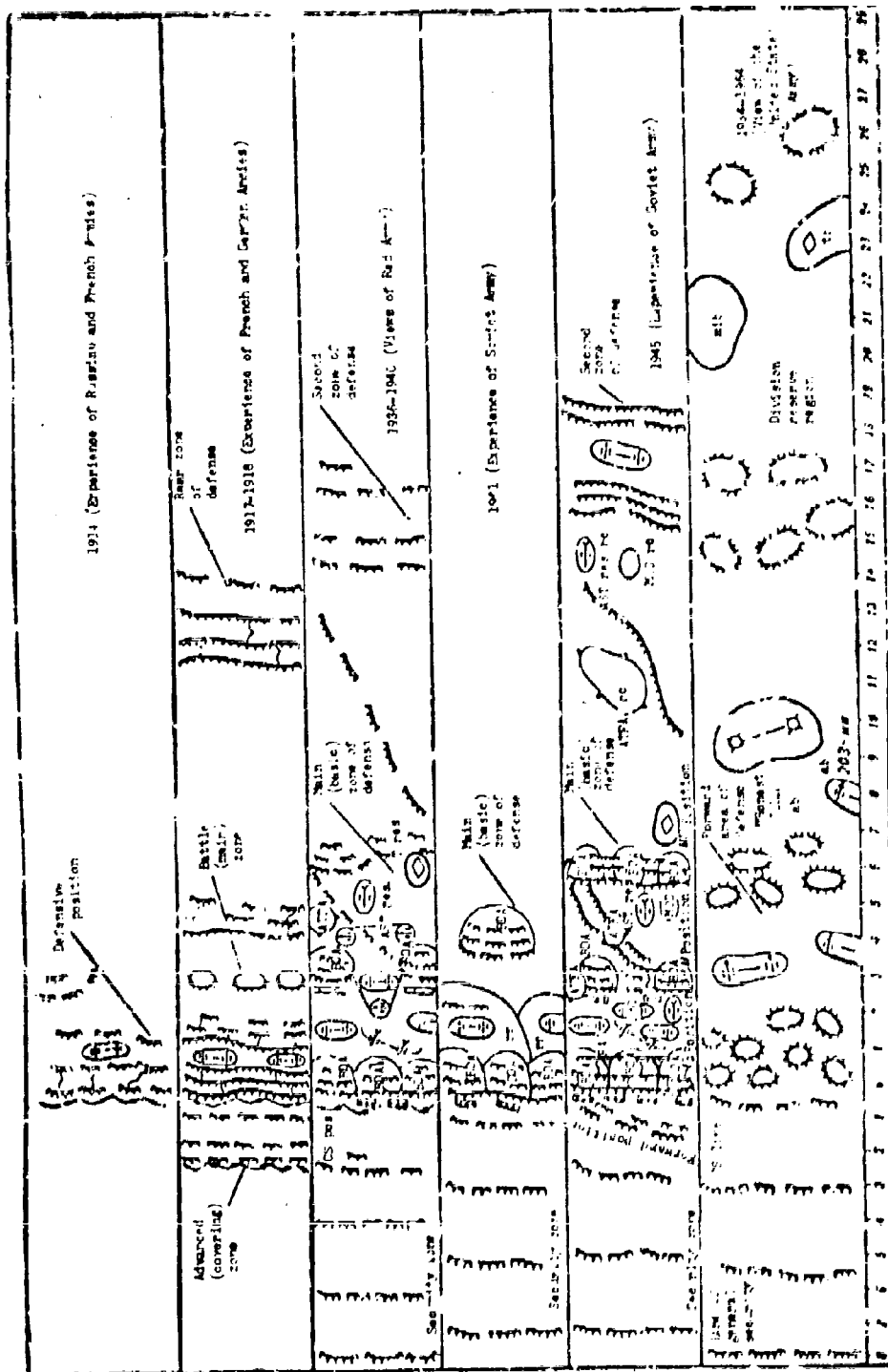


Fig. 37. Development of construction of defensive zones and positions and their engineer equipment.

Legend (for Fig. 37)

- at = artillery battalion
- ATA = antitank fortified area
- CS = combat security
- MI = motorized infantry battalion
- RA = regimental artillery group
- R = rifle regiment
- T = tank reserve
- AST rec = artillery support of tanks reserve
- BDA = battalion defense area
- DAG = division artillery group
- MAD = mobile obstacle detachment
- RC = rifle company
- tb = tank battalion

in its position defense. The tactical zone of defense included a security zone (during preparation of the defense with no enemy contact), position of combat security, and main and second zones of defense. The main zone, 8-10 km deep, was defended by rifle divisions of the first echelon of a corps and consisted of three positions. The second zone of defense was created 12-15 km from the forward edge of the main zone. It was occupied by corps reserves. It was connected with the main zone of the defense by cutoff [switch] positions. The depth of the whole tactical zone of defense was 15-20 km.

In the beginning of the Great Patriotic War, due to a general deficiency of forces and means, formations had to defend extremely wide zones, and therefore they had insignificant depth (3-5 km). Basically only the first position was organized in an engineering sense. It turned out that the engineer organization of battalion areas of defense with separate entrenchments hampered the coordination of subunits and their control and did not ensure concealed maneuver of forces and means in the course of battle. Considerable deficiencies were also revealed in the application of engineer barriers, which in many cases were not connected with the fire system. Flanks and connections between adjacent units were poorly equipped with barriers.

Considering the deficiencies revealed in the first months of the war, our troops in the defense around Moscow began to connect rifle entrenchment to trenches at first at boundaries of platoon and then company and battalion areas of defense. Thus, a continuous trench was created on the forward edge. Engineer barriers were also more widely and skillfully used.

As conditions for two-echelon construction of combat formation of divisions were created, particularly in the defense of Stalingrad, the depth of the main zone of defense increased somewhat and its width was reduced. Second echelons of regiments and divisions began to prepare battalion areas of defense in depth in the probable directions of enemy action. Thus, several positions were created in main zone of the defense. However, the system of trenches was created chiefly at the first position.

The construction of defensive zones obtained a sharply expressed positional character in the defense of Kursk. The main zone of defense had three positions: main, intermediate and reserve. Furthermore, the second echelon of the corps prepared the second zone of defense.

The main position of the main defense zone was equipped with two or three continuous trenches and communication trenches. In front of it a system of engineer barriers of high density was created.

The reserve position was organized 4-6 km from the first line of defense. In order to attack this position, the enemy had to reorganize his fire suppression and partially transfer his artillery to new positions. A regiment of the second echelon of a rifle division equipped and occupied the reserve position. In degree of engineering organization the reserve position was less developed than the main one.

Artillery firing positions and also separate company and battalion areas of defense, which composed the intermediate position, were set up between the main and reserve positions. As a rule, these areas of defense were composed of rifle battalions of regimental second echelons.

In the probable directions of enemy tank attack between main and reserve positions, positions of antitank areas and cut-off positions were prepared. The latter consisted of one or two continuous trenches. The second zone was equipped like the main zone.

In the whole tactical depth they began to form various engineer barriers, especially explosive mines, which hampered the maneuvering of penetrating enemy tanks and infantry and promoted an increase in the stability of the defense.

In the course of the war the width of the defense zones in the decisive areas was consecutively narrowed, which promoted the creation of necessary



densities of forces and means. Toward the end of the war a rifle division in decisive areas successfully defended a zone 8-12 km wide and 6-8 km deep, and a rifle corps, a zone 15-30 km wide and 15-20 km deep. The three positions in the main zone of defense were constructed in a continuous manner. The basis of each position was battalion areas of defense equipped with two or three trenches and communications trenches. The battalion region of defense in the most important areas usually occupied 2-3 km along the front and 1.5-2 km in depth.

Equipping zones and positions with a system of trenches and communication trenches considerably increased the stability of the defense, since concealed and safe maneuvering by rifle subunits in the course of battle was ensured along front and from the rear, the control of forces and means and their coordination were improved, and conditions were created for a fuller use of the capabilities of the fire means of the infantry. Furthermore, trenches more reliably screened the active force and fire means from tanks, artillery fire, and air strikes of the enemy and considerably facilitated combat with his tanks by the fire means of the infantry.

When troops were armed with nuclear weapons the question arose of finding methods to increase the stability of the defense. Along with the dispersion of troops, their maneuvering on the field of battle, and the use of protective properties of the terrain, the engineering organization of the locality took on even greater meaning. At present the principles of construction of defensive zones and positions take into account both the experience of the last war and also the change in character of defense.

In contemporary conditions the defense area usually includes company and platoon strong points prepared for circular defense; firing positions of artillery, mortars, tanks and antitank rockets, which are in the reserve of the battalion commander; prepared sites for control centers; and also all forms of obstacle areas. The battalion defense area can also have firing lines, lines for deployment of reserves of senior commanders, and artillery firing positions.

The basis of battalion defense (Fig. 38) is company strong points.

Company strong points are disposed so that their fire intercepts the most probable directions of enemy attack. They prepare for a circular defense and, first of all, for combat with tanks of the attacking force.

The main requirement during organizations of strong points is not to create targets suitable for nuclear strikes. It is not suitable to organize strong points on individual hills and other sharply pronounced areas of the terrain where they can be quickly detected and destroyed by nuclear strikes. Here it is expedient to set up false defensive structures covered by fire.

Along with defensive positions in defense zones even greater application is made to elements designated to support troop maneuvers in the course of battle. As before, firing positions for artillery, mortars and antiaircraft artillery are created and sites for control centers are also prepared. Furthermore, it has become necessary to equip fire (launch) positions with nuclear weapons.

Methods of engineering organization of strong points, deployment lines, firing lines, fire positions, and positions for nuclear means depend on the time available to the defending troops. During transition to the defensive in conditions of direct contact with the enemy defending troops usually do not have sufficient time to establish engineering organization of terrain. Therefore, foxholes and section entrenchments are made first, and then the basic firing sites for tanks, armored carriers, cannons, mortars and antiaircraft artillery are created.

To protect personnel from the effects of nuclear weapons and artillery fragments, firing positions in depth of the defense are equipped with slit trenches and also with entrenchments for fire means and materiel.

Such simple constructions decrease injury to personnel by nuclear weapons by 1.5-2 times as compared to open locations. Engineering organization of entrenchments and firing positions is produced usually after reconnaissance,

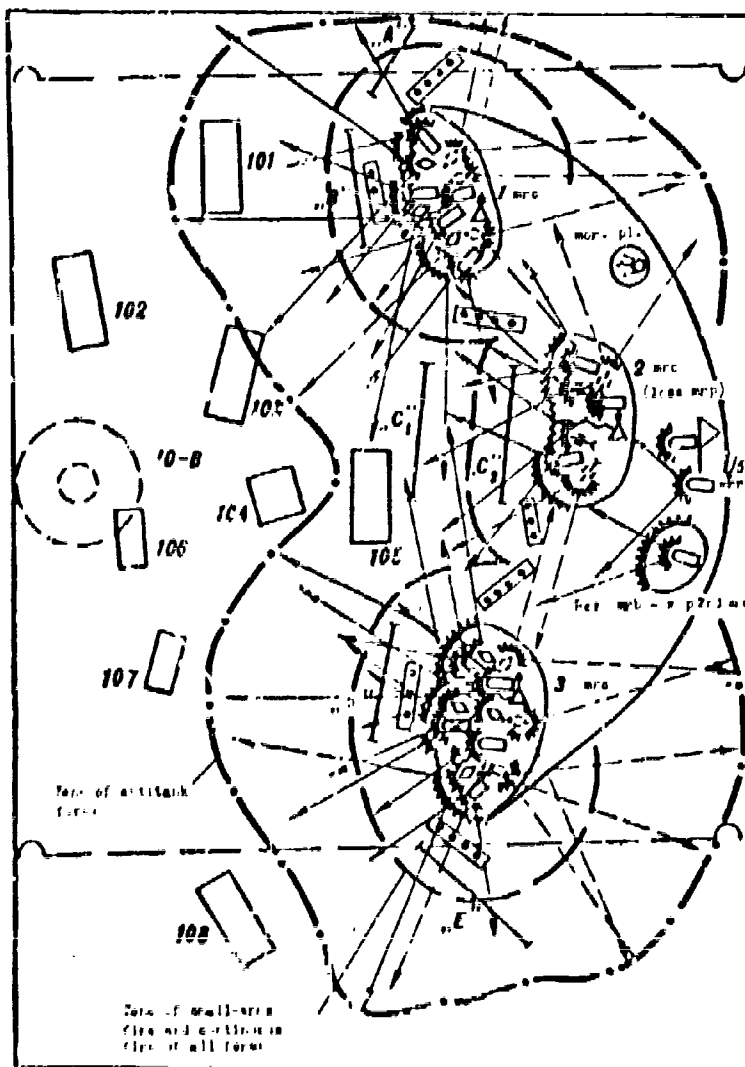


Fig. 38. Construction of defense region and fire system of motorized rifle battalion (one variant). [mrc = motorized rifle company; mrc pl. = mortar platoon; mrr = motorized rifle regiment; mrc = motorized rifle platoon; Res. mrc - 2nd mrc = reserve of motorized rifle battalion, motorized rifle platoon of 2nd motorized rifle company].

determination of places for fire means, and the organization of the fire system by commanders of battalions, companies, and platoons.

When troops remain in strong points of motorized rifle companies, trenches, communication trenches, and more reliable shelters for personnel are created (covered slit trenches for every section, platoon dugouts and one reinforced dugout with special equipment per company). Also the basic and reserve firing positions are reinforced against tanks, armored carriers, cannons, and other fire means.

Trenches are not dug at strong points of tank companies. Entrenchments are first made for tanks and attached motorized rifle subunits, and then entrenchments at reserve firing positions and shelters for personnel of the motorized rifle subunit are developed.

Various excavators are used to carry out the large volume of engineering work and the construction of shelters and protective constructions in short time periods. As a result the time required for engineering for company strong points is sharply reduced. Thus, for instance, with one bulldozer in a tank company the work to set up basic entrenchments for tanks can be carried out in 5 hours. The covering of all entrenchments (basic and reserve) for tanks with the help of three bulldozers takes no more than 10 hours.

Of the combined standard shelters of the light type the most accessible are considered the shelter with frames of corrugated steel. They can be erected as foundation pits and also the ground type. In time the shelters are equipped with ventilation systems and hermetic door curtains.

Great attention in creation of combined structures in foreign armies is allotted to the application of plastics. It is believed that if the application of combined metallic elements for protective structures reduces the time of erecting them by four times, then the introduction of plastic elements will enable reducing this by eight times. Also the total weight of all structural elements necessary for engineering organization of the strong point of an infantry company will not exceed 2.5 t.

One of the most important measures undertaken to increase the stability of defense in conditions of considerable dispersion of troops is the application of a system of barriers, including antitank, anti-infantry mine fields and different land mines in front of the forward edge, in intervals between strong points, and on flanks. In the course of battle barriers are established in regions of nuclear strikes and also on the most critical tank-approach directions by means of maneuver of engineer forces and means.

In order to hamper the enemy's selection of objects for nuclear strikes and to force him to inflict them on places not occupied by troops and combat material, camouflage, measures to dupe the enemy and variety in the pattern of construction of defensive zones and positions are important. For this purpose it is wide practice to create false reserve strong points, defensive positions, and firing positions and lines.

The forward position can be equipped to dupe the enemy about location of the first line of defense, to protect subunits of first echelon from a surprise attack by the enemy, and to repel his combat reconnaissance advance. In an engineering sense it is prepared just as other positions. Special attention is allotted to strengthening it by engineer barriers. In areas where an advanced position is not created, positions of combat security can be organized.

Engineering organization of subunit positions is accomplished in sequence, ensuring their constant combat readiness and protection from weapons of mass destruction. Direct supervision of engineer works is carried out by subunit commanders. Works are conducted secretly, and camouflaging of engineer constructions is carried out in the course of fulfillment of the work.

### Fire System

By fire system we mean the organized deployment and application of fire means to destroy the enemy on approaches to the defense, in front of the forward edge, on flanks, and when he wedges salients in the defense.

Before the First World War the basis of fire in defense was rifle fire. Artillery was used mainly for combat with enemy artillery. With mass application of machine guns in the First World War the basis of the fire system in defense became machine-gun fire, supplemented by mortar and artillery fire. With the appearance of tanks antitank fire was begun.

In connection with the explosive development of armored troops after the First World War the role of antitank fire in the general fire system in defense was continuously increased. In the First World War only individual cannons of field artillery, advanced to conduct fire by direct laying were used for combat with tanks; subsequently special antitank artillery was created. In the combat formation of troops there appeared artillery antitank reserves and antitank areas, and to repel an attack of tanks in front of the forward edge all military artillery was used and various antitank barriers were widely applied. Defense began to take on an antitank character.

During the Great Patriotic War antitank fire played a decisive role in defense. Means of combat with tanks became more diverse. Soviet troops used for direct laying fire on tanks not only antitank cannons, but also 122 mm and even 152 mm howitzers and cannons, antiaircraft artillery and also tanks and self-propelled artillery units. Fire of cannon and tanks by direct laying on approaches to the forward edge was supplemented by fire of antitank guns, artillery from concealed firing positions, and on the most important areas by air assaults.

Antitank areas were created in the depth of defense in critical tank approach directions. Antitank barriers, established both before and during the battle by means of mobile obstacle detachments, assumed an even greater role in combatting tanks.

The density of antitank fire in threatened directions in the course of battle was increased due to maneuvering of antitank artillery and tank reserves and artillery from the depth of the defense and from unattacked areas. As a result of all this the density of antitank means over 1 km of the front of defense on the most critical tank approach axes in the tactical zone of defense reached on the average 20-25 cannons, tanks and self-propelled artillery units. Such a quantity of antitank means ensured a density of antitank fire of up to 200-300 rounds per minute on 1 km of front, which, as experience has shown, was sufficient to repel massed attacks of tanks.

The application of different means for the entire depth of tactical zone of the defense for combatting tanks, the necessity of guaranteeing their close coordinated action, the concentration of basic efforts on critical tank approach directions and the wide maneuver of the tanks in the course of battle all were factors responsible for the creation of a system of antitank defense, which, as it developed, became the basis of defense of formations and smaller units. Beginning in 1943 elements of antitank defense were organically joined in battalion and company areas of defense, within limits of which antitank strong points and antitank groups were created.

The system of antitank defense included company antitank strong points united in battalion antitank groups, antitank areas of regiments, divisions and corps, the regimental, battalion and corps artillery antitank reserves (and in a number of cases tank reserves), and also mobile obstacle detachments (Fig. 39).

Simultaneously with the intensification of antitank fire and improvement of antitank defense system in the course of the war, the importance of artillery fire increased. Combining antitank and anti-infantry fire, and also fire to suppress and destroy artillery, mortars and other objects of the enemy, artillery fire was the basis of the fire system in the defense.

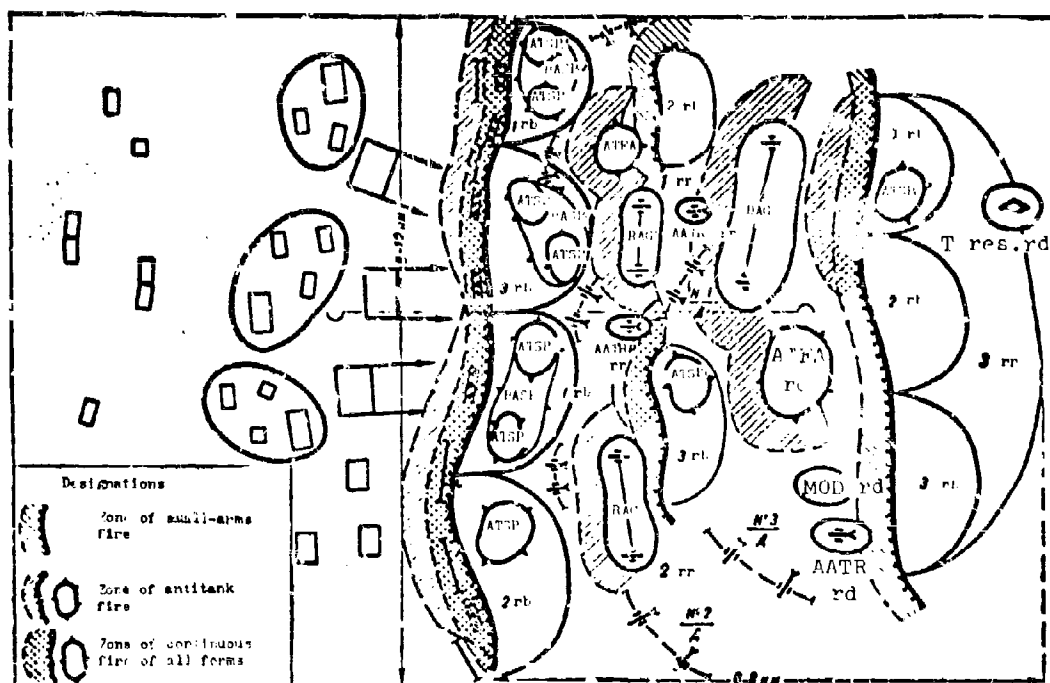


Fig. 39. Organization of fire system and antitank defense of a rifle division from experience of Great Patriotic War.

#### LEGEND

ATSP.....antitank strong point  
 BASP.....battalion antitank strong point  
 ATFA.....antitank fortified area  
 RAG.....regimental artillery group  
 DAG.....Division artillery group  
 AATR.....Artillery antitank reserve  
 MOD rd.....Mobile Obstacle Detachment rifle division  
 T res rd....T reserve rifle division  
 rb.....rifle battalion  
 rr.....rifle regiment  
 rd.....rifle division

The organization of artillery fire allowed conducting remote fire attacks, mobile and motionless barrages and concentrated and massed fire in the entire depth of construction of the defense.

In connection with the increase in the role of artillery fire in the general fire system in defense and the increase in the quantity of cannons and mortars in the forces, the density of artillery increased. While in beginning of the war the density of artillery in defense of a division (without taking into account 50 mm mortars and antitank artillery) was about 5 cannons per 1 km of front of defense, around Kursk it reached 20-38 cannons per 1 km. In the course of defensive combat the initially created density of artillery, according to the manifestation of the main blow of the enemy, was increased by maneuvering artillery and its fire. The creation of artillery groups in regiments, divisions, and corps achieved centralized fire control of artillery and its close coordinated action with the infantry and tanks.

A component of the general fire system in defense was small arms fire. It was

used basically as an anti-infantry fire to cut off the infantry from tanks and destroy it. In front of the forward edge of every position, zones of continuous fire of small arms were created to a depth of 400 m. Flank, oblique and cross fire were widely applied. The saturation of rifle units with automatic weapons permitted having a density of small arms fire of up to 9-12 rounds per minute per meter of front in individual areas of the defense.

Fire from all kinds of weapons was combined with antitank and anti-infantry barriers. Barriers, as a rule, helped the defender to stop or delay enemy tanks and infantry and thereby create the best conditions for their destruction by fire. Therefore, regions of the defense of subunits, flanks and firing sites of artillery were covered with barriers. To prevent the attacking enemy from surmounting them with impunity, all approaches to the barriers were covered by cannon fire (set up for conducting fire by direct laying), small arms fire, and also fire of artillery and mortars from concealed firing positions. The increase in effectiveness of fire of all forms was greatly influenced by skillful construction of the combat formation of troops and the use of favorable conditions of the terrain and its engineering organization.

The experience accumulated by our troops during the years of the Great Patriotic War in organizing fire systems received further development in the postwar years.

The arming of troops with nuclear weapons did not decrease the importance of skillful organization of the fire system of conventional means in defense, since it is impossible to solve all combat problems with nuclear weapons alone.

The quantity of objects for destruction in the combat formation of an attacking enemy has now sharply increased. It suffices to say that in the last three or four years the number of tanks in the NATO armies has increased by approximately one and a half times. Contemporary motorized infantry of foreign armies, armed with automatic personal and group weapons, can fight in armored carriers and other vehicles. In formations and smaller units there is a considerable quantity of means of nuclear attack and electronic equipment. Artillery is becoming more nuclear. Therefore the volume of problems solvable by defending fire not only has not decreased but has increased. Consequently the requirements for fire systems have increased as well as the need for skillful use of all fire means of subunits, units, and formations in close coordination for fire superiority over the enemy.

Nuclear strikes are not included in the usual concept of fire. They are decisive means of destruction of the enemy, a new element for construction of the defense, and should be applied primarily for the destruction of enemy means of nuclear attack, destruction of major groupings of his troops, and the solution of other most important problems. Therefore, nuclear strikes fall outside the framework of a fire system.

At present, the fire system constitutes organized fire of conventional means, i.e., artillery, antitank, and small-arms fire. It is constructed on the combination of these forms of fire and includes fire on the enemy on the approaches to the defense, zones of continuous fire of all forms in front of the forward edge, on flanks, and in the depth of the defense, and also maneuvering of fire for rapid concentration on any threatened axis or sector.

Also the application of nuclear weapons, the further development of conventional fire means, increased concentration of tanks and armored carriers, and also increased fire power and shock power of formations and smaller units of the attacker present new requirements to the fire system and introduce changes into its organization.

One of the most important requirements of a fire system is that it now must be created with account taken of planned nuclear strikes, and it should supplement them. This requirement primarily pertains to the organization of artillery fire, which should delay the enemy on the lines or in regions where we can inflict destruction on the enemy by nuclear strikes; it should force him to concentrate his combat formations and thereby create favorable objectives for our nuclear

strikes. At the same time artillery fire should be conducted in areas where nuclear strikes cannot be made for some other reason.

Another requirement of a fire system is that it ensures the possibility of effective combat with the nuclear means of the enemy, including those of small size. Destruction of small-size nuclear means should be attained not only by artillery fire from concealed firing positions but also by fire of cannons firing by direct laying, tanks and antitank guided missiles.

The basic forms of fire applied by artillery to accomplish fire missions are: massed, concentrated, and barrage fire and also fire on individual targets.

At present requirements for antitank stability of defense are further increased because of the sharply increased saturation of armies of the major imperialistic states with tanks and armored carriers and the considerable improvement of combat characteristics of the tanks. An increase in antitank stability of the defense in the principal armies of the world is attained primarily by an increase in the effectiveness of antitank means. The most promising of these are antitank guided missiles, which ensure high accuracy. Their shaped charge, as the foreign military press reports, permits piercing armor 400-600 mm thick at a distance of 3-4 km. Furthermore it is indicated that recoilless guns and bazookas will receive even greater development.

At the same time maneuvers of fire, tanks and antitank means has taken on an even greater importance in increasing the effectiveness and power of antitank fire since the attacker can now, with his own nuclear and fire attacks, not only weaken the firepower of the defender but also instantly destroy elements of the defense, strong points, and groups of fire means. As a result the integrity of the defense and the fire system will be disturbed. In these cases the fire system can be restored primarily by maneuver of forces and means.

An increase in antitank stability of the defense is also attained by improving the whole system of antitank defense, which includes: company strong points with antitank means located in them; tank traps; firing lines prepared for occupation tank troops and antitank reserves; tanks of second echelons and reserves; antitank reserves; artillery located on critical tank approach directions; and antitank barriers.

The dispersion of defending troops down to the company and platoon level decreases their vulnerability to nuclear strikes. At the same time it increases the requirement for independence of companies in battle in holding strong points and, consequently, also the demand for fire power of company strong points in an antitank sense.

With the increased concentration of tanks the possibility of using tank traps has increased in importance. Small tank subunits suddenly opening fire from camouflaged positions can inflict considerable losses on enemy tanks that have broken through breaches in the defense formed by nuclear strikes or through gaps between strong points. This defensive technique also hampers the destruction of tank ambushes by the nuclear weapons and fire of the attacker. In this connection the importance of maneuvering of tanks of second echelons and reserves is increased.

In contemporary conditions the system of antitank defense has organically merged with the general system of defense and has become the basis for it. Now all elements of the combat formation and subunits of all kinds of forces are able to battle effectively with enemy tanks with whatever means of combat are at their disposal.

The firepower of small arms is now based on the fire of automatic weapons. The effectiveness of small arms fire has also increased owing to the application of armored carriers equipped with large-caliber machine guns.

To achieve stability of defense in conditions of the application of nuclear weapons by the enemy and his increasing fire and shock power it is necessary to inflict decisive destruction on the enemy while he is still on distant approaches to the defense, by use of both nuclear weapons and fire of all means. Therefore in

the fire system of the contemporary defense the importance of activity has increased. The emphasis has shifted to approaches to the defense and to the rear of the enemy. At the same time zones of continuous fire of all forms have not lost their significance, i.e., zones of organized artillery, antitank, and small arms fire of high density directly in front of the forward edge and of battalion defense areas in the depth of defense. With dispersed location of subunits on positions the creation of zones of continuous fire gives fire solidarity to the defense.

In this connection the experience of providing fire along flanks has great importance even now. From weak places in the defense the intervals between subunits should be turned into the most powerful means of organization of flanking fire and crossfire of tanks, antitank means, and small arms and also for preparation of concentrated and barrage fire of artillery.

In a contemporary defense the fire system should be combined with natural obstacles and a system of barriers. The role of explosive mine barriers will increase. Foreign armies look for the possibility of using mechanized means to establish them, e.g., mine distributors, mine layers and helicopters. The possibility of using special nuclear land mines with enormous destructive force and the capability of creating a radioactive zone is also considered.

The fire system must be coordinated with air strikes. However, one should note that the sharp increase in aircraft speeds has brought about an increase in distances over which safety of the defending troops in bombing is ensured.

The growth in the role of fire and further development of fire means present higher requirements for the organization of the fire system on the part of commanders at all levels. Organization of the fire system is a first-priority obligation of the commander from the moment he gets a defensive combat mission. The readiness of defense to repel an attack of the enemy is determined by creation of a fire system.

Periods for organization of defense at present will be short, since the high mobility of enemy troops and great range of means of nuclear attack make it possible rapidly to create shock groups and inflict nuclear, fire, and troop attacks on the defender.

#### Repelling the Enemy Offensive

For a successful defense great importance has always been placed on the skill of the defender in maximally hindering the enemy in his preparation of the offensive, weakening the force of his initial blow, decreasing his ability to augment his forces in the course of battle, and under favorable conditions breaking up the offensive even before his troops turn to the attack. This tendency was conditioned by the ever-increasing force of the attack and the fire power of the attacker and by the fact that the defender, having long-range and powerful fire means, could inflict powerful fire strikes at great depth.

A defender inflicts the most perceptible blows by aviation and massed fire of artillery, especially long-range. Even in the First World War we observed the efforts of defending troops to thwart or considerably weaken an enemy offensive by carrying out counterpreparation.

In the First World War there were repeated attempts to conduct artillery counterpreparation. However, due to the limited capabilities of artillery it did not lead to a breakdown in the offensive. Such a goal was attained only by application of chemical weapons. On the night of July 13, 1917, to break up an Anglo-French offensive of Ypres expected in the morning, the Germans conducted counterpreparation with the use 50 thousand mustard-gas shells. As a result the Anglo-French troops sustained heavy losses and their offensive was thwarted.

On the basis of experience of the First World War, the regulations of the majority of armies envisage the breakdown or weakening of the attack of a prepared offensive by carrying out counterpreparation and inflicting strikes in



front of the first line of defense.

During the Second World War counterpreparation found wide application as a basic method of weakening the blow of attacking forces.

Soviet troops conducted counterpreparation in the defensive battle on the Moscow line in September of 1941 (16th, 19th, and 20th Armies of the Western Front); near Stalingrad in September - October 1942 (62nd and 64th Armies); and at Kursk in July 1943 (troops of Central and Voronezh Fronts). Not only artillery but also aviation participated in the counterpreparation. There was a constant increase in the scope of counterpreparation and in the quantity of forces used to carry it out. While in the defensive battle of Kursk in the 13th Army of the Central Front and in the 6th Guards Army of the Voronezh Front, counterpreparation was conducted with an average artillery density of 30, and on main directions, 60-80 cannons and mortar per km, during the defense by troops of the 69th Army of the Pulawy base of operations on the Vistula river in September of 1944 a density of 100 cannons and mortars and even more was used for counterpreparation of 1 km of front.

As a result of counterpreparation hostile troops, concentrating for the offensive, lost people and combat equipment, which deterred the beginning of the enemy offensive and considerably reduced the force of his initial blow. In separate cases successfully conducted counterpreparation compelled the enemy to give up the offensive in the given area. Thus, on June 1, 1944 the enemy offensive against the 34th Rifle Corps, 46th Army of the 3rd Ukrainian Front, which occupied a bridgehead on the western shore of the Dnestr river, was stopped.

An application considerably smaller than counterpreparation involved an attack by the defending troops in front of the forward edge of the defense to destroy the offensive grouping of the enemy. For such a blow there are usually not enough forces; therefore, as a rule, it did not attain its objective and sometimes led to greater weakening of the defending troops.

The appearance of nuclear weapons considerably changed this position. A real possibility was created for achieving disruption of a prepared enemy offensive. Therefore in all the large armies of the world greater attention began to be allotted to developing measures to break up or weaken the offensive even before its beginning. Among the basic measures are counterpreparation and the infliction of a counterblow (counterattack) on a grouping that is preparing for an offensive.

Counterpreparation consists of inflicting of powerful fire strikes on the main grouping of the enemy during his approach and deployment for the offensive. Strikes on profitable targets and objects of the enemy (especially on his means of nuclear attack) can be inflicted immediately after they appear.

It is considered more advantageous to conduct counterpreparation in the form of a brief massed strike by nuclear weapons, as well as by conventional means, on an enemy prepared for offensive in depth or when he cannot occupy the initial position for the attack. It is important that the counterpreparation anticipate the enemy's nuclear, artillery, and aviation preparation.

Along with measures to break up an enemy offensive, defending troops use different methods of weakening his fire strike and tiring and weakening the advancing troops before the approaches to the first line of defense. Concealment of the forward edge by skillful use of terrain and by use of various camouflage measures were among those techniques widely applied to achieve this goal in past wars. To dupe the enemy as to the true outline of the forward edge and to weaken the effectiveness of artillery fire in front of the main defense zone advanced positions and positions of combat security were created. To decrease losses from artillery fire and air strikes in the zone most susceptible to fire, frequently only a minimum number of forces and means was left, there and periodic changes in the grouping of defending troops and location of control centers were carried out. In certain operations in separate areas troops were removed from the forward edge before the enemy artillery preparation. Besides these measures, in a number of armies before the Second World War a security zone was formed in front of the main zone of defense.

In the Great Patriotic War, with the transition of our troops to the defensive in the absence of contact with the enemy a security zone was created. Acting in it, forward detachments usually delayed the offensive of the enemy, inflicted losses on him, compelled him to prematurely deploy main forces of infantry, tanks, and artillery, and simultaneously gained time for strengthening the defense and reconnoitering the enemy's formations and his intention.

These measures for weakening the attack of the enemy and tiring him on the approaches to the defense not only remain important, but they also gain greater significance in conditions of the application of nuclear weapons.

Thus in the presence of a security zone advanced detachments, skillfully maneuvering by fire, and subunits using barriers and destruction can delay the enemy in areas where nuclear strikes are planned, force him to deploy and advance in an unprofitable direction and also to reveal the direction of actions of his main forces.

In the presence of an advanced position created ahead of time or of troop withdrawal from the forward edge to the rear, it is possible also to gain a number of advantages — for instance, to compel the attacker to expend part of his nuclear means on sparsely occupied or vacant areas, force him to deploy for an attack on this position and thereby weaken the nuclear strike on the main defending forces, and to gain time for strengthening the defense on threatened directions and liquidation of consequences of nuclear strikes of the enemy.

While taking measures to break up an offensive or weaken an attack of the enemy and wear him out on approaches to the defense, the defending troops simultaneously undertake to strengthen the defense on the detected directions of the enemy offensive. With this goal problems can be definitized down to subunits, the density of barriers can be increased, and maneuvering of forces and means and further engineering organization of positions can be carried out.

The defender has always tried to repel an enemy attack in front of the forward edge of the defense. When the basic attacking force was infantry this requirement meant repelling its attack, but in contemporary conditions it pertains primarily to repelling the attack of enemy tanks.

Repelling an attack in front of the first line of defense in many respects predetermines success of the defense and the possibility of breaking up the offensive of the enemy, inasmuch as by expending a considerable part of accumulated ammunition and sustaining definite losses the attacker finds it difficult to create high densities of fire and of attacking troops for a repeated blow. One should also consider that the morale of advancing troops in these conditions decreases and that of the defender, conversely, increases.

Therefore, in most cases the battle in front of the first line of defense during the years of the Great Patriotic War acquired an exceptionally fierce and persistent character. In the course of this battle repeated attacks of the enemy were repelled, heavy losses were inflicted on him, and not infrequently he broke off from the offensive. During the battle, in order to hold the forward edge commanders of units and formations definitized the grouping and direction of the enemy attack, took measures to strengthen the defense, and carried out maneuvers with forces and means on the threatened areas.

In contemporary conditions the fight to hold strong points on the first line of defense is of no less importance. An enemy stopped directly in front of the strong points cannot inflict effective nuclear strikes on company strong points located on the forward edge (of the main line of resistance). The combat formation of units of the enemy's first echelon inevitably will be overcondensed and will be in the zone of continuous fire of all means of the defending troops. In turn this situation will enable the defender more effectively to inflict nuclear strikes on the attacking force. Successful repelling of enemy attacks in front of the forward edge will also allow time for liquidation of consequences of his nuclear strikes and for maneuvering of forces and means, and thus, on the whole, will lead to increased stability of the defending troops.

Transition of the enemy to the attack is usually preceded by nuclear and fire preparation. Therefore it is very important in good time to conceal personnel of defending forces in dugouts, shelters, trenches, tanks and other shelters in order to decrease their loss from the nuclear and fire strikes of the attacker.

After the enemy nuclear and fire preparation [lifts], defending subunits should be able quickly to occupy their places for repelling the enemy attack. For this purpose subunits must have observers who remain in their places and observe the enemy, using periscopes and other means, and who can signal the troops to take their positions when the enemy starts his attack.

After nuclear strikes of the enemy and with the beginning of fire preparation, commanders of subunits also are obliged to conduct observation of enemy actions and of their units' positions and to detect when the enemy turns to the attack.

With fire of supporting artillery and tanks, battalion commanders must destroy any detected enemy tactical means of nuclear attack (especially those of small size), his artillery subunits, and also tanks, armored carriers, and infantry which are advancing or are prepared for the attack. Simultaneously they take measures to establish communications with subunits and superior commanders, to set up a system of antitank fire, and to liquidate the consequences of enemy nuclear strikes.

Subunits that have not lost combat effectiveness liquidate the consequences of enemy nuclear strikes, as a rule, with their own forces and means under the leadership of commanders. Without ceasing to accomplish the immediate mission, commanders of battalions (companies) organize restoration of the fire system, the rendering of first aid, withdrawal (removal) of injured to uncontaminated areas of the site and their evacuation to medical points, partial special treatment of personnel, weaponry, materiel, and occupied engineer structures, the clearing of avalanches that prevent exit of people and withdrawal of supplies from destroyed shelters, and the quenching of fires.

In subunits of a battalion unfit for combat the liquidation of consequences is carried out by forces and means of medical, engineering and chemical subunits, and also by subunits of tank maintenance service as designated by the regiment commander.

To cover areas subjected to nuclear strikes senior commanders can move forces and means from the reserves and second echelons, with which the battalion commander established reliable communication (Fig. 40).

With transition of the enemy to the attack subunits, on signal of their commanders, rapidly abandon shelters, occupy positions, and open fire. For the successful repelling of an enemy attack, organized fire of all means, the stability and persistence of subunits both on the defending forward edge and also those moving into areas of enemy nuclear strikes are of decisive importance.

With the approach of the enemy to the forward edge the fire of artillery, tanks, and antitank means builds up to its highest point. The basic mass of fire is concentrated on the destruction of enemy tanks and armored carriers.

By barrage fire the artillery destroys enemy tanks and by disrupting their combat formation creates profitable conditions for their subsequent destruction by antitank weapons.

Antitank weapons and tanks usually open fire from a distance, inflicting effective destruction on enemy tanks and armored carriers. As the enemy approaches the first line of defense the defender opens fire with machine guns, hand antitank grenade launchers and automatic weapons. If the enemy infantry advances on foot, subunits cut it off from tanks and destroy it by fire. Tanks and armored carriers that penetrate into the rear are destroyed by fire of antitank weapons located in these areas.

When necessary commanders of battalions of the first echelon advance their reserves or part of subunits and fire means from unattacked sections to threatened areas and persistently defend areas even when they have been bypassed.

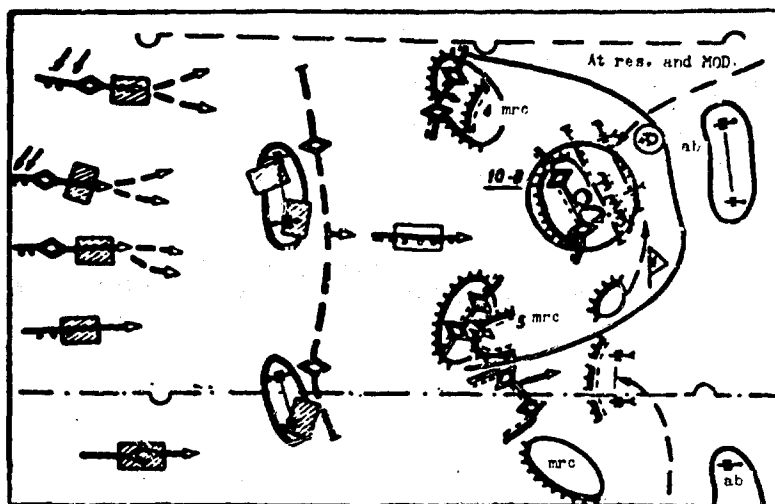


Fig. 40. Repelling an enemy offensive by a motorized rifle battalion (a variant). [mrc = motorized rifle company; ab = artillery battalion; At res. and MOD. = Antitank reserve and Mobile Obstacle Detachment].

Under favorable conditions they conduct counterattacks on the flank and rear of the penetrating enemy.

After repelling the enemy attack the first echelon subunits take measures to rapidly restore the disturbed system of fire, first of all of antitank fire, replace ammunition, restore destroyed defensive constructions and barriers, and evacuate the injured. At the same time they should be ready to repel repeated enemy attacks.

#### The Counterattack in Defense

The experience of two world wars showed that an attacking force can pierce the defense in spite of the deep echeloning of forces and means and the creation of a number of positions and zones that are well organized in an engineering sense. Possessing the initiative, the attacker created in the chosen area a considerable superiority of forces and means and carried out powerful artillery and aviation preparation, and then overran the defense by massed application of tanks and infantry with support of other means.

In these conditions exhaustion of the attacking forces and infliction of great losses were attained by fierce fighting for every position and zone by active operations of the defending troops. The defense attained its objective only when in the course of battle wide maneuvers and the timely concentration of sufficient forces and means on the threatened axis for carrying out heavy counterattacks and for persistent holding of occupied positions.

As a method of defensive operations the counterattack began to be used with the appearance of position defense.

Thus during the Russo-Japanese War, in order to repel attacks of the enemy that had reached Russian entrenchments, the defenders moved 10-15 steps backward and inflicted a bayonet attack when the Japanese infantry overran the Russian entrenchments. To repel bayonet charges of the enemy, Russian troops also practiced getting out of their trenches and moving forward. To inflict a counterattack, jointly with defenders of entrenchments there were used reserves located in sheltered places behind the entrenchments of the main line of defense. After successfully repelling the attack they directed rifle, machine-gun, and artillery fire at the retreating enemy.

In the course of First World War the most important condition for successful defense was speed in bringing the concentration of defending troops up to the density of the combat formation of the attacking troops in the contested area. Therefore, mobility of reserves by marching and by railroad and motor transport was of great importance. Initially the problem of concentrating the front was solved in the form of continuous reinforcing of troops of the first echelon. Beginning in 1916, when the depth of echeloning troops and positions increased, counterattacks and counterblows began to be applied to eliminate enemy breakthroughs. Counterattacks were conducted by forces of battalion, regimental and division second echelons (reserves), and counterblows by larger forces, mainly reserves from other sectors of the front or from the rear. Along with the destruction of the enemy that had penetrated in depth of the defense, one of the missions of counterattacks and counterblows was the restoration of continuity of the position front.

During the years of the Great Patriotic War counterattacks found wide application in defense. Experience showed that counterattacks by second echelons of battalions and regiments against powerful tank groupings of enemy in many cases had little effect, since the attacker usually had considerable superiority of forces and means. Therefore more frequently counterattacks were conducted on the division and corps scale. For this purpose divisions usually had a rifle regiment of the second echelon and units of forces of regiments of first echelon, and a rifle corps would have a division of the second echelon and units of forces of the divisions of the first echelon. Counterattacks were supported by attached tanks and the fire of large artillery units. If counterattacks were well organized and conducted by sufficient forces, they were successful.

Counterattacks by the second echelon not only of a division but also of a corps were conducted in the fight for the main zone of defense, since its retention was the basic mission of troops defending the tactical zone of defense. In individual cases, for instance, in the battle of Kursk and the Balaton defensive operation, operational reserves were also used to fight for the main zone. If, however, the enemy pierced the main zone of defense, then all forces concentrated on retention of the second zone for the purpose of denying the enemy penetration into the operational rear.

The application by defending troops of a nuclear weapon to destroy enemy groupings wedged into the defense and the use of suitable reserves permit changing the unfavorable ratio of forces and means considerably faster and thereby increasing the effectiveness of counterattacks. In connection with this in contemporary conditions the goal of counterattack cannot be limited to the restoration of a lost position, as was the case in the past. A more decisive goal can also be the pursuit counterattack, i.e., the destruction of an enemy wedge and seizure of lines suitable for subsequent actions. According to the view accepted in the U. S. Army, such an objective can be attained by carrying out counterattacks with a mobile defense.

At the same time, even with a mobile defense one of the conditions for the successful carrying out of counterattacks is the necessity of rigid retention of definite lines where the attacker will be stopped and forced to introduce additional forces and means for development of an offensive. Moreover, the area of a wedge has the densest grouping of troops and combat equipment, which is favorable for destruction by a nuclear weapon. The mission of the firm holding of profitable lines and objects bordering the region of an enemy wedge is usually assigned to units of the first echelon, assigning to it mainly fire resistance.

Counterattacks against an enemy who has not been scattered by fire and still had superiority of forces and means were usually not successful in the last war. Therefore, an obligatory condition of success of the counterattack is infliction on the wedged enemy of fire by all means, air strikes and also nuclear strikes, which can sharply weaken a penetrating grouping of the enemy and upset his combat formation. In the view of the American command, the basic part of nuclear ammunition released to a division in mobile defense is designed for use to destroy the enemy in the depth of defense. It also provides for cutting off the approaching reserves.

Earlier, an obligatory condition for successful counterattack was the creation of initial superiority of forces and means in the chosen direction. In contemporary conditions such superiority should be achieved by nuclear weapons and other means of destruction. This excludes the necessity of complicated regrouping of forces in the direction of counterattack and permits conducting it from the march from various directions. It is also considered possible to carry out not only flanking but also frontal counterattacks and their combination.

It is most profitable to conduct counterattacks at the moment when the enemy offensive into the depth of defense is stopped, and he has not been able to secure the lines he has reached and to bring up reserves for the attack (Fig. 41). A counterattack against enemy troops that are continuing the offensive can take on the character of a meeting engagement, which is less profitable for the defender since the enemy not only operates in deployed combat formations but also preserves his shock power.

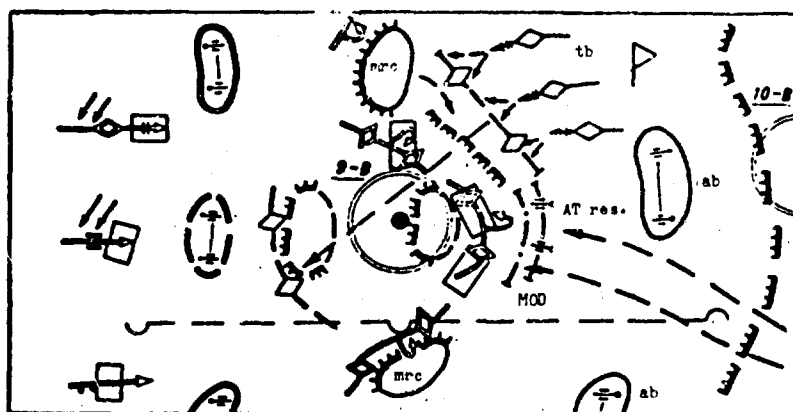


Fig. 41. Counterattack by tank battalion to destroy an enemy wedge in the defense (a variant). [mrc = motorized rifle company; tb = tank battalion; AT res. = Antitank reserve; MCD = mobile obstacle detachment; ab = artillery battalion].

When conditions are suitable for a counterattack, it is organized in a short period. The basis of a counterattacking grouping is usually tanks. Nuclear strikes are inflicted so as not to contaminate the defending troops or hold down their maneuvering by area contamination. During movement and deployment of counterattacking subunits, before their transition to the attack, fire onslaughts of artillery and mortars are usually conducted.

Having received an order for a counterattack, the battalion commander definitizes combat missions to subunits and fire means. Undercovering fire of artillery the battalion rapidly advances in its area and resolutely counterattacks the enemy. Motorized rifle subunits counterattack the enemy in armored carriers or on foot behind the tanks.

The counterattack is conducted until complete destruction of the wedged-in enemy is accomplished or up to the approach to a designated line.

Subunits of the first echelon support the counterattack of a battalion of the second echelon by fire, or, on order of the superior commander, they are joined with counterattacking subunits for joint destruction of the wedged-in enemy.

With advancement to the deployment line and during counterattack, the counterattacking subunits are covered from enemy air strikes by antiaircraft artillery fire.

Under conditions of the application of nuclear weapons counterattacks will not always be possible. When the attacker has overwhelming superiority of forces and means, and the second echelons (reserves) of the defender come under enemy

nuclear strikes, counterattack will not be successful. Under these conditions the defender should take measures to hold the positions, block the enemy, and create conditions for carrying out counterattacks by the resources of the superior commander.

A battalion of the second echelon can be assigned to destroy an enemy parachute drop in the depth of the defense. In this case the attack is conducted while the drop is in progress to prevent the paratroops from assembling after landing and securing the site, and also to capture important objects in the drop area. The attack can be inflicted from several directions (Fig. 42).

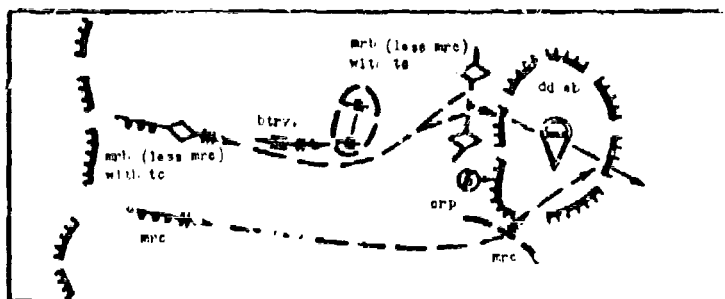


Fig. 42. Destruction by reinforced motorized rifle battalion of an enemy air drop in depth of defense (a variant). [mrc = motorized rifle company; mrk (less mrc) with tc = motorized rifle battalion (less mrc) with tank company; btry. = battery; crp = combat reconnaissance patrol; dd ab = drop detachment of enemy battalion].

#### Special Features of Conducting Defense at Night

Contemporary defense should be created so that defending troops can resist attacks of an advancing enemy not only by day but also at night.

A defensive battle at night can be a continuation of a battle started in the day and also during repulsion of an enemy night offensive. In a number of cases troops are forced to turn to the defensive at night.

The general principles of conducting defense at night are the same as those for daytime defensive. However, night conditions considerably affect the conducting of combat actions. Night gives the defender a number of advantages, the clever use of which significantly facilitates the accomplishment of missions. On the other hand, night also creates a number of difficulties.

If the transition to the defensive was carried out before nightfall, and troops were able to study the terrain well, organize their coordinated action and fire and control systems, and carry out engineering organization of positions, the defender gains considerable advantages over the attacker, since to a great measure he reduces the negative influence of darkness.

At night defending troops can stun an advancing enemy by the sudden opening up of massed fire, counterattacks, and other actions. It is easier for them to conceal and camouflage combat formations and the fire system. The effectiveness of counterattacks even by small forces is increased at night. It is also possible to dupe the enemy as to the real intentions, force, and grouping of the defending troops. A smaller part of the forces can conduct the battle, while the main forces can be used for maneuver in more important directions.

By duping the enemy, even small forces can delay his advance and thus gain time for preparation of daylight combat actions. If small groups of the defender manage to penetrate to the rear or flank of the attacking enemy, they may cause

panic, draw part of the forces, and thereby delay the rate of the advance.

At night the defending troops can secretly conduct engineering operations and install barriers to strengthen the defense on threatened directions. Darkness makes it possible to withdraw a subunit from threatened areas before the beginning of the enemy offensive and thereby not to only preserve the forces, but also to force the enemy to inflict nuclear strikes on empty places. Finally, at night it is possible to secretly replace reserves of material means, evacuate the injured, and conduct restoring works.

However, at night defending troops also experience a number of difficulties, for instance, in orientation and maintaining assigned directions. The organization of defense is more difficult at night due to confusion of the situation on the field of battle.

In spite of successes achieved in development of technical means of observation and reconnaissance, limited visibility at night facilitates an enemy's concealed approach to the defense and sudden transition to the attack. Night conditions hamper the effective application of nuclear weapons, air strikes, and sighting of artillery, antitank, and small-arms fire. Poor observation conditions complicate the control of troops, the support of communications in the course of battle, and the carrying out of measures undertaken for liquidation of consequences of a nuclear attack, in consequence of which the importance of initiative of action and independence of commanders and all personnel is increased.

At night personnel fatigue is greater, people become more impressionable and sensitive to any surprises and more subject to fear and panic. Therefore, concern for supporting the stability of troops in a night battle, self-control, endurance, firmness in the control of troops, and personal example during enemy attacks are required of all commanders.

To lessen the influence of negative factors of night conditions on actions of the defending troops, a number of measures must be taken both before and during the battle. Thus, to prevent a surprise attack by the enemy and to detect in good time his approach to the forward edge and transition to the attack, it is necessary at night to intensify reconnaissance of all forms, security, and observation of the enemy with use of radar and instruments of night vision, and to organize monitoring. To create favorable conditions for observation of the enemy and application of fire means when repelling his attack it is necessary to systematically illuminate the terrain by skillfully using means of artificial illumination and available materials. The fact that the enemy acts in the open and the defending troops are in shelters permits the latter to conceal their combat formation and fire means to some degree from observation of the enemy even during illumination of terrain. Therefore, illumination of the field by the attacker or the defending troops is more favorable for the defender.

It is also necessary to combat the illuminating means and instruments of night vision of the enemy. This permits decreasing the effectiveness of fire of the attacker and hampering his control of the troops. Means of illumination and instruments of night vision are destroyed by fire of artillery, mortars, and small arms and by air strikes. Smoke is used to blind observers who are using instruments of night vision.

To increase the effectiveness of fire, preliminary daylight preparation of fire means for aimed fire with application of instruments of night vision and improvised materials is important. Because at night the enemy will most frequently start an offensive along roads, fire means must first of all be used on these probable directions. One should allot the principal attention to intensifying the system of antitank fire. For this purpose the number of manned antitank fire means is increased, and at dusk some cannons and tanks are advanced to firing positions nearer to first line of defense. The quantity of advanced fire means and their location for night actions are determined by commanders of subunits.

One of the important measures undertaken for preparation of a defensive battle at night is the guarantee of unfailing operation of different signal devices in the system of barriers in front of the first line defense.



To improve orientation and fire control it is necessary to designate reference points which are visible not only by day but also at night. When necessary, illumination of reference points is organized. Recognition signs for friendly troops are also established.

Under conditions of night battle the enemy will inflict nuclear strikes on troops and objects at a considerable distance from the first line of defense. But, in spite of this, it is necessary to provide measures to guarantee the safety of subunits from light radiation.

Maneuvers conducted at night should be planned to be simple and should exclude complicated regroupings. They are organized to avoid crossing of lines of subunits and their intermixing, and also to prevent the accumulation of troops on roads. Maneuver routes are designated by indicators which are illuminated or easily at night visible. When possible, routes and lines of deployment are studied before nightfall by commanders of all subunits included in the maneuver.

The speed of maneuver of forces and means at night is considerably less than that by day. Therefore, to reduce the time for limited advance for covering areas of nuclear strikes or to deployment lines for counterattacks, second echelons and reserves are placed nearer to the areas of assumed use.

Although darkness camouflages the troops, nevertheless under nocturnal conditions it is also necessary to utilise camouflage. It is produced with account taken of the distance from the enemy and his means of observation. In areas covered by radar and infrared instruments camouflage should be as thorough at night as it is by day.

To repel an enemy attack from the beginning of his movement, the defending troops are rapidly put into combat readiness. Specially assigned artillery and mortars illuminate the terrain, using illuminating shells and creating centers of fire in the enemy disposition. The main attention is turned to illumination of the first attacking echelon and also the areas of the starting and firing positions of the enemy and his approaching reserves.

Using results of illumination of the terrain, artillery and mortars destroy the enemy's tactical means of nuclear attack and his artillery, tanks, and armored carriers. The enemy attack is repelled by sudden opening of fire. To destroy the enemy's tanks and infantry, fire means having instruments of night vision and also antitank grenade launchers and grenades are widely used.

Repelling the offensive in front of the forward edge at night has an even greater importance than it does by day, since the wedging into the defense of even small enemy forces disturbs the fire system, which is difficult to restore in conditions of darkness. Therefore subunits defending the forward edge should take all measures to repel enemy tank and infantry attacks and hold the forward edge. Their actions are supported by artillery fire from the rear and other means of superior commanders.

In all cases, after repelling an enemy tank and infantry attack the defending troops are prepared to repel repeated attacks.

Combat with a salient of superior enemy forces at night is profitably conducted by destroying them by means of fire of all forms from occupied positions. At the same time sudden counterattacks at night permit attaining more substantial changes of the situation in favor of defending troops than they do by day. Therefore they can be conducted even by small forces at any time of the night, as long as they are completed before dawn.

During counterattacks special attention is allotted to ensuring the arrival of counterattacking subunits on deployment lines. For this, besides the designation of attack routes, guides can be assigned. Reconnaissance and local security is also strengthened. Counterattacks should be simple in plan and are usually conducted on an open terrain, having clearly visible reference points. When the counterattacking subunits reach the deployment lines illumination of the enemy and of the terrain ahead is produced. Actions of subunits must be sudden and quick.

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As a rule, at dawn the attacker shifts to more active operations. At night he will try to bring up his second echelons so that at dawn he can inflict powerful thrusts in decisive directions. Therefore, sometimes it will be profitable for the defender during the night to secretly concentrate his reserves on the most important direction, inflict a decisive blow on the enemy salient at dawn, and seize the initiative in his own hands.

In combat with parachute landings at night there is special importance in suddenness of action, which is attained by concealed advancing of forces and means assigned for their destruction and by infliction of swift attacks in the flank and rear. The site occupied by the paratroops should be intensively illuminated.

## CHAPTER IX

### WITHDRAWAL

Withdrawal is a form of combat action applied for the purpose of regrouping, occupying more suitable positions, or withdrawing one's own troops from under possible attacks of the enemy. Usually, the necessity of withdrawal appears in the course of defensive actions, when only by the temporary leaving of part of the territory is it possible to change sharply an unfavorably forming situation, withdraw one's troops from under its attack of superior forces of the enemy, and set them in more profitable position. The necessity of withdrawal can appear with the unsuccessful outcome of meeting engagement and to get out of an encirclement.

In all cases withdrawal is carried out only by order of the superior commander in an organized manner, secretly and rapidly. The mission of troops during withdrawal is to preserve one's forces and in good time and in an orderly manner withdraw to a designated area in full combat readiness for fulfilling a new combat mission.

Experience of the last war shows that withdrawal is accomplished, as a rule, in a complicated situation, under the active influence of the enemy. In contemporary conditions when the enemy detects withdrawal he will apply nuclear and chemical weapons, air and artillery strikes, and begin attacks by tanks and motorized infantry on the withdrawing troops. On flanks and in the rear of the withdrawing troops his highly mobile flanking groupings, sabotage-reconnaissance groups, and airborne landing forces can act. Under these conditions the withdrawing troops are required to have especially high organization, skillful actions, endurance, stability and discipline of all personnel.

During active operation of the enemy the withdrawing troops are forced to counteract him with part and sometimes all of the forces, conduct persistent battle on suitable lines to delay the advance of the enemy, inflict losses on him, gain time, and create profitable conditions for going into the designated area. Although active, decisive combat actions by withdrawing troops is the basis of such a withdrawal, this method is less profitable. It is considered more expedient to accomplish withdrawal without occupation of intermediate lines and on as many routes as possible, in order to reduce the depth of columns and the time for accomplishing the withdrawal. The distance between routes should preclude simultaneous destruction of troops on two routes by one nuclear explosion.

Organization of a withdrawal begins only after receipt of an order from the superior commander. All measures are conducted secretly, in brief periods, while maintaining the former regime of activity. Special attention is allotted to ensuring breaking off of the fight, the organization of movement control, withdrawal cover, and the construction of barriers and destructive devices on routes for the enemy.

The grouping of forces and means during withdrawal includes subunits' covering of the main forces' withdrawal from battle, the rear guard, and the main forces.

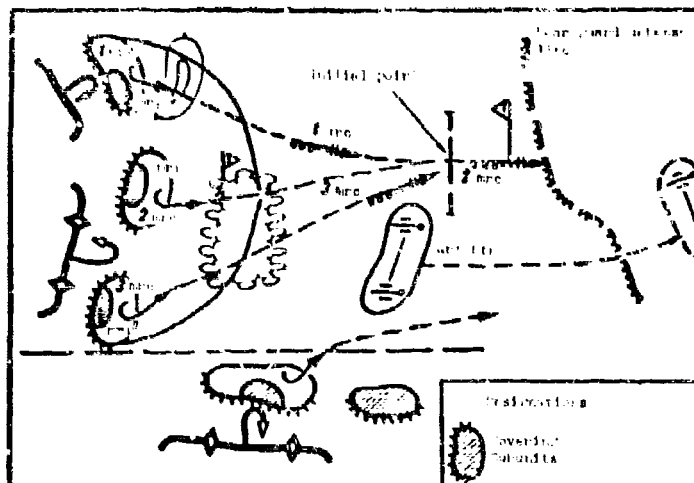


Fig. 43. Withdrawal of a motorized rifle battalion from battle (a variant). [mrc = motorized rifle company, mrp = motorized rifle platoon, art btn = artillery battalion]

In the composition of covering subunits from a battalion there is usually used a reinforced platoon from each company on the forward edge (Fig. 43). In individual instances one of the companies of the first echelon can be assigned for this purpose. The remaining companies of the covering subunits cannot be detailed.

The rear guard is assigned to delay the attacking enemy, to gain the time necessary for the main forces to break contact, and to ensure their unblinded departure. It should be able to carry out the mission independently, not depending on support of main forces. With the assignment in the composition of the rear guard of a motorized rifle (tank) battalion, it can be strengthened by tank (motorized rifle), artillery, and engineer subunits.

In order to prevent a sudden enemy attack on the main forces, rear march detachments are assigned and, when necessary, also lateral detachments (lateral march detachments). Their mission is to fire on the march and from ambush to delay the advance of the enemy until the time set by the commander. By the order of the dispatching commander, detachments can destroy bridges and sections of roads on the withdrawal route and also install mine barriers.

The initial stage of withdrawal is leaving the scene of battle. It ensures a breaking away of withdrawing troops from the enemy and the creation of conditions for the accomplishment of withdrawal. However, one should consider that withdrawing from the action can be carried out not only for the purpose of withdrawal but also for turning to the offensive with the transfer of efforts of troops from one direction to the other and also with the entrance of defensive battle for the accomplishment of a maneuver and strengthening of especially dangerous areas, the closing of breaches formed in combat formations after nuclear strikes of the enemy, and the covering of open flanks. In all these cases actions of troops in the withdrawal from action will be approximately similar.

The depth of withdrawal from action is determined mainly by the range of basic tactical means of combat. When basic weapons of troops were smoothbore, the depth of pullout from battle was 200-300 m, since at such depth troops were outside the influence of enemy rifle fire and, consequently, also outside the field of battle. With the appearance and development of rifled firearms the depth of withdrawing from action was increased to 2-3 km. In the two world wars the depth of withdrawal was determined by the range of artillery-mortar fire of the enemy, taking into account removal of five positions from the forward edge. The depth of withdrawal in the

First World War reached 6-8 km and in the Second World War, 8-10 km. In contemporary conditions, when the enemy has long-range nuclear artillery, the depth of withdrawal can be 15 km and more. The great depth of withdrawal is one of the characteristics of withdrawing in contemporary conditions.

The time and order of withdrawing from action depends on the nature of enemy actions, thought of the commander, position and state of his troops, and terrain conditions.

Withdrawal of subunits from battle under the influence of superior forces of an attacking enemy is the most complicated in daytime and on open terrain. More favorable conditions for withdrawing are created in the achievement of success in battle or with a reduction in enemy activity, at night, and in a concealed area. Therefore, it is profitable to withdraw from the action suddenly, in the dark and under limited visibility (fog, rain, snowfall, smoke). However, the situation can compel troops to break off battle in the daytime. In this case it is expedient to withdraw in a period of reduced activity of combat actions. In conditions of active enemy actions it can be conducted after the infliction of air and artillery strikes and sometimes nuclear weapons on the most dangerous enemy grouping. Brief counterattacks can also be conducted after these strikes.

Success in withdrawing by day depends on rapid and concealed troop actions, skillful use of natural cover, folds of terrain, engineer barriers, smoke, and the application of military cunning and deception of the enemy. Special attention must be given to the protection against weapons of mass destruction and antiaircraft defense.

Withdrawing from action includes the creation on the front line of special cover for withdrawing subunits, the removal of main forces and getting them into columns for subsequent withdrawal or maneuver.

From the beginning of withdrawal the covering subunits remain at the occupied positions and to dupe the enemy intensify their fire and conduct the same combat actions that preceded withdrawal. Their actions are supported by specially detailed artillery subunits. A senior commander is designated to control the covering subunits; he is subordinate to the commander of all withdrawing troops in a given area and maintains communication with him.

It is expedient to withdraw unengaged subunits first (second echelons, reserves) and then artillery and subunits of the first echelon. From the line of direct contact with the enemy subunits are withdrawn all along the front under the cover of the reinforced motorized rifle (tank) subunits left on the forward edge. Using covered areas of the terrain, by preliminarily chosen routes they depart on foot or on armored carriers to the initial point where, not halting, they are joined by a march column of the main forces and continue the movement.

The covering subunits depart suddenly, as a rule, with all forces leaving simultaneously. Their withdrawal usually starts after the main forces have passed the line occupied by the rear guard. If the enemy observes the withdrawal and begins following, the covering subunits withdraw in leapfrog fashions rendering mutual support with fire. Artillery subunits destroy the enemy, especially tanks which are attacking frontally and on the flanks. Later the covering subunits join their main forces.

Withdrawal of the main forces is conducted rapidly under cover of the rear guard without delay at the intermediate lines. With an attack by enemy aircraft the main forces continue movement, antiaircraft artillery and assigned machine guns fire on the enemy aircraft on the move. Subunits pass gorges, bridges and other areas of possible enemy nuclear strikes without stopping. Contaminated sections are bypassed; when this is impossible, they are surmounted at maximum speeds in the shortest direction ensuring the least degree of irradiation (contamination) and with use of individual protective gear. In certain cases by order of the superior commander the main forces or part of them can deploy to strike at the enemy to support the rear guard or destroy enemy airborne landing forces.

Before withdrawing at the time set by the senior commander the rear guard occupies the line designated by him, which is usually selected behind the subunits of the first echelon in the depth of the defense. Under any conditions this line is supported for the indicated time or until receipt of the order for departure to the next line.

Subsequent lines are assigned at such distances from each other that the enemy, seizing one of them, is forced to organize an attack of a new boundary and, in connection with this, change firing positions of tactical means of nuclear attack and large artillery units.

Actions of the rear guard in the retention of each line should be decisive and active. From one line to another the rear guard withdraws by leapfrogging, for which part of the forces and means first goes to the second line, where, by occupying a position on a wide front it ensures organized withdrawal of other forces of the rear guard. The latter, withdrawing from action, forms into a march column and rapidly departs to organize a defense on the following line or in an area indicated by the senior commander. Ambushes and barriers are widely applied during withdrawal to the next lines.

The artillery operating in the rear guard destroys the advancing enemy by conducting fire at maximum range on road junctions, defiles, and crossings, hampering the enemy's movement, and it also strikes columns trying to bypass the rear guard. So that the fire on the enemy is not interrupted, artillery subunits withdraw by leapfrogging jointly with motorized rifle (tank) subunits.

If the enemy does not manifest great activity and does not conduct parallel pursuit, by permission of the senior commander the rear guard forms a march column and under cover of its march security follows the main forces.

When they arrive at the designated area after completing withdrawal, in accordance with the plan of action subunits are disposed in groups corresponding to the character of the new combat mission.



## CHAPTER X

### DISPOSITION OF TROOPS FOR A HALT AND THEIR SECURITY

#### Disposition of Troops for a Halt

During combat actions troops must be rested. In particular, they can be rested before receiving the combat mission upon arrival in composition of an operating army, during reforming and replacement of personnel, arms, and combat equipment, during daytime (night) rest and on halts, in the period of liquidation of consequences of nuclear attack, when they are in the reserves and second echelons, and in assembly and concentration areas in the rear, when the troops do not occupy the defense.

In every case the troop disposition is unique, depending upon the objective of subsequent troop actions and the situation. However, it should always ensure high combat readiness of the troops and the best conditions for rest and restoration of fighting ability.

With the application of contemporary means of destruction, the disposition of troops and their camouflage from the air and ground enemy must be organized and carried out in the deep rear just as it is done in direct proximity to advanced enemy units. However, the removal of troops from the front line and also the character of missions set for them definitely affect the order of troop distribution in the disposition area, the organization of security, and which of the mentioned basic requirements should be allotted paramount attention.

Thus troops located in the deep rear for rest, for organization, for replacement, or after being unloaded from railroad transport can be subjected mainly to enemy air and pilotless aircraft attack. An enemy ground attack here is doubtful, although the possibility of combat actions against airborne troops and sabotage-reconnaissance groups is not precluded. Therefore, the order and methods of troop disposition in such a situation should primarily ensure the creation of the most favorable conditions for rest, combat training, and restoration of combat ability.

Troops located near the front, especially in assembly and concentration areas or when serving as reserves and second echelons, can become objects for nuclear strikes of the enemy or can be subjected to radioactive contamination. Under these conditions the probability of conducting combat actions against separate formations of enemy troops which have penetrated into the depth of our location and against airborne landing forces is also increased. Consequently, the order and methods of troop disposition in this situation must primarily provide for the protection of personnel in case the enemy uses nuclear weapons, for immediate entry into battle, and also for preparation to fulfill forthcoming combat missions.

In the development of an offensive, troops in rest areas on liberated territory can be subjected to attacks by withdrawing formations and smaller units and also by separate groups escaping from encirclement. Areas designated for rest positions can

have undetected mine fields, delayed action and nuclear land mines, sectors of radioactive and chemical contamination, and contaminated or poisoned water sources. Of special importance in such a situation is preliminary reconnaissance of the rest area and the organization of reliable security of resting troops and their constant combat-readiness.

Up to the Second World War it was recommended that troops be disposed in inhabited localities (in billets), outside inhabited localities (bivouac), and by a mixed method (billets and bivouac). It was also believed that disposition in inhabited localities was more convenient for troops to rest and ensured the best conditions for camouflage from enemy air reconnaissance and convenience for organization of defense in case of sudden enemy ground attack.

Mass application of aviation during the years of Second World War to inflict powerful blows on populated areas, road junctions, control centers, and rear objects made it inexpedient to billet troops in inhabited areas. The most suitable method turned out to be locating them outside inhabited localities in wooded areas, brush, and folds in the terrain.

Of course, in these conditions the troops have fewer conveniences. They are forced to spend considerable time and great effort in the construction of shelters, dugouts, and trenches. However, the location of troops outside inhabited points, especially in large and thick woods, creates the best conditions for their dispersion and concealment and for supporting strict order and discipline, constant high combat readiness, and preservation of military secrecy; it also eliminates infection of troops by contagious diseases from the local population. This creates an even greater advantage in conditions of nuclear war.

Of course, in contemporary conditions the disposition of troops in populated areas is not excluded. Thus in conditions of severe winter, during low temperatures or prolonged bad weather, if there is no time to arrange shelters outside inhabited localities subunits can be disposed in inhabited localities. At the same time one should consider that they may be objects of enemy nuclear attacks.

In a small inhabited locality in which it is impossible to place a subunit, heated locations are used first of all for medical posts and also for warming points for personnel. In the latter case we will have a mixed location, both outside the populated area and within it.

The troop rest area as a rule, is determined by the senior commander. Troops are dispersed in designated areas by battalions to prevent simultaneous destruction of a number of battalions by one nuclear warhead. Within its area a battalion is also dispersed by companies. For the rest position of a motorized rifle battalion it is expedient to assign an area of 6-10 km. Approximately the same area is needed for the disposition of a tank or artillery battalion.

A battalion (company) rest area should ensure dispersion and concealment of combat equipment, arms, and personnel; the possibility of rapid assembly of the battalion (company) on alert and advance in the needed directions; convenience of disposition and resting of personnel and favorable conditions in the medical and epidemic sense; and it should have approach roads for transportation.

It is most expedient to place subunits in rest areas along march routes, using protective and camouflaging properties of the terrain (different ravines, ditches, bar ditches, craters, reverse slopes of hills, and hollows). This practice ensures more favorable conditions for rapid assembly of subunits and construction of a march column. Furthermore, linear location of subunits promotes their more effective protection from nuclear strikes.

During joint location motorized rifle and attached tank and artillery subunits are placed so that they can be deployed and conduct combined combat action rapidly. For this purpose tank subunits are disposed at the head of the battalion or on critical tank approach directions, while artillery units are put approximately in the center of the battalion area.

In a disposition area for personnel near machines, slit trenches are dug and (time permitting) dugouts and shelters with special equipment are constructed. For armored carriers, tanks and other combat materiel entrenchments are dug. If efforts for the shelter of personnel are limited only to making covered trenches, without building dugouts, if means of mechanization of time-consuming work are available the rest area of a motorized rifle (tank) battalion can be set up in one working day. To provide a layout of dugouts with the application of mechanization means will require 1.5 to 2 workdays.

When inhabited localities are used for the disposition or warming of personnel, motorized rifle subunits are expediently disposed over the entire inhabited locality, while tank subunits are placed nearer to its outskirts, turned toward the enemy. Tanks are placed in courtyards, in gardens, and at crossroads in shelters. Artillery and mortar subunits are assigned a place ensuring the conducting of fire in any direction.

For protection of personnel from nuclear and air strikes basements, underground structures of stone houses, and trenches excavated in yards are used.

Before entry into the area assigned by the senior commander, reconnaissance is organized. For this purpose reconnoitering groups are created. The composition of a battalion reconnaissance group includes an officer from the battalion control and officers or sergeants from subunits, as well as combat engineers and chemical scouts. The group is subordinate to the senior billet commander of the unit.

The reconnoitering group studies the designated area, determines the disposition of subunits and means of fortification and, approach routes to them, designates the observed mine fields and organizes their guarding, displays signs for mined objects and contaminated sections of terrains and also determines the fitness of the water.

Areas with residual radiation and also areas mined by the enemy are as a rule not occupied.

As they approach the area, battalion subunits are met by officers (sergeants) who have conducted reconnaissance and are assigned designated places. Halts of columns of subunits on roads while waiting orders as to the place and order of disposition are not allowed.

Upon arrival in the area movement is limited, strict observance of camouflage is established, and observation of the enemy, radiation, chemical, and bacteriological intelligence and local security are organized.

Engineering of the area is begun immediately upon the arrival of subunits.

Troops in the area should be in constant readiness to repel enemy ground and air attack and destroy his airborne landings and sabotage-reconnaissance groups. Antiaircraft artillery and machine guns are used for the destruction of low-flying aircraft and helicopters. Furthermore, all personnel prepare for the liquidation of consequences of a possible enemy nuclear attack.

When the enemy inflicts nuclear strikes, subunits which have not lost their combat effectiveness usually eliminate the aftereffects by their own efforts and means under leadership of the commanders. In disabled subunits elimination of the aftereffects is accomplished by the forces and means of medical, engineer and chemical subunits and also subunits of the tank-technical service, as designated by the higher commander.

With a nuclear enemy attack on the rest area or upon its radioactive contamination, the disposition area can be changed by the decision of the senior commander. Medical treatment of personnel and decontamination of combat equipment are conducted, as a rule, outside the new areas of the disposition of troops.

### Security of Troops Disposed for a Halt

When disposed for a halt troops are guarded by local security and with a threat of attack of ground troops of the enemy, by bivouac security.

For local security the battalion commander in the threatened area places sentry posts and organizes patrolling. A squad can be assigned to a sentry post.

The sentry post usually occupies and organizes a position which can be at a distance of up to 100m from the guarded subunit. The position is thoroughly camouflaged. The position site should ensure circular observation and the conducting of fire. Observation is conducted continuously, both day and night. Replacement of the sentry post is usually made every twenty-four hours.

The sentry post captures or kills single enemy soldiers and reports this to the commander. During an enemy offensive the sentry post defends the occupied position and does not withdraw without an order of the commander.

Bivouac security is set up by order of the commander of the unit in designated zones (sectors) with the following mission: to reveal the enemy in good time and to warn the guarded troops about him and ensure their assembly and entry into battle.

The number and composition of subunits of bivouac security are determined by the distance from the enemy, the importance of the guarded area, the time necessary for deploying the guarded troops, the nature of the terrain, and conditions of observation.

Bivouac security consists of sentry detachments, sentry posts, patrols, listening posts and observation posts (Fig. 44).

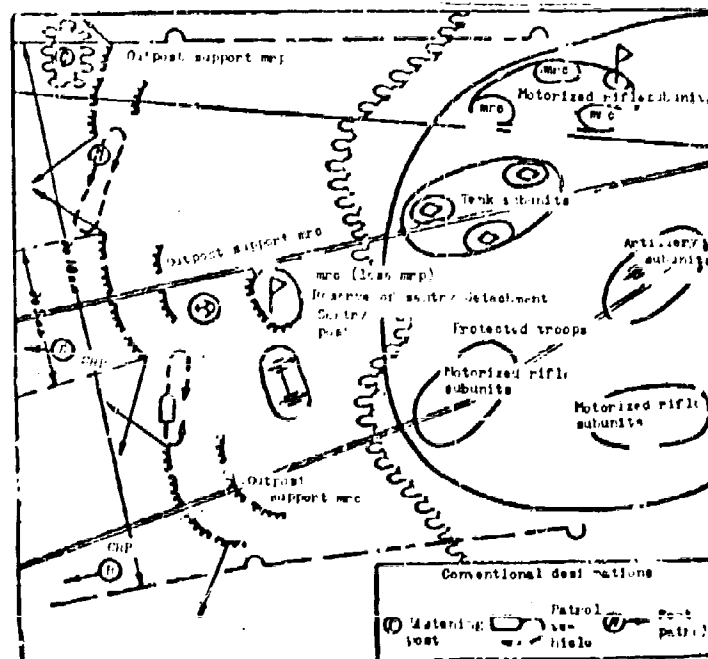


Fig. 44. Organization of security by a sentry detachment composed of a reinforced motorized-rifle battalion (a variant). [CRP - combat reconnaissance patrol; mrc - motorized rifle company; mrc - motorized rifle platoon; mcb - mrc less mrc.]

Bivouac security intercepts all main roads and approaches to the guarded region. On the most important areas there is dispatched a sentry detachment composed of a reinforced motorized rifle (tank) company and in some cases, a reinforced battalion; on secondary areas sentry outposts are composed of reinforced platoons.

Motorized rifle subunits assigned for security can be reinforced with tanks and artillery. Artillery subunits are assigned for combat support of sentry detachments.

A sentry detachment is given a zone of protection, a line for defense, and a line up to which it should conduct reconnaissance. A protection zone for a reinforced company can be up to 5 km, for a battalion, up to 10 km, and for a sentry outpost composed of a reinforced platoon, 2 km.

Distance of bivouac security from the guarded troops should be such that it is possible to warn troops in time of the appearance of the enemy and ensure deployment of troops and their organized entry into battle. From experience of the last war this distance was 4-6 km. In contemporary conditions, when troops have high mobility, the distance can be greater, since the greater the distance the more time the troops will have for deployment and entry into battle. At the same time the distance should not be excessive, so that the coordinated action of bivouac security and the guarded troops in repelling the enemy ground attack is not disturbed.

In the designated protection zone, on directions of possible enemy actions, the sentry detachment deploys sentry outposts composed of a reinforced platoon and organizes observation and reconnaissance.

For the disposition of sentry posts a line is selected which is convenient for defense, covered as much as possible by antitank obstacles, and ensures a good field of view in the direction of enemy. In the protection zone every outpost prepares a basic position and, time permitting, a reserve position from which the zone is covered by fire. Intervals between positions of sentry posts are covered by fire.

For timely detection of the enemy observation is organized at the position of each squad (tank).

The subunit, on order of the sentry commander, is disposed in depth ready to maneuver on the threatened sectors.

Firing positions of artillery attached to the sentry detachment are selected on critical avenues of tank approaches.

To inspect the terrain in the intervals between sentry outposts, especially at night and in conditions of limited visibility, by order of the sentry detachment commander, mounted or foot patrols are periodically sent from the sentry post, and they secretly follow the indicated route and thoroughly inspect the terrain. Patrols capture or kill individual soldiers. Upon detection of groups of the enemy, the patrol vehicle commander (senior member of the patrol) immediately reports to the outpost commander and continues observation of actions of the enemy.

For timely detection of the enemy, the outpost commander sets up listening posts composed of two or three soldiers in front of the sentry outpost or in the intervals between adjacent outposts if there are concealed approaches. A listening post is set up for a definite time, is concealed at the place indicated, and should be in full combat readiness without revealing itself. If the enemy appears, the listening post observes the enemy and notifies the commander as instructed. When single enemy soldiers approach it, it captures them or kills them.

After fulfillment of the mission the listening post returns to the outpost position without awaiting orders to do so.

To conduct reconnaissance to the front and on the flanks of the sentry outpost commander sets up observation posts and, when necessary, dispatches combat reconnaissance patrols or patrol vehicles.

When a reinforced battalion is assigned as a sentry detachment on important areas, on the most probable directions of the enemy approach, the battalion commander sets up watch outposts of a company and on others, a platoon. The remaining subunits compose the reserve.

To identify security and reconnaissance personnel passwords and replies are established every twenty-four hours.

The password is the designation of a weapon or combat equipment and the reply, the name of an inhabited locality with the same first letter as the password. For instance, the password: "Pistol," the reply: "Poltava."

The password is reported orally to all the personnel of bivouac security and reconnaissance and the reply, to commanders of these subunits and also to persons dispatched for transmission of orders to them.

The password is asked of persons passing through the line of protection and travelling over the disposition area and the reply is requested from persons transmitting an order of the commander.

Passwords and replies are pronounced quietly. All those who do not know the password or those who arrive with an order and do not know the reply are held. The commander of the sentry detachment questions them personally and, depending upon circumstances, permits them to go on or directs them under guard to the commander.

At night and in conditions of limited visibility personnel of a sentry post should maintain full combat readiness and manifest high vigilance.

After obtaining data about the appearance of the enemy, the sentry detachment (sentry outpost) intensifies the observation and prepares for battle. The appearance of the enemy in the security zone is reported by the sentry detachment (sentry outpost) commander immediately to the commander, who sends protection and notifies adjacent sentry detachments (outposts). The outpost captures or kills small groups of the enemy. During an attack by considerable enemy forces the sentry outpost persistently holds the occupied line ensuring the deployment and entry into battle of the guarded troops. In the case of an airborne landing drop in the security zone the sentry commander reports this to his commander and takes measures to destroy the force.

## CONCLUSION

Examination of basic principles of contemporary tactics shows that they differ from tactics of past wars, including tactics of the period of the Great Patriotic War. In the development of tactics, just as in operational art and strategy, there has indeed occurred a revolution which was caused by the wide application of nuclear weapons and means of their delivery and also by the use of other of the latest achievements in science and technology in military affairs.

The principal means of destroying an enemy in contemporary combined-arms combat are nuclear weapons. The combined-arms unit commander has available a variety of nuclear ammunition which can be used for striking different objectives in the entire depth of the enemy combat formation.

The ability of tactical nuclear weapons to solve independently the most important combat problems changes the very substance of combined-arms combat. Now this is not simply combat of motorized infantry, tanks, artillery, other kinds of forces, and aviation, which are prominent in the solution of tactical problems; it is above all nuclear strikes and highly mobile actions of combined-arms small, medium, and large units, which are coordinated with respect to target, place, and time. An enemy is destroyed by nuclear strikes and powerful fire of other types of weapons. Rapid maneuver, combined with nuclear strikes, fire strikes, and swift attacks, penetrates the entire content of contemporary combined-arms combat.

Skillful application of nuclear weapons in combat permits rapidly changing the ratio of forces and means to one's own benefit and destroying the enemy in a short period. As a result, the combined-arms unit commander must have profound knowledge of combat means and the capabilities of nuclear weapons and means of their delivery to the targets; the skill to analyze the situation rapidly and determine the most suitable targets for nuclear strikes; and the ability to perform personally and rapidly all necessary calculations connected with the application of nuclear weapons and the exploitation of their results.

The presence of the enemy's nuclear weapons, which are the principal means of destruction and the basis of the combat power of his troops, causes a need for constantly combatting means of nuclear attack by all available means and methods in a given situation. In contemporary conditions the outcome of battle depends on a successful solution of this problem. Therefore, reconnaissance of the enemy's nuclear means of attack and their immediate destruction constitute the main mission of troops in combat.

New means of fighting have sharply increased the combat resources of both sides and have given, previously unseen decisiveness, maneuverability, performance, and large dimensional scale to combined-arms combat.

Wide application of nuclear weapons by both sides will lead to the formation of extensive zones of contamination and areas of destruction; troops will be forced to cross or bypass them and to conduct combat actions in them by applying various means and methods of protection.

In modern combat the value of the time factor of achieving success is sharply increased. Now it is no longer days and hours, but minutes and even seconds that can decide the outcome of a battle. This requires the commander to be exceptionally quick in reacting to a situation, prompt in making decisions and getting combat missions to the troops, as well as speed in the fulfillment of these missions. Especially rapid, literally instantaneous, and absolutely independent reaction is required of the commander upon receiving information on nuclear means of the enemy.

The exceptional decisiveness of objectives, which both sides will pursue in armed combat, and the increasing possibilities of their attainment by the offensive actions in contemporary conditions sharply increase the role of the meeting engagement, which will be a more frequent phenomenon than before and apparently will sometimes predominate over other forms of combat actions. The basic principles in conducting a meeting engagement are the anticipation of the enemy in inflicting nuclear and fire strikes and in the deployment of troops in combat formation together, with the carrying out of swift attacks on the flanks and in the rear of basic dispositions of the enemy and their destruction by units in brief periods.

The nature of attack on a defending enemy has changed radically. It is conducted in directions, at a high tempo, to great depth, with wide application of various types of maneuver. Concentration of efforts on the main direction will be attained first of all by inflicting nuclear strikes. Troops on the battlefield will operate in dispersed order.

Breakthrough of the enemy's defense will be accomplished differently, i.e., not by means of "nibbling away" as in past wars, but by inflicting nuclear strikes and surmounting it from the march with tanks and motorized infantry troops. One of the methods of turning troops to the offensive will become the attack from the march. To prevent the enemy from inflicting nuclear and fire strikes, deployment for battle and preparation for the attack will be carried out without any halt on the assault position.

While destroying surviving centers of the enemy's resistance, motorized infantry units will operate together with tanks, usually without dismounting from the armored carriers. Attack in a dismounted formation will be a rare phenomenon. Infantry tactics, based on actions of riflemen in extended fire positions will give way to new tactics of motorized infantry troops on armored carriers.

Application of nuclear weapons creates favorable conditions for a swift forward advance of troops. They should be able to rapidly use results of nuclear strikes, to penetrate boldly through breaks and intervals in the enemy's combat formation, to avoid frontal attacks of strong points and straight-line advance, to accomplish flexible maneuvers, and to inflict decisive strikes to the flank and rear of the enemy.

The defense has also undergone significant changes. Turning to the defensive as a temporary and forced measure will occur most often under the influence of the enemy in the course of intense combat. Defense in these conditions will be organized in a very short time. It will be based on the application of nuclear weapons, fire of conventional means, and barriers and on wide maneuver and counterattacks combined with firm retention of the most important areas and objects in the basic directions of attack of the enemy.

The availability of nuclear weapons for the defending forces permits them not only to repel the attack of superior enemy forces, but also to completely disrupt the offensive and to switch from the defensive to the offensive in a brief period.

Problems of troop control are solved in a new way in modern combat. The volume has increased considerably and the content of data on the situation which are necessary for the commander to make a decision has changed qualitatively. There is



increased value in foresight, which is inconceivable without the commander's possession of the firm dialectic method of analysis of the situation and without well-organized intelligence, profound knowledge of the nature of modern combat and technology and of the organization and tactics of his own troops and the enemy.

In contemporary conditions the period for making decisions and assigning combat missions to troops has been sharply reduced. Making a battle decision and the organization of coordinated action of forces now, as never before, are connected with the production of many and precise tactical calculations. The actual substance of coordinated action of troops in combat has changed. Coordinated application of conventional means of destruction with nuclear strikes and the rapid use of their results by large and small combined-arms units is dominant in it. The maintenance of uninterrupted communication and continuous coordination of troops in the course of battle has become complicated.

The wide introduction of electronic computers is of great importance for the increase in quality of troop control. They have assumed many functions: computation, systematization, analysis of necessary data, and calculations of the ratio of forces, optimum variants of the distribution of forces and means, strategic concentration, and others, thereby considerably reducing the time-consuming calculation work of the staff. With help of the latest technology the commander, while perfecting variants of decision, can always at least approximately imagine what scales of destruction can be expected of the enemy, what will be his losses and expenditure of supplies, how much time will be required for the fulfillment of some mission, and so on.

In contemporary conditions the security of combat has changed and its capacity has expanded. Besides the earlier executed missions, which were highly complicated, new missions have developed for military intelligence. Now intelligence must establish the location and movement of the enemy's means of mass destruction, reveal objectives for nuclear strikes and conduct constant monitoring of them, and obtain data on the radiation, chemical, and bacteriological situation. Requirements have increased for timeliness, reliability, accuracy and continuity of collection of intelligence data.

There appeared a new type of security for combat operations — protection from weapons of mass destruction, including an entire complex of special and tactical measures. Missions of antiaircraft defense of forces were expanded and principles of its conduct have been changed. The importance of camouflage and the combatting of enemy electronic means have increased sharply.

Modern combined-arms combat will require a large quantity of different material resources, especially fuel and ammunition, rapid return to duty of damaged combat materiel, and timely medical aid to the injured and sick. It will be necessary to solve all questions connected with this in extremely complicated conditions and in limited periods. Therefore, rear protection of troops has changed and become considerably complicated. The division and regiment service areas have changed; it has become mobile, highly technically equipped, and capable of carrying out rear protection from brief halts and often simply from the march.

The complicated nature of modern combat imposes new and higher requirements on the moral and psychological preparation, education, training, discipline, and physical conditioning of Soviet soldiers. The main strength in combat always has been and still is the man. The outcome of battle in the end will be decided by men who excellently master combat technique, deeply realize the justice of the purposes of war, are sincerely loyal to their fatherland, and are ready, to perform their military duty without regard to their lives. Therefore, in contemporary conditions the value of party-political work sharply increases; it is called on to strengthen the moral spirit of the soldiers, to cultivate their high combat characteristics, and to support constantly the offensive drive and iron military discipline.

In a future world war, if the imperialists unleash it, the initial period will acquire decisive importance. The imperialists count on the surprise of unleashing war, are feverishly arming themselves, and maintain in constant readiness large nuclear forces and concentrations of ground, air, and naval forces equipped with powerful modern weapons and combat materiel.

The enormous disasters of the past war, which brought so many sacrifices and so much suffering, are still fresh in the memory of all the Soviet people. Miscalculations in nuclear war can inflict great losses on all our people, on the cause of Communism, and to the fate of humanity.

Therefore, the Party requires development of high vigilance with respect to the schemes of the imperialistic militarists and maintenance of the armed forces in constant combat readiness.

To this basic mission - provision of the highest combat readiness of small, medium, and large units - is devoted all our instruction and training of troops, improvement of their organization, equipment of the latest technology and means of combat, and all the manifold activities of commanders, political workers, technical specialists, and Party and Komsomol organizations.

Tactical training of command personnel is entirely devoted to maintaining high combat readiness and the ability, in case of necessity, to immediately start carrying out combat missions. Its main task is mastery of skill in organizing and conducting of modern combat. This book is devoted to promoting this in all possible ways and to expanding the operational-tactical competence of officers.

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Note. Besides the indicated literature the authors used articles from Soviet and foreign military periodicals on operational and tactical questions for 1955-1965.

# U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

Block	Italic	Transliteration	Block	Italic	Transliteration
А а	<i>А а</i>	A, a	Р р	<i>Р р</i>	R, r
Б б	<i>Б б</i>	B, b	С с	<i>С с</i>	S, s
В в	<i>В в</i>	V, v	Т т	<i>Т т</i>	T, t
Г г	<i>Г г</i>	G, g	У у	<i>У у</i>	U, u
Д д	<i>Д д</i>	D, d	Ф ф	<i>Ф ф</i>	F, f
Е е	<i>Е е</i>	Ye, ye; E, e*	Х х	<i>Х х</i>	Kh, kh
Ж ж	<i>Ж ж</i>	Zh, zh	Ц ц	<i>Ц ц</i>	Ts, ts
З з	<i>З з</i>	Z, z	Ч ч	<i>Ч ч</i>	Ch, ch
И и	<i>И и</i>	I, i	Ш ш	<i>Ш ш</i>	Sh, sh
Я я	<i>Я я</i>	Y, y	Щ щ	<i>Щ щ</i>	Shch, shch
К к	<i>К к</i>	K, k	Ъ ъ	<i>Ъ ъ</i>	"
Л л	<i>Л л</i>	L, l	Ы ы	<i>Ы ы</i>	Y, y
М м	<i>М м</i>	M, m	Ь ь	<i>Ь ь</i>	'
Н н	<i>Н н</i>	N, n	Э э	<i>Э э</i>	E, e
О о	<i>О о</i>	O, o	Ю ю	<i>Ю ю</i>	Yu, yu
П п	<i>П п</i>	P, p	Я я	<i>Я я</i>	Ya, ya

\* ye initially, after vowels, and after ъ, ы; e elsewhere.  
 When written as ѐ in Russian, transliterate as yѐ or ѐ.  
 The use of diacritical marks is preferred, but such marks  
 may be omitted when expediency dictates.