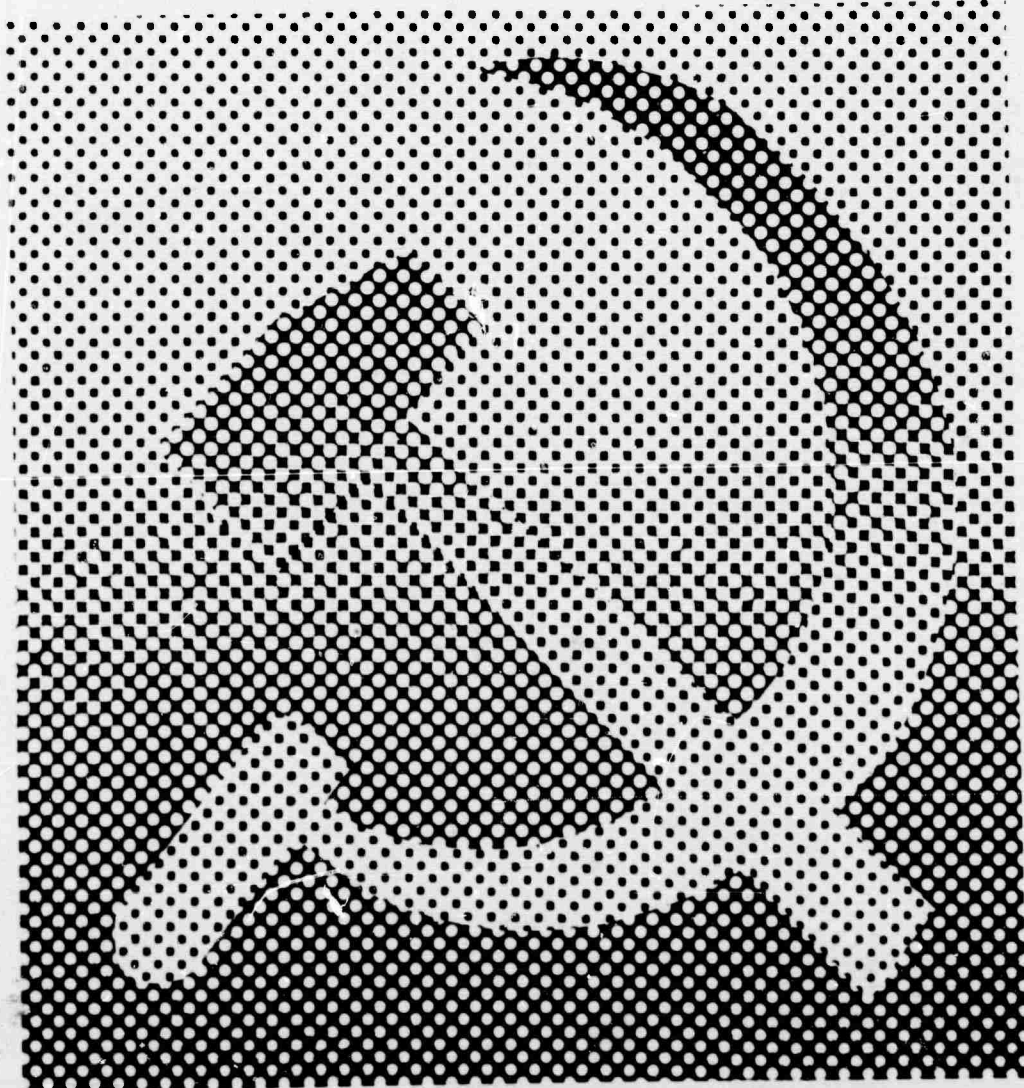


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The Officer's Handbook

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A Soviet View



SOVIET MILITARY THOUGHT

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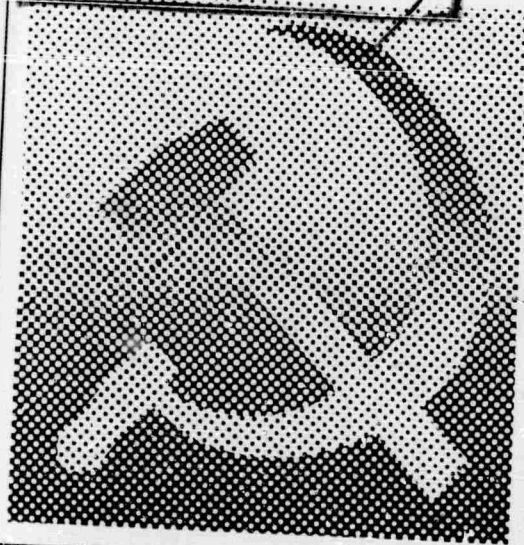
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A Soviet View



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General-Major S.N. Kozlov

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AMERICAN EDITOR'S COMMENT ON *THE OFFICER'S HANDBOOK*

The Soviet *Officer's Handbook* is the thirteenth volume in the "Soviet Military Thought" series, translated and published under the auspices of the United States Air Force.

This compendium about the Soviet Armed Forces appeared in Moscow bookstores in 1971 as the fifteenth book in the Soviet "Officer's Library."¹ It is one of the most basic works in that series and had an original pressrun of 83,000, which exceeds by far the pressrun of the other volumes in the "Officer's Library." As stated in the foreword, the handbook is intended to assist "officers in broadening their outlook and in resolving many practical problems related to the training and education of subordinates."

Organizational principles of the Soviet Armed Forces, including a discussion of Soviet concepts of cadre organization, centralization, and unity of command are covered in Chapter One. The next chapter is concerned with the relationship between the Communist Party of the Soviet Union and its Armed Forces, and more specifically between the Party's Central Committee, the Main Political Directorate, the Ministry of Defense, and the Party organizations in military units.

Chapter Three, "Marxist-Leninist Military Theory," contains brief explanations of key terms in Soviet military thought. In contrast to the United States, where a word such as doctrine is often used ambiguously, in the Soviet Union such terms as doctrine, military science, military art, strategy, operational art, and tactics have precise meanings and cannot be used interchangeably. Military doctrine, for example, is the military policy of the Communist Party and has legal force, whereas strategy is one of the component parts of military art. A proper understanding of these terms is therefore essential for understanding Soviet military writings.

Chapter Four is concerned with military psychology and military pedagogy, two subjects considered to be major fields of study for Soviet

¹ The "Officer's Library" series of books was announced by Voenizdat, the publishing house of the Ministry of Defense, in December, 1964. A total of 17 books were issued in this series, the first appearing in 1965 and the last in 1973.

officers and treated in greater detail in two important Soviet military works, *Military Pedagogy* and *Military Psychology* (Volumes Nos. 7 and 8 in the U.S. Air Force's "Soviet Military Thought" series).

"The Armed Forces of the USSR" are described in Chapter Five. All of the five services and their branches are discussed in turn, with a brief explanation of the roles and missions of each. This chapter will be particularly useful to readers who are unfamiliar with how the organization of the Soviet Armed Forces differs from the American tri-service concept.

Chapter Six, "The Military Profession," provides information on the legal status of Soviet officers, both on active duty and in the reserves. It also includes excerpts from regulations governing the relationship between servicemen of different ranks, the maintenance of discipline, and the award of decorations.

The Armed Forces of the other Warsaw Pact states are described very superficially in Chapter Seven, whereas Chapter Eight presents much more detailed and often tendentious information on "The Armed Forces of the Imperialist States."

The next three chapters, "Science and Military Affairs," "Weapons and Military Technology," and "Essentials of Sanitation and Hygiene," are of interest in describing Soviet views and in presenting what the Soviet military leadership considers each officer should know. The final chapter, "General Reference Data," is basic information of the type found in many almanacs, which the reader may wish to scan because of the method of presentation.

Contributors to this book include some well-known Soviet military writers. The editor of the work, General-Major (Reserve) S. N. Kozlov, a Candidate of Military Sciences, was given an award at the Frunze Prize ceremonies in 1966 for his "outstanding military writings."² General-Major Ye. F. Sulimov, another contributor, is a Doctor of Philosophical Sciences and heads the Department of Scientific Communism at the Lenin Military-Political Academy.¹ Colonel S. A. Tyushkevich, Doctor of Philosophical Sciences and chief of a section of the Military History Institute of the Ministry of Defense, was the editor of the fifth edition (1968) of *Marxism-Leninism on War and Army*,³ which included both Generals Kozlov and Sulimov among its authors. Tyushkevich also wrote *Philosophy and Military Theory*, published in 1976 not by Voenizdat, but by the Academy of Sciences. Other authors are also experts in the fields they cover.

The prominence of the contributors to this work, its inclusion in the "Officer's Library" series, and its wide distribution all attest to the important role it is intended to play in the education of Soviet officers. Its publication in English as part of the U.S. Air Force's "Soviet Military Thought" series

² In March 1965 the Council of Ministers of the USSR approved the award of the "Frunze Prize" each year for "excellent military or military-historical works."

³ This book has also been published in the U.S. Air Force's "Soviet Military Thought" series (No. 2).

now makes it possible for this volume to be used as a concise reference work by a wide circle of American readers.

*The translation and publication of **The Officer's Handbook** does not constitute approval by any U.S. Government organization of the inferences, findings and conclusions contained therein. Publication is solely for the exchange and stimulation of ideas.*

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Editor

Candidate of Military Sciences

General-Major (Reserve) **S. N. KOZLOV**

FOREWORD

Command, political, engineering and technical cadre play a great role in the life and combat activity of the Soviet Armed Forces. Soviet officers are the backbone, the cohesive force of our Armed Forces. They are the agents of Communist Party policy in the forces, they organize and implement the training and education of subordinates, they reinforce order and good organization in units and on ships.

Under present-day conditions, which are characterized by the fundamental changes which have taken place in military science as a result of scientific and technical progress, the Communist Party is placing increased demands on our officer cadre. The Party considers it essential that command and all staff personnel should be thoroughly conversant with Marxist-Leninist theory, should be highly trained in military theory, and satisfy all the requirements of modern military theory and practice.

In the opinion of the authors, this manual will prove of real assistance to military cadres in broadening their outlook on military theory and solving problems related to the training and education of their subordinates. It is intended for officers of all Services of the Armed Forces, and especially junior officers.

The first sections of the book are devoted to vital military-theoretical problems. These set forth the foundations and principles of Soviet military development, and deal with questions relating to the leadership of the Armed Forces by the CPSU,* Marxist-Leninist teachings on war and the army, Soviet military science and doctrine, and the principles of Soviet military psychology and pedagogy are examined.

The subsequent sections deal with the Soviet Armed Forces and their officer corps. These are concerned with the present-day structure of Soviet military organization. A brief description is given of the Services and branches of the Armed Forces at their present stage of development. The reader is informed about the constant concern of the Communist Party for the training and education of military cadres. Excerpts from documents governing practical questions relating to officer service are quoted.

A special section contains reference material on the organization of the Warsaw Pact, the history of its origin, the role and significance of this

* CPSU: Communist Party of the Soviet Union [U.S. Ed.].

organization in ensuring the security of the socialist community; and on the armed forces of the other member countries of the Warsaw Pact.

The information contained in the section on "Science and Military Affairs" attests to the ever-increasing influence of science and scientific and technological progress on military affairs, the development of contemporary methods and means of armed combat and troop control.

In this book, the reader will also find a variety of reference material on the military history of the Soviet State, from the field of the natural sciences, military geography, advice on basic health matters, etc.

The spectrum of problems related to the activities of our officers is broad and varied and, undoubtedly, as military affairs develop further, the range of these problems will increase. The officer of today has to be conversant with such a mass of information, facts and figures, that it would be very difficult for him to retain it in his memory. He has to have recourse to reference literature.

However, it should be borne in mind that to assemble the reference material needed by an officer in a book of limited size is a very difficult task. This handbook may not satisfy all of the reader's requirements, since these range over such a broad and varied spectrum.

The authors and publisher request the readers of this book to send their opinions and comments on it to Voennoye izdatel'stvo, Moscow, K-160.

Chapter 1. THE FOUNDATIONS AND PRINCIPLES OF SOVIET MILITARY DEVELOPMENT

The activities of the Soviet State, born of the Great October Socialist Revolution, are characterized by the great variety and complexity of the functions which it fulfills. The most important among these is that of ensuring that the country is reliably defended, i.e., the military function. This is fulfilled by a special organization: the Armed Forces.

In view of the complexity of international conditions and the presence in the world of aggressive imperialist forces which are hostile to our system, the Communist Party and the Soviet government take all the steps essential for further strengthening the country's defenses and increasing the fighting power of our Armed Forces. "Being well aware of the aggressive nature of imperialism, our Party considers it essential to support the peaceful policy of the Soviet Union with its invincible defensive might. The interests of the Soviet people and of world peace demand this.

"Therefore, one of the constant concerns of the Central Committee, the Soviet government, and the entire nation is the strengthening of our glorious Armed Forces."¹

In all its activities in the field of military development the Party proceeds on the basis that strengthening the country's defensive capabilities and the military might of the Armed Forces is one of the conditions indispensable for the successful accomplishment of the tasks of building communism.

Soviet military development is based on authentic scientific foundations and principles, formulated and substantiated in the works of V. I. Lenin and the resolutions of our Party. The CPSU has upheld them in its irreconcilable struggle with anti-Party elements.

Under present-day conditions, the foundations and principles of Soviet military development have been evolved further in the Program of the CPSU, in the resolutions of the XXIII Party Congress, in Plenary Meetings of the Central Committee, in documents devoted to the 50th Anniversary of the Great October Revolution and the Armed Forces, and in the new Universal Military Service Law.

¹ L. I. Brezhnev, *50 let velikikh pobed sotsializma* [Fifty Years of the Great Victories of Socialism]. Politizdat, 1967, p. 59.

What is meant by Soviet military development? This concept incorporates everything connected with the creation and maintenance of the military power of our state essential for maintaining the security of the homeland. The military strength of the state is determined by many conditions and factors; primarily by economic, scientific and technical, moral and political, and military potential (resources). All its elements are interrelated and interdependent.

In evolving military policy and implementing military development, the CPSU and the Soviet State extend their organizational activity both into the social sphere, upon which the creation of its military power depends; and into the Armed Forces, in which this power is directly realized.

Thus, in the broad sense of the term, **military development encompasses the entire complex of measures by which the military policy of the Party and the State is effected, beginning with the organization of military production, the education of the population in moral-political and military affairs and the implementation of mobilization measures, and ending with ideological and organizational measures which are implemented in the Armed Forces themselves.**

The concept "military development" is also used in a narrower sense. It also includes measures directly connected with building up and strengthening the Armed Forces, namely, the organization of military units and formations and bringing them up to strength, their being equipped with materiel and weapons, the training and education of personnel, the development of military science, the training of cadres, and the mobilization of units and formations for combat readiness.

Military development in our country conforms to the established laws of socialist and communist development and the political needs of the state at any given stage in its evolution. It is inseparable from general socialist and communist development. V. I. Lenin said: "The experiment in military development carried out by the Soviet regime cannot be looked upon as an isolated experiment. War includes all the forms of all the fields of development. It was possible for the development of our army to lead to successful results only because it was accomplished in the spirit of overall Soviet development, on the basis of class interrelationships which are manifested in the sphere of any development."²

Military development is a complex process of the interaction of objective conditions and the subjective factor. On the basis of a thorough understanding of the conditions and potential of a socialist country relating to the reinforcement of its defenses, and the elaboration and application of scientifically sound Leninist principles of military development, the CPSU is able to carry out this process successfully. The Armed Forces, which were created under the wise leadership of the Party by the endeavors of the Soviet people and government, were always, and will always be, capable of the tasks of guarding the achievements of the Great October Revolution.

² V. I. Lenin, *Poln. sobr. soch.* [Complete Collected Works], XL, 76-77. [Hereafter, cited as: Lenin.]

THE FOUNDATIONS OF SOVIET MILITARY DEVELOPMENT

By the foundations of Soviet military development we mean those aspects of the social life of our state which have a determining influence on its military organization. A new type of Armed Forces is being founded upon them and they embody the sources of its strength.

Marxism-Leninism teaches that the Armed Forces are a special organ of the state, that they contain within themselves features characteristic of the given state, and are part of its political superstructure. The type of army and its basic social and political characteristics are determined by the type of state and, in the final analysis, by the nature of the social system and the method of production.

The new type of Armed Forces corresponds to the socialist type of state; it differs radically in its nature, purpose and role in society from the armed forces of the exploiter states.

Historically, the Soviet Armed Forces became the first form of socialist army. They are indissolubly linked with all aspects of the life of Soviet society, and are founded on the same basis. Our Armed Forces are "an exact copy, an exact impression of our workers' and peasants' nation. . . ." ³ They embody the special features of the Soviet social system, the nature of our state, and reflect the political tasks being resolved by the Soviet State with the assistance of the Armed Forces.

Thus, the foundations of Soviet military development are:—

—*Socialist economy*, primarily the sectors of heavy industry, transport, communications, agriculture, etc. The economic aspects of production and the scientific and technical resources of the state determine the quantity and quality of the armaments which form the material basis for the prosecution of war.

Even during the period of the Russo-Japanese War, V. I. Lenin referred to the strengthening of the ties between the military organization of the country and its economic and cultural system. These objective laws are even more clearly manifested in the conditions created by present-day scientific and technical progress. The economic, scientific, and technical achievements of the USSR, which have astounded the whole world, made it possible to increase the military might of the Armed Forces to an unprecedented degree. The further economic growth of the country and its scientific and technical progress will lead to an even greater strengthening of the defensive might of the USSR.

—*Socialist social relationships (the social system)* based on public ownership of the means of production, collective labor, comradely collaboration, and mutual aid. Socialism frees the working man from all forms of economic, political, and spiritual oppression. It gives the worker access to material security, to the treasures of science and culture, makes him the creator of a new and truly human form of life.

³ M. V. Frunze, *Izbrannyye proizvedeniya* [Selected Works]. Voenizdat, 1965, p. 330. [Hereafter, cited as: Frunze.]

Socialism is forming the new man, a man very active in work and in politics, a selfless defender of the new system. This is the main advantage of socialism over capitalism, the source of its invincibility.

The Soviet social and governmental system is based on the firm alliance between the working class and peasants and on the friendship of the peoples of the USSR. The complete and final victory of socialism in our country has resulted in the social, political, and ideological unity of Soviet society, which embodies the firm alliance between the working classes and the intelligentsia, the brotherhood of socialist nations, the unity of the CPSU, the Soviet government, and people. During the period of the building of communism, the political organization of society is gaining in stability, strength, and unity.

—*Marxism-Leninism and its teaching on war and the army.* Communist ideology, the ideology of the entire Soviet people, communist moral teaching, which motivates the behavior of our people, a high degree of political consciousness, and selfless devotion to the ideas of communism—these form the elements of the spiritual world of Soviet man and inspire feelings of passionate love for the socialist Motherland, a burning hatred of its enemies, and unshakable tenacity in the defense of the socialist homeland.

Such, in general terms, are the economic, social-political, and ideological-theoretical foundations of Soviet military development. In addition, the term foundations of military development implies the most vital aspects of its essential ingredients, its most fundamental and definitive principles. These principles are so important, their consistent application so essential, that they acquire the significance of foundations. Thus, the Program of the CPSU defines Party leadership of the Armed Forces and strengthening of the role and influence of Party organizations in the Armed Forces as the cornerstone of military development.

THE PRINCIPLES OF SOVIET MILITARY DEVELOPMENT

Generally speaking, "principle" is understood to mean a basic point of any teaching or a basic requirement, an obligatory norm governing people's activities and behavior. A principle in the context of military development is taken to mean the obligatory requirement, the norm, from which the political and military leadership of the state proceeds as it creates and strengthens the Armed Forces.

Correct principles are the necessary conclusions from the perceived objective laws of the development of military affairs and the Armed Forces, from generalized experience of military operations, and, therefore, are of great importance in military development. It is impossible to put military measures into effect with skill and consistency without them.

Our Party was faced with the problem of elaborating the theoretical principles of Soviet military development when it became necessary for the young Soviet Republic to create an army of the state of the proletarian dictatorship in order to repel armed attack by internal counterrevolutionaries and the

intervention of the imperialist countries. V. I. Lenin and the Communist Party evolved a classic solution to this problem; with unsurpassed mastery, they embodied the elaborated theoretical points in the practice of military development.

The principles of Soviet military development are inseparable from the principles of general state and party development.

The creation and strengthening of the Armed Forces is a complex and multifaceted process, which includes the production of arms and materiel, recruitment, the education and training of personnel, leadership of the armed forces, troop control and organization, the disposition of cadres, etc. Each of these spheres of activity is distinguished by its own essential requirements and principles. These are numerous and they express requirements of different scope. It is essential, therefore, to classify them. There are three groups of principles of Soviet military development: *social and political, organizational, and training and education.*

Social and Political Principles

Principles of this kind form the sociopolitical character of the Armed Forces and reflect the most important aspects of its nature and purpose. In Soviet military development they are expressed in the political leadership of the Armed Forces, in the relationship between them and the people, in their attitude towards people of other countries, and in the nature of the relationships between servicemen within the Armed Forces.

The principle of Party leadership. The decisive role of the supervisory, organizing, and educational activities of the Communist Party in Soviet military development is emphasized in the Program of the CPSU, in resolutions adopted at Party meetings, Plenary meetings of the Central Committee, and other Party documents. "The Party devotes unremitting attention to the enhancement of its organizing and supervisory influence over the entire life and activities of the Army, Air Force, and Navy and the rallying of Armed Forces personnel around the Communist Party and the Soviet government, to strengthening the unity of the Armed Forces and the people, to the education of military personnel in a spirit of courage, gallantry, heroism, and military cooperation with the armies of other socialist countries, and readiness at any moment to defend the Land of the Soviets, home of the builders of communism."⁴

Enhancement of the Communist Party's role of leadership in the life and activities of the Armed Forces and intensification of the activeness and influence of Party organizations in the Armed Forces is the main social and political principle that has a decisive effect on military development as a whole.

In socialist countries, the leadership of the entire program of building a

⁴ *Programma Kommunisticheskoy partii Sovetskogo Soyuza* [Program of the Communist Party of the Soviet Union]. Pravda Izdat., 1961, p. 112. [Hereafter cited as: *Programma . . .*]

new society, and strengthening the defenses and the armed forces is exercised by the Marxist-Leninist parties. This feature of the political organization of a socialist society is no mere accident. These are the objective laws of its development, governed by the nature of socialist social relationships and the requirements of the evolution of the society and its armed defense.

Only the Communist Party can ensure the successful fulfillment of all these tasks, since it is armed with Marxist-Leninist theory, is closely associated with the people and enjoys their unbounded confidence, is welded together by Party discipline, and possesses the unsurpassed qualities of inspirer and organizer of the masses. It is a concentration of the best representatives of the working class and all workers, the intellect, honor, and conscience of our age.

In complete conformity with its position in the political organization of society, the Communist Party directs the defenses of the socialist homeland, the armed forces of the country, and holds this powerful political lever in its hands.

The leadership and guiding activities of the CPSU in military development are multifaceted. Any important question in this field is resolved by the Party before becoming a program of activities for the state and the people. It formulates the state's military and military-technical policy and develops its military doctrine. The Party elaborates the principles of military development and organizes their practical realization. It directs the training and disposition of military personnel, supervises the activities of military institutions, and directs the life and combat activities of the troops.

The CPSU influences every aspect of the activities of the Armed Forces through its ideological and organizational function. Its policies and directives are propounded by military councils down to unit level, commanders invested with unity of command, political, Party, and Komsomol organizations.

The Communist Party's most important means of influencing the life and activities of the forces, one of the Leninist Party's principles of leadership of the Armed Forces, is well-organized and purposeful Party-political work.

The principle of the unity of the Armed Forces and people. The most important feature of the Armed Forces of a socialist state is its genuine national character. In an exploiting society, everything is done to isolate the Armed Forces from the people, to set it against the people, to hide the true purpose of the Armed Forces from the soldiers. In a socialist society, on the other hand, the Armed Forces are built on the idea of closeness, one could almost say unification, with the people. By putting this Leninist principle into practice, the Party has created a military force which is closely linked with the people and reliably safeguards its interests.

In our Soviet land, the reinforcement of military might and the Armed Forces has become a genuinely national matter, and the defense of the socialist Fatherland the sacred duty of every citizen of the USSR. Recognizing the extreme importance of the unity of the army and the people in strengthening the defense of the nation, the CPSU gives this matter its

unremitting attention. The Report of the CC* CPSU to the XXIII Party Congress emphasizes that: "It is essential to improve civil defense and military-patriotic work among workers, especially young people, to strengthen the links for providing voluntary assistance by military units and subunits to staffs of production organizations, training establishments, *kolkhozes*† and *sovkhoses*,‡ and to be more concerned about the needs of the soldiers and officers of the Soviet Army and their families. The entire Party and Soviet community are obliged to be constantly occupied with this matter." 5

The further strengthening of the unity of the army and the people is greatly facilitated by the adoption of the measures provided for in the new Universal Military Service Law passed by the Third Session of the Supreme Soviet of the USSR in October 1967.

The principle of internationalism. In Soviet military development this principle is expressed, first and foremost, in the inviolable friendship of the peoples of the Soviet Union. All the socialist nations and peoples of our country are united by a single military organization and they all have equal rights and duties with respect to the defense of the Motherland. Fighting men of different nationalities, bound by ties of firm friendship and comradeship-in-arms, fulfill their duty selflessly.

Now this principle also expresses the solidarity of fraternal socialist countries, the military cooperation of their armies, joint defense of the world socialist system from imperialist aggression. It has been embodied in the Warsaw Pact, as well as in bilateral friendship, cooperation and mutual assistance agreements between socialist countries. The force and effectiveness of socialist internationalism were clearly manifested during the defense of the victories of socialism in Czechoslovakia against the intrigues of internal and external counterrevolution.

The principle of internationalism is manifested in the fact that our Army is built up and trained as an army of liberation. Armed Forces personnel are educated in a spirit of respect for the sovereignty of small and large nations and class hatred towards oppressors. This principle also provides for assistance to young national states in ensuring their security against the intrigues of the colonial powers, and military development aid (the training of national cadres, the provision of arms for defense against attack from imperialists, etc.).

Organizational Principles

The nature of the organizational principles of military development differs substantially from the nature of social and political principles. War requirements, the material and technical and economic resources of the

* Central Committee [U.S. Ed.].

† Collective farms [U.S. Ed.].

‡ State farms [U. S. Ed.].

5 *Materialy XXIII s'yezda KPSS* [Materials of the XXIII Congress of the CPSU]. Politizdat, 1966, p. 78.

state, military equipment and weaponry have a decisive influence on them.

The most important principle of organizational development is the *principle of the cadre organization* of the Soviet Armed Forces. This principle was thoroughly validated and embodied in the resolutions of the VIII and X Party Congresses and further developed in subsequent Party documents.

The activities of service personnel are associated with the necessity of mastering weapons and military equipment and the methods and procedures of using them, the development of collective operations, good organization, discipline and training of the will. Modern warfare imposes ever increasing demands in this connection. This is why it is necessary to subject servicemen to a specific period of training and education under the actual conditions of life in a unit of the regular army.

In today's complex international situation, the existence of a regular army is vitally necessary to ensure the security of our country. While imperialism exists with its powerful regular armed forces and enormous reserves of weapons of mass destruction, our own country and fraternal socialist states are forced to retain their own regular armies and strengthen them by every possible means.

Victory in a modern war is achieved by the efforts of all the Services and branches of the Armed Forces. Hence, the organizational *principle of the continuous improvement of the organizational structure of our army and the harmonious development of all the Services and branches of the Armed Forces*.

The question of structure, of changing the organizational forms and ratio of the Services and branches of the Armed Forces is resolved by our Party on the basis of an assessment of the country's internal situation, the international situation, and the development of methods and means of armed combat.

The principle of centralism plays an exceptionally important role in Soviet military development. The need for strict centralization stems from the nature of the tasks which the Armed Forces carry out. Troop leadership and control must ensure purposefulness, good order and discipline, flexibility and rapidity of action. Without this, the successful accomplishment of combat missions in a war with a strong and clever enemy and the organization of efficient cooperation are impossible.

Centralism in the organizational structure of the Armed Forces and the system of controlling them finds expression in the fact that all Armed Forces components with their staffs and other command and control elements are strictly subordinate to the central agencies of state power, to a single Supreme Command. Subordinate command and control elements comply strictly with the orders, directives and decrees of those superior to them, and are accountable to them for all questions relating to their activities. In military development this principle is provided for by the extraterritorial structure of the Armed Forces, by the appointment of higher officers and commanders by government agencies and the appropriate command, and by supervision of the execution of duties from the top downwards. In addition, the principle of centralism assumes initiative and creativity on the part of the lowest

elements and their leaders, and reliance on subordinates' experience and knowledge.

The principle of unity of command. The Program of the CPSU defines unity of command as the most important principle of Soviet military development. Unity of command in our Armed Forces originated and developed normally as an expression of the objective need to ensure unity of the will and action of large masses of people, and good discipline and organization, without which the fulfillment of combat missions is impossible. This method of control has been proved by experiment and tested over many years of practical experience. "It is necessary to analyze this experiment," said V.I. Lenin. "It progressed in a regular fashion, developing from fortuitous, vague collective decision making through collective decision making elevated into a system of organization which permeated the entire institution of the army, and now, as a general tendency, has come to unity of command, as the only correct way of organizing work."⁶

Our Party resolved this question on the basis of social and political conditions, the distribution of class forces in the country and the maturity of the officer personnel. When the dictatorship of the proletariat had become firmly established, when the army had become more experienced and mature, and there were trained command personnel devoted to the people and the Motherland, the transition to unity of command was complete.

Unity of command in the forces at unit level is now more necessary than ever since modern warfare is characterized by its highly dynamic quality and is subject to rapid situation changes, which could be followed by equally rapid changes in the direction and nature of the activities of the forces. Under these circumstances, the course of events would not leave sufficient time for joint decisions. Now more than ever before there is a need for commanders with absolute authority, whose orders would be treated as inviolable law by subordinates.

Unity of command in our Armed Forces is founded on Party principles. This means that:

—the commander (officer in charge) is the representative of the Party and the Government in the forces, the bearer of their policy, the custodian of Soviet laws and military regulations;

—he is the absolute master of the forces entrusted to him, who bears full responsibility for all aspects of the life and activities of the subunit, unit, ship, formation, or establishment, for the state of the combat and political training of its personnel, its fighting efficiency and combat readiness;

—the commander with sole (military and political) authority is intimately associated with his personnel, shows constant concern for the needs of his subordinates, sees that all servicemen fulfill their duties properly, and guards their legal rights;

—in all his work he relies on Party organization, exploits the force of Party

⁶ Lenin, *XL*, 77.

influence on the troops in order to improve the standard of combat and political training and the strengthening of military discipline;

—he makes wide use of the well-tried means of criticism and self-criticism, and the strength of the Armed Forces social and political agencies in the interests of enhancing the cause.

The principle of conscious military discipline. Centuries of military history have shown that without firm discipline it is impossible for an army to be efficient in combat, and that firm discipline is the basis of an army's fighting efficiency. "A military organization," wrote M. V. Frunze, "is a specific organization, which demands of its members a high degree of efficiency, precision, executive ability, endurance, promptness in carrying out all orders, etc. . . ."¹

The necessity of achieving unity of will and action, strict fulfillment of laws, regulations, and instructions, and prompt and accurate execution of orders determines the specific form of subordination in a socialist army as well, but here subordination has an entirely different character from that in a bourgeois army, in which it is based on class domination and compulsion. In a socialist army it is based on the common interests of the commanders and their subordinates in ensuring the security of the socialist state.

The feasibility of basing military discipline on a high degree of consciousness on the part of military personnel, of combining and fusing into a single entity the requirements of discipline and self-discipline, was first discovered in a socialist army.

Reliance on consciousness in the reinforcement of military discipline does not exclude elements of compulsion where this is called for in the interests of ensuring the fighting efficiency and combat readiness of the forces.

The strengthening of military discipline is a perennial problem. This is attributable to two factors: the fact that the forces are brought up to strength each year by new contingents, which have to be put into operational service, and the fact that the requirements for good organization and discipline are being constantly increased. The modern revolution in military affairs imposes particularly heavy demands on discipline, good organization, and order in the forces.

The organizational principles also include *the principle of maintaining constant combat readiness of the Soviet Armed Forces.*

The deepening of the general crisis of capitalism and the intensification of its contradictions increases imperialist adventurism and the danger it poses for the peoples of the world and for peace and social progress. This is convincingly demonstrated by recent events. Militant imperialism may start to unleash a nuclear war. Therefore, Soviet military doctrine is based on the need to maintain constant vigilance and keep its forces in a state of permanent battle readiness, so that they are able, under any conditions, to repulse an aggressor's attack and deal him a crushing blow. To maintain a high state of constant combat readiness is the main task of the Soviet Armed Forces.

¹ Frunze, p. 459.

The Main Principles of Training and Education

The process of training and education, the formation of high moral and fighting qualities of the personnel is also governed by specific principles. They are determined by the Soviet social and state system and the nature and purpose of our army; they are based on the great ideas of Marxism-Leninism, the teachings of military pedagogy and psychology, and the demands of modern warfare.

First and foremost among these principles is *the principle of the unity of training and education*. It is a well-known fact that the success of a soldier in carrying out his duty depends upon both his ability and his mentality. It is impossible to compare one to the other: both of these aspects are intimately related. It is important, therefore, in teaching to educate and in educating to teach; and for this there are ample opportunities. There are no forms of military training which preclude the instilling of courage and fearlessness, a high sense of duty to the Motherland, military pride, burning hatred of the enemy, or in which it is impossible to teach new knowledge in military affairs or to perfect practical skills.

The duration of the period of training and education for conscripts, according to the new Universal Military Service Law, is limited to 2-3 years. At the same time, military affairs have become extremely complex, thus entailing all-round training and making it essential for commanders and political officers to place a high value on the time factor and to make constant efforts to improve methods of training and educating subordinates.

The whole system of combat and political training of personnel is based on the principle: "*teach the troops what is needed in modern warfare*," and instill into servicemen those qualities which ensure that they fulfill their duties under the most difficult conditions of modern warfare. Therefore, training should be carried out under conditions as close as possible to those experienced in actual combat, in a spirit of active, offensive action.

Success in forming high moral and fighting qualities is also ensured by conforming to the principle of *consideration of the special features of the military collective and the individual qualities of servicemen*. After all, young people come into the Army with different levels of general education and widely varying knowledge of ideology and life. The functional duties of soldiers and sailors and of the entire collective are by no means identical. All of which obliges us to approach people and collectives individually, taking their specific nature into consideration. The use of the "average" collective or the "average" man as a standard cannot yield positive results, since in real life there are only real people.

The teaching and educational process is not an end in itself, but a means of training high-principled and capable defenders of the Motherland. The soldier in a socialist army is animated by high ideals; the knowledge of his patriotic and international duty motivates all his thoughts and actions, urges him on tirelessly to master his military vocation, to stubbornly overcome the difficulties and dangers of military life, to fight the enemy to the last drop of

blood. That is why *communist singleness of purpose* is one of the most important principles in the formation of high moral and fighting qualities in the Soviet soldier.

* * *

Such, in short, are the foundations and principles of Soviet military development. It goes without saying that there are others besides those listed above. They all play an important role in our military development and in the life and combat activities of the Armed Forces.

The principles of military development vary under the influence of changes in the internal and international situation of the country and the development of military affairs. This makes it essential for our military cadres to make a thorough study of the processes associated with military development, in order to be able to carry out their practical activities properly.

What to Read on This Section

Marksizm-leninizm o voyne i armii [Marxism-Leninism on War and Army],*
5th edition. Voenizdat, 1968, Ch. V.

Metodologicheskiye problemy voyennoy teorii i praktiki [Methodological Problems of Military Theory and Practice], 2nd edition. Voenizdat, 1969, Ch. VIII, §2.

* Available in English, No. 2, USAF "Soviet Military Thought" series [U.S. Ed.].

Chapter 2. THE CPSU AND THE SOVIET ARMED FORCES

For more than half a century the history of the Soviet Armed Forces has been continuously associated with the name of V. I. Lenin and the activities of the Communist Party. Our Party is the creator, leader, and educator of the Armed Forces and the organizer of their historical victories over the enemies of the Soviet Homeland. The Soviet Armed Forces are indebted to its undivided leadership for their invincible might and high moral, political, and fighting qualities. The leadership of the CPSU is the main source of the strength of the Soviet State and its Armed Forces.

THE LEADERSHIP OF THE CPSU—THE VERY FOUNDATION OF SOVIET MILITARY DEVELOPMENT

Leadership of the Communist Party and reinforcement of the role and influence of Party organizations in the Armed Forces, which is emphasized in the Program of the CPSU, is the basic principle of Soviet military development. The undivided leadership of the Armed Forces by the Party and its Central Committee is the objective law of their life and combat activities. This law is determined by the role which our Party plays in the life of Soviet society, as its leading and guiding force.

After the victory of the Great October Socialist Revolution the Communist Party became the ruling party. It took upon itself the ultimate responsibility for all aspects of the life and activities of the state, its safety from the encroachments of world imperialism, and for the building of socialism and communism.

Unlike all previous social and economic formations, the assertion of socialism and communism does not take the form of an upheaval, but is the result of the conscious, purposeful activities of the people. Activities of this kind can only be secured by the Marxist-Leninist Party. As the political leader of the Soviet people, the CPSU ensures proper leadership of the masses and imparts to their struggle for the achievement of their ultimate goal—communism—an organized, systematic and scientifically sound character.

V. I. Lenin pointed out that without a party, iron-hard and tempered in conflict, without a party which enjoys the confidence of the entire honest

element in a given class, without a party capable of following the mood of the masses and influencing it, it would be impossible to wage a successful struggle for socialism.¹ He emphasized that "the dictatorship of the proletariat is only possible through the Communist Party."²

The principal activities of the Party are the political leadership of society and the elaboration and solution of the radical problems of building socialism and communism. V. I. Lenin pointed out that the correctness of the Communist Party's policy determines the future of the Soviet regime. The Party's policy is the vital basis of the Soviet system. Relying on Marxist-Leninist teaching and a knowledge of the objective laws of the development of society, the Communist Party elaborates and puts into effect the policy which lies at the basis of all spheres of the life of our state, without exception—economic, social, spiritual, and international relations. The Party gives to our people a scientifically substantiated program of action, indicates the aims of the struggle and the means of achieving them. By its titanic efforts, it ensures the indestructible ideological and political unity of society and the purposeful development of all the component parts of the social organism. "We have not, nor could there be, another political force which would be as capable of taking into consideration, combining, and coordinating the interests and needs of all the classes and social groups, all the nations and peoples, and all the generations of our society with such completeness and consistency as the Communist Party. The Party stands out as the organizing nucleus of the entire social system, the collective intellect of the whole Soviet people."³

Speaking about the leading role of the Party in the system of the Soviet State, V. I. Lenin indicated that it was called upon to be not only the people's political leader, but also its tireless organizer and teacher. The Communist Party's leadership of society and its relations with the masses are effected through an extensive coordinated system of state and public organizations—councils, trade unions, the Komsomol and voluntary societies. It combines and directs their efforts towards a common goal, activating organizational and ideological-educational work by its characteristic methods, developing by every possible means creativity, initiative, and influence among the masses who belong to these organizations.

The leading role of the Communist Party in a socialist society also presupposes the necessity of leadership of the Armed Forces. They are of the same flesh as our people and state, its armed bulwark. V. I. Lenin demanded indivisible Party leadership of the entire life and activities of the Armed Forces. On 25 December 1918 on his initiative, the Central Committee of the Party adopted a program resolution "On the Policy of the Military Department," in which it was stated that the policy of the Military Department, as in all other departments and institutions, is conducted strictly on the basis of general directives issued by the Party in the person of its Central Commit-

¹ See Lenin, XLI, 27.

² Lenin, XLIII, 42.

³ Brezhnev, *Delo Lenina zhivet i pobezhdayet* [Lenin's Work Lives and Conquers]. Politizdat, 1970, p. 36.

tee and under its direct control. Our Party has always strictly fulfilled this Leninist requirement and continues to do so.

How is the Communist Party's leadership of the Armed Forces expressed?

Firstly, by the fact that all questions relating to the defense of the socialist Fatherland, military development, military theory and practice are, as they were in the past, resolved in strict accordance with Party ideology and policy, on the basis of directives and instructions formulated in resolutions of congresses and plenary meetings of the Central Committee of the Party and the Politburo of the CC CPSU.

The military policy of the Party, being part of the overall policy of the CPSU, provides for the resolution of the most important problems of military development. These are, first and foremost, problems relating to the strengthening of the defensive potential of the country as a whole: the creation and development of a material and technical base for the military power of the state; well-organized military production; and the moral, political, and military training of the entire nation for the heroic defense of the Homeland. Ensuring the unity of the political, economic, and military leadership of the country, the Party strives for the most efficient utilization of the economy, the achievements of science and technology, and the moral and political forces of the state in the interests of reinforcing its defensive power.

Secondly, the Communist Party's leadership of the Armed Forces is expressed in the fact that its Central Committee is directly concerned with questions relating to their life and activities, determines the principal trends and challenges of their development and takes care of the reinforcement of their fighting power, discipline, and solidarity. The Central Committee of the Party formulates guidelines for the development of the technical equipment of the Armed Forces, supplying the forces with all kinds of modern weaponry and material; determines the optimum ratio in the development of the Services and branches of the Armed Forces; evolves Soviet military doctrine; selects and allocates executive military cadres; develops and puts into practice the principles of personnel training and education; and concerns itself with increasing the vigilance and combat readiness of the forces. All these questions are resolved in conformity with the specific historical conditions and the requirements of military science, having regard to experience and practice, and combined with constant supervision of the fulfillment of the Party's directives and instructions. This ensures that, before any decision is taken on questions relating to military development, the Central Committee of the Party carefully studies the state of affairs in the Armed Forces, the actual conditions and circumstances, and consults with executive military personnel. It is not uncommon for Party and Government leaders and members of the CC CPSU to be actually in the forces themselves, where they familiarize themselves with their life and training and the work of instructing and educating personnel. All this allows our Party and its Central Committee to resolve correctly the most complex questions of military development.

Thirdly, the Communist Party's leadership of the Armed Forces is manifested in the fact that there is a well-balanced system of political organs,

Party and Komsomol organizations within them. These carry out extensive educational and organizational work in the forces.

The Central Committee devotes unflinching attention to questions of Party-political work in the Armed Forces, improving their forms and methods and increasing their fighting spirit and efficiency. Party and political work has the effect of rallying the personnel around the Party and the Soviet government, and mobilizes them for the fulfillment of the tasks facing the Armed Forces.

Fourthly, the leading role of the Communist Party in the Armed Forces is manifested in the fact that during the trials of war the Party, by its policy and military-organizational activities, ensures the unity of the front and the rear, the transformation of the country into a single armed camp, and firm leadership of the forces.

The scientific basis of the policy of the CPSU in the field of military development is Marxism-Leninism. In its work the Party draws on the objective laws of the development of human society and considers the objective laws of war as a social phenomenon. The most progressive, Marxist-Leninist world outlook and a genuinely scientific method make it possible for the Party to penetrate deeply into the essence of war and military science, to study them in continuous evolution, in their relationship to the class struggle and the policy of the state on an international scale.

V. I. Lenin repeatedly warned our Party and the Soviet people that while imperialism exists the threat of military adventure against the Land of the Soviets will remain. For this reason he demanded that the security of the Soviet Republic be given the most serious consideration and adjured the nation to be constantly vigilant, to strengthen the Armed Forces, to keep them in a permanent state of high-level combat readiness and fighting efficiency. "... the ruling class, the proletariat," stated Lenin, "only if it wants to and will rule, must demonstrate this in its military organization."⁴ He taught that the army of a socialist state can only guarantee the safety of its socialist Fatherland if, in its moral and political attitude, as well as its organization, technical equipment and operational methods, it meets all the requirements of military theory and practice.

Lenin's theories on the armed defense of the socialist Fatherland and the leader's instructions on fundamental questions of military development have stood the test of time and demonstrated their force and vitality. They form the theoretical foundation of the military policy of the Communist Party. These theories are clearly expressed and developed in the Program of the CPSU, in resolutions of Party Congresses and documents of the CC CPSU.

"The Party," it is stated in the Program of the CPSU, "proceeds on the basis that while imperialism continues to exist, the danger of wars of aggression will remain. The CPSU considers the defense of the socialist Fatherland, the strengthening of the defenses of the USSR and the might of the Soviet Armed Forces as the sacred duty of the Party and the entire Soviet People and the most important function of the socialist state."⁵

⁴ Lenin, XXXVIII, 139.

⁵ *Programma* . . . , p. 110.

Guided by V. I. Lenin's teaching on the defense of the socialist Fatherland and his recommendation that "in an age of civil war the ideal of the party of the proletariat is a *belligerent party*,"⁶ the Communist Party organized and inspired the crushing defeat of the first invasion of the Soviet Republic by the forces of international imperialism. The Party worked out a program of national defense and the organization of our Armed Forces and determined the nature, purpose, principles and means of their development. All the most important questions relating to the organization and waging of the armed struggle against the interventionists and White Guards during the Civil War were resolved under the leadership of the Party and its leader, V. I. Lenin.

Vital questions relating to the strengthening of the country's defenses, the military policy and strategy of the Soviet State, measures for carrying out the principal strategic operations and providing all the necessary material and human resources were discussed, despite the difficulties of war, at regular Party congresses and plenary meetings of the Political and Organizational Bureaus of the Central Committee. In the period between the VIII and IX Party Congresses alone, i.e., the most difficult period of the Civil War (March 1919-April 1920), 6 plenary meetings of the Central Committee of the Party were held, 29 meetings of the Politburo, 19 combined meetings of the Political and Organizational Bureaus and 110 meetings of the Organizational Bureau of the Central Committee of the Russian Communist Party (Bolshevik). At all these meetings the principal and priority questions discussed were those relating to national defense, the conduct of the war and military development, and the adopted resolutions were put into effect immediately.⁷ The Central Committee of the Party, headed by V. I. Lenin, was the war operations HQ, the organ of the collective leadership of the country's defenses and the development of the Armed Forces.

The resolutions of the VIII Party Congress were of great importance in the mobilization of all the country's forces and the creation of the people's regular Red Army for the crushing defeat of the interventionists and White Guards. The fundamentals of the Party's military policy at this new stage in the development of our army were defined in V. I. Lenin's reports and speeches at the congress and in the Party's new program and a resolution on the military question. The congress worked out and passed program directives on all the principal questions of Soviet military development. It consolidated Lenin's policy on the completion of the formation of the regular Red Army and determined practical measures for reinforcing its fighting strength. In the words of the resolution of the VIII Congress on the military question: "The Army must be trained, armed and organized in accordance with the latest developments in military science."⁸ The basic principle of military development—undivided Communist Party leadership of the entire life and activities of the Armed Forces—was established on the basis of congress resolutions on the military question. In this connection the congress outlined practical measures for the strengthening of Party leadership of the Army, the consolidation of its central organization, the improvement of Party-political work in the forces, the training of officer cadres of proletarian origin, and the strict application of the class principle in the development of the army.

The leading role of the Communist Party in defense of the achievements of the socialist revolution was also manifested in the fact that Party members

⁶ Lenin, *XIV*, 8.

⁷ See *KPSS i stroitel'stvo Sovetskikh Vooruzhennykh Sil* [The CPSU and the Development of the Soviet Armed Forces]. Voenizdat, 1967, p. 67.

⁸ *KPSS v rezolyutsiyakh . . .* [The CPSU in Resolutions . . .], Part I, 7th ed. Gospolitizdat, 1953, p. 435.

were in the front ranks of those fighting for the interests of the workers. More than half the Party membership fought selflessly in the front line during the Civil War.

Having repulsed the first invasion of world imperialism, the Soviet people set about the task of peaceful socialist development. At the same time, the Communist Party did not forget about capitalist encirclement and the fact that the reactionary forces of imperialism had not abandoned their treacherous schemes to annihilate the Soviet system by force. The Party remembered V. I. Lenin's words: "... Whoever forgets about the danger which constantly threatens us and which will continue to do so while world imperialism exists, —whoever forgets this, forgets our workers' republic."⁹

The Communist Party devoted unremitting attention to increasing the country's defense capacity. Questions of military policy and the strengthening of the fighting power of the Armed Forces were discussed at the X, XI, XII, XIII, XIV and other Congresses, at Party conferences and plenary meetings of the Central Committee of the Party. A program for the transition of the army to peacetime status was outlined and the means of further military development were determined in resolutions of the X Congress of the Russian Communist Party (Bolshevik). The resolutions of the congress emphasized the necessity of maintaining a regular army as the basis of our Armed Forces, the development and perfection of special technical units and the regeneration and reinforcement of the Navy. In order to ensure a high level of combat readiness and the class solidarity of the army the congress demanded that its proletarian content be reinforced and that the proportion of Party members in the army be increased. The X Congress paid special attention to strengthening political organizations and increasing their active participation in the work. In a resolution of the congress special emphasis was laid on the necessity "of maintaining the political system of the Red Army in the form that it had developed during three years of war; of improving and reinforcing its organization; of strengthening its ties with local Party organizations, retaining, however, the complete independence of its system."¹⁰

At the February and April Plenary Meetings of the Central Committee of the Party (1924) and the XIII Congress of the Russian Communist Party (Bolshevik) a clear-cut program of measures was drawn up for carrying out military reforms in the period 1924–1928. The Party effected a fundamental reconstruction of the entire system of organizing, directing and bringing the army up to strength, training and allocating military cadres, and improved the system of training and educating the forces and of conducting Party-political work in them.

Positive successes in strengthening the country's defense capacity and increasing the fighting power of the Armed Forces were achieved as a result of the realization of Lenin's plan for building socialism in the USSR. Of prime importance in creating the economic basis of the country's defense capacity

⁹ Lenin, *XLII*, 173.

¹⁰ *KPSS v rezolyutsiyakh* ... [The CPSU in Resolutions ...], Part I, p. 570.

was the Communist Party's firm implementation of the general policy of socialist industrialization of the country. The collectivization of agriculture and the cultural revolution played an important role in consolidating the defense capacity of the USSR. Thus, the foundation of our victory over fascism was laid during the prewar period.

In addition to consolidating the military and economic strength of the country, the Party showed great concern over increasing the moral and political potential of the Soviet people and educating them in the spirit of the great ideas of Marxism-Leninism, Soviet patriotism, and constant readiness for the defense of the socialist Motherland.

In the face of the growing military threat from Nazi Germany and its allies, the reinforcement of the country's defenses and the fighting power of the Armed Forces took priority over other matters in the Party's activities. This was reflected in the resolutions of the XVIII Congress of the All-Union Communist Party (Bolshevik), the March Plenary Meeting of the Central Committee (1940), the XVIII Party Conference (February 1941) and other Party documents. In fulfilling these resolutions, important steps were taken to reorganize industry and transport, taking into account the looming military threat; an extensive program for the Armed Forces was drawn up and implemented, which provided for their reequipment, the improvement of their organizational structure, and their combat and political training.

On the outbreak of the Great Patriotic War, a battle of unprecedented magnitude developed between the shock forces of imperialism and the first socialist state. In these difficult years for our Motherland the Communist Party, under whose leadership victory was forged, displayed unsurpassed theoretical maturity and scientific insight. The Party worked out a program for the mobilization of all the country's resources for repelling the enemy. The Party roused the entire Soviet people for the just cause of defending the socialist Fatherland and inspired our soldiers and sailors to heroic deeds.

Concern for the strengthening of the fighting power of the Armed Forces was the central issue in the Party's military organizational and political work. A well-balanced war economy was set up within a short period of time. The temporary superiority of the Nazi German army in weapons and equipment was overcome. The Party carried through on an unprecedented scale a program of measures for the war mobilization training of combat reserves and regulars, the reorganization and consolidation of Party-political work in the Armed Forces, the improvement of combat skills, and the deployment of a partisan movement in the enemy's rear. The strength and endurance of our army, which not only withstood the enemy's onslaught, but smashed it, were greatly increased by these measures, by the love they felt for their country, and by the concern and support of heroic workers in the rear. The Soviet people and their Armed Forces gained a great victory, the chief source of which was the Communist Party's firm, wise leadership of the entire life of the country.

"During the dark and difficult years of war, our embattled nation was led by the Communist Party. It organized, inspired and ideologically armed the

Soviet people for the struggle with the enemy. The Communist Party's best sons were at the forefront of the fight against fascism. The Party produced a remarkable galaxy of military leaders. Political officers, among whom were prominent Party and Government figures, carried out extensive organizational and Party-political work in the Army. By the end of the war there were over three million Party members at the front. The most difficult months of 1941 and 1942 saw the largest influx of fighting men into the Party. Our Party was indeed a fighting party."¹¹

From 1 July 1941 through 1 July 1946 Party organizations of the Red Army accepted 3,777,600 persons as candidates for membership in the All-Union Communist Party (Bolshevik), and 2,491,426 persons as members. The following table is a partial breakdown of these figures by years.¹²

	Party candidates	Party members
During the 2nd half of 1941	126,625	49,981
• 1942	1,072,088	402,264
• 1943	1,328,359	774,837
• 1944	896,500	783,883
• 1945	300,034	399,452

The victory of the Soviet Union in World War II was of universal importance. It demonstrated the enormous vitality and the invincibility of the socialist system. The authority of the Soviet Union and its role in the solution of international problems increased enormously as a result of our victory over fascism. Favorable conditions were created for the development and victory of socialist revolutions in a number of European and Asian countries and the formation of a world system of socialism.

In the postwar period, the Soviet people under the leadership of the Party, were able, within a short time, to heal the ugly wounds of the war, to rebuild the national economy, and to create practical prerequisites for the development of communism in the USSR. In view of the increasing activity among the aggressive forces of imperialism and their preparations for a new world war, the Communist Party continued to concern itself about the technical equipment of the Armed Forces, the improvement of their combat readiness, and the ideological and political training of the personnel. The resolutions of recent Party congresses, and the October 1957 and subsequent plenary meetings of the CC CPSU were of great importance for strengthening the Soviet Armed Forces.

A detailed analysis of the processes of development in military affairs, weaponry and equipment enabled the Central Committee of our Party to determine the general trend in the creation and development of new weaponry. Thanks to the wise policy of the Central Committee of the Party on

¹¹ *50 let Velikoy Oktyabr'skoy sotsialisticheskoy revolyutsii. Tezisy TsK KPSS* [Fifty Years of the Great October Socialist Revolution: Theses of the CC CPSU]. Politizdat, 1967, p. 22.

¹² See *Voprosy istorii KPSS* [Problems of the History of the CPSU], 1965, No. 5, p. 66.

the question of military equipment, Soviet economic, scientific and technical achievements, a qualitatively new material and technical base was created for providing the Armed Forces with up-to-date equipment and new weapons, primarily nuclear missiles. As a result of this, the American nuclear monopoly was broken and the world socialist system obtained its own nuclear shield.

The emergence of nuclear weapons and delivery systems, their wide introduction, together with other political, economic, scientific and technical factors, led to fundamental qualitative changes in all fields of military theory and practice and to a revolution in military affairs. Weaponry, methods of conducting military operations, troop organization, military theory, and the military training scheme all underwent radical qualitative changes, and methods of training and educating personnel were improved. As a result of this, the development of the Armed Forces of the USSR was raised to a new and higher level.

In recent years, because of the aggravation of the international situation, the Party and the Government have passed a number of new and important resolutions on questions of military development aimed at further improvements in the organization of the forces and their equipment with new types of weapons and materiel, and improvements in the training of military personnel and the standard of Party-political work in the forces. The third session of the seventh convocation of the Supreme Soviet of the USSR on 12 October 1967 ratified the new Universal Military Service Law. Its implementation represents an important stage in Soviet military development, and provides new evidence of the Party's concern over the strengthening of the country's defenses.

Progress in the building of communism is characterized by a further increase in the role and importance of the Communist Party as the leading and guiding force of Soviet society. These objective laws also operate in the military sphere. Expansion of the leading role of the CPSU in military development follows from the peculiarities of the international situation, the level of development in military affairs, the nature and special features of modern warfare, and other factors of fundamental importance.

The Party's increased role in the leadership of the Armed Forces was dictated, firstly, by the fact that their tasks in maintaining the security of the Motherland had become greater and more complex. The Party considers that the aggressiveness of imperialism has increased and that, as a result of this, there is a danger of a new world war. As was noted at the 1969 International Conference of Communist and Workers' Parties, the chief source of military danger is American imperialism in the role of world exploiter and gendarme, the sworn enemy of liberation movements.

The ruling circles of the USA are feverishly stepping up the arms race, reinforcing aggressive blocks by every possible means and aggravating international tension. By implementing the policy of "local conflicts" and "small wars" elaborated in Washington, they try to hold on to their positions in different parts of the globe and insolently interfere in the internal affairs of sovereign states. For several years now, the American imperialists have been conducting a shameful, murderous war against the Vietnamese people. They have unleashed bloody military adventures against the people of Laos and Cambodia in order to suppress the liberation move-

ment in Indochina. The American military clique directly sponsored and orchestrated the military-fascist revolution in Greece; with the covert and overt encouragement of imperialist circles in the USA and England, the rulers of Israel unleashed a war of conquest in the Near East against the United Arab Republic and other Arab countries.

The scale of the military preparations of the imperialists of the USA and their allies can be judged by the fact that, beginning in 1949, the total expenditures of the member countries of the North Atlantic bloc for military purposes have exceeded one trillion (one thousand billion) dollars, the United States of America accounting for two thirds of this sum.

The active partners of the USA in aggravating international tension and intensifying the arms race are its accomplices in aggressive military blocs. The aggressive North Atlantic military bloc, NATO, is a particularly serious threat to the peace of Europe. During the period that this bloc has existed the military expenditures of its member countries have reached the astronomical figure of almost 1.5 trillion dollars, i.e., more than was spent on the first and second world wars.

Our Party counters the imperialist policy of military adventure and the fanning of international tensions with its Leninist foreign policy. Guided by the resolutions of Party congresses and plenary meetings of the CC CPSU, it rebuffs the aggressive activities of world reaction and, jointly with fraternal socialist countries, takes the necessary steps to prevent a world nuclear war. One of the most important factors in resolving these problems is the steady growth in the military might of the Soviet Armed Forces, their readiness at any moment to annihilate the aggressor, whatever weapons he may use.

In the words of the Resolution of the CC CPSU on the centenary of Lenin's birth: "The Party will henceforth constantly concern itself with the growth of the defensive capacity of the Soviet Homeland and will maintain the people and the Army in a state of constant readiness to repel imperialist aggression and defend the socialist Fatherland."

Secondly, the increase in the leading role of the Communist Party in the Armed Forces was brought about by the scientific revolution, fundamental changes in military affairs, and the need for Marxist-Leninist scientific foresight and the elaboration and implementation of a well-balanced policy in the theory and practice of military development.

Thanks to the constant concern of the Party and Government our Armed Forces have all the necessary means at their disposal to destroy any aggressor. But military affairs are developing rapidly. The imperialist states are devoting enormous efforts to gaining advantages in the military field. Thus, the CPSU's correct scientific and technical policy of developing our economy to its fullest possible extent in order to keep the Armed Forces at the peak of modern military technology is now of particular importance.

Thirdly, the enlarged role of the Communist Party in the leadership of the Armed Forces is determined by the increased importance of morale in modern warfare. All the history of wars shows that the more lethal the weapons employed, the greater the importance of the morale of the people involved in military operations. This applies to a far greater degree in the case of a possible nuclear war. The augmentation of the moral and political superiority of the Soviet Armed Forces over the armies of the imperialist states is now of paramount importance. By virtue of this, the Party plays an increasingly

important role in the communist education of forces personnel and in their moral, political and psychological training.

Fourthly, the expansion of the leading role of the CPSU in military affairs is dictated by the necessity of preparing the entire nation to repel imperialist aggression. Modern warfare obliterates the boundary between the front and the rear. Troops and objectives deep in the interior of the country may be subjected to surprise nuclear strikes. Hence, the Party is playing a larger role in ensuring the viability of our state in the event of war, in strengthening the military and economic power of the USSR by every possible means, in the moral, political, and military training of the population, and in the organization of civil defense.

Fifthly, the increase in the leading role of the CPSU in the field of military development is dictated by the expansion of the international obligations of the Soviet Armed Forces and the necessity of ensuring the close cooperation and unity of action of all fraternal armies.

The conditions governing the armed defense of the socialist states have changed radically with the formation of the world socialist system and the growth of its political and economic power. Unlike the past, when only a single socialist state was opposed to an imperialist attack, in any future war imperialist aggressors will receive a rebuff from the powerful socialist community.

POLITICAL ORGANS, PARTY AND KOMSOMOL ORGANIZATIONS OF THE SOVIET ARMED FORCES

Party-political work is an integral part of all the organizational and ideological activities of the Communist Party in the Armed Forces, and an important means of strengthening them. V. I. Lenin taught that "when political work is conducted with greater care among the troops . . . there is no laxity in the Army, its order and morale are of a higher standard and it wins more victories."¹³

Political organs in the Armed Forces are the executive elements of the Party in the field of Party-political work. Political organs and Party organizations are guided by the Program and Rules of the CPSU, the resolutions of Party congresses and conferences and the Central Committee of the CPSU, as well as by the Regulations for Political Organs and Instructions to Organizations of the CPSU in the Soviet Armed Forces, ratified by the Central Committee of the Party. Political organs also base their practical work on orders and directives of the Minister of Defense and the Head of the Chief Political Directorate of the Soviet Armed Forces. The Party exercises its influence on all aspects of the life of the Armed Forces through political organs and Party organizations, and the Party members serving in them.

During the very first days of the existence of the Soviet Armed Forces our Party began to set up within them a Party-political system, in which the

¹³ Lenin, XXXIX, 56.

institution of the military commissars occupied a prominent place. The military commissars not only acted as direct representatives of the Soviet regime in the Army, they also represented the Party's morale, discipline, fortitude and courage. On 8 April 1918 the All-Russian Bureau of Military Commissars was set up to direct their activities. This formed the foundation for the development of the central military-political system of our Armed Forces.

In July 1918 the V All-Russian Congress of Soviets confirmed the institution of the military commissar. In a resolution of the Congress it was indicated that only irreproachable revolutionaries and resolute fighters for the cause of the proletariat and the village poor could occupy positions as military commissars. As bearers of the Party's policy, the military commissars organized and carried out Party-political work among the troops and exercised very strict political control of the activities of military specialists. The commissars directed the activities of Party cells and political sections.

A system of political organs was set up by the autumn of 1918. The establishment of political organs was officially recognized in a resolution of the Central Committee of the Party on 25 October 1918. In accordance with this resolution, the organization of political sections attached to the revolutionary military councils of the fronts and armies was announced by the Revolutionary Military Council on 5 December 1918. Soon after this, political sections were formed in all divisions and brigades. Under Lenin's leadership special Regulations for Political Organs were worked out.

In order to reinforce the management of Party and political work in the Armed Forces, the VIII Congress of the Russian Communist Party (Bolshevik) decided to create a Political Section of the Revolutionary Military Committee of the Republic, transferring to it all the functions of the All-Russian Bureau of Military Commissars and placing at its head a member of the Central Committee of the Russian Communist Party (Bolshevik), exercising the rights of a member of the Revolutionary Military Council. On the basis of this decision, the All-Russian Bureau of Military Commissars was abolished and the Political Section of the Revolutionary Military Council of the Republic was established in its place. The latter was soon transformed into the Political Directorate of the Revolutionary Military Council (PUR). Thus the formation of the Armed Forces system of political organs was completed.

All the experience of the work of the military commissars and the political organs indicates that they played a tremendously important role in the development of the young Workers' and Peasants' Red Army and the achievement of their historical victories over the enemies of our Homeland. M. V. Frunze, evaluating the activities of political organs during the Civil War, wrote: "Who introduced the elements of order and discipline into the ranks of our young Red regiments, formed amid the thunder of shell-fire? Who in the days when we suffered reverses and defeats sustained the courage and boldness of our fighters and infused new energy into their shaken ranks? Who organized the Army's rear and established Soviet authority there, thus ensuring the rapid and successful advance of our armies? Who, by their persistent and

stubborn efforts, broke the enemy's ranks and disorganized his rear, thus paving the way for future successes?

"These things were done, and done brilliantly, by the Army's political organs. . . .

"As agents of the Communist Party in the Army, the political organs acted as direct conveyors of the morale, energy, and enthusiasm that animated the Party and the confidence in victory possessed by the working class." ¹⁴

During the period of peaceful socialist development, by implementing the policy and resolutions of the Party, the political organs played an extremely important role in the strengthening and reequipping of the Soviet Armed Forces, and in the education and political training of all personnel. The services of the political organs in winning our historic victory in World War II were exceptional. As in the Civil War they acted as steadfast champions of the Party's policy and influence in the Armed Forces and as political educators of Soviet fighting men. Together with the commanders, they led the work of mobilizing the forces to crush a strong and treacherous enemy.

During the postwar period, with the appearance of new weapons and equipment, changes in the methods of armed conflict, and an improvement in the qualitative composition of the Armed Forces, improvements were made in the form, content and methods of Party-political work. Moral, political and psychological training tasks were greatly expanded and made much more sophisticated. New problems arose in connection with mastering the latest equipment, reinforcing discipline, and troop control.

A comprehensive program for reinforcing the role and influence of political organs and Party organizations, improving Party-political work and the ideological and political education of the Armed Forces personnel is set out in the Program and Rules of the Party, in resolutions of the XXIII Congress of the CPSU and subsequent plenary meetings of the Central Committee, in a resolution of the CC CPSU dated 21 January 1967 "On Measures for Improving Party-Political Work in the Soviet Armed Forces," and in the message of greeting to commanders and political workers on the occasion of the 50th anniversary of the formation of the Political Directorate of the Revolutionary Military Council of the Republic.

The institution of *military councils* occupies an important place in the leadership of the forces. There are military councils in the Services, in military districts, fleets and several other elements of the military organism. They examine and resolve all fundamental questions relating to the life and activities of the forces; they are responsible to the Central Committee, the Government and Minister of Defense for the constant combat readiness and fighting efficiency of the forces, their training and education. The resolutions of military councils are adopted by majority vote and put into effect by the orders of the respective commanders.

Leadership of Party and political work in the Armed Forces of the USSR is effected by the Central Committee of the CPSU through the *Chief Political*

¹⁴ Frunze, p. 147.

Directorate of the Soviet Armed Forces, which exercises the rights of a section within the CC CPSU.

The Bureau of the Chief Political Directorate was created in accordance with a resolution of the CC CPSU to ensure collectivity in resolving vital questions relating to Party-political work and the education of cadres of Party and political workers of the Armed Forces in the spirit of observing Leninist rules of Party life and the principles of Party leadership. Resolutions of the Bureau are adopted by a majority vote and put into effect by directives and instructions issued by the Head of the Chief Political Directorate.

Directives on questions of Party-political work in the Armed Forces are issued under the signatures of the Minister of Defense and the Head of the Chief Political Directorate with the approval of the CC CPSU. Directives and instructions on day-to-day questions of Party-political work are issued by the Head of the Chief Political Directorate.

Corresponding *political directorates* and *political sections* have been created to organize and direct Party and political work in all Services of the Armed Forces, groups of forces, military districts, air defense districts, and fleets. The political directorates of Services of the Armed Forces, groups of forces, military and air defense districts and fleets are headed by members of military councils—heads of the political directorates (political sections).

Political sections of formations are established directly in units and ships for the supervision and organization of Party-political and educational work. The head of the political section is the deputy commander for political affairs of the formation. Political sections are also established in military training and scientific research establishments, the central organization of the Ministry of Defense, the headquarters and directorates of districts, groups of forces and fleets.

Party commissions, established under political organs are responsible for considering the decisions of Party organizations on questions relating to membership of the CPSU and cases of misdemeanors of Party and Komsomol members. Party commissions are selected at appropriate Party conferences and operate under the direction of political organs. A Party commission under the Chief Political Directorate of the Soviet Armed Forces is confirmed by the Central Committee of the CPSU.

Party organizations of the Soviet Armed Forces represent a large and important combat force of the CPSU closely bound to its Leninist Central Committee. More than 80% of the personnel in the Armed Forces are Party or Komsomol members. This is their strength, the basis of the high level of political consciousness and morale of our soldiers and sailors, and the guarantee that they will successfully fulfil the tasks of ensuring the security of our Homeland.

Party organizations existed in the Red Army right from the beginning of its existence. Together with the young Red Army they grew rapidly and gathered strength. Whereas in October 1918 there were 800 Party cells in subunits of the Army, by July 1920 there were 6,337, consisting of as many as 300 thousand Party members, who in combat exhibited personal examples of heroism, endurance and courage.

After the victorious conclusion of the Civil War, the Central Committee of the Party and V. I. Lenin carefully guarded against the possibility that mass demobilization might result in a reduction of the numerical strength of Party members in the forces and ensured that experienced cadres of Party workers were retained. Questions relating to Party work in the Armed Forces were discussed repeatedly at Party congresses and conferences and plenary meetings of the Central Committee. As a result, the Armed Forces Party organizations grew and gathered strength.

The following table ¹⁵ shows how the numerical strength of Party members in the Red Army and Navy increased during the prewar years.

Date	Number of cells (primary Party organizations)	Party members in the Armed Forces
By the end of 1921	5,690	73,000
On 1 Jan., 1928	6,001	82,018
On 1 Jan., 1929	6,283	93,830
On 1 Jan., 1930	6,760	102,749
On 1 Jan., 1931	7,030	133,789
On 1 Jan., 1940	9,468	434,955
On 1 Oct., 1940	10,069	508,450
By June, 1941	12,200	560,800

In the Great Patriotic War, the best forces of the Party were sent to the most dangerous and responsible sectors of the struggle. Nearly one third of the members of the Central Committee of our Party were at the front. Whereas during the Civil War there were 5 Party members to every 100 fighting men, the corresponding figures at the beginning and end of World War II were 13 and 25, respectively. In addition to this, there were 20 Komsomol members per 100 fighting men. This means that almost every other soldier in our Army was either a member of the Party or the Komsomol.

Party work in the forces was carried out on a massive scale. Non-Party fighting men were drawn into the battle with the enemy by the courage and irresistible impetuosity displayed by front-line Party members, thus ensuring victory in battles and operations.

In the postwar period, the Armed Forces Party organizations were strengthened both ideologically and organizationally, their activity and fighting spirit increased appreciably, as did their influence on the solution of combat and political training tasks and the strengthening of military discipline.

Fulfilling the demands of the Party Program and the resolutions of the XXIII Party Congress, the Party organizations of the Soviet Armed Forces are firmly and consistently implementing Party policy in them: all their activities are directed at reinforcing their fighting power, rallying military personnel around the Communist Party and educating them in the spirit of the ideas of Marxism-Leninism, selfless devotion to the Socialist Homeland, the friendship of our country's peoples, proletarian internationalism and burning hatred of the imperialist aggressors. They actively promote the unity of the Army and the people, concern themselves with the strengthening of

¹⁵ See *KPSS i stroitel'stvo Sovetskikh Vooruzhennykh Sil* [The CPSU and the Development of the Soviet Armed Forces]. Voenizdat, 1967, p. 226; Yu. P. Petrov, *Partiynoye stroitel'stvo v Sovetskoy Armii i Flote (1918-1961)* [Party Development in the Soviet Armed Forces (1918-1961)]. Voenizdat, 1964, pp. 150, 281, 329.

military discipline, and mobilize personnel for the exemplary fulfillment of combat and political training tasks, the mastering of new weapons and equipment, and the maintenance of a high degree of vigilance and combat readiness.

Primary Party organizations in the Soviet Armed Forces are created by the respective political sections in regiments, individual units (battalion, company, battery, squadron), on ships of the 1st, 2nd and 3rd class, in divisions of small ships, in formation headquarters, in military training establishments and institutions where there are at least three Party members.

Party organizations exercising departmental rights for battalions, squadrons, and combat operational units of ships are set up within the primary Party organizations with the authorization of the political section.

In cases where there are more than 75 Party members in regiments, ships and departments of military academies, Party committees may be set up with the authorization of the political section of a strategic formation, district political directorate, group of forces, or fleet, the Party organizations of battalions, and equivalent subunits being granted the rights of a primary Party organization. Under these conditions, and with the permission of the political section, Party organizations exercising departmental rights may be formed in companies and equivalent subunits where there are three or more Party members.

Within Party organizations of subunits, as well as within a primary Party organization, *Party groups* may be set up for companies, batteries, flights, on small ships, in platoons, aircrews, training sections, departments of institutions and plant workshops. The Party group organizer is elected at a Party group meeting, which includes three Party members, by a show of hands (or, with the permission of the Party members, by secret ballot). In Party groups which include less than three Party members and several candidates for Party membership, the Party group organizer is selected by the Party Committee (Bureau) of the unit.

Primary Party organizations receive new members into the Party from among those officers, noncommissioned officers, petty officers, soldiers, sailors, workers and employees of the Soviet Armed Forces who are the most mature, active, and committed to the cause of Communism. Induction into the Party is effected on an individual basis. Candidates who have reached the age of 18 are accepted into the CPSU. In order to improve the qualifying standard of personnel being accepted into the CPSU, the XXIII Congress ruled that young persons up to and including the age of 23 will enter the Party only through the Komsomol. New Party members are accepted from among candidates who have passed through the probationary term established by the Rules of the CPSU.

The Instructions to Organizations of the CPSU in the Soviet Armed Forces lay specific obligations on Party organizations, require them to use their skill to permeate and influence all aspects of life and activities of subunits, units, ships, headquarters, military training establishments and institutions; to reveal boldly, through criticism and self-criticism, shortcomings in the training and education of military personnel, in Party-political work, in the activities of Party committees (bureaus) and political organs, and in the material

security and welfare of personnel; to assist commanders in the timely adoption of measures to eliminate defects in the organization of the training process and service in the forces; to combat deceit, poor management, misappropriation and wastefulness of state resources; and anything that is detrimental to the combat readiness of military units. At Party meetings, Party members have the right to criticize any other Party member or candidate, regardless of the position he occupies. Criticism of orders and regulations issued by commanders and senior officers is not permitted.

Party organizations reinforce unity of command in the Armed Forces. A commander exercising political and military authority is the champion of the Communist Party's policy. Party organizations teach personnel to respect their commanders, and strive to ensure that each order given by a commander is carried out unquestioningly, precisely and promptly.

Party organizations of units and subunits and all Party work in the forces come under the control of political organs. The deputy commander for political affairs together with the Party Committee (Bureau) organizes Party work and bears direct responsibility for its state.

Komsomol organizations in the Soviet Armed Forces are active assistants of organizations of the CPSU in implementing Party policy in, and strengthening their fighting power.

Primary Komsomol organizations are created by political sections in battalions, independent companies (batteries), squadrons and equivalent subunits, in the divisions of 1st and 2nd class ships, and on submarines, as well as institutions, in courses or in companies of military training establishments and military construction detachments, when there are not less than three Komsomol members.

A bureau for carrying out routine work is elected for a period of one year by a show of hands at a meeting of the primary Komsomol organization. A secretary and a deputy secretary are selected from among the members of the bureau at a meeting of the latter. In Komsomol organizations with less than 10 Komsomol members, a bureau is not set up: a secretary and his deputy are elected.

Within a primary Komsomol organization, Komsomol organizations exercising departmental rights are formed in companies, batteries and equivalent subunits. They conduct their practical work on the basis of tasks being solved by the subunits and primary organizations of which they are a part. A bureau is formed within these organizations if there are more than ten Komsomol members. It is elected by a show of hands for a period of one year. In a company Komsomol organization, Komsomol groups may be formed in platoons, crews, flights, detachments, teams, and also in groups detailed for work, detached duty, etc. They are formed in subunits or groups in which there are not less than three Komsomol members. A Komsomol group organizer is elected for a period of one year.

Komsomol committees are elected in regiments, on 1st and 2nd class ships, and also in independent units, where primary Komsomol organizations have been set up for subunits.

The Armed Forces Komsomol organizations are guided in all their activities by resolutions of the CPSU, the Komsomol Rules, the resolutions of congresses and the Central Committee of the Komsomol. Their practical

tasks are also defined in the Instructions to Komsomol Organizations in the Soviet Armed Forces, approved by the Komsomol Central Committee and the Chief Political Directorate.

Komsomol organizations of the Armed Forces are called upon to educate young soldiers and sailors in the spirit of selfless dedication to the Communist Party and the Soviet Motherland and the ideas of Marxism-Leninism, the heroic traditions of the revolutionary struggle and self-sacrificing labor of the Soviet people, to train steadfast, ideologically convinced fighters for the victory of communism, ready to give all their strength and, if need be, their lives as well, in the defense of the socialist Motherland. A resolution of the XVI Congress of the Komsomol points out that Komsomol organizations in the Armed Forces are called upon to strive to ensure that Komsomol members scrupulously fulfill Lenin's precept—to study military affairs by actual procedure, to set an example in fulfilling the requirements of the oath and regulations and to become first-class specialists in combat and political training.

Leadership of the activities of military Komsomol organizations is exercised by the Chief Political Directorate of the Soviet Armed Forces through the corresponding political and Party organizations and deputy commanders for political affairs. There are assistant heads of political sections for Komsomol work in all political organizations. The most important matters relating to Komsomol work in the Armed Forces are subject to agreement between the Chief Political Directorate and the Komsomol Central Committee.

PARTY-POLITICAL WORK IN THE ARMED FORCES

Party-political work in our Armed Forces is based on the policy and ideology of the Communist Party, taking into account the specific tasks which face them at each stage of their development. It does not remain unchanged, but is being constantly improved. A change in the determining factors, including methods of armed combat, the appearance of new equipment, an improvement in the qualitative structure of the military, is accompanied by development of the content, forms and methods of Party and political work.

Party-political work in the Armed Forces is organized and conducted on the basis of definite principles, such as ideological content, scientific character, concreteness, purposefulness, continuity, unity of ideological and organizational activities, its conformity to the nature of modern warfare, and the tasks being resolved by the forces.

There has been a big improvement in Party-political work in the forces and its effectiveness has been increased, thanks to the active and persistent activities of military councils, commanders, political bodies and Party organizations in fulfilling the requirements of the Party Program, the resolutions of the XXIII Congress and plenary meetings of the CC CPSU, the resolution of the CC CPSU dated 21 January 1967 "On Measures for the Improvement of Party-Political Work in the Soviet Armed Forces."

The task of ensuring a high state of vigilance and constant combat readiness of the forces is of vital importance. This is due to the aggravation of the current international situation, the increased aggressiveness of imperialism, and the growth of the military danger for the USSR and the entire socialist community.

Constant combat readiness is a vast subject. It incorporates such factors as the maintenance of the fighting efficiency of the forces as a whole, their strength, a high standard of training, their ability to wage modern warfare according to all the rules of military art; the moral, political and psychological training of personnel in conformity with the nature and special characteristics of modern warfare. It is, in fact, the ability of subunits, units and ships for immediate and decisive action when an alert is given, and the highest state of organizational efficiency and discipline in all the elements of the military organism.

The concept of the combat readiness of the forces has now been expanded and augmented with new meaning.

The so-called "seasonal" approach to combat readiness of the forces has now been consigned to the history books. War may now break out at any time of the year. Therefore, the forces must be in a constantly high and unremitting state of combat readiness. The degree of personal responsibility of servicemen for the combat readiness of subunits and units has been increased. Now more than ever before, combat readiness depends upon the conscientiousness, discipline, and training of every soldier at the control panel of a missile complex, in the combat detail of a crew, etc. The importance of the time factor in ensuring combat readiness has greatly increased. All this is taken into account in the organization of Party and political work.

Qualitative changes which have taken place in military affairs have made it essential for Party and political organizations to give priority to the task of forming a high state of political consciousness and psychological stability in the forces, of fostering in our soldiers a firm will for victory over a strong and rapacious enemy, and readiness to carry out combat orders at any cost, even to the point of self-sacrifice. Moral and political training entails, first and foremost, the instilling of profound ideological conviction and a well-developed sense of personal responsibility for the fulfillment of his combat task in each member of the forces.

Psychological training consists in forming in personnel the psychological qualities needed for the successful completion of combat tasks under the difficult conditions of modern combat—lofty patriotic feelings, faithfulness to military duty, confidence in victory over the enemy, strength of will, courage, endurance, and discipline.

The level of psychological stability depends largely on a sound knowledge of the nature of modern combat, the tactical and technical characteristics of weapons, and protection against them, and on the ability of personnel to conduct effective combat operations under any conditions.

All educational work with Armed Forces personnel is based on a profound study of Lenin's theoretical legacy, the resolutions of Party congresses and plenary meetings of the CC CPSU. The achievements of our country in the building of communism, the revolutionary traditions of the Communist

Party and the Soviet people and the glorious history of the Soviet State and its Armed Forces are publicized with force and conviction.

The entire Marxist-Leninist system of training officers, generals, and admirals, political work with soldiers and noncommissioned officers, political education, propaganda, cultural and educational work with personnel are devoted to this.

In pursuing their aggressive policy, the imperialists, primarily reactionary circles in the USA, are striving to introduce a "war of ideas" into the socialist countries. They are broadening the front of ideological diversions and are doing everything possible to corrupt the minds of our people and undermine the foundations of socialism.

Referring to the increased aggressiveness of imperialism, and the ideological diversions directed against the USSR and the other socialist countries, the XXIII Congress of the CPSU pointed out that the front of the ideological struggle, the ideological training of our people, is one of the most important sectors of the Party's activities. This was underlined with renewed force in the April and July 1968 plenary meetings of the CC CPSU. They noted that the present stage of historical evolution is characterized by a sharp intensification of the ideological struggle between capitalism and socialism. The whole of the vast system of anticommunist propaganda is now aimed at weakening the unity of the socialist countries and the international communist movement, breaking up the progressive forces of our times and undermining socialist society from within. Under these conditions the irreconcilable struggle with hostile ideologies, the resolute unmasking of imperialist intrigues, the communist education of members of the CPSU and all workers, and the intensification of all ideological work acquire a special importance.

Commanders, political organs and Party organizations are channelling all the available resources of ideological education into strengthening communist conviction, feelings of Soviet patriotism and proletarian internationalism, ideological stability and the ability to withstand any forms of bourgeois influence.

Another important aspect of ideological work is the unmasking of the ideology of right and "left" revisionism.

During a period when military technology is developing rapidly and being introduced into the forces on a large scale, it is especially important that the technical standards of fighting men be increased by every possible means. Hence, the task of developing military technical propaganda on a broad front.

Technical universities and lecture agencies, technology evenings, technical proficiency schools, discussion groups, technical conferences, quizzes, special and popular science film shows are commonplace in the forces. Engineering and technical personnel of the Armed Forces, as well as soldiers and noncommissioned officers with a higher specialist education, take an active part in military technical propaganda.

The wide development of socialist competition and the study, generalization, and dissemination of advanced knowledge are important factors in Party and political work.

The Communist Party firmly associates the political education of Armed Forces personnel with the further strengthening of military discipline, the importance of which has increased enormously. The very concept of discipline has become much broader than it was previously. New equipment and new types of weapons have brought into being the discipline of intensive military labor; the discipline of competent operation and constant readiness of combat vehicles, tools, and machinery; and the discipline of operational duty. New weapons have made it essential to maintain discipline of unprecedented strictness in the close cooperation between both combat groups and individual specialist-servicemen.

The discipline of firm control, promptness in carrying out instructions, irreproachable performance, and the self-discipline of servicemen have become more important. As is known, pilots and operators, sonar operators, drivers, and servicemen in many other specialist categories frequently and for long periods carry out their tasks independently. Under such conditions conscience and selfdiscipline are often their only forms of supervision.

An important task of Party-political work in the forces is the further consolidation of unity of command. Political organs and Party organizations look after the education of our officer personnel, help them to master Marxist-Leninist theory and the Lenin style of leadership. They are concerned with the training of commanders with sole military and political responsibility, who combine an exacting nature, determination, and an officer's inflexible will with a sincere, fatherly concern for their subordinates and who constantly depend on Party organizations and the resources of the army community in all their activities.

The Party seeks to ensure that all the activities of our commanders, political organs and Party organizations, including those engaged in Party-political work, are based on scientific principles in strict accordance with the tenets of Marxism-Leninism and on the correct exploitation of the achievements of science and technology.

The successful completion of the tasks of communist development is directly related to the standard of Party work and to the ability of Party organizations to convince and organize the masses. It is very important for political organs and Party organizations in the Armed Forces to be able to arrange their activities with regard to the qualitative variations, peculiarities and specific features of a given Service of the Armed Forces or of a specific branch.

Our commanders, political organs and Party organizations have access to a wealth of experience in the organization of Party-political work under combat conditions accumulated during the Great Patriotic War. Modern warfare, however, imposes new and heavier demands on this aspect of military life. Well thought-out and skillfully presented Party-political work is of tremendous importance in this connection during tactical exercises. Under conditions most closely resembling those of actual modern warfare, possible variants of Party-political work are elaborated and new forms and methods checked out. Commanders, political organs and Party organizations have

learned a great deal in this connection from such exercises as *Dnepr*, and maneuvers as *Dvina*, *Okean* and others conducted in recent years.

* * *

Thus, there is not one aspect in the life and activity of our Armed Forces which does not experience the beneficial effect of the leading role of the CPSU. The Communist Party and its Central Committee formulate our military policy, and determine the principal trends and tasks in the work of strengthening the country's defenses and developing the Armed Forces. Basing its leadership of the Armed Forces on the theoretical foundations of Marxism-Leninism, an assessment of the requirements of the laws of social development, and a detailed analysis of trends in the evolution of military affairs, the Party ensures the maximum effective use of moral, political, economic, scientific and technical potential for strengthening the defensive capacity of the Soviet Homeland.

ON THE LEADING ROLE OF THE CPSU IN THE ARMED FORCES

FROM RESOLUTIONS OF PARTY CONGRESSES AND CONFERENCES, PLENARY MEETINGS OF THE CENTRAL COMMITTEE, AND OTHER DOCUMENTS

In view of the fact that some Party circles hold the opinion that the policy of the military department is the product of the personal views of individuals or an independent group—and statements of this kind even appear in the Party press—the Central Committee of the Russian Communist Party considers it necessary to state in the most categorical terms that the most responsible and experienced members of the Party can be in absolutely no doubt at all that the policy of the military department, like that of all other branches and institutions, is conducted strictly on the basis of general directives issued by the Party in the person of its Central Committee and under its direct supervision.

(On the policy of the military department. From a resolution of the Central Committee of the RCP* dated 25 December 1918. *KPSS o Vooruzhennykh Silakh Sovetskogo Soyuza* [The CPSU on the Armed Forces of the Soviet Union]. Voenizdat, 1969, p. 35). [Note: Hereafter cited as: *KPSS o Vooruzhennykh Silakh* . . .]

The military training and education of the Red Army is based on the principle of class solidarity and socialist enlightenment. Thus, it is essential to have political commissars drawn from reliable and dedicated Party members alongside the military commanders and communist cells in each unit for the establishment of internal ideological liaison and conscious discipline.

(From the Program of the Russian Communist Party (Bolshevik), adopted by the VIII Congress of the RCP(b).^{*} *KPSS v rezolyutsiyakh* . . . [The CPSU in resolutions . . .], Part I, p. 417).

The rapid growth in the number of communist cells is the most important guarantee that the Army will be increasingly permeated by communist ideas and discipline. But it is precisely because of the tremendously important role of communist cells that commissars and all the most mature Party workers in the Army must take steps to ensure that unstable elements in search

* RCP—the Russian Communist Party [U.S. Ed.].

* RCP(b)—Russian Communist Party (Bolshevik) [U. S. Ed.].

of illusory rights and privileges are kept out of them. Respect for communist cells will be greater and more enduring, the more clearly each soldier understands and is convinced from experience that membership of a communist cell does not give him any special rights, but only imposes upon him the obligation of being an extremely selfless and courageous fighter.

(From a resolution of the VIII Congress of the RCP(b) on the military question. *KPSS v rezolyutsiyakh* . . . [The CPSU in resolutions . . .], Part I, pp. 435-436).

Party members serving in the Red Army must always be in the forward posts, in the most responsible and dangerous positions. Party members are increasing tenfold their work on the communist education of the Army.

(From a message of greeting to the Red Army from the VIII Congress of the RCP(b). *Protokoly VIII S"yezda RKP(b)* [Minutes of the VIII Congress of RCP(b)]. Gospolitizdat, 1959, p. 443).

The experience of the victorious struggle with Kolchak showed us where the true source of the military strength of proletarian power lies. Kolchak was beaten and took to flight because our Party at that time threw all its best forces onto the Eastern Front, having welded them into an iron military organization.

(From a circular letter of the CC RCP. September 1919. *KPSS o Vooruzhennykh Silakh* . . . , p. 103).

. . . For the Red Army to be truly socialist it is essential not only that it have a class composition, but that its personnel be clearly and properly aware of their class interests. And for this it is necessary for Party work to be carried out among them.

(From a letter of the CC RCP "On Party Work in the Red Army." *KPSS o Vooruzhennykh Silakh* . . . , p. 106).

The conference draws the attention of the Central Committee to the need for more direct Central Committee leadership of the organizational and Party work of communist organizations in the ranks of the Red Army and Navy and non-tolerance of further isolation of the life and work of these organizations from general Party life and work.

(From a resolution of the IX All-Russian Conference of the RCP(b) on the organizational report to the Central Committee. *KPSS v rezolyutsiyakh* . . . [The CPSU in Resolutions . . .], Part I, p. 513).

The Party decided, and the All-Russian Congress of Soviets unanimously affirmed, that the Red Army should be maintained and that its fighting efficiency be increased . . .

But only the Party can maintain the Army. Only our considerate, solicitous, tactful, and loving attitude towards the Army can maintain and strengthen its fighting efficiency.

(On the Red Army. To all organizations of the RCP(b). From a circular letter of the CC RCP(b) dated 12 January 1921. *KPSS o Vooruzhennykh Silakh* . . . , p. 148).

Para. 11. To maintain the political system of the Red Army in the form which it developed during the three war years; to improve and consolidate its organization; to strengthen its ties with local Party organizations, maintaining, however, full independence of the system.

(From a resolution of the X Congress of the RCP(b) on the military question (March 1921). *KPSS v rezolyutsiyakh* . . . [The CPSU in Resolutions . . .], Part I, p. 570).

Availing itself of the current lull in the military situation, the Soviet government is now setting itself the task of improving and strengthening the Red Army and Navy for the purpose of self-defense. This places upon all our forces the obligation to apply themselves to fostering conscientiousness and the further strengthening of a healthy class spirit in the ranks of the Red Army. Bearing in mind the experience of the past, it will be necessary for this to intensify, expand and give due priority to both the political education and fostering of conscious discipline and to the improvement of the Red Army man's lot.

(On the strengthening of the Red Army. From a letter of the CC RCP(b) written in 1921. *KPSS o Vooruzhennykh Silakh* . . . , p. 155).

... The exercise of unity of command entails the maximum reinforcement of political work and the all-round consolidation of the Party's influence in military units.

The role of political agencies, like that of Party institutions in the Army, is becoming especially important in this connection.

(On unity of command in the Red Army. From a letter of the CC RCP(b) dated 6 March 1925. *KPSS o Vooruzhennykh Silakh* . . . , p. 228).

... The further strengthening of the Red Army as an instrument of the dictatorship of the working class and the eradication of bureaucratic distortions in the military system and the work of the command personnel can be achieved only when there is unshakable unity of the command and political staff and uninterrupted growth of the leading role of the All-Union Communist Party (Bolshevik), for which the main requirements of Party and political organs in the Army are skillful leadership, Party tenacity and authority.

(On the political and moral state of the Red Army. From a resolution of the CC ACP(b)* dated 30 October 1928. *KPSS o Vooruzhennykh Silakh* . . . , p. 252).

Under the conditions prevailing during the present period, the Central Committee suggests that political organs and Party organizations and Party chiefs of the Red Army continue with great persistence to educate the Red Army, its officers and men in the spirit of selfless devotion to the Soviet regime, maximum vigilance and class irreconcilability.

(On the officer and political personnel of the Workers' and Peasants' Red Army. From a resolution of the CC ACP(b) dated 25 February 1929. *KPSS o Vooruzhennykh Silakh* . . . , p. 259).

52. Overall leadership of Party work in the Red Army, the Red Navy, and Air Force is effected by the Political Directorate of the Workers' and Peasants' Red Army exercising the rights of the military department of the Central Committee of the All-Union Communist Party (Bolshevik). The Political Directorate of the Revolutionary Military Council exercises its leadership through political sections appointed by it, military commissars and Party commissions elected at appropriate Army conferences.

Party organizations in the Red Army, Navy and Air Force operate on the basis of special instructions approved by the CC ACP(b).

(On Party organizations in the Red Army. From the Rules of the ACP(b) approved by the XVII Party Congress. *KPSS v rezolyutsiyakh* . . . [The CPSU in Resolutions . . .], Part III, p. 242).

The Communist Party and the Soviet government must henceforth educate Party members and all workers in a spirit of great vigilance, and continue untiringly to strengthen our valiant Armed Forces, effectively protecting the peaceful labor of the Soviet people and the security of the socialist Homeland.

(From the resolution of the XX Congress of the CPSU on the Report to the CC CPSU (February 1956). *XX s"yezd Kommunisticheskoy partii Sovetskogo Soyuz. 14-25 fevralya 1956 goda* [The XX Congress of the Communist Party of the Soviet Union. 14-25 February 1956]: *Stenographic report, Vol 2. Gospolitizdat, 1956, p. 423*).

The complex international situation, the arms race in the principal capitalist countries, and the defense interests of our Homeland make it essential for commanders, political offices and Party organizations henceforth to improve the combat readiness of the forces, to reinforce discipline among the personnel, to educate them in a spirit of devotion to the Homeland and the Communist Party and to take an active interest in satisfying the spiritual and material needs of our fighting men.

The Plenary Meeting of the CC CPSU considers that in resolving these tasks special importance attaches to the further improvement of Party-political work among the military who are called upon in reinforcing the fighting power of our Armed Forces, rallying the personnel around

* TsK VKP(b) in Russian: Central Committee of the All-Union Communist Party (Bolshevik) or CC ACP(b) [U.S. Ed.].

the Communist Party and Soviet government, educating servicemen in a spirit of selfless devotion to the Soviet Homeland, friendship of the peoples of the USSR and proletarian internationalism.

(On improving Party and political work in the Soviet Armed Forces. From a Resolution of the October (1957) Plenary Meeting of the CC CPSU. *KPSS o Vooruzhennykh Silakh* . . . , p. 348).

The basic principle of military development is leadership of the Armed Forces by the Communist Party and enlargement of the role and influence of Party organizations in the Armed Forces. The Party devotes unremitting attention to increasing its organizational and guiding influence on the whole of the life and activities of the Army, Air Force, and Navy, rallying the Armed Forces personnel around the Communist Party and Soviet government, reinforcing the unity of the Army and the people, educating our fighting men in a spirit of courage, gallantry, heroism, and military cooperation with the armies of the socialist countries, and readiness at any moment to defend the land of the Soviets, home of the builders of Communism.

(From the Program of the CPSU adopted at the XXII Party Congress. *Programma Kommunisticheskoy partii Sovetskogo Soyuza*. [Program of the Communist Party of the Soviet Union]. Pravda Izdat., 1961, p. 112).

Under conditions in which the aggressive forces of imperialism are aggravating international tension and creating a hotbed of war, the CPSU will from now on intensify the vigilance of the Soviet people, reinforce the defensive power of our Homeland so that the Armed Forces of the USSR will always be ready to defend effectively the achievements of socialism and to give a shattering rebuff to any imperialist aggressor.

(From the resolution of the XXIII Congress of the Communist Party of the Soviet Union on the Report to the CC CPSU. *Materialy XXIII s'yezda KPSS* [Materials of the XXIII Congress of the CPSU]. Politizdat, 1966, p. 188).

65. Party organizations of the Soviet Army are guided in their activities by the Program and Rules of the CPSU and operate on the basis of instructions approved by the Central Committee.

Party organizations of the Soviet Army ensure that Party policy is implemented in the Armed Forces, rally the personnel around the Communist Party, educate our fighting men in the spirit of the ideas of Marxism-Leninism, selfless devotion to the socialist Homeland, and actively promote the strengthening of the unity of the Army and the people; they are concerned with the reinforcement of military discipline, they mobilize the military personnel for the fulfillment of combat and political training tasks, the mastery of new weapons and equipment, irreproachable performance of their military duty and fulfillment of command orders and instructions.

(From the Rules of the Communist Party of the Soviet Union. Ratified by the XXII Congress, partial changes introduced by the XXIII Congress of the CPSU. *Materialy XXIII s'yezda KPSS* [Materials of the XXIII Congress of the CPSU], pp. 220-221).

To raise Party-political work in the Armed Forces of the USSR to the level of the requirements resulting from the resolutions of the XXIII Party Congress, taking into account the complex international situation, radical changes in the organization and weaponry of the forces and the nature of modern warfare. To improve political and organizational work among the masses of servicemen, concentrating mainly on further increasing the combat readiness of the Armed Forces.

(On measures for improving Party-political work in the Soviet Armed Forces. From a resolution of the CC CPSU dated 21 January 1967. *KPSS o Vooruzhennykh Silakh* . . . , p. 416).

The strength of the Soviet Armed Forces is in the leadership of the Communist Party, which works out fundamental problems related to the development and equipment of the Armed Forces, and fosters in our soldiers boundless devotion to the Homeland and a readiness to fulfill their duty of defending the achievements of socialism to the end with dignity and honor.

(From The Message of Greeting of the Central Committee of the CPSU, the Presidium of the Supreme Soviet of the USSR and the Council of Ministers of the USSR to the fighting men

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Chapter 3. MARXIST-LENINIST MILITARY THEORY

The great and glorious path followed by our people after the Great October Revolution has demonstrated the force and viability of Marxism-Leninism. Marxist-Leninist military theory has also been vindicated by history. Guided by the Leninist legacy of military theory and creatively developing it to conform to the new conditions, the CPSU has elaborated a well-balanced system of socialist military organization with a clearly expressed ideological and theoretical basis, which includes a theory of war and the army, military science and military doctrine. The validity of this scientific theory has been confirmed by the entire evolution of the Soviet State and its Armed Forces, and the victorious struggle of the Soviet people against imperialist aggressors.

THE THEORY OF WAR AND THE ARMY

The Marxist-Leninist theory of war and the army is a component part of historical materialism. Its subject is the study and interpretation of the sociological nature of the origin, development, character and content of wars, and the study of war as an historical, social and political phenomenon. This theory discloses the natural dependence of wars and armies on political, economic and other social conditions, and explains their role in the historical process. The Marxist-Leninist theory of war and the army is not limited to an explanation of the past: it analyzes the problems of our own times, provides a theoretical interpretation of the problem of war and peace, the development and strengthening of the armed forces of the socialist state, and attempts to foresee the future. This theory serves as the ideological, theoretical and methodological foundation of Soviet military science and doctrine, and all our military development.

The Marxist-Leninist theory of war and the army is our ideological weapon for unmasking the reactionary military ideology of imperialism, for the struggle against various bourgeois theories which justify wars and distort their political and class nature and origin in the interests of the exploiting classes. In exposing these pseudo-scientific theories, the Marxist-Leninist teaching on war and the army demonstrates convincingly that, despite external differences, they are all similar in one principal respect—in the final analysis they serve monopolistic capital and reflect the aggressive aspirations

of the exploiting classes, who try to justify their expansionist imperialistic policy and prove that war is a permanent and unavoidable concomitant phenomenon of human society.

The Marxist-Leninist teaching on war and the army provides a truly scientific answer on the subject of its analysis, fully revealing its essential nature and actual content. It discloses the material and spiritual preconditions of our military victories, the superiority of socialist military organization over bourgeois military organization. These have their origin in the Communist Party's leadership of all aspects of military development, in socialist economy and policy and in Marxist-Leninist ideology. The invincibility of the socialist state and its army is an objectively natural phenomenon. It arises from the superiority of the socialist social system over the bourgeois social system.

The social revolution of the rising class, a consequence of historical necessity, is inevitably victorious over the armed violence of the reactionary classes. Therefore, in the final analysis, victory will always be on the side of the working class, since it relies on a higher social and economic organization and the most progressive social forces. "Violence can be used without having economic roots, but then it is doomed to destruction by history. But violence can be used when it is based on the progressive class, on the highest principles of socialist structure, order and organization. *And then it can suffer a temporary reverse, but it is invincible.*"¹

These words of Lenin provide the scientific basis of the inevitability of our victory over imperialism, over any aggressor, since socialism ensures the highest type of modern military organization, the means of systematic mobilization and purposeful use of the largest mass of all the resources needed for the victorious waging of war, the highest moral and fighting qualities of the personnel who serve in the new type of armed forces, indestructible endurance and fortitude of the ordinary men and women in the rear and at the front throughout the entire war.

The practical application of the theoretical tenets of the Marxist-Leninist doctrine of war and the army is an important condition of the solution of all the military problems confronting the Party and the State. These arguments contain an enormous mobilizing force. Reflecting the ideology and policy of the CPSU on military questions, they reveal the decisive role of the popular masses in the process of preparing for and waging war, in the achievement of military victory; they determine ways of effecting the moral and political mobilization of the people for war. The Party introduces ideas for the defense of the Fatherland into the minds of the Soviet people, thus ensuring the achievement of victory. Their familiarity with Marxist-Leninist teachings on military questions is the most important prerequisite for the invincibility of socialist military organization.

On the essence of war. War is inseparably linked with the political system

¹ Lenin, XXXVIII, 369-370.

out of which it grows. Politics engenders war. War is politics throughout, its continuation and implementation by violent means. It is impossible to understand the essence of war without first studying its connections with the politics which preceded it and the political relationships which were formed long before the war. War does not alter fundamental relationships between classes, but continues and frequently accelerates the preceding policy; it does not abrogate, but realizes, that policy by means of armed combat.

Thus, the nature of war is politics continued by violent means.

The scientific definition of the concept of war, reflecting the attitude of progressive social forces towards it, is of profound practical significance in the resolution of all questions relating to war and military science. "Wars," wrote Lenin, "are preeminently variegated, diverse and complex things."² This applies, not so much to their nature as to their substance. Every war, being a continuation of the politics of classes and states, is essentially a class war. At the same time, every military conflict resulting from specific relationships (between nations, classes, etc.) occurs under different conditions, has its individual characteristics, and differs in its specific content from other wars. Therefore, the Marxist-Leninist theory of war and the army is not limited to an abstract affirmation of the social nature of wars in general, but requires that "the political content of each war be determined separately, in each individual case."³

Consequently, politics plays a decisive role in relation to war. In evaluating the nature of war, the Marxist-Leninist theory of war and the army explains first of all the classic character of a given war, whom it profited, the classes that waged it, and the historical, political, social and economic conditions which caused it.

As history teaches, preparation for war is conducted in political, diplomatic, ideological, economic, scientific and technical, military and other respects, but certainly with politics playing the decisive role. At the same time, as we know, the nature and content of politics itself are determined in the final analysis by the economic laws of development. Thus, the aggressive policy of the imperialist states, directed at the preparation and unleashing of predatory wars of conquest, is determined by the basic economic law of modern capitalism, according to which the aim of capitalistic production under imperialism is the acquisition of maximum profits by the monopolists. To achieve this goal the imperialist bourgeoisie steps up the militarization of the national economy and tries to unleash wars. It is precisely the aggressive imperialist states that have unleashed two world wars. They are now conducting systematic and all-round preparations for world nuclear war. Imperialism was and still is the only source of military danger. This emphasizes with particular force the importance of a correct understanding of the essence and nature, not only of wars in general, but particularly wars of the modern age, the scientific classification of these and their special features. V. I. Lenin taught that "it is impossible to understand a given war without first having acquired an understanding of the age."⁴

Types of wars. Marxism-Leninism determines types of wars according to their political nature and content. V. I. Lenin observed that "there are just

² Lenin, XLIX, 369.

³ Lenin, XXX, 262.

⁴ Lenin, XLIX, 287.

and unjust wars, progressive and reactionary wars, wars of progressive and backward classes, wars which serve to reinforce class oppression and wars which serve to overthrow it.”⁵

The determination of the nature of a war is of decisive importance in planning the correct line of political conduct of the working class and all workers in each specific war, since the political principle of classifying wars most clearly expresses the attitude of the people to a particular war: full support for just wars, determined action against unjust wars.

The classification of wars by types provides a fundamental description of their dialectics. V. I. Lenin, recognizing the possibility that one type of war could turn into another, for example, that a national war could become an imperialistic war, or that an imperialistic war might turn into a civil war, considered that it was “theoretically erroneous and harmful, from a practical point of view, *not* to distinguish types of wars,”⁶ since this would make it difficult to choose the correct attitude of the workers to any given war. This is what makes it so important to approach each war as a specific historic entity, taking into consideration the circumstances and political content of the war.

Condemning imperialistic wars of conquest, Marxist-Leninists consider that wars to defend the achievements of peoples against imperialist aggression, wars of national liberation, and wars of the revolutionary classes against the attempts of reactionary forces to hold on to, or restore their supremacy by the use of arms are justified and, therefore, support them. A workers’ war for their own social liberation, for the consolidation and development of socialism and communism, is the most just type of war. Thus, the term “just wars” is understood to mean, first of all, revolutionary wars and wars of liberation, since these are genuinely progressive and promote historical development.

Just wars of our times include: 1) wars in defense of socialist countries against imperialist aggressors; 2) proletarian civil wars against the bourgeoisie; 3) national liberation wars of colonial peoples, dependent and developing countries against imperialism; 4) wars of liberation waged by peoples of bourgeois countries who have become the victims of imperialist invaders and who are fighting for their state sovereignty.

Unjust wars, reactionary wars of our times, are wars of conquest, which reflect and continue the politics of the imperialistic bourgeoisie. The imperialists are striving by means of armed force to enslave other countries, assert neo-colonialism, suppress the national liberation struggle, destroy the proletarian revolutionary movement, weaken the socialist camp and strengthen the capitalist system. The monopolists of the USA want to achieve world domination by military means.

Unjust wars include: 1) counterrevolutionary wars waged by the bourgeoisie against the proletarian revolutionary movement; 2) aggressive wars of

⁵ Lenin, XXXVIII, 337.

⁶ Lenin, XLIX, 118.

imperialist states against socialist countries; 3) imperialist wars for the restoration of the colonial system; 4) imperialist wars of conquest against peaceful bourgeois countries; 5) wars between imperialist states aimed at achieving a redistribution of spheres of influence and world domination.

The Great October Socialist Revolution shook the capitalist world to its foundations. It marked the beginning of the revolutionary transition from capitalism to socialism throughout the world. During the past fifty years the world revolutionary movement has grown irresistibly, drawing in all the new countries and peoples. Under the conditions obtaining at the present stage of the crisis of capitalism, the contradictions which rend the bourgeois world are intensifying sharply: antagonism between labor and capital; contradictions between young national states and old colonial powers; contradictions between imperialist countries. The main contradiction is that which has developed between the opposing social systems of socialism and imperialism.

Present-day capitalism is not only an obsolete reactionary system which retards historical progress, but a dangerous aggressive force which threatens world civilization. The struggle of the working class and all workers against imperialism is an historical necessity. Only by taking this objective law into consideration is it possible to take the correct approach to the interpretation of all the types of modern wars instigated by the imperialists. They unleash both world wars and local wars aimed at the suppression of liberation movements, the conquest of foreign lands and the enslavement of people of other countries.

Among all the types of wars of our age, wars in defense of the socialist Fatherland, of course, occupy a special place. They are not only radically opposed to all forms of unjust wars and wars of conquest, but differ essentially from other just wars in their nature, aims, and historical significance. The necessity of defending the achievements of socialism is one of the common objective laws of the transition from capitalism to socialism and communism which apply to all countries undergoing this transition under the conditions imposed by the existence of a world system of imperialism.

Marxism-Leninism considers the problem of defending the socialist Fatherland as a combination of the political, economic, military, moral, scientific and technical and other factors which determine the defense capacity and security of our own state and other socialist countries.

In the Program of the CPSU and documents of the XXIII Party Congress it is emphasized that the successful solution of all questions connected with the defense of the socialist Fatherland is now determined by:

- the firm, consistently peace-loving, high-principled foreign policy of the socialist states;
- the comprehensive strengthening of the new type of armed forces and the regular socialist army;
- the further rapid development of the material, technical and scientific bases of the country's defensive capacity;
- the strengthening of the union of the working class and the peasantry as the social and political basis of the country's military strength—the consolidation of the Soviet State and the improvement of socialist social relationships;

—the education of all workers in a spirit of communist ideology, socialist patriotism, proletarian internationalism, and the friendship of peoples.

As we have already stated, the principal feature of wars in defense of the socialist Fatherland is their absolutely just character. The principal objectives of a socialist state in a war imposed upon it by imperialist aggressors are:

—the defense of socialism and communism, the most just social order in history;

—the defense of the freedom and independence of the socialist nations, their territory and culture, and the very existence of the populations of socialist states;

—to assist other socialist states and their allies to repel aggression;

—to assist the working class and toiling masses of capitalist countries, and the peoples of independent countries in their struggle for liberation from imperialist oppression and foreign enslavement.

These noble aims are diametrically opposed to the predatory and aggressive aims pursued by the imperialists in unjust and counterrevolutionary wars against socialist countries.

During the course of a war in defense of the socialist Fatherland the popular masses, through experience, become even more convinced of the justness of its aims and tasks, the correctness of the policy of the Communist Party, and the scientific accuracy of the Marxist-Leninist theory of war and the army. This profound conviction generates a powerful upsurge of patriotism and mass heroism on the battlefields and in labor for the cause of victory over the enemy. The unwavering resolution of the people, Party, working class and army of a socialist country to endure all the difficulties and trials of modern war, and to maintain close military alliance with fraternal countries are guarantees of victory over any aggressor. Evidence of this is provided by the experience of the Soviet State's two patriotic wars, and of the wars of liberation fought by other nations.

The revolutionary and liberating nature of wars in the defense of socialist homelands finds expression in the fact that their victorious outcome weakens the position of international imperialism, results in the defeat of reactionary regimes in the aggressor countries, contributes to the victory of the forces of democracy and socialism in these countries, and leads to the separation of new countries from the world capitalist system.

Such are the laws governing armed conflicts between socialist and imperialist states. This, of course, does not mean that wars are essential for revolution, but they do weaken the organism of the bourgeois system and create conditions which contribute to a still greater intensification of its crisis. Finally, in wars in defense of the socialist Fatherland, the national and international aims and tasks of the struggle for liberation are identical. By defending the fundamental interests of the working class and all working people of a given country, and the national interests of the people, a socialist state simultaneously fulfills its mission of liberation and its obligation to the working class and all working people of capitalist and colonial countries.

On the nature of the army. The social nature and purpose of the army always reflect the nature of the social order of a given country. Marxism-Leninism established the absolute dependence of the character of the army

on the policy of the state and the degree of the country's economic and cultural development. If a war is the realization of the policies of certain classes by armed force, then the army under the control of these classes is the principal instrument of force, the chief instrument of war. Consequently, a correct understanding of the nature and peculiarities of the evolution of the army is one of the main requirements for a deep insight into the laws governing the conduct of war and for determining one's attitude to a given army.

Unlike the apologists of capitalism, who distort the nature and purpose of the army, Marxism-Leninism teaches that the army, as a special organization of armed people, created by a particular class or state for the achievement of its political and economic aims by force of arms, is, like war, not a permanent factor, but a product of antagonistic formations. The armies of the imperialist states are created for the defense of the exploiting system and the suppression of the workers, for their social and national oppression by the ruling classes, for the preparation and prosecution of aggressive wars, and the enslavement of peoples of other countries. They are instruments for waging wars of conquest. This is convincingly demonstrated by the first and second world wars and by the aggressive actions of the imperialists in the present age. Bourgeois armies always and in all circumstances bear the stamp of the ruling class and protect its interests. The apologists of the bourgeoisie will never succeed in proving that the army of a bourgeois state is separate from its politics and is indifferent in its attitude to the classes. Life itself shows that the bourgeois army is an instrument of the imperialist state and that it defends the rotting piles of capitalism. The bourgeois army is "the most inveterate instrument for maintaining the old order, the strongest bulwark of bourgeois discipline, the maintenance of capitalist domination, and the preservation and fostering in the workers of slavish submissiveness and subordination towards it."⁷

The class character of the armies of the capitalist states does not change, even when they are engaged in a just war of liberation. For example, the armed forces of the USA and Britain objectively fulfilled a mission of liberation during World War II and, therefore, enjoyed the support of their people. But, even then, they remained the instrument of the ruling imperialist circles in their endeavor to hold on to power in their own countries and accomplish their reactionary aims with respect to the Soviet Union and the forces of socialism and democracy in other countries. This became especially clear in connection with the opening of a second front in Europe and the postwar settlement. Under present-day conditions, the US Army reflects most fully the aggressive nature of imperialism.

In order to persuade the people to go to war the imperialist forces are intensively trained in a spirit of anticommunism and impregnated with misanthropic ideas of racism. An inhuman attitude towards the peace-loving populace and a desire for personal gain are instilled in servicemen with particular insistence. The results of such an "upbringing" were clearly manifested in the behavior of the American military clique in Vietnam, whose atrocities exceeded even those of the Hitlerites.

Socialist armies are the exact opposite of imperialist armies. The former are armies of a new type. They are copies of the socialist system, an embodi-

⁷ Lenin, XXXVII, 295.

ment of its characteristic features and historical advantages over the capitalist system. The armies of the socialist and capitalist states are separated by a gulf as wide as that which lies between socialism and capitalism. Socialist armies are truly peoples' armies in which are realized the union of the working class and the peasants, the moral and political unity of the society, the friendship of peoples, their socialist patriotism and internationalism, the common aims of the socialist countries in their struggle against imperialist aggression, and military cooperation with fraternal armies.

Whereas the armies of the capitalist states serve as an instrument of aggression and attack on other peoples, the armed forces of the USSR and other countries of the socialist system threaten no one and exist only for the purpose of ensuring the security of their states and the peaceful development of socialism and communism. They are the most important factor for the preservation of peace in the whole world.

The Soviet Army, born of the Great October Socialist Revolution, is a striking example of the embodiment of these characteristics and features of the new type of army. The heroic course of the struggle and victory of the Soviet Armed Forces is an historical affirmation of the correctness of the Marxist-Leninist tenet that socialism is superior to capitalism and that it produces a higher military organization.

With the birth of the Soviet Armed Forces, there appeared in the world's historical arena a socialist army of unprecedented features and strength. Thus began a new phase in military history, a new and higher stage in the evolution of military theory and practice.

V. I. Lenin in a comprehensive and concrete fashion related the Marxist-Leninist doctrine of war and the army to military science, and military affairs, the practice of armed combat, and the implementation of the military policy of the Soviet State. He imbued the tenets of this doctrine in them so comprehensively and deeply that our military policy acquired an unprecedented scope. All this provided the Party and the people with a knowledge of the principles of organizing and waging war in defense of the socialist Fatherland, and an understanding of the most important factors of victory in this war.

The historical superiority of the military organization of socialism over that of capitalism consists primarily in the fact that the main, leading, controlling, and organizing force in a socialist army is the Marxist-Leninist Party. It ensures the monolithic unity of the army, controls its activities, unites the personnel, and mobilizes them for the fulfillment of tasks of strengthening the fighting power and combat readiness of the forces.

The CPSU led and directed the scientific and technical revolution in our country, including also the revolution in military affairs. This was of tremendous importance in ensuring the military superiority of socialism over capitalism within a short historical period, and it also had a decisive influence on the creative development of Marxist-Leninist military thought and the evolution of military science and doctrine.

Thus, the doctrine of the army, like the doctrine of war, is a guiding

principle for action in the successful solution of modern military problems. The Marxist-Leninist theory of war and the army, creatively developed by our Party, provides a means of reliably forecasting trends in the field of military affairs. It scientifically determines the possible nature of wars of the present age, indicates the principal weapons and the means of waging such wars, the conditions of their course and outcome, i.e., it provides the answer to the question, for what sort of war should we be prepared, and what resources are needed to destroy an imperialist aggressor?

The CPSU, as the controlling force of our society, derives the fundamental and ideological prerequisites for the elaboration of its policy in the military field from the Marxist-Leninist theory of war and the army. On the basis of this doctrine it works out a scientific approach to an explanation of the political content of a given war and army. Here the Party is guided by the Leninist principles of concreteness in determining the objective tasks and class goals of the warring sides in an age of crumbling capitalism and transition to socialism. Thus is determined the political policy for the conduct of the working class in all types of wars and in each of them separately, primarily in revolutionary wars and wars of liberation of our own times, particularly wars in defense of the socialist Fatherland.

In the just wars in defense of the socialist Fatherland during the period of the Civil War and the foreign military intervention, and in the Great Patriotic War as well, the great Leninist Party was the inspirer and organizer of our victory over the enemy. The Communist Party and the Soviet State achieved an outstanding victory because they relied on the knowledge and application of the objective laws of the evolution of society and the laws of modern warfare revealed by Marxism-Leninism. The Leninist policy of the CPSU was, and still is, the vital basis of the activities of our Armed Forces and the guarantee of their victory over any aggressor.

The Soviet people, guided by the fundamental tenets of Marxism-Leninism on war and the army, have been victorious in all their wars against imperialist forces. This doctrine is the ideological foundation of modern military theory and practice. Its theses embody the incomparable experience of the political struggle, the military policy, and the richest experience of the armed struggle of the Soviet people under the leadership of the Communist Party. Our Party devotes considerable attention to the continuing theoretical elaboration of the doctrine of war and the army, to further detailed analysis and development of Lenin's heritage of military theory as it applies to the tasks, conditions and special features of our times, having regard to the achievements of social, scientific and technical progress.

SOVIET MILITARY SCIENCE

Soviet military science is a unified system of knowledge about preparation for, and waging of, war in the interests of the defense of the Soviet Union and other socialist countries against imperialist aggression. Its functions include:

- the discovery and study of objective laws of armed combat;
- the development of methods and forms of warfare for the achievement of victory over the enemy on the basis of a knowledge of the above laws;
- the elaboration of problems and methods of preparing the country's territory and the Armed Forces for war, and comprehensive support for the struggle in the economic, political, moral, logistic, scientific and other sectors;
- the elaboration of principles of troop organization, training, and education in accordance with the requirements of modern warfare;
- the development of a method of military science as a whole, its general theory, the theory of military art, the military technical sciences, and its other parts and branches.

Thus, by Soviet military science is meant the aggregate of diverse material and psychological phenomena of armed combat being studied and analyzed for the purpose of elaborating practical recommendations for the achievement of victory in war. Armed combat, the chief ingredient of war, is, therefore, the principal research subject of contemporary Soviet military science.

Soviet military science differs fundamentally from bourgeois military science by its class and Party nature, since it was formed by the socialist social and state system and serves the workers' interests. For the first time in history, a military science has emerged which teaches how to utilize the means of armed combat in the fundamental interests of workers who have broken the shackles of the exploiting system. It is this which forms the background of the social, economic and political principles of Soviet military science, its Party commitment and progressive character.

The creator of the Soviet State and its Armed Forces, V. I. Lenin, only days after the October victory, pointed out that "without science it is impossible to form a modern army. . . ." ⁸ Calling on all our personnel to utilize all the achievements of bourgeois military theory in the study of military science, he emphasized at the same time that Marxists must be able to reject its reactionary tendencies in interpreting particular factors and events. V. I. Lenin provided a thoroughly reasoned substantiation of the most general laws of modern armed combat, and thus laid the cornerstones of Soviet military science.

In all its conclusions Soviet military science gives ample consideration to those advantages which a progressive socialist social and state system affords our Armed Forces. The high moral fiber which is characteristic of the Soviet people and the fighting men of its Armed Forces has a direct influence on the development of Soviet military science. ". . . For the first time in the history of world conflict," indicated Lenin, "elements have come into the army which are not characterized by bureaucratic knowledge, but which are guided by the ideas of fighting for the liberation of the exploited." ⁹ Thanks

⁸ Lenin, XL, 183.

⁹ Lenin, XXXV, 270.

to this, Soviet military science is able to enrich its principles and conclusions by new data to a much greater extent than the military science of bourgeois states.

Let us take, for example, the history of the development of Soviet military art, which is the most important component of military science. The training by the Communist Party of new command cadres of the Soviet Armed Forces from among the people placed its stamp upon all spheres of Soviet military art. M. V. Frunze observed that, "the Red commanders introduced courage, initiative and resoluteness into the army . . . these characteristics of maneuverability, resoluteness, and offensive spirit were associated not only with the objective conditions of military operations, which no one denies, but with the fact that there were elements at the head of the Red Army imbued with the active ideology of the working class."¹⁰

The command cadres, brought up by the Party on the ideas of Marxism-Leninism, displayed a profoundly creative approach to the solution of complex questions related to the organization of operations and battles during World War II. During this period Soviet military art discovered the most expedient tactical means of breaching the enemy's deeply echeloned defense. Offensive operations involved a variety of powerful deep strikes which, after the enemy's defense had been broken by mobile striking forces, were rapidly developed, leading either to encirclement and complete liquidation of large groups of enemy forces, or to their rout and pursuit in depth.

In the postwar period, the progressive, creative nature of Soviet military science was manifested in its solution of the question of missiles as the principal means of delivering nuclear payloads to their targets, and development and use of nuclear missiles both on a tactical and a strategic scale. The Soviet Union was the first country in the world to produce an intercontinental ballistic missile which could reach any region or point on the globe.

In accordance with the requirements of creative Marxism-Leninism, Soviet military science has waged, and still continues to wage, an irreconcilable struggle against all and every canon of subjectivism and voluntarism which inhibits the progress of military science. It spoke out resolutely against the generally-accepted views of bourgeois theoreticians claiming that military art was simply a matter of strategy and tactics, and created the theory of operational art.

Dogmatism, which is manifest in a number of works by bourgeois military experts assailing any kind of revision of "traditional" views on the fundamental elements of military art, particularly the principals of strategy, is absolutely foreign to Soviet military science. Unlike the bourgeois interpretation of the principles of military art as always being immutable, regardless of the concrete historical conditions of the conduct of armed combat, Soviet military science, in conformity with the requirements of the dialectical method, considers that the principles of military art change as the objective conditions of armed combat change. Moreover, the selfsame principles, which are apparently formed in a similar manner for different historical conditions, are always imbued with a specific content which corresponds to the new situation.

It would, however, be a serious error to take a negative view of all the theoretical conclusions of bourgeois military science. Decaying capitalism still possesses certain resources. Resisting the victorious progress of socialism, it spares no resources for the arms race and the development

¹⁰ Frunze, p. 92.

of military science. Bourgeois military theoreticians carefully analyze the experience of past wars, including the combat operations of the Soviet Armed Forces.

The leading military experts of the western powers try to compensate for the weaknesses of their military organizations which stem from the defects of the capitalist system itself, in particular an insufficiently high level of moral potential, by stepping up the equipment of their armies and navies with modern weaponry and equipment and by thorough military and technical training of their forces. Therefore, in not overestimating bourgeois military science, it is, at the same time, essential not to underestimate it. The behavior of an army which is not trained to use all the types of weapons, all the combat resources and methods which an enemy has or may have, is unwise or even criminal, as Lenin pointed out. "The greatest danger in war . . . is to underestimate the enemy and to reassure ourselves that we are stronger."¹¹ These statements of Lenin have always been and will continue to be fundamental to Soviet military science.

Historical experience teaches that the most realistic criteria of the efficiency of military science and the correctness of its conclusions are the ultimate results of the war. The victories of the Soviet Armed Forces over the enemies of our Motherland in the Civil War and the Great Patriotic War are convincing evidence of the advanced nature of Soviet military science.

Modern Soviet military science includes the following principal parts and branches:

- the general theory (general principles) of military science;
- the theory of military art;
- the theory of training and education;
- the science of military history;
- military administration;¹²
- military geography;
- military technical sciences.

The general theory of military science. As we know, Marxism-Leninism considers science as a complex product of knowledge and, at the same time, as a process of knowledge, which is developing on the basis of the social practice of people. Science recognizes, firstly, demonstrated facts, knowledge of facts and phenomena of reality; secondly, knowledge of internal necessary relationships of phenomena and processes formulated as laws, arguments and principles; thirdly, various scientific conjectures based on a combination of many facts and previously discovered laws, which may be either confirmed and proved, or, conversely, refuted by the future development of science.

In each science there is a general theory, conclusions and instructions formed on the basis of known and demonstrated facts and laws, their philosophical interpretation and ideological theoretical principles, which guide the development of a given science.

These general propositions of Marxism-Leninism, which characterize science in general and its categories, are wholly applicable to Soviet military science and form the basis of its methodology. The fundamental importance of these propositions for Soviet military science has been confirmed by the

¹¹ Lenin, XLI, 144.

¹² More recently, this discipline has been described as the theory of the development and organization of the armed forces and their command and control.

entire course of its formation and development, including also its general theory, which analyzes and sets out the principal ideological and theoretical elements of military science and interrelates all its divisions, branches and aspects.

The general theory of Soviet military science contains conclusions and principles derived from an analysis of known and proven facts, discovered laws, their philosophical interpretation and theoretical principles, which serve as the basis for the future development of military science in the light of the requirements of modern warfare. The purpose of general theory is to study contemporary armed combat as a whole, to substantiate scientifically the most important, fundamental tenets of military theory in conformity with the overall progress in science and technology and of military science, which is developing on this basis, and to determine the development tasks and tendencies which these present. General theory makes it possible to establish and investigate new relationships between all the parts and branches of military science which reflect their qualitative changes.

One of the most characteristic processes of the present-day development of scientific knowledge is the rapid growth of the sciences, the widening of their scope, and their incorporation of an increasing number of new fields of objective reality. Another quite regular phenomenon is the process of differentiation of the sciences, their separation into relatively independent fields of individual branches of knowledge, retaining at the same time their connection with that basic theory from which they separated and forming with it a single system. Sciences are also integrating. Similar processes are observed in literally all fields of knowledge. The natural sciences, physics, biology and chemistry, are developing especially rapidly. The social sciences, in response to the practical requirements of the reorganization of society, are also being enriched. Military science is also undergoing a transformation, a fact which confirms the need for the existence of a general theory, which is of gnosiological value, since it determines the possibility of the future development of military science and the interpretation of its subject and content under new conditions.

The development and unfolding of new branches of science takes place within the framework of the overall system of knowledge on the basis of common leading theories, which determine the direction of evolution of a given field of knowledge. It is from this point of view that there is a need to reveal the content of the general theory of military science.

The general theory of Soviet military science, explaining the objective laws of armed combat, determines the entire system of military knowledge as a single structure of military science in which all its constituent branches and disciplines are engaged in the investigation of specific, relatively independent military fields (armed combat), retaining at the same time a clearly defined interdependence and joint subordination. It is precisely through the totality of interrelated and interdependent military disciplines that the general theory of military knowledge studies the subject which is common to them all—armed combat—as the only regular process.

The rapid progress in science and technology, the intensive differentiation and integration of knowledge associated with it, the appearance of new scientific disciplines, the complication of the content of military science as a whole, and the enlargement of its scope emphasize the fact that there is an acute need to combine the conclusions and principles characteristic of differ-

ent military disciplines within the framework of a unified general theory of armed combat, or, in other words, within the general principles of Soviet military science. A general theory evolved in this way provides the basic arguments which serve as guides for all the components of military science. Forming the general theoretical basis of the entire structure of military science, it relates all its parts and branches to a single system.

Questions related to the study of the objective laws of armed combat occupy an important place in the general theory of military science. At the same time, the general theory of military science proceeds from the Marxist-Leninist argument that there are objective laws of armed combat which do not depend upon human consciousness and will, and that the principles of military science are simply the theoretical comprehension and expression of these objective laws. This theoretical expression of the objective laws of armed combat is also provided for in military science, primarily by its general theory, whose function it is to reveal and study them.

In studying the nature and character of armed combat, Soviet military science assumes that armed combat as a whole, campaigns, operations, battles and engagements are subject to scientific study and generalization and that they are not subjects in which blind impulse and chance predominate. Historical experience shows that the development of modes and forms of armed combat and the processes of waging it do not occur haphazardly, but regularly, and that they are subject to a specific order. These laws reflect the objective processes which occur in war. They have objective causes which arise as a result of the interaction of the various material, moral and political conditions and circumstances of which armed combat is composed.

The laws may be of a general nature and affect all the spheres and fields of armed combat. Thus, the laws of historical materialism show that the development of military science depends on the social and economic conditions and the spiritual life of the society. These laws are fundamental to military science. At the same time, armed combat is characterized by specific laws which arise out of its dependence on the general and material conditions and results of the interaction of the various causes and circumstances inherent in armed combat itself. These laws are very important for military science, since it is through them that the specific features of military phenomena are revealed.

Military science formulates in laws its most important principles and generalizations, which are the theoretical expression of the objective laws of armed combat. These laws express the inner, analytically established, recurring, objective, essential connections and relationships of the phenomena and processes of armed combat. Let us take, for example, the law which determines the influence of politics on armed combat and its methods and forms. This clearly reflects these essential connections and relationships which are being constantly confirmed by military history. The same can be said about such laws as the law determining the influence of the means of armed combat on its course and outcome, the law determining the correlation of the forces of the warring sides in general, and the law determining the concentration

of superior forces and resources at the required time in a decisive direction, etc.

The law determining the influence of strategy on operational art and tactics presents a particular contrast in its dialectics for modern conditions. Formerly this law found expression only in the fact that the endeavors and aims of tactics had to be commensurate with the dictates of strategy, which it served. The achievement of specific tactical results was important not in itself, but only to the extent that they conformed to strategy. At the same time, a strategic result was achieved through the accumulation of definite tactical and operational results which contributed and conformed to the overall strategic plan. A similar regular relationship applies today, but with one vital modification engendered by the modern development of weaponry. Now strategy can achieve its objectives, not only through a combination of tactical and operational results, but directly.

These and other laws of armed combat, learned during the course of historical experience, are evidence of their major role in the formation of specific theses, principles and rules of military science, including the theory of military art. New theses and principles are subsequently used as a basis for elaborating given methods and forms of armed combat.

The laws of armed combat are not eternal and immutable; they are transformed during the course of historical evolution. Confirmation of this is afforded by the above example of the interdependence of strategy, operational art, and tactics. Military science investigates the content and manifestation of given laws in the light of history and demonstrates that, concurrently with the more general laws inherent in armed combat, each specific age and war, like a specific phenomenon of social life in general, is characterized by its own objective laws.

Nuclear missile warfare inevitably generates its own laws, substantially different from earlier concepts of armed combat, even as recent as those of World War II. This applies both to the general characteristics of armed combat, its scale and the means of conducting warfare, and to the special features of conducting operations and fighting battles, attack and defense. The conditions and forms of cooperation, control, combat and operational support are undergoing qualitative changes. The significance of the time and space factor in all measurements—tactical, operational, and strategic—is undergoing drastic changes, a fact which is reflected primarily in the methods and forms of armed combat and, thus, finds expression in new objective laws of armed combat.

Thus, the general theory of military science has the task of investigating and determining both general and specific laws of armed combat, of establishing on the basis of knowledge of objective laws the factors which determine the achievement of victory. In conformity with this, it selects the principal trend in the elaboration of general problems of military science, the nature of the investigation of these problems for all its components; it establishes their interrelationship and interdependence, and formulates its general principles.

It studies in general terms the means and possibilities of armed combat, its conditions and special features; it examines the economic, moral and strictly military factors which influence the character, course and outcome of an armed struggle, and at the same time determines the general guidelines to be followed in the investigation and utilization of economic, moral and military potential for the purpose of achieving victory over the enemy.

Calculation of the economic potential of the warring sides is based on

specific Marxist-Leninist principles of the determining role in armed combat of objective material conditions and the methods of producing material wealth, on the indisputable conclusion of Marxism-Leninism that in modern warfare, all other conditions of the struggle being equal, the political and economic organization of society and the level of their development are of decisive importance.

By the economic potential of the country is understood the total combined economic resources of the state. The level of the economic potential of a given country always depends on the social and state system, the specific quantitative and qualitative indices of the achievements of industrial production and the national economy as a whole.

The calculation of the economic potential of the Homeland and that of the enemy in the interests of war and the development of military science has many aspects. The general theory of military science is concerned primarily with questions relating to the dependence of present-day armed combat on the economic potential of states. However, unlike strategy, which examines specific indices of the economic potential of one's own country and enemy countries as they apply to the conditions and methods of waging war, general theory reveals the most general objective laws in this field and formulates the most general principles of the utilization of material resources and the influence of the economic factor on the course and outcome of an armed struggle. It examines the interrelationship of economic potential with military and moral potential, and the general principles of determining the requirements of the armed forces for material and technical resources.

It can be asserted that the increasing importance of economic problems in military science, armed combat, and war on the whole, has created a need to develop a special theory of military economics within the framework of military science.

The strategic leadership, relying on the fundamental principles of the general theory of military science as they affect these questions, takes specific account of the economic potential of the home country and the enemy in the planning, preparation and waging of a war and its campaigns.

The determining role of objective and material conditions in the course and outcome of an armed conflict is paralleled by the important role played by the conscientiousness, good organization of and attitude towards the war of the popular masses, and the morale of the armed forces, i.e., by the total combined moral resources, or that which is implicit in the term moral potential. Essentially, the study of phenomena in this field consists in revealing the objective laws which operate here and which determine the general effect of moral values on the fighting qualities of the armed forces, the preparation and conduct of military operations and armed combat as a whole, also possible ways, methods and forms of reinforcing and raising the morale of one's own forces and of undermining the morale of the enemy forces.

Moral potential in war expresses the ability of a country, its people and armed forces to endure and overcome, in terms of their morale, all the distress and tension of war until complete victory is achieved. Much depends

on the level of a country's moral potential: whether it will win victory in war, or whether it will endure defeat. This same level depends primarily on the attitude of the broad working masses towards the existing social and state system, the politics of the state, the aims of the war, the degree of patriotism of the popular masses, their general culture, awareness of social duty, and the character of their historically formed traditions.

Soviet military science, guided by Marxism-Leninism, considers that the just, liberating nature of war aims unites the people and the armed forces, inspires them to fight heroically, and creates the most favorable conditions for the achievement of victory.

However, even under the most favorable conditions, morale is not created by itself. The high moral potential of our country and the high morale of the troops who wage war depends upon the continuous systematic organizational and political-educational work of the Party, the various mass organizations, state bodies, and our military personnel. In the words of V. I. Lenin: "Only . . . provided there is superb organization can our moral strength be converted into material strength."¹³

The importance of the moral and political factor is even greater under the conditions of modern warfare. The possible use of new weaponry, the complication of methods and forms of combat, and the increased scale of military operations demand very high moral qualities, both on the part of the troops directly involved in combat operations and on the part of the entire population of the country.

By correctly evaluating the importance of the moral and political factor in war and formulating general principles which express the influence of this factor on the course of an armed struggle, the general theory of military science assists the strategic leadership to practicably utilize the moral potential of its country and to get to know the enemy in this connection when planning, preparing and waging campaigns and war as a whole.

The Party-political work is the most important means of developing, strengthening and maintaining a high standard of morale, communist awareness, tenacity and discipline in the forces. It ensures the transformation of the moral potential of the armed forces into one of the decisive factors of victory.

In addition to the analysis of problems relating to the role and importance of economic and moral factors, general theory is concerned with the detailed study of questions of war potential. By war potential is meant the military resources of the state, its ability to maintain fully up-to-date armed forces equipped with all that is needed for the successful prosecution of any war, including a nuclear missile war, and the achievement of victory over a powerful enemy.

The military potential of a country in this age is determined primarily by the firepower of its armed forces, equipped with nuclear missiles, and the quality and combat readiness of its armed forces.

¹³ Lenin, IX, 246.

Military potential should also take into account the degree of training and preparedness of the reserves and call-up contingents, as well as the availability of war reserves of material resources, and the time it would take to mobilize, concentrate and prepare them for war. Other factors taken into consideration include the number and quality of command personnel, both active service and reserve, the stage of development and general status of military science and technology, and several other factors associated with the requirements of modern warfare.

It is of primary importance for the general theory of military science to take into account and elaborate all the aspects and elements of war potential which are directly related to the state and development of the armed forces, future trends in military development based on the achievements of science and technology, as well as existing progressive trends, the rapid development and assimilation of new equipment by the armed forces, and the elaboration of methods and forms of modern armed combat.

Considering the ratio and interdependence of economic, moral, and military potential, the general theory emphasizes that the technical-economic and moral-political resources of a given state are undoubtedly determining factors as regards its war resources. These resources can be correctly evaluated only if the economic and moral potentials of the country, as well as those of the armed forces, are envisaged in detail.

The study of the various factors which influence the course and outcome of a war occupies an important place in the general theory of military science. Soviet military science, in its detailed study of all the factors in the aggregate, examines with special care and attention strictly military factors, such as the technical level of all the Services of the Armed Forces and their branches, the military and technical background of military personnel, their operational and tactical training, the combat training and military proficiency of the forces, the ability of military personnel to solve questions relating to the organization and conduct of war independently and constructively, knowledge of the enemy's resources and combat methods, the ability to display intelligent initiative, to act in accordance with the requirements of specific circumstances, and to act positively and resolutely.

In the calculation and elaboration of military factors, the general theory of military science proceeds from the characteristic features of present-day armed combat. These include the following:

- the active participation of the entire population in wars; the mobilization and utilization of all the economic, moral, political and strictly military resources of the country in the interests of achieving victory;
- maximum intensity of armed combat, which is waged on a high technical level (missiles with nuclear payloads, fully motorized and mechanized forces, extensive use of radio-electronics and other modern technology);
- resolutions of the aims, methods and forms of military operations and the conduct of war as a whole;
- measures to combat lack of originality, sketchiness and dogmatism in conducting military operations; continuing awareness of the influence of new

technical means of combat upon the character of operations and warfare; a scientific approach to troop control, the selection of methods and forms of armed combat, and a rational combination of them, depending on the circumstances.

One of the most important tasks of the general theory of military science is to examine the system of disciplines of which military science is made up and to determine their interrelationships, interdependence and mutual subordination. It is general theory that makes it possible to relate all the disciplines comprising military science into a single complex and to identify those which are key disciplines and which determine, by their content, all the remaining ones. Thus, general theory indicates that military art occupies a key position in the system of disciplines which comprise military science. It reflects the ever-increasing role of the military technical sciences as fundamental to the development of the theory of military science in general, and military art in particular, it correctly evaluates the importance of the science of military history under present conditions. Although still an important factor in the development of military thinking and the disclosure of objective laws of the most consistent phenomena of armed combat, military history today, to a lesser degree than in the past, by virtue of the changed conditions of armed combat, can serve as a direct source of the development of contemporary military theory.

To a much greater extent than in all the preceding eras, the level of industrial production, the state of, and trends in, scientific and technical progress serve as contemporary sources for the development of military theory. Historical experience, as well as the experience of contemporary military conflicts of a local nature, which occur in the interval between world wars, is also important to the extent of its value as a perpetual reference.

General theory determines the subject of military science and establishes the classification of military knowledge of which it is composed.

The theory of military art, as the most important element of Soviet military science, studies and elaborates actual methods and forms of armed combat. It represents a complex of direct military disciplines, which, like all the remaining branches of military science, is constantly changing and being creatively enriched.

The theory of military art consists of strategy, operational art, and tactics, each of which represents a whole field of scientific knowledge. Strategy, operational art, and tactics are interrelated, interdependent and supplement each other. Among these, strategy plays the predominant role.

The military art of the Services of the Armed Forces, based on a single military strategy, common to all of the armed forces, incorporates the operational art and tactics of these Services of the Armed Forces.

Strategy is a division of military art which investigates the principles of preparing for, and waging, war as a whole, and its campaigns. Essentially it is a direct instrument of politics. Politics plays a leading and guiding role in relation to strategy.

Strategy is common to and unified for all branches of the country's Ser-

vices, since war is waged, not by any one Service or branch of the Armed Forces, but by their combined efforts. The coordination of the actions of all Services of the Armed Forces in warfare is only possible within the framework of a unified military strategy.

Like other branches of military art and military science as a whole, strategy has two aspects: general theoretical and applied. The subjects examined in the general theoretical aspect, which can be called the general theoretical principles of strategy, are: the principles of strategy; the theoretical principles of war planning; the Services of the Armed Forces as strategic categories, their characteristics and use in armed combat; methods and forms of armed combat on a strategic scale; the general principles of logistical support for the armed forces; the general principles of troop control on strategic scales; the principles of strategic preparation of the country's territory and combat theaters for war.

Applied strategy is concerned with the elaboration of specific questions relating to the immediate preparation for, and carrying out of, a strategic attack, strategic defense and other types of military operations on a strategic scale, and the associated logistic support, specific questions relating to the control of strategic groups of forces, and of the armed forces as a whole.

Operational art is that part of military art concerned with the fundamentals of preparing and conducting operations involving operational formations of the armed forces on land, at sea and in the air in accordance with overall strategic designs and plans.

The general theoretical side of operational art (the theoretical principles of operational art) is concerned with the study of the nature, principles and rules of preparing for, and conducting modern operations; the organization, qualities and potential of operational formations; methods and forms of using operational formations under different conditions and for different purposes; methods and forms of preparing and conducting different types of operations; the fundamentals of operational support; the fundamentals of troop control in operations; and the fundamentals of logistic support of forces engaged in operations (theory of operational rear services).

The applied side of operational art is concerned with specific questions of preparing and conducting various operations (front and army operations, and also, on their own scale, local operations by all the Services of the Armed Forces). Applied operational art also elaborates in concrete form questions relating to operational and logistic support, as well as organizational control.

The operational art of the Strategic Rocket Forces, the Ground Forces, the Navy, the Air Force and the National Air Defense Forces is concerned with questions of conducting operations in their respective spheres of action.

Tactics is that part of military art which is directly concerned with the fundamentals of preparing for, and conducting, combat operations by subunits, units, and formations of all the branches and Services of the Armed Forces on land, in the air and at sea.

Tactics is subdivided into general tactics and the tactics of Services of the Armed Forces. The branches and Services also have their own tactics. There

are tactics for the motorized rifle troops, the artillery, the armored troops, the engineers, the signal troops, the rear services, etc.

The general theoretical side of tactics is concerned with: the characteristic features of modern combat operations, the principles and rules of preparing for and fighting modern combined arms actions, and actions involving branches and Services; the organization, qualities, and combat potential of tactical formations, units and subunits; the fundamentals of preparing, fighting and supporting different kinds of action.

Applied tactics deals with specific questions of preparing and conducting offensive and defensive actions, and other combat actions at a tactical scale under various conditions, supporting such actions and controlling the forces involved.

The theory of training and educating the forces (military pedagogy) is a component part of military science that is concerned with the development of scientific methods and forms of training and educating armed forces personnel, methods and forms of training subunits, units, and formations, also headquarters staff and senior officers.

Military pedagogy is of particular importance under present-day conditions.¹⁴ This is because the methods and forms of combat operations, the organization and technical equipment of the forces have become extremely complicated. Armed forces can be prepared for the conduct of military action in a future war only on a strictly scientific basis, which is the theory and education of troops.

Military pedagogy covers the training and education of personnel actually in the forces as well as those in secondary and higher military training establishments. In the system of military science it is related most closely to military art.

The science of military history is a component part of Soviet military science. Like other branches of Soviet military science it is based on Marxist-Leninist methodology, which affords a genuinely scientific, dialectic-materialistic interpretation of the objective laws of military history and the development of military science.

The science of military history, being closely related to general history and historiography, examines the history of wars, military science and, in particular, military art, the history of armed forces, questions of military historiography, and the scientific description of military source material.

The history of wars is the factual basis of military history. It is not limited to the chronology of military events, but incorporates both a description of wars as a whole and their campaigns and operations, and derives from their experience the conclusions and generalizations needed for military science.

The history of military science, including the history of military art, examines the objective laws of their development in the general process of military history, relying upon the most significant, typical phenomena and events, which disclose important aspects of the state of military science and military art characteristic of a given age.

¹⁴ For more details about this see the following section.

The history of armed forces defines the objective laws of their development as a whole and of all branches of the forces separately. It incorporates: the history of the branches—the infantry, artillery, armored troops, special troops, etc.; the history of military units, formations and strategic formations—regiments, ships, divisions, corps, fleets, and armies; the history of arms and military equipment, military communications, rear services, etc.

Military historiography, a part of the science of military history, studies the development of military historical knowledge by individual periods and countries, and also as problems and individual questions of military history.

The Study of military source material is concerned with the study, classification and description of various historical military documents and evidence, materials and archives. These are used to reconstruct the history of wars, military science, armed forces, armaments, military equipment and military historiography.

Military administration, a branch of military science, elaborates the general scientific principles of the structure and organization of the armed forces as a whole and questions relating to the organization of their component parts: The Services of the Armed Forces, branches, and formations, depending on the methods and forms of armed combat and, primarily, on the requirements of military art.

The chief problems with which military administration is concerned are: the study of questions of armed forces organization and military administration, the fundamentals of recruitment and fulfillment of military service by all categories of servicemen, legal standards; the organization of the daily life of the forces and service routine, mobilization and demobilization of the army, unit administration and services, etc.

Defining the scientific principles of troop control, military administration examines the following fundamental questions: forms of control (unity of command, collective decision making); methods of control (centralized, decentralized and mixed) and their relationship; forms of subordination (direct, immediate and operational).

Due to the increasing importance of control problems there has developed a need to isolate and develop an independent theory of troop control within the framework of military science.

Military geography is the branch of military science concerned with the study of the present state of the political, economic, natural, and military characteristics of different countries, theaters of war and individual regions from the point of view of their influence on preparations for, and conduct of, military operations and war as a whole.

Military geography consists of two principal sections: area studies, and the description of theaters of war. The conclusions and generalizations of military geography are used by all the component parts of military science.

The system of knowledge comprising military science also incorporates a large group of **military technical sciences**, including those connected with the design, production and use of nuclear weapons; the military aviation sciences concerned with aircraft construction and the exploitation of aviation equip-

ment; the tank and motor vehicle branches concerned with the production, operation, and repair of armored and motor transport equipment; naval technical sciences related to naval shipbuilding and navigation, military communications, especially electrical engineering, radar and other military technical sciences based on electronics; military cybernetics, etc.

Each of these groups of military technical sciences contains a whole series of special branches and disciplines. Thus, for example, the artillery sciences, in addition to their other disciplines, include the fundamentals of the working principles and design of equipment, internal and external ballistics, etc.

The military sciences also include military topography, which concerns itself with the fundamentals of topography and ground features for combat operational purposes, various methods of surveying terrain, the preparation of maps and plans, and the fundamentals of topographical support for forces in action. Military geodetic surveying is developing on an increasingly large scale on account of the entry of new means of armed combat into the forces' inventory.

As a result of the scientific and technical revolution, including the revolution in military matters, there has been an upsurge of dynamism in the development of military science, not only because it has benefitted from the latest technological achievements, but on account of the introduction into the military field of mathematical methods of research and calculation, the achievements of cybernetics, bionics and other recent developments in modern science.

SOVIET MILITARY DOCTRINE

The leading role in the creative development of our military thinking, as in all military development, is played by the Communist Party. It is also clearly manifested in the elaboration and implementation of contemporary Soviet military doctrine. This is associated primarily with the scientific determination and correct calculation of the characteristic features and singularities of the present stage of world development, which have resulted in a radical change in the military-political and strategic positions of the USSR. Of cardinal importance in this connection are the following vital principles and conclusions concerning: the decisive role of the world socialist system in, and its influence on, the course of social development in the present historical age; imperialism as a source of aggressive wars; the nature and types of wars of the present age and the attitude of socialist countries towards them; the social-political and class nature of a possible world nuclear missile war, and also the factors which determine the course and outcome of a war, and the inevitable victory of the socialist coalition in a war against the imperialist bloc; the present-day functions of the socialist state and its armed forces on national and international scales; revolutionary changes in military matters based on rapid social, scientific and technical progress.

The problem of a military doctrine proper, which would conform to the present-day conditions of development of the Soviet State, was resolved on

the basis of these conclusions under the leadership of the Party. And such a doctrine was elaborated. Its importance to our military personnel is truly invaluable. Studying Soviet military doctrine and being guided by its principles in their practical work, they acquire a unified outlook on all the main problems of modern military matters, and are guided by mandatory principles and rules which are unified for everyone; they see the long-term prospects of military affairs and trends in the development of military theory and practice in close unity.

Military doctrine is a state's system of views and instructions on the nature of war under specific historical conditions, the definition of the military tasks of the state and the armed forces and the principles of their development, as well as the means and forms of solving all of these tasks, including armed combat, which stem from the war aims and the social-economic and military-technical resources of the country.

Military doctrine is elaborated and defined by the state leadership. It reflects the social-economic, political and historical peculiarities of the state and the nature of its internal and external policies. Each state, in creating its armed forces, elaborates a definite system of views on military questions, in accordance with which the armed forces are developed and improved, and the country as a whole is prepared for war.

The military doctrine of each state is formulated under the direct influence of political objectives and views on war, class relationships in the country, internal and external policies, and economic and military-technical potential. However, in the elaboration of their military doctrines, the bourgeois states are incapable of making an objective calculation of the social structure of their society and its class composition. They do not have any truly scientific principles; their methodology reflects their class nature; it is unsound.

Military doctrine has two aspects: the political and the technical. The first is concerned with the political evaluation of the military tasks of the state. The second provides answers to questions arising in connection with already formed or conjectured special features of armed combat in modern warfare; it determines the military-technical tasks of the armed forces, and the means, methods and forms of armed combat.

Each of the bourgeois states of today has its own military doctrine, despite the fact that many of them have common political objectives—forcible seizure of foreign territory and the enslavement of other peoples.

Soviet military doctrine determines the means, ways, and methods of ensuring the reliable defense of the Soviet Socialist State from imperialist aggression. It incorporates a comprehensive evaluation of the nature of future warfare, i.e., its social and political nature, probable methods of waging armed combat and the appropriate measures which need to be taken to prepare the armed forces, the people, and the country as a whole to inflict a crushing defeat upon an aggressor.

Of all the wars which are possible in these times, the most dangerous is a world nuclear war, which is what the imperialist aggressors, primarily the USA, are preparing against the socialist community, chiefly against the

Soviet Union, as the most powerful of the socialist states. Thus, arguments pertaining to problems of preparing and waging universal nuclear war occupy the most important place in Soviet military doctrine. Along with this, the possibility of conducting combat operations with units and subunits and without nuclear weapons, i.e., by conventional weapons, is also considered.

The principal determining feature of a nuclear war is its class and political content and the political objectives of the combatants.

From the social and political content of war it follows that in connection with the disposition of the forces in the international arena, which is already taking shape, a new world war will be characterized on both sides by a clearly expressed class and, coupled with that, a coalitional character. In such a war, the aggressive imperialist bloc will be opposed by a powerful coalition of countries of the socialist community, welded together by their unity of purpose and community of interests in defending the achievements of socialism.

Contemporary world war is characterized by its vast spatial scope. Armed combat under conditions of nuclear warfare acquires an intercontinental character.

From the cardinal features of a possible world war enumerated above, it follows that changes in the character of modern war and the principal means of armed combat inevitably entail changes both in the essential nature of armed combat itself and in the means of waging it, which, of course, is considered by military doctrine in the most immediate way.

Soviet military doctrine is, therefore, based on a calculation of the political, economic, scientific and technical and military factors and military scientific data. Its principal theses determine the main trend in military development, and establish a common understanding of the nature of a possible war and of the tasks involved in defending the state and preparing it to repel imperialist aggression.

Soviet military doctrine expresses the views and directives of the Communist Party and the Soviet government on all aspects of the vital activity of the state in wartime.

Thus, present-day military doctrine is the political policy of the Party and the Soviet government in the military field. This is an expression of state military policy, a directive of political strategy—military strategy representing a true union of politics and science in the interests of the defense of the country and the whole socialist community against imperialist aggression. Military doctrine is called upon to ensure that all military personnel share identical views in the solution of present-day military tasks, making the maximum use of the achievements of science and technology for this purpose, and that there is full agreement between military theory and practice. It expresses the essence of military policy, has an organizing and mobilizing effect on the evolution of military theoretical reasoning and the practical side of military development.

Our military doctrine plays an important role in the struggle against the reactionary military ideology of imperialism, thereby fulfilling both a national and an international role.

Soviet military doctrine takes into consideration cooperation between the socialist countries in the military field and, at the same time, exerts a definite influence on the solution of common military problems. In this connection, it is necessary to emphasize that the military doctrines of the socialist states are united on the political side by common ideological principles, whereas on the technical side there are some differences between them, which reflect the different levels of development of the resources of these countries and other special features.

Each socialist country is vitally concerned in the fight to defend the achievements of socialism against imperialist aggression and consolidate its defensive power, and each contributes its share to the common cause of ensuring the security of fraternal countries.

The most powerful socialist country is the Soviet Union. Our country has enormous economic and military strength, it has nuclear weapons, and is a mighty shield standing in the way of imperialist aggression. "The revolutionary achievements of our own people and those of other countries would be threatened," said the Chairman of the Council of Ministers of the USSR, A. N. Kosygin, at the XXIII Congress of the CPSU, "if they were not directly or indirectly shielded by the enormous military strength of the countries of the socialist community, primarily the Soviet Union. And if, from time to time, the imperialists are fearful of acting as they would like to, it is only because they are well aware of the risks involved."¹⁵

Soviet military doctrine interacts with military science. On its military technical side it relies on conclusions and recommendations "selected" by military science. In turn, doctrine evolved on the basis of military scientific data has a tremendous organizing and mobilizing effect on the development of the Armed Forces and all military affairs, it contributes to the preparation of the state and the Armed Forces to repel a possible attack by an aggressor, and to the skillful waging of victorious armed combat.

Military science reveals the laws inherent in armed combat and in all military affairs, and investigates the objective conditions and possibilities of waging armed combat. Military science covers a much wider range of military questions than does the doctrine. It examines all possible means, methods and forms of conducting armed combat arising out of the objective conditions of the evolution of society and the specific historical circumstances. But, of all the different questions studied by military science, the political leadership selects only those which contribute most to the political aims of war arising out of the political policy being pursued by a given state, and which also ensure the most successful solution of that state's military tasks.

History shows that military doctrine becomes more scientifically sound, objective and, therefore, more vital, the greater its reliance on the objective evaluations and conclusions of military science.

¹⁵ *Materialy XXIII s"yezda KPSS* [Materials of the XXIII Congress of the CPSU], p. 173.

There are clear-cut differences between military science and military doctrine. Military science, in its development, relies on the analysis of objective laws, which are independent of human will, and on the practice of armed combat. Military science is the theory of military affairs. Doctrine, on the other hand, is based on the theoretical data of military science and the political principles of the state. Science analyzes and reveals objective laws: doctrine rests on the conclusions of science and directly determines the practical side of military development.

The difference between military science and doctrine consists in the fact that doctrine, elaborated and adopted by the state, is a unified system of views and a guide to action, free of any kind of personal, subjective opinions and evaluations. Science, on the other hand, is characterized by controversy. In the system of theories known as military science there may be several different points of view, diverse scientific concepts, original hypotheses which are not selected as doctrine for practical application and thus do not acquire the character of official state views on military questions.

There is also a difference in the effective period of their principles and conclusions, the extent of their connection with the past and their extension into the future. Science makes a profound study of the past, extracting from it all that is valuable and useful for the present and the future. Doctrine on the other hand, is not concerned with investigating past experience of armed combat. Military science does this during, and for, it. Doctrine exists primarily for the present and the immediate future. It determines the practical tasks of military development for some relatively limited period. But, during the course of the evolution of warfare, new conditions and factors of armed combat emerge and acquire full force, as a result of which the old military doctrine lags behind practice and it is necessary to replace it with a new one. The duty of science, on the other hand, is to pave the way for practice and to foresee the course of events.

The interrelationship and interdependence of military science and military doctrine is also expressed in the extent to which military science correctly reflects the evolution of military affairs. If military science reflects objective reality in a distorted fashion, employs faulty methodology, or lags behind practice, it will inevitably tell on the evolution of military doctrine.

Military doctrine also interacts with strategy. Strategy as a scientific theory elaborates the fundamental methods and forms of armed combat on a strategic scale and, at the same time, produces the military guiding principles of war. The theoretical arguments of strategy influence military doctrine and its scientific evolution. At the same time, strategy implements doctrine directly, and is its instrument in the elaboration of war plans and the preparation of the country for war. In wartime, military doctrine drops into the background somewhat, since, in armed combat, we are guided primarily by military-political and military-strategic considerations, conclusions and generalizations which stem from the conditions of the specific situation. Consequently, war, armed combat, is governed by strategy, not doctrine.

Soviet military doctrine is offensive in character. However, the offensive nature of our doctrine has nothing in common with the aggressiveness and predatory tendencies of the military doctrine of the USA and its allies, which reflect the criminal aims of the ruling classes of these countries. The Soviet Union and other countries of the socialist community do not intend to attack anyone at all; but, if they are attacked, they will wage the war imposed upon them by their enemies in the most offensive fashion in order to bring about the rapid defeat of those enemies.

Soviet military doctrine assigns the decisive role in modern warfare to nuclear missiles. At the same time, it assumes that, in addition to nuclear

missile strikes of a strategic and operational-tactical nature, the armed forces will use conventional weapons. Our doctrine is based on the fact that success in modern armed combat is achieved not by any particular weapon or fighting Service, but by the united efforts of all the Services and branches of the Armed Forces with the Strategic Rocket Forces in the leading role. Only as a result of carefully organized cooperation, taking into consideration the role, place, and importance of each Service and branch of the Armed Forces in a specific situation is it possible to achieve strategic objectives in a war, and success in battles and operations.

Taking into account the features of modern large-scale armed forces and their enormously increased fire power, Soviet military doctrine considers that the organization of the Services and branches of the Armed Forces should be fairly flexible, and conform to the most diverse conditions of warfare.

A new and important phenomenon in modern war is the problem of the front and rear. The boundary between the front and the rear is being more and more obliterated and a war can now start simultaneously at the front and deep in the rear. Targets deep in the rear will probably be subjected to nuclear missile, chemical, and bacteriological attacks by the enemy's nuclear missile and air forces, as well as to conventional air strikes. Airborne landings of enemy forces may be made in the rear, when, in some cases, large groups of enemy tank and mechanized forces could break through to the rear. Thus, the rear must be prepared to defend prospective targets against nuclear missile strikes, to repel attacks by airborne and diversionary detachments, and to engage enemy groups which have succeeded in breaking through.

Civil defense, which plays a very important role in this connection, is organized in plants, factories, *sovkhozes* and *kolkhozes* in all large cities, towns and villages. Its main tasks are to provide for the defense of the population against enemy nuclear missile strikes, to neutralize the after-effects of a nuclear attack rapidly and efficiently, and to facilitate the uninterrupted operation of the administrative and supply departments of production organizations, as well as to assist military units in repelling enemy forces which may have penetrated into the rear.

Thus, Soviet military doctrine plays an enormous role in further strengthening the defense capacity of our Motherland and that of the entire socialist community. Its principles have legal force; they govern all the activities of our military cadres. Doctrine, however, does not rule out vital organizational creative work. On the contrary, it provides the essential element that gives all the work of military cadres its purposeful character, and ensures the unity of their views and their endeavors to contribute to the steady increase of the fighting power of the Soviet State and the combat readiness of its Armed Forces.

What to Read on This Section

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* Available in English, No. 1, USAF "Soviet Military Thought" Series [U.S. Ed.].

Chapter 4. THE FUNDAMENTALS OF MILITARY PSYCHOLOGY AND MILITARY PEDAGOGY

The revolution in military affairs, which has radically changed the character of modern warfare, has led to a requirement for higher moral and fighting qualities in members of the Armed Forces, and thereby complicated the task of teaching and training them.

Military training has now become a very complex and dynamic process. There is a growing need for greater rapidity and thoroughness in the formation of the fighting man's character and the training of personnel of subunits, units, and ships in their combat, moral-political, and psychological attitudes toward aggressive action under conditions of modern war. All this can be achieved only provided the training and education of military personnel is organized on a scientific basis.

In the system of sciences concerned with ascertaining the objective laws of training and educating Soviet servicemen, a key role is played by military psychology and pedagogy.

MILITARY PSYCHOLOGY

Military psychology is a branch of the science of psychology, which is concerned with the investigation of the objective laws which govern the formation and manifestation of the fighting man's personality, as well as the psychology of the military collective under service and combat conditions, for the purpose of evolving practical recommendations and generalizations to assist officers in the training, education, and management of subordinates and subunits. It also plays a part in several other sectors of Armed Forces development, including the design and improvement of equipment and weapons in terms of the fighting man's potential, the establishment of an optimal system of personnel selection according to psychological potential for particularly complex types of combat activities, etc.

Unlike bourgeois military psychology, which relies on idealist points of view and has a reactionary slant, Soviet military psychology is based on scientific Marxist-Leninist methodology, and the sound natural science teachings on the physiology of higher nervous activity propounded by the great Russian scientist, Academician I. P. Pavlov. In conformity with Marx-

ist-Leninist philosophy, these view matter as primary, and mind and consciousness as secondary.

The nature of the mind as a function of the human brain consists in the reflection of one's environment. Man is oriented in his environment on the basis of his knowledge of reality. A mind that functions properly is a prerequisite for man's successful activities, since, as F. Engels said, "Everything that stimulates man to act must pass through his brain."

The human mind is a product of social and historical labor. The development of an individual's mind also takes place under the influence of specific conditions and those activities with which the subject is occupied at different stages of his life. Military work has great educational potential. It makes a deep impression on the fighting man's character.

The world of man's mental phenomena includes:

- mental processes, which in turn, are subdivided into cognitive processes (sensations, perceptions, attention, mental representation, memory, thought, speech, imagination), the senses, and the will;

- mental states, expressed as being at a normal level, in a general elevation or depression of a man's spiritual powers;

- mental qualities, including directive tendency, temperament, character, and ability;

- mental formations, which are the knowledge, ability, skills, and habits acquired throughout the whole of one's life.

In every person, mental processes, qualities, and states (as well as formations) are in unison. Thus, any action or deed of a soldier is a manifestation of the unity of all his mental processes, qualities, and states. For example, during manual tracking of a target, the operator's sense organs, i.e., his sensations and perceptions, his memory, thought, experience, and will, all function under tension. Furthermore, in this situation, the specific motives by which the soldier is stimulated to action, are expressed. Peculiarities in the temperament of servicemen, their mental state at the moment of firing, are also reflected in the firing results.

To study the fighting man means to obtain specific opinions about his individual characteristics, mental processes, states and personality as a whole, on the basis of specified facts. There are various *methods* of studying the mind.

Observation and experiment are the principal methods. *Observation* is the systematic, purposeful accumulation of facts about behavior, actions, interrelationships, and statements which, when appropriately analyzed, makes it possible to draw conclusions about the mental peculiarities of a subordinate. This method includes objective external observation of the actions of an individual under various training, service, and combat conditions, and the subject's own account of his thoughts, experiences, etc.

Observation of behavior, activities, and deeds is the principal method of studying a subordinate's mind and his individual characteristics. Success is achieved by him who conducts such observations purposefully and systematically, and who draws the correct conclusions from the accumulated facts.

The experimental method. The purpose of a psychological experiment is to make accessible for external observation those inner mental processes and personal qualities that are not directly manifested externally. This is a fundamental method in psychology, although in military science it is more difficult to apply to the solution of a number of problems. There are variants of this method: first, the laboratory, artificial experiment, for which the experimenter creates the entire setting and conditions in which the subject is to be investigated; second, the natural experiment, an intermediate form between observation and experiment.

The laboratory experiment is conducted either by means of special technical apparatuses, or written tests. All the serviceman's mental processes can be determined and evaluated very precisely by this method. It permits certain inferences to be drawn about his temperament and individual abilities. Laboratory experiments are used extensively in aviation and space psychology in the selection of candidates for flying schools, and in training for space flights.

In the natural experiment, it is the set of conditions under which the subject performs that is influenced by the experimenter, not the subject himself. Let us assume that a commander gives two orders, one after the other, to a soldier: to deliver food to the firing range, to deliver mail to the KTP.* From the soldier's response to this situation it is possible to evaluate the peculiarities of his temperament and character.

There are other means of investigation, which include the following. The study of a soldier's mentality based on *an analysis of the results of his activities*. For example, it is frequently said of a soldier or sailor, in connection with work performed, that he is either disciplined, or shows initiative. In another case, the nature of the task being carried out may provide evidence of the skill, abilities, and interests of a person, etc.

Interview. This is organized in accordance with a plan in conformity with the research tasks. A soldier's interests, aptitudes, anxieties, difficulties and experiences can be studied, provided the interview is not casual, but purposeful, conducted on an individual basis in an atmosphere of mutual trust, and provided the results of the interview are correlated with other information.

The questionnaire method. This is the questioning of a group of people by means of a prepared questionnaire. If the questionnaires are filled in anonymously, this method does not provide information about the individual: the results, processed statistically, express average values. For example, this method can be used to investigate the interests of users of libraries in military units and aboard ships.

These methods make it possible for an officer to ascertain the individual characteristics of a subordinate and to understand him. They do not require special laboratory conditions and they can be employed during the course of routine activities.

* Russian abbreviation for, among other things, 'tank regiment commander' and 'technical control point' [U.S. Ed.].

THE MENTAL PROCESSES OF A PERSON UNDER MILITARY SERVICE CONDITIONS

The mental processes of a serviceman are his cognitive processes, his senses and will. A serviceman studies and assimilates educational material and orients himself in a situation on the basis of his cognitive processes. Thus, these processes represent one of the psychological prerequisites for successful training and service of the personnel. They function according to known objective laws. A knowledge of these objective laws helps an officer to recognize the cognitive potential of his subordinates, and to take them into consideration in his practical work.

Sensation is the initial cognitive process. Essentially, it is the reflection of individual properties and qualities of objects or phenomena which directly influence a person. The process of sensation occurs on the basis of the functioning of the sense organs. For example, the eye: this is an organ of complex structure, incorporating the lens, retina, optic nerve, and occipital lobes of the cortex. By means of the eye we sense color, light, form, and movement. Noise and sound are sensed by the ear, the aural nerve and the temporal regions of the cortex. The vestibular apparatus, located in the inner ear, is the organ by which we sense body balance. Other sense organs are found in the muscles, ligaments and tendons; these enable us to sense muscle tension and posture.

The minimum perceptible force of a stimulus characterizes the lower *threshold* of sensation. Maximum stimulation, beyond which there is no sensation of any increase in the force of the stimulus, is called the upper *threshold* of sensation. The minimum difference which a person can detect between two stimuli is called the *differentiation threshold*, or the difference threshold.

A change of sensitivity as a result of the prolonged influence of a stimulus on a sense organ, or as a consequence of its absence, is called *adaptation*. For example, the eye adapts to darkness or strong light when a soldier leaves or enters the guardroom at night. Complete dark adaptation of the eye takes longer than an hour. During this time the sensitivity of the eye increases up to 200,000 times. Partial adaptation to a working level takes 5-7 minutes.

The phenomenon of *contrast* in the process of sensation consists in the fact that weak stimuli increase sensitivity to other simultaneously acting stimuli, while strong stimuli diminish this sensitivity. In combat, for instance, small arms fire is not very noticeable against the background of an artillery bombardment. But even a single rifle shot in the forest silence seems deafening and makes one jump.

The continuation of a sensation, when the action of the stimulus has ceased is called the *after image*. It lasts for a fraction of a second. For example, in the cinema the screen is in darkness every $\frac{1}{36th}$ of a second, but the viewer does not notice this since the after-image of the preceding frame is retained in his consciousness.

Perception. This cognitive process is essentially the reflection of objects and phenomena as a whole, and not simply their individual qualities, as in

the case of sensation. Perception is characterized primarily by *comprehension*. This property of perception consists in the fact that man has a tendency to catch significance and meaning in all that he reflects. And if it is apparent that meaning is not manifested in the reflected object, he will arbitrarily introduce meaning into it. Therefore, it sometimes happens that training material incorrectly presented by an officer is understood by soldiers and sailors in different ways.

The *integrated* character of perception is expressed in the fact that the images being reflected in a person's consciousness appear in a combination of many qualities and properties. And if a perceived familiar object influences a person with only some of its qualities, then, thanks to the integrated nature of perception, it is reflected in the consciousness in full. The integrated nature of perception makes it possible to recognize objects from the most insignificant signs. Thus, an experienced pilot will recognize the specific class of an aircraft in flight by the characteristic sound of its engines.

Perception is an active process. Its object is isolated in it at every instant; everything else reflected by the consciousness serves as its background.

Perception depends largely on a person's past experience, skills, moods, feelings and not only on those of the present moment. It also depends upon what a person expects or wishes to see in perceived objects. The dependence of perception on past experience and the total content of an individual's mental life is called *apperception*.

Mistakes may be made in the process of perception. An incorrect or distorted perception is called an *illusion*. There are various causes of illusions. These are: preconceived notions; expectation; state of mind; lack of contrast or boundary between the perceived objects and the background with respect to shape, volume, color, illumination. Illusions also originate in cases where the meaning of the perceived object is not understood, or, conversely where meaning is forcefully introduced where none exists.

The phenomenon of illusion is paralleled by another peculiarity of perception—*constancy*, i.e., constancy in perception. The latter is attributable to a person's knowledge of the physical properties of objects, and to the fact that objects are usually perceived in association with, and in an environment consisting of, other familiar objects.

There is also distinguished and so-called intentional perception which comes into play depending on tasks; this is associated with volitional efforts. A soldier, during lessons, intentionally perceives the material, visual aids or demonstration presented by the officer. Observation is the developed form of this type of perception.

Attention is a prerequisite for the productive operation of the serviceman's cognitive processes, both during training and in carrying out his duties. It is expressed in the preferential directive tendency of his consciousness towards a specific object, as a result of which it is fully reflected. Attention is characterized by a number of fundamental properties, the degree of development of which is proportional to its quality as a whole.

Concentration of attention: this is the ability to concentrate on what really matters. A high degree of concentration depends largely on determined effort, interests, understanding the importance of a task, and the ability to carry out an assignment. Radar operators, observers, snipers, etc., must be capable of highly concentrated attention.

The scope of a person's attention is measured by the number of homoge-

neous objects perceived simultaneously. For example, in flying an aircraft a pilot must retain within his field of attention the air situation, the instrument readings, the controls and, at the same time, maintain radio contact with the ground, etc. The scope of attention is measured by the number of simultaneously perceived objects per unit of time.

Distribution of attention. This is the capability of keeping in mind several different objects simultaneously, or of carrying out a complex activity consisting of many simultaneous operations.

Switching of attention is the intentional transition from one activity to another. The property of switching is evaluated by the time of transition from object to object, from one type of activity to another.

Stability of attention is the capacity of continuing to perceive a single object. Stability depends on consciousness of responsibility, volitional effort, interest in the object, and understanding of its meaning.

Fluctuation of attention. This is the involuntary switching of attention from one object to another. In complex and sophisticated forms of activity (for example, the apprehension of the situation on a radar screen) serious errors may occur as a result of such fluctuations.

Distraction of attention is usually the result of insufficient or total lack of interest in an object or activity, a negligent attitude towards one's work, or a lack of determined effort. This is a serious obstacle to successful training and service.

Absent-mindedness is considered as the lack of attention or the consequence of its poor development.

An **idea** is the image of an object (or phenomenon), which is not directly perceived at a given moment. It can be visual, aural, gustatory, olfactory, tactile, thermal, or motor. An idea may also be the result of the simultaneous functioning of several sense organs, in which case it is more complete and accurate.

Ideas are the property of an individual. They differ in their nature in individual people. This difference may be expressed in terms of vividness and rapidity in the reconstruction of ideas, depth and content, or the kind of thoughts that predominate in a person's mind. The system of ideas which characterize a fighting man comprises the substance of his spiritual world.

Certain specific types of concepts may play an important role in the service life of soldiers and sailors with various trade qualifications; for example, aural concepts for radio operators, visual concepts for radar operators, and so on. The more precise and complete a serviceman's concept of his trade qualifications, the more successful he is in carrying out his duties.

Memory. This cognitive process plays an exceptionally important role in military activities. It is precisely that soldier or sailor who has a well-developed memory who will assimilate training material more quickly, fully, and precisely, and who will use his experience, his learning, and the experience of his comrades more fully in combat activity: his memory will suggest to him, accurately and opportunely, the necessary decision, possible variants of actions in analogous situation, etc.

Memory consists in memorizing, retaining and subsequently reproducing that which a person did, experienced, or perceived.

Memorizing is the process of impressing on the memory that which we perceive, think, experience and do. It can be either intentional or unintentional. Intentional memorizing can be mechanical and meaningful. In mechanical memorizing, the material is imprinted on the memory by simple repetition, without understanding its meaning. This type of mental process is employed in cases where the material being memorized has no inner meaning, for example, names, numerical values, addresses, etc. If, however, we try to assimilate meaningful material by memorizing it mechanically, it becomes cramming, which leads to a formal acquisition of knowledge, errors in reproducing it, and inability to apply it.

Memorizing based on an understanding of the meaning of the material being memorized is far more productive (22 times more productive than mechanical memorizing).

Retention of the memorized material is accomplished by further comprehension and mastery of the material and by combatting forgetfulness. We know that material is not retained in the memory if it is not repeated, and as a consequence of excessive fatigue and emotional stress. Thus, in order to combat forgetfulness, it is essential to organize systematic repetitions, to distribute the training load properly, to alternate work according to complexity, and to rest normally.

Reproduction is the activation of the stored material in the consciousness for its practical utilization. The passive form of reproduction is called recognition: an individual recognizes in what he is perceiving at the present moment that which he perceived at some time in the past. If reproduction is limited to recognition, it indicates that the memorization and retention of the material was incomplete and superficial, that the material was poorly assimilated, that it was not repeated correctly and not sufficiently applied in practice.

The active form of reproduction is recollection. This entails effort, stress and, sometimes, the use of special methods as well. Material is usually recollected incompletely, inaccurately and slowly. Therefore, if a serviceman reproduces previously studied material in the form of a recollection, it indicates either that he did not memorize it sufficiently or that he did not revise it.

Finally, reproduction may also occur in the form of a memory, when the material is reproduced rapidly, easily, accurately and completely.

Every person possesses memories of different kinds: motor, verbal-logical, emotional, and graphic. However, they are frequently developed in varying degrees.

Motor memory. This is a memory for motion. It comes into play during training on combat equipment, driving lessons, etc. This type of memory is developed in a person who systematically remembers traffic routes, not by local features, but where and how a turn was made, where and how long he travelled, etc.

A verbal-logical memory ensures the assimilation of the material being memorized, formulations, and expressions with an inner meaning, strict logic. This is the type of memory involved in studying regulations, mastering theorems, formulas, etc.

An emotional memory preserves in our consciousness different emotions and the events associated with them. This is a very strong type of memory. Anything experienced once is remembered for a long time.

A graphic memory. This is the kind of memory which makes it possible to recall a person's face, a locality, an object, or an event. A memory of this type is valuable because it retains an image in detail.

In training subordinates, it is necessary to rely on those forms of memory which they manifest more strongly. Those forms which are less pronounced should be developed.

Memory is characterized by specific qualities: rapidity of memorizing, completeness of retention, duration of retention, accuracy and readiness of reproduction.

Memory is, as it were, the serviceman's arsenal of personal experience and knowledge; and in this sense it is turned towards the past. The creative cognitive process directed towards the future is imagination.

Imagination is the process of creating images of objects which have never been directly perceived and which are not being perceived at any given moment. It is based on the transformation and combination of ideas existing in a person's mind and is intimately associated with memory and thought. A person's imagination is stimulated by his needs, desires, interests, and his attitude towards reality.

A well-developed imagination is essential to a fighting man. In combat, it helps him to understand and foresee changes in the combat situation; his training is facilitated if his imagination is developed, since he is able to visualize what his commanding officer is talking about and that which it is impossible to see directly.

Imagination is of an involuntary nature when new images are formed in the consciousness without any effort. Thus, the most unusual visions of rest may occur in the imagination of a fatigued person.

The intentional creation of images based on some kind of instructional material: texts, drawings, maps, diagrams, etc., is called *reconstructive imagination*. For example, if a soldier or sailor has this type of imagination, he will be able to visualize more clearly an officer's description of a modern battle.

The process of creating images, not from a description, but by self-initiation, is called *creative imagination*. It frequently produces images of objects that do not exist in reality. This is the kind of imagination which is responsible for the creation of new machines and works of art and which produces original solutions to problems in different fields of activity. A creative imagination is an essential condition of success in the Armed Forces. It is a guarantee of initiative, and bold and confident action on the battlefield.

Thought is a higher cognitive process by means of which connections and relationships between objects and phenomena in the surrounding world are

reflected in man's consciousness. Essentially, thought consists in the analysis and synthesis of reality, which take place in a person's consciousness. The instruments of analysis and synthesis are concepts, ideas and their speech equivalents, words.

A serviceman does well in combat and training activities if his mentality is well-developed, disciplined, and has the appropriate qualities for correctly reflecting the complex relationships of different situations.

What is the nature of thought? First and foremost, it is the process of solving problems. Essentially, thought is the reflection in man's consciousness of conditions, i.e., complex connections and relationships between objects and phenomena, in which he has to act in order to achieve a certain goal. To resolve a problem means to find ways of acting in an existing situation which will ensure success.

The solution of a combat problem includes the process of studying it, i.e., gaining a clear idea of the objective which must be achieved as a result of the impending battle; an evaluation of the situation, i.e., correlation of the idea of the task with the actual conditions in which one has to act; the adoption of the solution itself, and its practical realization.

The success of the solution of a task depends on the correctness of the thought processes and the variety of forms and methods of thinking involved in arriving at the solution. Different ways of approaching a cognizable object are expressed in the thought processes.

Psychology distinguishes the following thought processes: *analysis, synthesis, comparison, abstraction, generalization, and concretization*.

Analysis consists in breaking down the whole into its constituents. For example, a commander, in summing up training results, considers in turn the actions of each subunit upon the sounding of an alert, on the march, in the concentration area, and in the fluidity of battle.

Synthesis is the reverse of analysis. This is the process of reintegrating the constituents on the basis of revealed essential relationships.

The process of comparison consists in comparing objects, phenomena and their properties, and revealing similarities or differences between them. Thus, we can compare the technical specifications of different types of small arms.

Using the process of abstraction we can isolate any one aspect or property of an object, or a phenomenon, and this can be studied or analyzed independently of other properties. In studying the destructive properties of nuclear weapons, for example, such factors as flash, shock wave, and penetrating radiation are studied in succession.

The process of generalization is simply the association of many objects or phenomena with respect to some sort of common characteristic. For example, a commander generalizes many actions of a subordinate in order to arrive at a conclusion about his character.

Concretization is the reflection of many or all aspects of a particular object or phenomenon. The driver-mechanic of a tank, for example, is not only conscious of the fuel and electrical fire-extinguishing systems in general, but knows the layout of both systems in detail.

The process of resolving an intellectual problem may be realized in the form of a *judgment* or an *inference*.

Judgment is a basic form of thought. It consists in the negation or affirmation of a fact. Thus, an observer's report about an object he has noticed is a judgment.

An inference is the formation of a new judgment from one or several judgments. A commander explains the task—a judgment; evaluates the situation—another judgment; adopts a solution—a new judgment stemming from the preceding judgments, i.e., he makes an inference.

Psychology recognizes the concept of methods of thinking. These methods pertain primarily to the process of inference. One of these is *induction*, which takes place when an inference follows from single factors, or premises, to a general conclusion. The process of inference using the *deductive* method occurs in the reverse order.

Depending on the nature of the activity, thought is subdivided into *visual-active*, *graphic*, and *abstract*.

Visual-active thought signifies thought directly involved in activity. For example, the actions of a submachine gunner attacking the enemy are inseparable from his thinking. It prompts him to be consistent in his movements and methods of fighting the enemy.

Graphic thought arises on the basis of ideas previously apprehended by a person. Sometimes, this form of thinking provides the most correct solution to a problem. Thus, a commander is better prepared for combat if he is able to visualize and "run through" forthcoming actions in the light of previous experience.

Abstract thought is based on concepts which are not graphically representable.

We shall refer briefly to the characteristics of the process of communication between people. Language is the means by which one person makes contact with another. The process of communication by means of language is accomplished in several ways.

Oral speech is communication by means of the production of words and the perception of these sounds through the sense of hearing. It may take the form of a dialogue when there is an exchange of thoughts between two speakers, or a monologue. Dialogue speech has great potential as a vehicle for the transmission of thoughts: voice intonation and gestures make it possible for speakers to impart emotional content to their communication.

Monologue speech is more difficult than dialogue, primarily because the listeners do not react directly, as in the case of dialogue, to the thoughts being communicated. The speaker must catch this reaction by indications such as expression or lack of attention, the nature of the response, etc.

Written language is one of the forms of communication, of which dispatches, reports, code and cipher messages, etc., are examples. It is more difficult to convey the subject matter in written language, since it is deprived of any supplementary means of expression, such as facial expression, gesture, and context, etc., used in oral speech. A writer must use words and phrases

in such a way that they compensate for these deficiencies. It is also important to consider who will read the written communication and what his reaction to it may be.

Language in military affairs takes different forms, such as the languages of command, propaganda, communication, etc.

The language of command: this is the language of leadership. It has its own characteristics, which have their origin in the nature of combat activity: brevity, conciseness, the capacity to convey the maximum amount of subject matter in the shortest possible time, clarity and precision. The danger inherent in a combat situation requires that such language be energetic and buoyant, and that it evoke in the men to whom it is addressed confidence in their powers and an urge to act. It should also express the confidence of the commander himself in the correctness of his order. It is delivered in military regulation style, with text-book consistency of phraseology.

Propaganda language is aimed at communicating military and political information to servicemen and convincing them of the correctness of their knowledge. Therefore, it should be explanatory, convincing, graphic and charged with emotion, logical, and rigidly timed. The inclusion of a polemic element makes it more convincing. A commanding tone, falsehood, attempts to curry favor, and coarseness are not permissible in propaganda language.

The language of communication is used in conversations, in individual work with people, as well as during off-duty periods. It has an individual character and permits the use of words of a familiar and friendly nature, freer in its choice of intonation, gestures, and facial expressions. The proper use of the language of communication enhances the influence of an officer on his men, helps him to understand them, and gain their respect for his authority.

The important role played by the cognitive mental processes in military activities makes it essential to pay close attention to them. First of all, it is important to be able to evaluate the degree of manifestation of these processes in every serviceman. The resulting information provides an expedient basis for selecting the training methods, means, and procedures which will ensure the fullest assimilation of the training material by each individual.

A commander is expected to take all the necessary steps to ensure that the cognitive processes of servicemen are being constantly improved. This is achieved by subjecting them to systematic training and including them in practical activities.

Special attention should be paid to the training of the will. Modern warfare is of an unprecedentedly fierce, decisive, fast-moving and fluid nature. The enormous force of nuclear strikes, their suddenness—all this will have a great effect on servicemen's minds. Under such conditions only those whose will is absolutely inflexible will be able to cope with any task which presents itself.

What is will? Will is the capacity of a person to control his behavior and mobilize his resources to overcome the difficulties standing between him and his objective.

A person's will is manifested in his acts. Conventionally, a volitional act is made up of several stages: understanding the objective, selection of the means, and planning the act, taking the decision, carrying it out, and analyzing the results.

To develop the will of subordinates it is necessary to train them to be clearly aware of the purpose of impending actions, to plan them, take a decision without hesitation, and relentlessly strive to carry it out.

Volitional acts may be simple or complex, prolonged or of short duration, performed on one's own initiative or in fulfilling a commander's assignment.

Volitional acts are usually performed in response to a commander's orders, commands, or instructions. A correct understanding and spontaneous acceptance by a soldier or sailor of the task assigned to him helps him to carry it out with comparative ease. It is also the commander's duty to form in his subordinates the proper convictions appropriate to his obligations and position of armed defender of the Homeland.

In the process of forming and tempering the will, the qualities which are developed first include fortitude, audacity, bravery and determination.

Sensations. Man relates to everything he sees, hears, and remembers in a specific way. This relationship is expressed in experiences. A person's experience of his relationship with the environment and other people, to himself and his actions is called sensation.

Man's feelings are an important psychological process. They affect all his activities and all the other mental processes. Patriotic feelings, for example, impel soldiers and sailors to perform heroic and noble deeds, imbue them with new powers. Fear, on the other hand, has a depressing effect and reduces the fighting qualities of a soldier or sailor.

An officer will be able to exercise his leadership of subordinates in service and in combat only if he finds a way of influencing their feelings, and to do this he must know what they experience, what disturbs them.

Experienced feelings are divided into *simple* and *complex*.

Simple feelings arise in connection with the satisfaction or non-satisfaction of a person's material needs (e.g., hunger) and also because of the situation (a feeling of unrest and fear in a hazardous situation).

Complex, or higher, feelings occur with the satisfaction or nonsatisfaction of a person's spiritual needs, fulfillment or violation by him or by other people of accepted standards and rules. These feelings have their origin in his attitude to the Homeland, work, his duty, etc.

Man's higher feelings are divided into moral and political, intellectual, and esthetic.

The serviceman's moral and political feelings include: love of his Homeland; hatred of the enemy; internationalism; love of work; sense of collectivism; honor; merit; and military duty. All are intimately associated with his world outlook, moral convictions, and views of personality.

Intellectual feelings are experienced by a serviceman in connection with his training and creative activities, particularly in the solution of new and difficult problems. Such feelings include: a feeling for the new, intellectual curiosity, astonishment, perplexity, clarity and consistency of thought, doubt. They usually stimulate thought, and force the thinker to penetrate more deeply into the nature of objects and phenomena.

Man's feelings are distinguished according to their strength and duration as *moods*, *affects* and *passions*.

Mood is the term applied to a relatively weak but prolonged emotional state, which envelopes a person and colors all his actions and mental pro-

cesses. The main factors which determine mood are social conditions, people's lives and relationships, and world outlook. Moods may be determined by official events and the current situation: by news of success or failure in one's service career, relationships with colleagues, the conditions of everyday life, etc. Moods of confidence, happiness, cheerfulness, etc., contribute to progress in the serviceman's training and work, while apathy, anxiety, sorrow, and depression have the reverse effect, make it difficult for him to carry out his duties and assimilate training material.

In his daily contacts with people, an officer should strive by personal example and his manner of speaking to put them in a good mood. The creation of a good, cheerful atmosphere is facilitated by concern for subordinates, satisfaction of their needs and requests, and respect for personal dignity.

A short-lived and forceful emotional reaction in the form of an outburst is called an affect. An affect is caused by a sudden or very strong stimulus. It occurs most often in people who, for a long time prior to such an outburst, have been in a tense state. Externally, an affect is expressed in wild and irrational actions, gestures, exclamations or in delayed movements. After an affect, a person experiences depression, he is worn out and usually has a poor recollection of what he did and said. If there are people in a subunit prone to emotional experiences in the form of affects, they should be re-educated.

Passion is a very powerful, prolonged, profound and persistent feeling possessing great effectiveness. Directed at socially important goals, it acts as a stimulus to the achievement of outstanding successes and great feats. Directed at superficial and especially egoistic goals, it impoverishes a person, and urges him on to commit unethical acts.

Consideration of the Mental States of Servicemen

By mental state is meant that time-limited functional state of the human mind which predetermines its work capacity, readiness to overcome work loads, and its potential for rapid and accurate reaction and maximal degree of mobilization at the required moment. A mental state expresses the temporal characteristic of a person's mind and is manifested in an elevation of the spirits or depression, a working condition, or sluggishness, etc.

Mental states may be characterized by the depth or the superficial nature of their influence on the working of the mind, by positive or negative action, by their duration or brevity, as well as by the degree of awareness.

The state in which a person happens to be at a given moment influences all his mental processes, i.e., attention, memory, reason, and speech. Under the influence of states, a person usually experiences certain sensations, and he is seen to be in a certain mood.

Mental states, differing in content, duration, force and quality, arise from specific causes. An officer must always keep this fact in mind. Knowing the principal causes of mental states, he can control them with confidence and influence his subordinates appropriately.

A person's mental states depend on anatomical, physiological, and other factors. Thus, the mind of a submariner is influenced by his physical condition, which in turn depends upon the living conditions on the submarine and the peculiarities of the sailors' motor activities. The creation of optimal working conditions, organized rest periods, and sports activities facilitate the maintenance of a cheerful atmosphere among personnel.

The mental state of soldiers and sailors also depends on emotional experiences associated with the work being carried out, on the impressions gained from the anticipated results of this work, etc.

The intentional influencing of subordinates' mental states by a commander through an appeal, or personal example, is extremely effective. Such external aspects as the commander's voice, intonation, mood, would also, one would think, affect his subordinates.

The principal factors which influence a serviceman's mental state are a healthy working atmosphere, his group, and service comrades.

The Mental Characteristics of the Serviceman's Personality

In the training and education process, an officer purposefully influences his subordinates. And since each soldier or sailor is a personality, the ability to understand that personality is an important prerequisite for success in educational work.

Man as a personality has a social nature and an essential nature. Social attitudes are the important elements: the total personality is revealed in these. Therefore, for a detailed and profound study of personality it is essential to consider its social nature.

At the same time, we can speak about the biological aspect of a person, which is characterized primarily by the level and state of his physical development. True, this is not the principal element in personality, but it is essential to take this into consideration as well.

Finally, personality is also characterized by the mental peculiarities of the individual himself. The mind comprises and determines the individuality of the personality.

The characteristics of a personality depend on the social conditions of a person's life. It is the social environment that influences the mental characteristics, and the latter influence man's behavior, since "everything that actuates people must pass through their heads. . . ." ¹

On the psychological side, personality is the aggregate of the mental processes, properties and states of an individual. The principal factors which determine the individual character of a person are his mental qualities, which include the directive tendency, temperament, character, and faculties of the personality.

The directive tendency of the personality. Man's life consists of his ac-

¹ K. Marx and F. Engels. *Izbrannyye proizvedeniya v dvukh tomakh* [Selected Works in Two Volumes], II, 1952, 373.

tivities and his work. These are characterized by the fact that he consciously sets himself some sort of goals and strives for their achievement. These goals may be long- and short-term, important and unimportant, of personal and social value. The system of goals which a man sets himself and actively pursues, i.e., his personal singleness of purpose, expresses his directive tendency.

In order to understand the directive tendency of a subordinate, an officer must analyze his singleness of purpose. This is facilitated by the fact that a person does not set himself goals haphazardly: their selection and organization follows a regular pattern. The stimulus for this is provided by certain internal forces known as motives, which, in turn, originate as a result of an individual's needs and are determined by those conditions under which he lives and acts.

By need is meant a person's need of something, which, if it is not satisfied, causes him harm, both as a member of society and as an organism. There are material and spiritual needs. Inadequate or irregular satisfaction of man's need of food, warmth and clothing has an adverse effect on his disposition and his working capacity.

Spiritual needs are a person's needs for correct orientation in his environment, activity, socially significant work, other people, their acknowledgment and support. A person's behavior as a conscious worker and a member of a group is related primarily to his spiritual needs.

Man's material and spiritual needs form a complex inner unity, in which first one, then the other set of needs can play a dominant part, constantly or temporarily. In educating servicemen, it is important to try to ensure that positive spiritual needs play a decisive and predominant role in their make-up.

Everyone has need for something constantly. When a need makes itself felt, it grows strong and impels a person to act. As such it appears in the form of a motive. Each motive is an intricate combination of various spiritual and material needs in which one or another specific need predominates.

Motives may appear in different forms. If a person is not aware of his needs, he acts in accordance with their stimulating impulses. These we speak of as *inclinations*. Motives in this form appear most frequently in young people, who have not yet studied themselves sufficiently.

When a person is conscious of needs which do not manifest themselves as a strong stimulus to action, we speak of his *wishes*. These are insufficiently strong motives. They are frequently directed at goals which a person is not strongly convinced he can achieve.

A form of simple motive, *volition*, is also recognized. Unlike a wish, a volition is an active motive which impels a person to act.

Inclinations, wishes and volitions are simple motives and are largely associated with a person's material needs. Spiritual needs are associated with more complex forms of motives, primarily *interests*. Essentially, these are manifested in a person's main directive tendency towards particular objectives of his activities. The fact that a serviceman has interests is a favorable

condition for the development of his abilities. Interests reflect primarily a person's need of knowledge.

An *inclination* is an expressed tendency towards participation in some kind of activity. It is a strong stimulus. A person with a marked inclination towards a particular field of activity always achieves greater successes than other people.

An *ideal* expresses the principal direction of a person's personal endeavors. It always conforms to his main personal needs, as well as to the interests of the group and society. An ideal can be a person, an idea, or a deed. An ideal is a very strong incentive to action. Heroic acts are usually performed by fighting men who pursue high ideals.

World outlook is a person's system of views on his environment. As a rule, these views correspond to his personal needs and are associated in a specific fashion with the interests of society. If an individual's views are not in harmony with the interests of society, they are unsound and will not be serious incentives to action. Conversely, the association of an individual's views with his personal needs and the interests of society transforms these views into a true world outlook, the strongest and most consistent motive, incentive to action, and deeds. The communist world outlook organically combines the interests of society and all of its members. The fighting man who possesses a formed communist world outlook is a steady, reliable and thoroughly consistent man. His actions do not depend on outside influences, and are not subject to blind impulses.

Such is man's system of motives. It may vary in each individual serviceman. The purposefulness of personality is formed according to motives. This means that, having ascertained the substance of a serviceman's motives, it is possible to judge his directive tendency.

The attribute of personality which characterizes each serviceman from the point of view of the dynamics of his mental processes is called his **temperament**. Externally temperament is manifested in the strength, speed, rhythm and tempo of a person's movements, in his speech, gait, facial expressions, manners, etc.

The characteristics of the principal types of temperament are as follows:

Sanguine—changeable, impressionable, reacts rapidly to circumstances, little or no inclination towards introspection, given to accentuated facial expressions and gesticulations. A sanguine person carries out work assigned to him quickly. Prefers energetic work, is oppressed by monotony. Sociable and cheerful.

Choleric—marked by intensity of thoughts and actions. A choleric person is unbalanced, since he is dominated by a state of excitement and sometimes has difficulty in restraining himself. He can be abrupt in his actions; is determined, rapidly grasps a situation and resolves the problem. He is not inclined to hesitation; displays initiative and is sociable.

Phlegmatic—characterized by sluggishness in actions and behavior. Usually well-balanced; it is rare that a phlegmatic person is not in this state. On being given a task, he thinks it over for a long time, but, having made his decision, he carries it out quietly and persistently. He is an efficient worker.

Melancholic—usually engrossed in himself, reserved, unsociable. Very vulnerable, often mistrustful. Sluggish; gestures and movements hesitant.

In working with people it is inadmissible to adopt preconceived notions about their temperaments. A person of any temperament may possess all the socially significant qualities of personality. Consideration of temperament is important insofar as it permits the correct selection of methods and ways of developing these qualities in an individual.

Experience teaches that a person of choleric temperament must be kept under constant supervision. A blunt manner should not be used in dealing with him, since this may evoke an undesirable response. In addition to this, all instances of irregular conduct on the part of a choleric person should be subjected to a critical evaluation and be met with counteraction. In working with a sanguine person it is necessary to stimulate in him a sense of responsibility and to check the quality of his work. A phlegmatic person needs leadership and guidance, and he should be required to meet more exacting standards. A blunt manner, outbursts of temper, reticence and vagueness are wholly inadmissible in dealing with a melancholiac, since his is a particularly vulnerable temperament.

Thus, temperament is an important quality of personality. However, it is not a determining quality, but a dynamic prerequisite of a more essential one—character.

Character is the pivotal quality of personality which places its stamp on all the actions and deeds of a serviceman and expresses his specific attitude to reality, work, other people, and himself.

To know the character of a subordinate is to know the most important thing about him, that which determines all his actions, deeds and behavior: the personality's line of life, as it is called.

Concerning the attitude of the serviceman to the outside world, we can speak of principled and unprincipled characters. A principled character is possessed by a person who has stable opinions, a stable world outlook and who acts in accordance with them. Conversely, an unprincipled person either has no opinions or convictions at all, or acts counter to them, subordinating himself to his feelings, outside influence, or circumstances.

In relation to work we distinguish active and inactive characters. Active characters may, in turn, be purposeful or unorganized. The singleness of purpose of Soviet man makes his work organized, gives him social significance and moral value. The development of active characters goes hand in glove with the formation of a communist world outlook. Unorganized characters are associated with a lack of purposefulness or the inability to subordinate their actions to plans.

A person's attitude to people, to the collective, is formed and manifested in contacts with people and in joint activities. In relation to the collective, we distinguish reserved and sociable characters. A reserved character may be the result of a negative attitude or indifference to people. It can also originate from a profound inner concentration of personality.

Each person also relates to himself in a specific fashion. This attitude is dictated by the awareness of his position in society, and his obligations to it

and to other people. Overestimation of oneself, one's potential and needs is peculiar to people with an egoistic character.

It is also important to estimate character by its strength. The characters of people whose acts and behavior always accord with their knowledge and convictions are called strong characters. A person with a strong character is a reliable person.

Character is also evaluated in terms of its characteristics. By traits of character we usually understand those stable qualities in a person by which his potential acts can be judged.

We can refer to the following principal groups of character traits. First of all there are volitional traits. These include: vigor, independence, self-possession, determination, firmness, and stubbornness. The reverse of these traits can be used in describing a weak-willed character.

Emotional traits of character are even temper, impetuosity, passion, and impressionability. Their opposites are indicative of an unbalanced character.

Intellectual traits are profound thought, quick-wittedness, and ingenuity.

Education in the Armed Forces has the objective of imparting to servicemen a moral character which is revealed in such character traits as communist singleness of purpose, ideological conviction and adherence to principle, patriotism and internationalism, hatred for the enemies of the socialist Homeland, consciousness of military duty and responsibility to the people, collectivism, faithfulness to fighting traditions, discipline, vigilance, modesty, honesty, truthfulness, cheerfulness, activeness, good organization, etc.

Abilities. An ability in psychology is understood as a specific, stable quality of the human mind which engenders the possibility of successful activity of a specific nature. The essence of this quality is not so much in the current level of development of a given mental process, as in the possibility of its rapid development.

There are *individual*, *special* and *general* abilities. By individual abilities is meant favorable qualities of individual organs and mental processes of a person, irrespective of the kind of activity in question. A highly developed sense of sight, touch, hearing—these are individual abilities.

When, however, we speak of the need for a high degree of development of individual organs and mental processes for some specific kind of activity, we are referring to special abilities. For example, a sniper must have keen eyesight, a motor mechanic needs a fine sense of touch and excellent hearing. However, the sniper, the motor mechanic and the explosives expert also rely on general abilities, for example, a good memory, attention, alertness, etc.

The aggregate of general, special, and individual abilities inherent in a particular person determines his *endowment*, his occupational suitability.

The degree of development of an ability or the degree of endowment may vary. A very high degree of endowment, which permits a man to strive for outstanding results in some field of activity is called *talent*.

Man is born with certain inherent qualities, which are biologically determined anatomical and physiological features of the structure of the nervous system and organism. These inherent qualities form the basis of abilities; the

qualities themselves are not synonymous, since different abilities may develop from them. Everything depends on the conditions in which a person happens to find himself, or the activities in which he is involved. Abilities are, therefore, social in nature, i.e., depend on social conditions. A socialist society provides the most favorable conditions for the development of all the best abilities in a person on the basis of his inherent qualities.

It is important for an officer to be able to ascertain and evaluate correctly the abilities of his subordinates and to use the resulting information as the basis for creating conditions favorable to the comprehensive development of these abilities, and the formation of new ones.

ON THE PSYCHOLOGICAL TRAINING OF SOVIET SERVICEMEN FOR SUCCESSFUL OPERATIONS IN MODERN WAR

In modern warfare it is essential that every serviceman be given a high level of moral and political training, that he possesses an excellent knowledge of equipment, weapons and combat operational methods, a high degree of physical endurance, the ability to find his bearings rapidly, to evaluate a situation and make the correct decision. Provided such qualities are sufficiently developed in a serviceman, a combat situation will evoke in him a positive reaction, positive tension and excitation, which will help him to summon up his strength and apply it to the fulfillment of his combat task.

What is the mechanism of the effect on the mind of a dangerous situation, a mortal threat?

The human brain is so constructed that it reacts to every unexpected stimulus with excitation. The excitation activates the mind. Attention is focused on the stimulus; this is accompanied by an emotional bracing and intensification of mental activity. All this is a manifestation of a positive working reaction, which creates a state of readiness for action. If a man is affected by an unusual stimulus of exceptional force, or he comes under the prolonged influence of a stimulus of steady force, the excitation in the cerebral cortex becomes correspondingly more intense. The presence of a seat of intense excitation in some region of the brain or other can lead to inhibition in the remaining regions. Thus, a state of depression arises: a person experiences passive feelings (terror, fear), his attention is distracted, his thinking is paralyzed, and his actions become uncontrollable.

The human mind may be subjected to severe tests in modern warfare. A nuclear explosion with its flash and noise, feelings of anxiety caused by anticipation of a nuclear strike, and other emotional experiences are exhausting stimuli. All this may produce a negative effect on a soldier or a sailor and evoke in him a passive reaction. The schooling of servicemen's minds to react positively to unexpected stimuli of exceptional force and to function positively in a dangerous situation constitutes the main ingredient of psychological training.

The psychological training of a soldier or sailor for modern warfare means

teaching him to act in a dangerous situation without losing his presence of mind. The most important way of achieving this is to place him in a dangerous situation for a preparatory period and thus develop psychological stability. During combat training, the principle of teaching the troops that which is necessary in modern war must be strictly adhered to. Here the objective should be not simply to copy the external appearance of a combat situation, but to try to reconstruct its psychological model.

The effectiveness of psychological training is increased when elements of danger and risk are introduced during the combat training process. It should be remembered that war and combat are permeated by danger and risk. Danger is an element of war. In order not to be controlled by this element, it is necessary to be able to endure it. The introduction of danger and elements of risk into combat training truly develops such an ability. Without this, personnel would not be able to form a true concept of combat, and they acquire skills which can be used only in a simple, uncomplicated situation.

Naturally, danger and an element of risk must be introduced into the training process within reasonable and controllable limits. There is a whole system of exercises, lessons, types and forms of combat training which contain elements of danger. This makes it unnecessary to introduce any special methods. Danger and risk are inherent in such types of training as exercises that involve driving combat vehicles under water; driving tanks over trenches containing personnel; combat firing exercises, particularly those involving personnel in trenches that are under fire from infantry support weapons, grenade throwing whilst going into the attack, etc.

It should always be remembered, however, that psychological preparedness for action under actual combat conditions is not achieved as a result of any one-time exercises: its formation continues throughout the entire service period, and the whole training and educational process.

The main task of moral and psychological training is the formation in our fighting men of ideological conviction, unshakable confidence in the strength and validity of communist ideals, and education in a spirit of dedication to the Motherland, hatred for its enemies, and devotion to military duty. In content it must be directed at the instilling of heroism and courage in our fighting men, and readiness for self-sacrifice for the sake of the fulfillment of their assigned task.

MILITARY PEDAGOGY

Soviet military pedagogy is the science of the objective laws of communist education and training of fighting men, the training of personnel of subunits, units and ships in the skilled conduct of modern combat. It reveals the general pedagogical objective laws of combat and political training, forms a basis for the principles, methods and organizational forms of the education and training of servicemen, develops means of uniting military collectives, their psychological training, and analyzes the activities of the commander as the leader and educator of his subordinates.

The military pedagogical sciences are defined in the methods of the various training subjects (tactical, firing, drill, and physical training; flight training; the training of subunits, units, ships, staffs, etc.). Methodics is the science of the objective laws of training and education applicable to a given educational discipline. Military pedagogy stands out as the theoretical basis for the methodics of different educational disciplines. It provides the interconnection of methodics and a common approach to the solution by them of pedagogical problems. At the same time, methodics, being based on the general arguments and conclusions of military pedagogy, develops them, thus enriching the initial theses of military pedagogical science as a whole.

The basic concepts (categories) of military pedagogy are **training, ideological education and formal education.**

Training is a purposeful process, in the course of which servicemen, under the leadership of their commander, acquire the necessary knowledge, skills and abilities, and are psychologically prepared for combat.

Ideological education is the process of the purposeful formation of a person's character. Under the conditions obtaining in the Soviet Armed Forces, its purpose is the formation of communist mentality and behavior, sound moral and fighting qualities in servicemen, and the all-round development of the characters of each of them.

Formal education is the aggregate of systematized knowledge, skills and abilities, views and convictions, and also the specific level of development of a person's cognitive powers and practical training, reached as a result of teaching and educational work. Depending on the character and the directive tendency towards training for a specific form of socially useful activity, a distinction is made between general, polytechnical and professional education. Servicemen in military schools and academies receive a military professional education (secondary or higher).

Ideological education and training are inseparably linked and there is constant interaction between them. The former imparts ideological direction to training and increases its effectiveness. In turn, both formal and ideological educational problems are resolved during the course of training.

Ideological education and training in the Armed Forces interacting in close harmony, form the military pedagogical process. This process is also studied by military pedagogy. Revealing its objective laws and their manifestation in the most widely varying conditions, military pedagogy evolves and substantiates the principles, methods, and organizational forms of teaching and educational work. In so doing, it indicates ways of applying the theoretical propositions in practice, provides military cadres with the most effective and efficient pedagogical means and methods, and forms in them the ability to train and educate subordinates.

Soviet military pedagogy is a Party science. It is based on genuinely scientific Marxist-Leninist methodology. It is concerned with the entire process of combat and political training of personnel in close relationship with the specific conditions of life and activities in the Armed Forces, and the characteristics of wars in defense of the socialist Fatherland. It analyzes pedagog-

ical phenomena in the process of their constant change and development.

An integral part of general pedagogy, military pedagogy is, at the same time, included in the system of military sciences. Military theory, in revealing the methods, forms, and objective laws of armed combat, the conditions and character of combat operations, determines what qualities a Soviet soldier must possess, what kind of knowledge, skills, and abilities he needs for the achievement of victory in modern combat. In conformity with these requirements, military pedagogy is called upon to work out and substantiate the optimum conditions for the organization and the most effective methods of teaching and educational work, in both peace and war-time. Military science, in turn, also considers the conclusions and resources of military pedagogy.

Military pedagogy is closely connected and interacts with general and military psychology, the physiology of higher nervous activity, Party political work, and numerous social sciences; it is also becoming more closely associated with mathematics, cybernetics and mathematical logic.

Research in the field of military pedagogy, which is being conducted in accordance with the methodological requirements of dialectical materialism, employs many methods. These include: observation, experiment, debate, survey by questionnaire, photographing, filming, television, sound recording and analysis of various documents. Sociological and mathematical research methods as well are being used on an increasing scale.

The more complex military science becomes, the more varied the teaching and educational work of officers, the more imperative the need to study military pedagogical theory. In recent times, special attention has been devoted to the development of methods and means of processing materials obtained in the process of investigation.

In conformity with the new Universal Military Service Law, the period of service of privates and noncommissioned officers (petty officers) has been reduced: younger and more literate replacements are going into the Armed Forces. Commanders and political officers are faced with many new psychological and pedagogical problems in connection with this. In particular, there is a need for more careful selection and distribution of young servicemen by trade qualification, having regard to their individual peculiarities, and the need to ensure that they are put into service in the shortest possible time; the organization of the teaching and educational process must achieve a higher level of efficiency and effectiveness, maximum use being made of every minute of teaching time. Military psychology and pedagogy suggest ways of solving these problems successfully.

The Theory of Training Soviet Servicemen

The nature of the training process. The training of servicemen is a specific pedagogical process. It is organized and conducted in accordance with the policy of the Communist Party and the Soviet government on the basis of present-day military doctrine, orders of the Minister of Defense, military regulations, instructions and programs of combat and political training.

Its main task is to ensure a high state of constant combat readiness of units, ships and formations, and their ability to crush any aggressor who dares to disrupt the peaceful creative labor of our people.

The mastery of his military trade and the improvement of his knowledge, skills, and abilities are the official duty of every serviceman and the basis of all his activities. The training process extends beyond the training of individual servicemen to the coordination and unification of military collectives. Combat training takes place primarily in the field, at sea, in the air, at launching and firing positions, on airfields and tank ranges. Under simulated combat conditions, the personnel of subunits, units and ships acquire proficiency in the conduct of modern mobile battles and learn how to overcome the difficulties of field and combat conditions.

Essentially, the training of fighting men is a social process governed by the Armed Forces' requirements for well trained defenders of the Motherland, capable of effective action in complex modern warfare. This process consists of the activities of an instructor (commander, superior), and is known as *teaching* and the activities of those being instructed (subordinates) has been given the name of *learning*. In its dialectical unity teaching and learning are directed at the acquisition by the learners of a specific system of knowledge, skills and abilities. At the same time, it fosters the development of creative thinking, trains the will and character, and forms moral, political and fighting qualities, psychological stability and internal readiness for combat.

In the training process the commander accomplishes the following tasks:

- organizes and directs the educational work of his subordinates;
- sets out in a systematic form the content of the training theme and demonstrates the most expedient methods of practical work;
- develops in servicemen an interest in their studies and a desire to learn;
- assists his students to study intelligently, and develop abilities and the capacity to acquire and improve knowledge, skill and abilities independently;
- supervises his subordinates' progress in acquiring proficiency in their military trade and evaluates their work.

These interrelated and interdependent tasks are resolved, taking into account the content of the training material, the degree of training and development of the trainees, and also the conditions in which they find themselves. Here the commander emerges primarily as the organizer of the activities of his subordinates.

The acquisition of knowledge is a uniquely organized cognitive activity of trainees. Soviet pedagogy reveals its specific nature, resting on the Marxist-Leninist theory of knowledge and taking into consideration data on the physiology of higher nervous activity and psychology.

Possessing knowledge, a person engages in positive activities, at the basis of which lies his experience, and his previous training. These activities consist of the apprehension of educational material, its comprehension, recollection, and practical application.

The necessary skills and abilities are developed on the basis of knowledge in the process of purposeful exercises and practical work. The depth and soundness of the knowledge forming the basis of the skills and abilities also determine the quality of the latter. The more well-founded the knowledge,

the more profound and reliable, then the more successfully skills and abilities are formed.

Knowledge and essential skills and abilities are acquired successfully only when trainees have sound study motives, a positive attitude to their studies, self-control, and the ability to maintain constant attention.

The objective laws and principles of training Soviet servicemen. The training of servicemen is a regular, dialectically developing process. As in any social phenomenon, it reflects the basic laws of social development, uniquely manifests the objective laws of the perceptive activities of people, personality formation, social psychology, physiology, cybernetics, and modelling. The training of servicemen has its law-governed relations with various phenomena of public life, military affairs, and with other pedagogical processes (ideological education, self-education, psychological training). Finally, the training of servicemen has its specific pedagogical and objective laws. They are all dialectically interrelated and supplement, amplify, or weaken each other. This complicates training work, makes it varied and controversial.

The following principles of training are derived from the objective laws inherent in the process of training servicemen:

- Communist Party commitment and scientific character;
- teaching the troops what is necessary in war;
- consciousness and activity;
- use of visual methods in training;
- system and sequence in training;
- accessibility of training;
- sound mastery of knowledge, skills and abilities;
- collectivism and individual approach in training.

Soviet military pedagogy does not reduce its principles to the sum of the rules and methods of training. It sees in them primarily the methodological content which determines the general attitude and views of the trainee. In conjunction with this, these principles emerge as a system of basic pedagogical requirements for the all-round training of personnel.

What is the nature of these principles?

Communist Party commitment and scientific character. This principle requires all commanders to conduct training so that their subordinates have a clear idea of their sacred duties as defenders of the Motherland, and understand the lofty meaning of military service. For this it is essential that knowledge and skills be formed on the basis of a profound conviction in the rightness of our cause, blended with personal responsibility for the defense of the Motherland.

V. I. Lenin emphasized that the important thing in training is the ideological and political direction of teaching and consistent Party commitment in educational work. This presupposes that the policy of the Communist Party and its requirements of Armed Forces personnel will be presented in a striking and detailed fashion during lessons.

Communist ideology is founded on a sound scientific basis. Hence, the

requirement: all knowledge which a commander imparts to his subordinates must be authentic, methodologically sound, and based on an evaluation of the objective laws of the development of military science.

To conduct training in accordance with the principle of Communist Party commitment and scientific character means to be concerned about elevating the ideological aspect of training, to be exacting in requirements of subordinates, and to tolerate absolutely no shortcomings in combat and military training.

The principle of **teaching troops what is necessary in war** determines the content of combat training and the conditions under which it is conducted. It imparts practical direction to the training of servicemen, ensures that training is related to the experience of past wars and the present-day level of development of military science. The significance of the requirements of this principle consists in our servicemen being trained in every respect for successful operations in modern combat.

Soviet military doctrine and military science reveal the features and characteristic patterns of modern war. The specific actions of servicemen in combat are determined by military regulations and instructions. Therefore, one of the main requirements of this principle is: the commander must teach his subordinates in strict conformity with the regulations, instructions and orders of the Minister of Defense.

A further requirement stemming from the principle of teaching troops what is necessary in war is: to pay the greatest attention to the field training of ground forces, the sea and air training of Navy and Air Force personnel; to conduct lessons directly on the equipment, in the field, at launching areas; to make the training conditions as close as possible to those encountered in actual combat; and not to tolerate oversimplification and leniency.

Consciousness and activity. Even in the initial period of the Soviet era, V. I. Lenin demanded that cramming and drill be eliminated from training and that people be taught on the basis of their consciousness and activity. In a speech delivered at the III Komsomol Congress, Vladimir Il'ich said that in the process of training each person must engage in the most serious and difficult work, analyze facts and consider them critically. A person should not simply remember any given conclusions, but fully comprehend them.

The principle of consciousness and activity assumes: the serviceman's awareness of the tasks of the educational work; an understanding and detailed consideration of the training material; positive and resourceful actions of trainees during the course of lessons; correct application of acquired knowledge, skills and abilities in training work; self-testing and critical evaluation of the results of one's own work.

Consciousness and activity are developed primarily by means of a clear presentation of the aims of a lesson, skillful explanation of why it is necessary to act in a certain way and not otherwise, demanding independent solutions of problems, and by encouraging initiative. In many types of lessons it is expedient to stimulate the activities of subordinates by introducing a competitive element.

The use of visual methods in training. Many training problems are resolved more successfully by the use of visual methods. However, the main purpose of visual aids is to form in servicemen concrete and correct ideas about the nature of modern combat, to reveal the role of combat skill, to help them to understand the lay-out and operational principles of fighting equipment and learn how to make efficient use of weapons in combat.

Of the different types of visual aids used in subunits, units and ships, the principal ones are: true or natural (combat and training weapons, combat equipment, outfits, specially equipped training fields, firing ranges, tank training areas, etc.); graphic aids (simulation, mock-ups, models, stands, miniature firing ranges, films, epidiscopes, transparency projectors, posters, drawings, photographs, diagrams, tables, etc.); verbal-graphic aids (striking comparisons, examples, descriptions); practical demonstrations of how to carry out given operations.

In recent years such graphic aids as films, diapositive films, color transparencies and television have taken the lead in this field. These have considerable advantages over other means, make it possible to demonstrate objects, phenomena and processes in motion, during development (for example, combat operations), or which cannot be observed directly (the flight of a projectile, metal corrosion), to show processes and phenomena in rapid or slow motion, etc.

The use of new visual aids does not mean that we should adopt a negative attitude to those which have served for many years in the training process (diagrams, tables, graphs, etc.).

System and order in training. This principle requires that the training material be presented in a strictly logical fashion, and that subordinates strive to assimilate the systems of knowledge, skills and abilities accordingly.

K. D. Ushinskiy, the celebrated Russian pedagogue, laid down the basis of this principle. He wrote that only a system, a rational one, of course, which is derived from the very essence of objects, gives us complete power over our knowledge. A head filled with fragmentary, disconnected knowledge is like a storeroom in which everything is in disorder and in which the storekeeper cannot find anything; a head in which there is a system and no knowledge is like a store in which there are inscriptions on all the boxes, and the boxes are all empty.

New material which the commander presents at a lesson must rest on, follow from and at the same time deepen, previously assimilated knowledge.

To present training material systematically means to impart it in logically completed parts, to isolate and emphasize the principal idea around which different facts, examples, and illustrations are grouped, at the same time being concerned that all the training material is apprehended as an integrated whole.

Accessibility of training. No one can consciously assimilate material on the strength of his previous experience and training under given concrete conditions without a certain degree of difficulty and then, only in a certain volume. Therefore, it is essential to organize the training of subordinates so that, by appropriately extending their mental and physical powers, they can assimilate fresh knowledge more thoroughly, and acquire the necessary skills and abilities.

The accessibility of training principle must not be interpreted as a requirement for "easy" training. Studying without adequate stretching of the intellectual and physical powers is not only useless, but harmful, and results in

the servicemen's adoption of a casual attitude towards their studies, self-satisfaction, and conceit.

An officer must be fully aware of his subordinates' level of training, their physical development, he must not overload their lessons with unnecessary details, and he must be able to talk about complex matters in clear and simple language and demonstrate a given action graphically. A basic rule of accessibility is to switch during training from the known to the unknown, from the less complex to the more complex, and from the less difficult to the more difficult.

Sound mastery of knowledge, skills and abilities. Modern warfare makes enormous and protracted demands on servicemen's morale and physical powers, and requires them to endure unprecedented difficulties and deprivations. For our fighting men to acquit themselves honorably in any ordeal, their knowledge, skills, and abilities must be well-founded.

Sound mastery of knowledge is achieved by the entire training process. In this, an important role is played by clear and convincing narration, detailed explanation, demonstration of examples, and the commander's ability to interest trainees and organize their practical work correctly.

The consolidation of knowledge and the improvement of skills are out of the question without the active participation of the trainees themselves. It is essential that every soldier and sailor thoroughly understands the need for well-founded knowledge and the reason why he should perform different procedures automatically.

Systematic revision and the taking of study and lecture notes are of great assistance in firmly establishing knowledge and skills.

Collectivism and the individual approach in training. Soviet soldiers and sailors are trained in a collective—as members of a section, detachment, crew, action station, etc. The solidarity and harmonious functioning of a collective impart a truly creative character to training. A situation involving complex psychological interaction, characteristic of a real collective, arouses general interest and creates an atmosphere of collective endeavor aimed at finding ways of fulfilling a task as efficiently as possible.

The supervision of such a process requires an officer to have the ability to understand group psychology, to consider general and individual opinions and the moods and demands of trainees. One of the most important means employed for these purposes is the setting of group study problems, and the discussion and selection of the best solutions.

The creation of favorable conditions for group study work depends largely on the officer's ability to approach each of his subordinates individually. An individual approach indicates the commander's concern that each man works to the full extent of his powers and potential, that he successfully assimilates the combat and political training program, and develops his abilities.

Training is a single complete process, all aspects and elements of which are closely interrelated. Therefore, even the requirements of the principles of training need to be examined in close relationship and interdependence.

The commander accomplishes the training of subordinates by different

methods, chiefly oral exposition and discussion of the training material, demonstration, exercises, trainees' practical activities, and independent work.

Oral exposition takes the form of description, explanation and lecturing. **Description**, i.e., a brief narrative exposition of the material, is employed to familiarize subordinates with weapon design specifications, new facts, events, etc. In order to reveal the meaning of regulations, the nature of a given phenomenon, process or action, the commander resorts to *explanation*, in the course of which argument plays an important part. Basic theoretical questions are presented in the form of *lectures*.

Any oral exposition made by a commander to his subordinates must always be convincing, well reasoned, and intimately related to the practical tasks of his subordinates. Success in this depends largely on his ability to select and use precise, authentic, and most typical facts, which help to reveal the essential nature of the question being studied.

In preparing his lectures, he should carefully think out his plan, the main points of the subject, and their interrelationship. During presentation of the material, it is essential to adhere to the outlined plan, not to jump from one thought to another, and to complete the analysis of factual material with generalizations and conclusions. Brevity and clarity of exposition plus precision of expression should be aimed at in all cases.

Discussion of the problems under study deepens, consolidates, systematizes and verifies acquired knowledge. This is conducted in the form of a discussion, a class-group lesson, or seminar. In preparing for a discussion, the commander determines and clearly formulates the training objective, and thinks over the subject matter, plan and questions. In order to ensure the success of the discussion he also prepares the subordinates for it: recommends literature and textbooks for study, helps them to select and analyze vital facts, and allocates time for independent work, etc.

At the beginning of the discussion it is essential to reveal the significance of the theme, the sequence of the impending lesson, then present a question to the entire group and, after a slight pause (15–20 seconds), suggest that one of the class express his opinion. The subordinate's reply should always be listened to attentively, and he should not be interrupted, even if he makes a mistake.

By putting new questions to the group during the discussion, the commander directs their attention to the discovery of important aspects of the theme, and to relating the subject under discussion to specific problems. He tries to establish contact with the class and to create a cordial atmosphere during the lessons. After the discussion of each question, the officer briefly draws a general conclusion from the stated opinions. Finally, the main conclusions are formulated, questions are answered, and the performance of the participants evaluated.

Demonstration. As a rule, during the course of descriptions, explanations, lectures, and discussions, the commander demonstrates specimens of weapons, fighting equipment and gear, demonstrates various effects and processes, either actually or in representation (charts, pictures, graphs, etc.).

Embarking upon a demonstration, an officer puts concrete problems to the trainees. For example: "Now I shall demonstrate the specific features of this engine. Special attention should be paid to the function of this or that component." Then he proceeds with the demonstration in slow time, interjecting brief explanations as he goes. Having satisfied himself that he has been understood, he continues his description or starts to demonstrate another object.

Training in carrying out formal drill maneuvers, and handling weapons and fighting equipment is given in the form of practical demonstrations with brief explanations. The essence of this method may be summed up in the words: "Do as I do." Before the beginning of a demonstration, the officer explains the purpose of the actions in question and their practical significance; then he carries them out in the time laid down in the directions or instructions. The first demonstration is followed by a stage by stage repetition, given in slow time and accompanied by a brief, clear and precise explanation.

Exercises are conscious multiple repetitions of specific actions and procedures. They are organized for the purpose of developing practical skills and abilities. An officer's primary concern is to ensure that trainees learn and execute particular operations correctly and then, and only then, does he gradually increase the tempo of their work and eventually bring it up to the required standard. Training, which is one of the forms of exercise, is utilized to maintain and develop acquired skills and abilities. Training is characterized by the gradual complication of operating conditions accompanied by an increase in the physical and moral load.

Practical work. Military and military-technical knowledge, skills, and abilities are perfected and consolidated in the course of practical work—in tactical exercises, sea patrols, firing practices, flying, periodic servicing, in the repairing of equipment, etc. As a rule these are all carried out by members of sections, teams, crews and subunits and, therefore, play a decisive role in welding these groups together.

In order that servicemen participate actively in practical work it is essential to prepare them in the appropriate way: recommend that they read rules, regulations, instructions and manuals, carry out training work, explain the nature of the forthcoming work, and familiarize them with safety measures.

When the work is actually under way, the commander assigns each man a specific task, organizes a competition, supervises the progress of the work, lends assistance where necessary, summarizes the results and evaluates the quality of the work performed, takes timely note of independent resourceful actions and cites them as worthy examples.

Independent work. Its principal forms are: work on literary sources, independent study of equipment, independent training, independent viewing and/or auditing of television and radio broadcasts.

The most difficult type of independent work is the study of literary sources. The recipe for success in this work is to begin by a rapid reading of the text in order to gain a general idea of it. Then read the text slowly, digesting every phrase, each paragraph, and picking out the main points. During the second reading it is advisable to make an abstract of the studied material, then mentally reproduce it, thus consolidating the acquired knowledge.

The growing complexity of military science increases the importance of the independent training of servicemen.

The commander supervises the work of his subordinates, in all their stud-

ies, verifies and evaluates their knowledge, skills and abilities according to a four-grade system: "excellent," "good," "satisfactory," and "unsatisfactory." In all cases the evaluation must be objective and just.

Forms of training. The quality of training depends largely on the organization of the military pedagogical process and the form in which it is effected. The forms express the organizational side of training. They provide for the composition and grouping of the trainees, the structure of the lessons (exercises), their place and duration, the role and specific nature of the instructor's work.

The forms of training, like the whole military pedagogical process, are being constantly improved. Their development depends upon the training tasks and content, the authorized organization of the forces, the specific nature of the combat activities and work of members of the different Services and arms of the Services, the overall level of development of the personnel, and the special characteristics of the fighting equipment.

The practice of combat and political training involves different forms of training which can be arbitrarily represented under the following headings:

- theoretical studies: lectures, seminars, class-group studies, lessons in laboratories and specially equipped classrooms, group exercises on maps, self-training, tutorials, supplementary lessons for servicemen who are making poor progress or who have missed lessons, etc.;

- field training: tactical and tactical-drill training, training in launching and firing positions, on firing ranges, airfields, tank exercise areas, in depots and garages, on the parade ground, in engineering, chemical, and sports centers, etc.;

- training exercises: drill, small arms, staff, physical, radio, tank gunnery, command post, and "Alert" training exercises, etc.;

- live firing and rocket launches include: all single firings; firings carried out by detachments and crews, artillery, air and naval firing, as well as live rocket launches;

- drills: tactical, tactical-special, command and command post, as well as tactical drills involving live firing;

- war games: command and command-staff games;

- periodic servicing days.

Apart from the forms of training common to all Services and arms of the Services, there are also specific forms.

Considerable work is being done on the improvement of methods and forms of personnel training in connection with the reduction in the training periods of Armed Forces rank and file, noncommissioned and petty officers. The principal trend in these improvements is towards the mobilization of all the cognitive-volitional and physical resources of trainees, and the increase of their independence and activeness in the training process. This is accomplished through the officer's ability to conduct lessons and drills in a lively and interesting way, by posing complicated problems which require the trainees to extend their intellectual and physical resources and be capable of checking and evaluating their own work independently. Great possibilities of improving training methods and forms have been opened up by modern technical resources: training apparatuses, especially those with electronic and programmed attachments, electrified stands, monitoring devices, film projectors, electric recorders, etc. Considerable attention is

being devoted to improving forms and methods of training aimed at approximating servicemen's training conditions to those of actual combat.

In revealing the characteristic features and structure of different forms of training, military pedagogy emphasizes that, intelligently combined, these forms permit both individual and group training, and steadily, consistently improve the theoretical, practical, and psychological training of all categories of servicemen.

The Theory of the Ideological Education of Soviet Servicemen

The nature of the process of the ideological education of servicemen. This is an exceptionally important part of an officer's work. In accordance with Party and Government resolutions, the requirements of the military oath and military regulations, the commander forms in his subordinates a scientifically sound philosophy of life and ideological conviction, and educates them in the spirit of the principles of communist morality. Soviet servicemen are educated in the spirit of boundless loyalty to the people and the communist cause; they develop the qualities of courage, audacity, heroism, and a spirit of comradeship in arms with the armies of socialist countries, readiness to give all their strength and, if need be, even their lives, for the defense of the socialist Motherland.

As is evident from what we have said previously, many educational problems are resolved during the training process—many, but by no means all. For this reason there is a need to carry out special educational work with subordinates. Ideological education is a broader and more complex process than training. It is the systematic and purposeful influencing of the serviceman's mind, senses and will, the guidance of his daily activities aimed at the all-round development and the formation of high moral, political and fighting qualities, the solidarity of military collectives, and their psychological conditioning for modern warfare.

The commander influences his subordinates by word, personal example, the organization of their practical activities, and the creation of suitable community views in the collective.

In the process of ideological education the commander strives to form in his subordinates stable personal convictions and correct behavioral habits.

In addition to the development of inherent and positive qualities, the commander's ideological education work also includes the re-education of subordinates. If a soldier has incorrect opinions and negative habits, the officer tries to eliminate them and form new, positive ones in their stead.

A person is freed more rapidly from the survival of the past if he himself wants this and if he has the desire for self-improvement. That is why, in the process of ideological education, it is important to develop in each subordinate a desire for self-education and systematic, persistent work on himself.

The ideological education of personnel of the Soviet Armed Forces is accomplished in accordance with certain **principles**, the most important of

which is the **communist purposefulness and Party commitment** of ideological education. This principle expresses the natural dependence of the ideological education of Soviet fighting men on the policy and ideology of the Communist Party.

In all his practical work, an officer is obliged to conform to the resolutions of the CPSU on educational work, to form a clear idea of the principal aims of ideological education, and to be constantly concerned about raising the ideological level of the procedures in use.

A very important requirement of this principle is perseverance in achieving the set educational aims. For example, an officer must not wash his hands of an undisciplined soldier, on the assumption that he cannot be influenced. As we know, a person's character is not formed suddenly or immediately. V. I. Lenin said: "Ideological education is a long and difficult process. Here it is impossible to get by with a decree, one has to approach patiently and skillfully. . . ." ²

The ideological education of servicemen during military service and military work. Socially useful labor and practical work play a decisive role in the formation of an individual's personality and in the development of all his qualities. V. I. Lenin repeatedly referred to the role of labor in the communist education of workers, especially the young. He said: "Only by working together with the workers and peasants is it possible to become true communists." ³

Service, the combat training of Soviet servicemen, is socially useful work, the lofty and honorable duty of every citizen of the USSR. This labor is the best possible means of developing in servicemen the qualities that are essential to an armed defender of the socialist Motherland.

However, the educational effect of military labor depends largely on the commander's fulfillment of a number of pedagogical requirements. What are these requirements? Firstly, it is important that soldiers, sailors, noncommissioned and petty officers understand the place and role of their service and their military labor in the national struggle for the building of communism. Secondly, the educational effect of military activities is increased if it is well organized, and regulation procedures are maintained during the course of lessons and work, if servicemen's conduct is kept under constant supervision, combined with an objective evaluation of work performed. Thirdly, a vital factor of ideological education in the process of military labor is socialist competition, a desire to fulfill assumed obligations. That is why it is important that all the activities of soldiers, sailors, noncommissioned and petty officers should be permeated with a spirit of rivalry. Fourthly, the educational role of labor is increased if it is intelligently combined with recreation and cultural leisure.

The ideological education of servicemen in and through the collective. Soviet society is a society of collectivists. Relationships between people in our

² Lenin, XL, 267.

³ Lenin, XLI, 317.

country are based on friendship and comradely cooperation. Collectivism and comradely mutual assistance—one for all, all for one—is one of the basic moral precepts of the builders of communism.

As A. S. Makarenko rightly observed, orthodox Soviet education should be organized by creating united, strong and influential collectives. Military activities, more than any other kind of activities, are of a collective nature. Each serviceman lives and carries out his tasks as a member of a detachment, team, crew, subunit, unit or ship's complement. And it is in the collective and under its influence that a serviceman develops his political, military, moral and cultural attitudes; he also develops and consolidates such qualities as clear awareness of his military duty, a sense of responsibility for the assignment entrusted to him, discipline, respect for his comrades and mutual assistance.

The principle of education in and through the collective requires that the commander be constantly concerned about uniting his subordinates into a friendly close-knit family. This is facilitated by assigning general tasks to the personnel of the subunit, by arranging for mutual assistance in training, support for Party and Komsomol members, discussion of training and service achievements within the collective, the maintenance of the traditions of the collective, opposition to sham comradeship, the development of general and self-criticism, etc. The commander himself is the senior comrade, the demanding and, at the same time, solicitous superior of each subordinate. He values the honor of the collective, which he aspires to lead forward.

The individual approach. Every serviceman is an individual personality with unique qualities. Thus, it is essential for a commander to adopt an individual approach in dealing with his subordinates. This means knowing each man's peculiarities of character, his standard of training and other characteristics, and dealing with him accordingly. Without knowing his subordinates, a commander would not be able to organize and conduct their training and education with any degree of success, nor would he be able to lead them in battle, or even in daily life.

In discussing the study of trainees, K. D. Ushinskiy was right when he said, "The teacher should try to know a person, *what sort of an individual he is in reality*, with all his weaknesses, all of his strengths, with all of his everyday, petty needs, and all his great spiritual needs. Only then will he be able to draw out from the person's very nature his potential for learning, and this potential is enormous!"⁴

In order to study the individual characteristics of his subordinates, the commander systematically observes their conduct under different conditions, evaluates the result of their practical work, and talks with them. Correlating the information obtained by different methods, he arrives at a conclusion about the personal qualities of a subordinate, and on the basis of this determines methods and procedures for conducting educational work with him.

There is no contradiction between the adoption of an individual approach to people on the one hand and working with the collective and being con-

⁴ K. D. Ushinskiy, *Sobraniye sochineniy* [Collected Works], Vol. VIII. Academy of Pedagogical Sciences of the RSFSR, 1950, pp. 35-36.

cerned about its cohesion on the other. Moreover, the requirements of the individual approach principle can only be fully satisfied in a harmonious collective.

The combination of impartial insistence on high standards from a serviceman, respect for personal merit, and concern for his welfare. In summing up his long experience in the field of pedagogy, A. S. Makarenko said: "My basic principle (and I assumed that this was not only my principle, but that of all Soviet pedagogues) was always: demand as much as possible from a person, but at the same time accord him as much respect as possible."⁵ He emphasized that insistence on high standards and respect for a man were two aspects of one and the same principle. He who does not respect a person cannot make great demands of him. We make demands of a person, because we want to elevate him, to make him more high-minded, a better person.

Insistence on high standards from subordinates, combined with respect for personal merit and concern for their welfare is an inalienable characteristic of our commander. This is natural. The Army could not exist without strict order, good organization and discipline: insistence on high standards is a means of organizing people, of instilling and reinforcing discipline.

Daily insistence on high standards is apparent in the commander's ability to establish the regime stipulated by military regulations and in his constant supervision of the activities and conduct of his subordinates. This principle, which applies constantly to all servicemen without exception, is incompatible with rudeness or belittlement of personal merit.

Servicemen submit all their needs and inquiries to the commander, counting on his assistance and support. It is the plain duty of every officer to know their needs, to intercede on their behalf with the appropriate senior commanders.

Support in ideological education for the positive qualities and positive knowledge of a serviceman. It has already been emphasized that ideological education is the process of overcoming all the negative qualities of a person's character and at the same time consolidating and developing his positive qualities. It is wrong for the attention of a teacher to be directed mainly at the weak points of a trainee's conduct. This results in the whole process being reduced to combatting deficiencies and negative factors; the positive qualities of the personality are not strengthened, do not develop, and are not used as a basis for the formation of good moral, political and fighting qualities. Moreover, emphasis on only the negative side of a person's behavior results in loss of faith in himself, his abilities and potential.

Experience shows that any serviceman, along with his negative traits and his lack of understanding of individual aspects of service life, has positive traits, correct views, good feelings. With one this may be enthusiasm for technology, with another love of sport, with a third a passion for reading, and so on. It is good to find this out; to make use of it is the direct responsibility of the commander.

This principle requires that fuller use be made of the positive knowledge of servicemen in

⁵ A. S. Makarenko, *Soch. [Works]*, Vol. V. Academy of Pedagogical Sciences of the RSFSR, 1958, p. 229.

ideological education. The commander, who in conversations with his men tries to demonstrate in an interesting way the facts about positive behavior and the service achievements of outstanding performers, is acting correctly. By doing this he develops better character traits in his subordinates and a lofty desire for all-round improvement.

Unity and coordination in ideological educational work. Success in ideological educational work is directly related to the degree of coordination in the work of commanders, Party and Komsomol organizations. To strive for such coordination means to impose unified requirements on servicemen, to educate them through the common efforts of officers, noncommissioned and petty officers, Party and Komsomol organizations.

Such is the nature of the principles of the ideological education of Soviet servicemen. They embody the requirements of the Communist Party, the military oath and regulations with respect to the maintenance, organization and methods of communist education in our Armed Forces. Strict observance of these requirements is an essential condition of successful ideological educational work in the Armed Forces.

Finally, we shall dwell briefly on the **methods** of ideological education of Soviet servicemen.

In order to form good moral, political and fighting qualities in servicemen, the commander uses such educational methods as persuasion, exercise, encouragement, compulsion, and example.

The chief method of educating Soviet servicemen is **persuasion**. Essentially this is the active influencing of the mind, senses, and will of a person for the purpose of helping him comprehend and understand the meaning of the ideas and requirements in the spirit of which he is being educated, to agree inwardly with these ideas and requirements and to resolve all practical problems in accordance with them.

As socialism became consolidated in our country, the role of the persuasion method steadily increased and that of compulsion showed a corresponding decrease. There was a particularly marked increase in the role of persuasion in the ideological education of people during the period of the full-scale building of communism.

Persuasion involves explanation of the ideas of Marxism-Leninism, the policy of the Communist Party and the Soviet government, demonstration of the need for strict observance of the requirements of communist morality, the military oath and military regulations, and criticism of negative actions.

People do not suddenly and immediately renounce their views and convictions, even though they may be erroneous. For example, a soldier or a sailor infected with religious prejudices does not as a rule rid himself of them after the first conversation. He needs time to think things over, to evaluate and eliminate the doubts that beset him. The commander must take this into consideration. His duty is to refute patiently the subordinate's incorrect views and by systematically acquainting the man with scientifically sound ideas, gradually lead him to correct conclusions.

Exercises. By means of this method, the commander solves principally such tasks as developing and inuring volitional character traits in subordinates and forming correct behavioral habits.

Exercise is inseparably linked with persuasion. These two methods supplement each other. The commander uses persuasion to form correct views in his subordinates, and high-principled motivation in their daily activities, whereas they are reinforced by means of exercises, and at the same time correct behavioral habits are developed.

The skillful use of exercise in the ideological education of subordinates implies the efficient organization of their daily life and activities and the maintenance of regulation procedure in every respect. Acting in an organized fashion, consistently fulfilling all demands made of them, servicemen become convinced of the correctness of those ideas which the commander has instilled into them, grow accustomed to self-restraint, the ability to consciously subordinate their actions and intentions to the established regime, and understand the expediency and practical importance of each regulation. But for this it is essential that the exercises are systematic and apply to all soldiers, sailors, noncommissioned and petty officers without exception.

Encouragement. This is a positive evaluation of certain activities of a serviceman, or his conduct as a whole. It stimulates the development of his character traits and behavior, provides him with the incentive to strive for new successes. Encouragement has an educational effect, not only on the individual who distinguishes himself, but also on his comrades.

In meting out encouragement, consideration should be given not only to achieved successes (work results), but to the individual's motives and the efforts which these involved. Frequent encouragement for easily achieved successes may give rise to feelings of self-satisfaction, vanity and conceit.

It is sometimes expedient to encourage a soldier or sailor who has not yet achieved any notable distinctions in his service career or conduct, but who is striving to do so. In such a case, encouragement is interpreted as confidence in the serviceman and faith in his abilities. Such an approach frequently marks the beginning of a decisive change for the better in an individual's character.

An effective form of encouragement for those who achieve success in their training and discipline, but are under punishment, is the cancellation of the punishment.

Compulsion. This method expresses a negative evaluation of a serviceman's conduct and is aimed at making him feel his guilt and mend his ways; at the same time it is intended to prevent a possible violation of military discipline, both by the serviceman in question and by his comrades. Compulsion helps people to recognize their mistakes, eradicate bad habits and form positive qualities.

V. I. Lenin said that the campaign against lack of discipline, laxity, and confusion, "cannot be conducted simply by propaganda and agitation, simply by organizing competitions, or simply by selecting organizers—compulsion must be used as well." ⁶ Here he emphasized that our policy of compulsion is based upon firm and unconditional persuasion.

⁶ Lenin, XXXVI, 197.

Compulsion in the Armed Forces takes the form of a prohibition or disciplinary punishment. Persistent offenders against military discipline and order, as well as servicemen guilty of military or criminal offences, are tried by a military tribunal.

A demand or a prohibition is not a request: it is an order. Therefore, the commander always expresses either of them in a categorical, unconditional form. Only in certain cases (where a subordinate is not well acquainted with service life, failure to understand certain regulations or instructions, circumstantial changes), does the commander accompany a demand with brief, precise explanations. Demands and prohibitions issued by the commander must be complied with, and must be commensurate with the subordinate's actual capabilities and the existing situation.

Each punishment must be justified and in all cases must correspond to the degree of guilt and the gravity of the offence. In determining the form and extent of the punishment it is essential to take into consideration the nature of the offence, the circumstances in which it was committed, the previous record of the offender, and the time he has served in the Armed Forces. In addition to this, the offender's motives, character, temperament, feelings, will and other mental characteristics must be taken into account.

The commander, having punished a subordinate, should ensure that the offender and his comrades are fully aware of the nature of the offence, its danger, and the justice of the punishment.

Punishment is a very powerful means of influencing a person and it should be used carefully. Punishments cannot be handed out indiscriminately. Frequent punishments make people nervous and create a tense atmosphere in the subunit. It should also be borne in mind that soldiers and sailors who are frequently subjected to disciplinary action get used to punishments, and, indeed, cease to react to them. Only when all other means have been exhausted and have failed to yield positive results, does the commander resort unhesitatingly to punishment.

Example. This is a specific method of education. Its effect is based on the tendency of people to imitate each other. This should not be understood as blind, mechanical copying of the actions and deeds of other people. Imitation entails comprehension and selectivity. Servicemen learn from people who serve as examples for everyone. They are especially influenced by the great Lenin's example of devoted service to communism. The life and activities of Il'ich's students and brothers-in-arms, the images of dispassionate revolutionaries, heroes of the two world wars, literary and film heroes provide examples of courage and fortitude.

The effectiveness of all methods and means of ideological education is reinforced by the personal example of the commander. If an officer always and in all respects acts in accordance with the requirements of the military oath and regulations, and if his deeds are as good as his words, he enjoys authority among his subordinates and they imitate him.

Concerning the Pedagogical Proficiency of the Officer

A well-developed teaching mentality, a creative approach to the utilization of different methods and procedures of influencing subordinates, and proficiency in education and training are of great importance in the officer's military pedagogical work.

Pedagogical proficiency—this means to possess a knowledge of the nature of the military-pedagogical process, organically linked with developed skills and abilities in the field of teaching and educational work. Teaching skill is made up of numerous elements and is always manifested in combination with the teacher's personal qualities.

An important element of an officer's complement of pedagogical skills is speech—the ability to use words effectively. "I am convinced," said A. S. Makarenko, "that well-spoken . . . practical, forceful language is of enormous importance, and it may be that we still make so many mistakes in organizational forms, because we are still often unable even to speak properly. It is absolutely essential to be able to speak so that your will, your culture and your personality are sensed in your words. This must be learned."¹ A. S. Makarenko himself considered that he became a real educational expert when he learned how to say "come here" with 15–20 voice modulations and when he had learned how to produce 20 nuances by facial expression, gesture and voice.

Pedagogical skill is inconceivable without developed organizational abilities. In military pedagogical work it is important for the commander to be able to rely on Party and Komsomol organizations, to direct the teaching and training activities of noncommissioned and petty officers, and to perform any task in a quiet, businesslike fashion. M. I. Kalinin said that all military personnel must be excellent organizers.

The skill of an officer-educator is founded on his tact, i.e., on his ability to maintain correct relationships with subordinates, always and in all respects to display a sense of moderation, and to resolve any pedagogical problems without conflict. Pedagogical tact is impossible without a knowledge of the psychology of servicemen, without the ability to understand their feelings, moods, and aspirations, and without the ability to go to their assistance at any time.

The fundamentals of an officer's pedagogical skill are taught in military school. Abilities are developed and improved during the process of day-to-day work with people. The young officer is transformed into a methodologist and a master of training and education under the guidance and with the support of senior commanders and Party organizations, and by means of various educational measures. It should, however, be borne in mind that the principal means of developing pedagogical expertise is independent work. This takes various forms. First of all, an officer studies the classics of Marx-

¹ A. S. Makarenko, *Soch.* [Works], V, 242.

ism-Leninism, the resolutions of the Communist Party on training and education matters, military regulations and instructions, the orders and speeches of the Minister of Defense, the directives of the Minister of Defense and the Head of the Chief Political Directorate of the Soviet Armed Forces, the military pedagogical works of outstanding military leaders, classical works on pedagogy and psychology, special literature on military pedagogy and military psychology.

It is impossible to become an expert in training and education without thoughtful preparation of each lesson, each educational procedure. Experience shows that lesson preparation usually includes the following basic elements:

- obtaining a clear understanding of the subject matter of the lessons, and studying the appropriate regulations, directions, instructions, educational material and other sources;
- formulation of the principal aim, and of specific training and educational tasks;
- elaboration of the lesson structure, definition of basic questions relating to the theme, and the time needed to study each question;
- selection of the appropriate factual material, which will be used in the course of the lessons;
- selection of training methods, and personal training in carrying out given procedures and actions;
- preparation of visual aids, technical facilities and other educational material;
- compilation of an outline summary;
- the training of noncommissioned and petty officers for the lesson.

Each completed lesson or educational measure should be critically analyzed to establish its strong and weak aspects, and to determine the reason for failures, after which the officer should work independently on improving his ability to train and educate subordinates. Of undoubted benefit in this connection is self-exercise in the development of his powers of observation, imagination, and techniques (diction, expression, gesticulation, the ability to demonstrate procedures, etc.).

Every unit and every ship has real experts in training and educational work. The young officer trying to improve his pedagogical skill can gain much by attentively studying their experience.

* * *

Such are the problems of military psychology and pedagogy. In studying them every officer should heed the advice of K. D. Ushinskiy: "We do not say to pedagogues: act in such and such a way; we say: study the laws of those mental phenomena which you wish to manipulate, and act in conformity with these laws and the circumstances in which you wish to apply them."¹ This

¹ K. D. Ushinskiy, *Sobr. soch.* [Collected Works], VIII, 55.

means that every officer should adopt a constructive approach to the subject, take into consideration the specific features of the situation in which he works, and study his subordinates constantly.

What to Read on This Section

- Voyennaya psikhologiya* [Military Psychology]. Voenizdat, 1968.
- Psikhologiya voinskogo kollektiva* [The Psychology of the Military Collective]. Voenizdat, 1967.
- Sovremennyy boy i psikhologiya voina* [Modern Warfare and the Psychology of the Fighting Man]. Voenizdat, 1967.
- Voyennaya inzhenernaya psikhologiya* [Military Engineering Psychology]. Voenizdat, 1970.
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- O pedagogicheskoy masterstve ofitsera* [On the Pedagogical Proficiency of the Officer]. Voenizdat, 1960.
- Sovremennaya burzhuaznaya voyennaya psikhologiya* [Contemporary Bourgeois Military Psychology]. A collection of articles in translation. Voenizdat, 1964.

Chapter 5. THE ARMED FORCES OF THE USSR

The Armed Forces of the USSR have blazed a path of glory for more than half a century. Created by our Party under the direct leadership of V. I. Lenin, they have honorably fulfilled their historical mission throughout the entire history of their existence. Safeguarding the achievements of the Great October Socialist Revolution, our Armed Forces have many times engaged the forces of international imperialism in mortal combat and in every case emerged victorious.

During the difficult years of the Civil War and the foreign military intervention, marked by economic disorganization and a shortage of weapons, the Red Army wiped out the well-trained and well-equipped armies of the internal counterrevolution and the interventionist forces. Socialism won the first decisive battle against the forces of imperialist reaction.

After the Civil War, the Communist Party and the Soviet government, implementing Lenin's policy of industrialization of the country and the socialist reconstruction of agriculture, bearing in mind the military threat posed by imperialism, did everything possible to strengthen the defensive capacity of our state. Relying on a steadily growing economic base and a newly created military industry, the Soviet people, led by the Communist Party, transformed the Army and Navy into a formidable force within a very short period. The Air Force, the Navy, the armored troops and artillery, the Airborne Forces and the Air Defense Forces were created and equipped with great rapidity. The organizational structure of the Armed Forces was improved, cadres of command, political and engineering-technical personnel were trained.

The Great Patriotic War was a formidable test for the Soviet State and its Armed Forces. Fascist Germany's treacherous attack created unfavorable conditions for us at the beginning of the war. In fierce defensive engagements and battles, the Soviet forces courageously repulsed the onslaught of the shameless enemy. Moscow, Stalingrad, the Caucasus, Kursk, Leningrad, Eastern Ukraine, Belorussia, and Moldavia were the scenes of savage battles in which large groups of the forces of Hitlerite Germany and its satellites were destroyed. These victories were a clear expression of the growing might of the Soviet Armed Forces, the skill of our soldiers and airmen, and the generalship of our commanders. In the culminating operations of 1945,

Fascist Germany was completely destroyed. Following this, our Armed Forces inflicted a decisive defeat on the Japanese Kwangtung Army, thus eliminating a dangerous hotbed of war in the Far East.

The defeat of Hitlerite Germany and its allies, a defeat in which our country played a decisive role, was of world-wide historical importance: for many peoples and countries it opened the way to freedom, independence and social progress.

The outstanding victories of the Soviet Armed Forces in the Great Patriotic War convincingly demonstrated the superiority of the socialist social and state system. Socialism created unprecedented possibilities for the political and economic development of our Motherland and proved to be an inexhaustible source of its military might. The victories of the Soviet Armed Forces were ensured by the monolithic unity of our people, the high state of morale, good organization and discipline of the troops at the front and the workers in the rear, and their selfless devotion to their Motherland and the Communist Party.

During the past fifty years, imperialist positions have weakened considerably, but the aggressive nature of imperialism remains unchanged. The principal force of war and aggression is American imperialism. The ruling circles of the USA, under the cover of talks on peace and cooperation, intensify military preparations against the Soviet Union and other socialist countries, and create dangerous seats of war in different regions of the globe. Clear confirmation of this is provided by American aggression in Vietnam, continuing provocations against Cuba, and Israeli attacks on Arab countries. The revival of militarism and revanchism in the Federal Republic of Germany is a serious threat to the cause of peace and European security.

Taking this into consideration, the Communist Party and the Soviet government show continuing concern about the further reinforcement of our country's defensive capacity and the strengthening of her Armed Forces. As a result, our Armed Forces have been transformed into a formidable and invincible force.

To quote the Minister of Defense, Marshal of the Soviet Union A. A. Grechko: "Our Armed Forces stand unshakably and firmly on guard over the achievements of the Great October Revolution. In ideological and political solidarity, in moral and fighting qualities, in the training of the rank and file and the officer corps, in the standard of technical equipment, the Soviet Armed Forces are equal to the tasks ahead of them.

Aggressors vainly entertain illusions that they can find such a combination of weapons and methods of using them, that would ensure victory in case of war. The Soviet Armed Forces are capable of waging successful warfare in any conditions—on the ground, in the air, at sea, day or night, both with and without nuclear weapons."¹

¹ *Pyat'desyat let na strazhe zavoyevaniy Velikogo Oktyabrya* [Fifty Years on Guard for the Achievements of the Great October Revolution]. Voenizdat, 1968, p. 25.

THE STRUCTURE OF THE SOVIET ARMED FORCES

The structure of the Soviet Armed Forces is not invariable. It has been changed and improved, depending on the development of the factors of production, the achievements of science, and technological progress. With the emergence of new weapons, new Services and branches of the Services were created, and the role and importance of the existing ones were modified.

The Soviet Armed Forces now consist of the following Services: the Strategic Rocket Forces, the Ground Forces, the National Air Defense Forces, the Air Force and the Navy. Each of them has its own special fighting equipment, organization, make-up and supply system as well as specific methods of using available equipment and weaponry on a tactical, operational, or strategic scale. In conformity with this, every Service is intended to conduct military operations primarily in any given sphere—on land, at sea, in the air and carries out tasks under the leadership of the commander in chief of this Service or the immediate direction of General Headquarters.

What are the characteristics of each of the Services of the Soviet Armed Forces?

The Strategic Rocket Forces. This is the main Service. It has first rate fighting equipment at its disposal, ballistic missiles with powerful nuclear payloads, the necessary launching equipment and support facilities, and is capable of inflicting crushing blows on any aggressor. The supply base of the Rocket Forces is the superb rocket-construction industry of the USSR.

Ballistic missiles have substantial advantages over other types of weapons. They are easy to disperse and camouflage at the site. They do not require large launch sites; they can also be mounted on mobile launchers. Such missiles are capable of striking objects at great distances, i.e., in practically any region of the globe. They can deliver nuclear payloads of enormous destructive force to selected targets with the utmost precision. The quality of our missile technology is characterized by the faultless operation of both the missiles themselves and all the complex mechanisms and devices involved in combat launches.

The development and mass production of nuclear missiles, the establishment of the Strategic Rocket Forces as part of the Armed Forces of the Soviet Union, i.e., their formation into an independent Service, put at the disposal of the Supreme High Command a powerful means of rapidly and directly inflicting massed nuclear strikes on an aggressor, and achieving our war aims within the shortest possible time.

The Strategic Rocket Forces are capable of inflicting powerful retaliatory strikes on an aggressor and destroying his vital installations: missile, air, and naval bases, airfields of his strategic air force, nuclear arsenals; they also have the capacity to liquidate the enemy's concentrations of ground forces, his control centers and the country's administrative and economic activities.

In order to be able to carry out their tasks more efficiently, the Rocket Forces are maintained in a constant state of combat readiness. Strategic missile complexes have all that is necessary to carry out their assigned tasks:

launching systems, fully operational missiles with live payloads, highly skilled command and engineering personnel, and well trained combat crews.

The potential of the Rocket Forces is determined by the number of launchers, the presence on them of ready-to-launch missiles, the power of the nuclear payloads, and the accuracy of the missile flight control system. It is necessary to take into account the fact that the damage (destruction) zone of a single missile also depends on the target characteristics: size, configuration, degree of protection, the nature of the terrain in its vicinity, etc.

The destructive power of the nuclear missiles at the disposal of the Soviet Armed Forces is unlimited. One missile with a powerful nuclear payload releases more energy than all the explosives produced throughout the entire world during World War II.

Colossal destruction is not the *raison d'être* of the Rocket Forces, but the unavoidable result of their operations, which, in cooperation with forces of the other services, guarantees the achievement of complete victory over an aggressor.

The Strategic Rocket Forces are the youngest and most formidable of the fighting Services, they form the basis of the defensive power of our country, and are in a constant state of combat readiness. The Soviet Union is the only country in the world in which they are constituted as a fighting Service.

The Ground Forces. This, the oldest Service, is intended for military operations on land. For a long time, our Ground Forces, as in other armies, formed the basis of the Armed Forces and were the most numerous. In fact, they decided the outcome of wars. They also bore the main burden of the struggle with the enemy in the Great Patriotic War. In cooperation with the Air Force, the Air Defense Forces and the Navy, the Ground Forces carried out the most onerous combat tasks and contributed most to the enemy's defeat. During the war, more than 8,000 infantrymen, artillerymen, tankmen, engineers, cavalrymen, and signalmen became Heroes of the Soviet Union.

The bulk of the Ground Forces during the war was made up of rifle troops—the heroic and durable infantry. Both in attack and defense, the artillery provided the main fire power; the main striking and maneuvering force was the armored troops.

After the war the Ground Forces underwent major changes. They are now armed with operational-tactical missiles, new tanks, armored personnel carriers, new conventional and rocket artillery systems, powerful anti-tank weapons, self-propelled anti-aircraft guns, rockets, artillery, and improved control systems. This has greatly increased the striking power and maneuverability of the Ground Forces. Now, in cooperation with the other Services, they have the capacity to carry out missions aimed at the destruction of groups of enemy forces in land theaters of war much more rapidly than before.

The present-day Ground Forces are made up of motorized infantry troops, tank troops, rocket troops and artillery, air defense troops, as well as special troops which provide support for operations of the main forces: communications, engineering, chemical defense, radiotechnical, motor transport, road construction, and other troops.

Motorized infantry troops. Numerically, this is one of the largest branches of the Soviet Army. They are armed with first-rate fighting equipment: submachine guns, carbines, machine guns, rifles and mortars, tanks and anti-tank weapons, as well as rocket weapons capable of carrying nuclear payloads.

A modern motorized infantry division has 16 times more tanks than a 1939 infantry division, 37 times more armored personnel carriers and armored vehicles, 13 times more automatic weapons, 5 times more radio communications facilities, all of incomparably higher quality.

The increase in the level of technical equipment of a division has considerably enhanced its combat potential. For example, the weight of a single salvo of artillery and mortar fire of a division in 1939 was 1,700 kilograms, whereas today it is equal to 53,000 kilograms. This does not take into account nuclear weapons, the power of which is several hundred times greater. The available power ratio of a division, calculated on the basis of engine power per man, was 3 hp in 1939, compared with more than 30 hp today.

The total motorization of rifle subunits, units, and formations afforded them mobility and maneuverability, the capacity to operate in close cooperation with tank forces, and to attack without losing contact with them.

The availability of powerful artillery, tanks, and other mobile armored vehicles, and especially tactical nuclear weapons, as well as subunits and units of other branches have immeasurably increased the fire power and striking force of the motorized infantry troops, and made it possible for them to conduct combat operations independently, attack, defend themselves, wage encounter battles and successfully solve a variety of combat problems. The motorized infantry troops are the most maneuverable branch of the Service, always ready for combat operations in any situation, day or night, summer and winter, in any theater of war, in any weather conditions.

The tank troops. The Soviet tank troops were formed during the Civil War. By the beginning of the Great Patriotic War they were already a formidable force. Organizationally, tank units and subunits formed part of the combined-arms formations. Along with this, there were independent mechanized formations. During the course of the war, the availability of tanks and other fighting vehicles, the situation on the fronts, and the accumulation of combat experience in their use, led to changes in the organization of the tank troops as well. As early as 1942 there were independent tank and mechanized corps and later there were tank armies. The operational and technical potential of our tank troops became most apparent in offensive operations during the Great Patriotic War. They were equipped with remarkable fighting vehicles: the JS heavy tank and the T-34 medium tank, which became the basic combat unit of the armored and mechanized troops. The combat qualities of the latter were superior to those of all types of German and other foreign tanks throughout the entire war.

During the post war period, the tank troops and their equipment have been developed further, they continue to serve as the main striking force of the

Ground Forces, and are intended for use in the main sectors for solving the most important problems.

Today's tank troops are based on heavily armored tanks with powerful armaments. These provide the tank subunits, units and formations with great striking power, a high degree of maneuverability, and greater resistance to the effects of nuclear weapons. The tank troops also include self-propelled guns, rocket weapons and artillery, as well as subunits of other branches of the Service, and are thus capable of solving many combat tasks independently. Combat operations of the tank troops are characterized by lightning speed, deep penetration of the enemy's rear, and maneuverability, as well as close cooperation with other branches and Services of the Armed Forces.

The rocket forces and the artillery. The Ground Forces incorporate rocket forces armed with tactical and operational-tactical missiles. The introduction of these formidable weapons constituted a new qualitative jump in the enhancement of the fighting power of units and formations of the Ground Forces. Their striking power increased immeasurably as well as the penetration capabilities. Whereas previously, the range of artillery and other Ground Forces weapons was 15–25km, their rocket weapons can now hit the enemy at much greater ranges. Artillery and other conventional weapons could only inflict partial damage on the enemy forces, whereas nuclear missile strikes can, in a short period, completely annihilate entire subunits and units of the enemy, and other important objectives which form part of his groups of forces.

Nuclear missiles have become the principal means of utterly defeating the enemy in battles and operations of the Ground Forces.

As for the artillery, in all earlier wars it played an exceptionally important role. It acquired enormous importance during the Great Patriotic War. The density of artillery in offensive operations of the Soviet Army during 1944 and 1945 per kilometer of front reached 250–300 guns and mortars. Devastating artillery fire made it possible to solve combat tasks successfully in all types of combat operations.

Since the Great Patriotic War the fire and maneuvering potentials of Soviet artillery have constantly increased. Artillery and mortar units and subunits have acquired new 85mm anti-tank guns, 122mm, 130mm and 152mm guns, 240mm mortars, new rocket artillery models, as well as improved artillery reconnaissance systems and artillery fire control directors. Reliable anti-tank guns which fire hollow charge and high explosive fragmentation projectiles were introduced. The new artillery systems have a greater firing range and armor-piercing capability, a higher rate of fire and projectile efficiency, and maneuvering capabilities. At the same time, the design specifications of guns and mortars previously in service were improved. Artillery prime movers were changed, and new high-speed artillery tractors were brought into service.

Organizationally the artillery is subdivided into organic artillery and the Supreme High Command Reserve. Organic artillery includes that which organizationally (by establishment) forms part of motorized infantry battalions, and motorized infantry, tank and airborne units and formations. The artillery of the Supreme High Command Reserve comprises units equipped with long-range guns and mortars of various calibers for firing shells and bombs of great destructive force. This artillery is usually earmarked for the

quantitative and qualitative reinforcement of combined arms units and formations, when carrying out combat missions.

The Ground Forces' artillery includes subunits, armed, not only with anti-tank guns, but also anti-tank guided missiles, capable of piercing the armor of any modern tank. They are the principal means of combatting enemy tanks and other armored targets, in any forms of ground forces combat operations.

Artillery and artillery fire control is exercised through commanders of artillery (mortar) subunits and units, or commanders of artillery groups formed for the period of a given action.

Even during the Great Patriotic War, extremely effective methods of conducting firing operations and cooperating with other branches of the Services had been developed. Now improved, they conform fully to the present-day standards of Soviet artillery and the character of modern warfare.

The Air Defense Troops. As a branch their purpose is to protect the Ground Forces and targets in their rear from enemy air attack. The need for this service arose as a result of the rapid development of aerial attack weapons—airplanes, helicopters and combat missiles. The subunits and units responsible for the air defense of troops and targets in their rear are equipped with surface-to-air missile complexes, anti-aircraft artillery, as well as radiotechnical and other means of observation, detection, and identification of aerial targets, early warning and appropriate control facilities.

The equipping of this branch of the Ground Forces with surface-to-air missile complexes enables it to deal successfully with enemy air attacks at low, medium, and high altitudes.

Special Troops—engineering, chemical, signals, etc.,—are included in the Ground Forces for the purpose of supporting the latter's combat activities.

The Engineering Troops are special subunits and units equipped with heavy-duty engineering equipment (earth-movers, bridge trains, road machinery, etc.) and are intended to provide combat operational support for all branches. Of the entire engineering support complex, these troops perform the most complex work, necessitating special training of the personnel and very sophisticated engineering equipment. They are subdivided into general purpose engineering troops (sappers) and special purpose troops (crossing assault, pontoon, road engineering, engineering construction and other subunits and units).

The Engineering Troops have been in existence for centuries. In wars of the past they played an exceptionally important role; under present-day conditions their importance has increased still further. They are intended to prepare the lines of troop movement and maneuver routes, to support troop crossings of water barriers, to lay and clear minefields and explosive obstacles, to erect engineering obstacles and carry out demolition, to implement the most complex troop camouflage measures, to participate in the provision of shelters, and to deal with the consequences of the enemy's use of nuclear weapons, etc.

The Chemical Troops. These are special subunits equipped with vehicles and instruments for conducting radiation and chemical reconnaissance, monitoring the radioactive exposure of personnel, special processing of the troops, ground decontamination and disinfestation, and carrying out other measures connected with the chemical, atomic and bacteriological defense of troops and targets in the rear.

Organizationally, the Chemical Troops form part of all branches and consist of radiation and chemical reconnaissance subunits, chemical defense subunits, equipment and ground decontamination and disinfestation subunits, etc.

The Signals Troops consist of subunits and units equipped with modern communication

facilities: radio and radio relay, telephone and telegraph and other equipment needed to establish and maintain reliable communication for the purpose of troop control in all forms of combat activities. The Signals Troops transmit and receive orders, instructions and reports, and also exchanges of information between staffs and the forces.

Communication with subordinates is organized and effected on the orders of the senior commander (senior staff), and coordination communications with the facilities of the respective forces, on instructions of the commander. To ensure uninterrupted communications, different systems—radio, radio relay and line communications—are used on one and the same axis.

More stringent requirements in respect of communications reliability and the range and carrying capacity of radio communication lines have led in recent years to intensive development in long-range ultra-short wave radio and radio relay communications.

In some cases communication is effected by mobile means, specially appointed personnel on motor-cycles, in cars, helicopters, aircraft, etc.

Motor Transportation Troops are special subunits and units, whose duty it is to transport troops and various kinds of equipment by motor vehicles. Subunits of the motor vehicle troops consist of drivers equipped with high-performance motor vehicles and other transport vehicles.

Effective use of Motor Transportation Troops entails a developed road network, its maintenance in usable condition and a well-organized commandant service.

Road Troops. This is a special force consisting of independent road commandant, road construction and bridge-building subunits which carry out tasks on the renewal, repair, construction, and utilization of roads and perform road commandant service.

The Airborne Forces are units and formations, specially trained for making airborne landings in the enemy's rear to carry out combat operations there in cooperation with missile units and aircraft, as well as with motor rifle and tank troops attacking on the front. In operations in coastal regions, the Airborne Forces may cooperate with the Navy.

The Airborne Forces are uniquely organized and equipped. They are provided with first-rate weapons and fighting equipment: rapid fire artillery and rocket launchers, armored personnel carriers, anti-tank weapons and anti-aircraft guns, which give them the capability of successfully and rapidly exploiting the results of nuclear strikes and completing the enemy's defeat within a short time, acting independently of and in cooperation with, other forces, primarily the Rocket Forces and the Air Force.

Airborne landings were first carried out by the Red Army during the Civil War. In 1927 and 1929 airborne landings were made in Central Asia to combat the *basmachi*. *

On 2 August 1930 during Air Force exercises in the Moscow Military District, a parachute landing was carried out for the first time in the world in the practice of military science.

In the fall of 1934 the first large-scale landing, involving 900 parachutists, was carried out during exercises in the Belorussian Military District.

One of the largest landings in World War II, in which over 10 thousand parachutists took part, was carried out by Soviet airborne units in the rear of the Vyazma group of Nazi forces in February 1942.

The role of the airborne forces in modern warfare has increased enormously.

The National Air Defense Forces as a Service are responsible for carrying out the vital task of shielding the economic and political centers and military targets from possible enemy air attack. They are made up of well-trained

* A *basmach* is described by the Soviets as "a member of a counterrevolutionary robber band in Central Asia during the Civil War" [U.S.Ed.].

units and subunits of *surface-to-air missile troops, fighter aircraft, communication, radiotechnical troops*, etc., having the most modern necessary equipment. The Air Defense Forces are capable of successfully carrying out the task of detecting and identifying different aerial objects, determining their character and armament, computing their coordinates, preparing the necessary data for the weapon systems, and ensuring the destruction of these objects.

The technical basis of modern air defense consists of powerful radar stations and surface-to-air guided missile complexes designed for the destruction of the enemy's air strike capabilities; all-weather supersonic fighter aircraft. All these resources are organized in an orderly system. The National Air Defense Forces can carry out their tasks both independently and in cooperation with the Air Force and air defense resources and facilities of the other Services.

Modern aerial attack weapons may be used on a massive scale by the enemy in simultaneous attacks on large areas encompassing the theaters of war and deep in the country's rear. The combat operations of the air defense troops can also be conducted over vast expanses. Under these conditions exceptional importance is attached to the cooperation of all forms of air defense and the clear-cut distribution between them of strike tasks in accordance with the combat potential of the forces engaged and the tactical and technical specifications of the weapons being used.

Combat operations of the Air Defense Forces on an enormous spatial scale, with the simultaneous involvement of large quantities of assorted weaponry and materiel for each air defense unit and formation, possibly may not be long-lasting. It is more likely that they will be extremely intensive rather than systematic. A state of constant combat readiness is an obligatory and essential condition of the National Air Defense Forces.

Modern combat aircraft flying at unprecedented speeds will be in the combat operational zones of any given air defense systems for a limited period of time. For this reason today's air defense system with all its resources and facilities is in a high state of combat readiness.

The history of the development of the Air Defense Forces dates back to World War I, when airplanes and dirigibles began to be used for reconnaissance and attack.

Between the two world wars, the fire power of air defense weaponry increased and the performance characteristics of fighter aircraft improved.

The development of anti-aircraft artillery saw increases in gun calibers, the muzzle velocity of shells, rate of fire, altitude and striking range, and improved anti-aircraft directors.

The qualitative improvement of aircraft entailed further development of aircraft detection systems. Radar made its appearance in 1938; the Services began to receive experimental models prior to the war. Later on, during World War II, radar equipment came into wide use.

The Soviet Air Defense Forces played a very important role in the Great Patriotic War. Many thousands of enemy aircraft were destroyed by anti-aircraft fire and by fighter planes in aerial battles at the front and on the approaches to targets in the rear; they provided reliable support in the combat operations of Soviet forces at the front and in the operation of the

country's rear services. More than 80 thousand members of the Air Defense Forces were awarded orders and medals, 94 were honored with the title of Hero of the Soviet Union; 29 formations and units won the distinctive title of "Guards," and 11 received honorary names.

The further development of fighter aviation and especially of rocket weapons, and the use of the latter for the destruction of aerial targets, greatly increased the effectiveness of air defense. The increased potential of air defense resources and the task of defending our Motherland from encroachment on its air space by aggressive forces gave rise to the need to establish the Air Defense Forces as a Service.

The Air Force (VVS) consists of units and formations. The availability of aircraft with different tactical flight characteristics, designed for specific purposes, permits the most varied combat tasks to be undertaken by the Air Force.

The size of the air forces of the most developed countries is growing very rapidly. In World War I they were only an auxiliary branch. In the period between the two world wars, the air force, together with artillery and tanks, became one of the main branches. During the course of World War II, however, as the quantity and quality of the aircraft inventory increased, the air force was transformed into one of the main services of the armed forces.

The development of Soviet aviation began immediately after the Revolution. On 10 November 1917 the formation of the first socialist air detachment was begun in Petrograd on the instructions of V. I. Lenin. The total number of aircraft in service at that time did not exceed 300. The industrialization of our country made it possible to provide the Soviet Air Force with high quality equipment in adequate quantities.

The Air Force was transformed into a formidable force during the Great Patriotic War. During the last three years of the war, it received 40 thousand first-rate aircraft per year from our aircraft industry. The Air Force participated in all major operations conducted by the Ground Forces, provided infantry and tank formations with direct support on the battlefield, bombed enemy communications and important targets in the enemy's rear, destroyed his aircraft in aerial engagements, carried out reconnaissance missions, made airborne landings in the enemy's rear, and carried out artillery spotting missions. During the war our aircraft flew approximately four million sorties and shot down more than 75,000 enemy aircraft. Over 200,000 airmen were awarded orders and medals; 2,420 were honored with the title of Hero of the Soviet Union.

Modern military aircraft are jet-propelled, supersonic, missile carrying, all-weather machines. During recent years, their combat potential has increased enormously. By equipping them with new weapons, including nuclear weapons, the fire power of each combat aircraft has been increased. A mission which, during World War II, would have required a whole air formation, can now be undertaken by a group of several aircraft.

The speed, range, and altitude of aircraft have increased. New aircraft engines enable modern aircraft to reach the upper layers of the atmosphere.

These aircraft are capable of operating at different altitudes, thus lessening their chances of detection by the enemy.

A display of the latest aircraft in 1967 included heavy supersonic missile carriers, VTOL aircraft, variable wing geometry aircraft and many other types.

The Air Force as a Service includes long-range, tactical, and military transport aircraft.

Long Range Aviation is intended for action against the enemy's vitally important strategic targets: ICBM bases, nuclear arsenals, naval bases, strategic bomber bases, and large military industrial targets which form the enemy's military potential, as well as ground forces and ships at sea. Long Range Aviation is equipped with modern high-speed jet-propelled bombers capable of operating at high altitudes and spanning intercontinental distances. These bombers can carry nuclear and thermonuclear weapons in the form of aerial bombs and remotely controlled missiles of different capacities.

Frontal Aviation. Organizationally this is part of the forces of a front and is intended for joint combat operations with them and with other Services cooperating with them. Frontal aviation includes various types of aircraft: bomber, fighter, reconnaissance, spotting, liaison, etc.

The diverse composition and varied resources of Frontal Aviation enable them to carry out a variety of tasks. As an integral part of a front's strike forces, cooperating primarily with the Rocket Forces, they are responsible for the destruction of the enemy's nuclear attack resources, the most important groups of his forces and reserves, airfields, command posts, targets in the rear and communication centers.

Fighter aircraft protect a front's troops, and targets in the rear area of a front from possible enemy air strikes and support bomber combat operations, reconnaissance missions, transport and other types of aviation.

Military Transport Aviation is a branch that is intended for the transportation and landing (dropping) of airborne assault troops, and for air lifting troops. It is also used for the delivery of arms, fuel, provisions and all that is needed to support the life and combat activities of the troops. Apart from specially equipped transport aircraft, this branch of the Service operates helicopters adapted for airborne assault landings and the delivery of materiel, equipment and other freight to unprepared field sites.

The Navy of the USSR is a separate Service. One of the most important tasks of this Service, in the event that the imperialists unleash a war against the USSR and the other socialist countries, will be to inflict powerful nuclear missile strikes on military targets on enemy territory and to destroy atomic submarines and striking forces at their bases and at sea. The Navy is also charged with the tasks of engaging the enemy in shipping lanes for the purpose of disrupting his supplies, and cooperating with the Ground Forces in operations in maritime sectors.

Reasoning from the military geographical position of our Motherland, the nature of a possible war at sea, and the interests of our State, the Soviet Union

is forced to maintain several fleets, which can carry out combat activities both independently and in cooperation with formations of other services.

The Navy is one of the oldest of our fighting Services. The Soviet Navy originated in the fires of the Great October Socialist Revolution and the Civil War. The cruiser "Avrora" heralded the beginning of the new era by firing on the Winter Palace. In March 1918 the Baltic Fleet made its heroic Arctic voyage from Helsinki to Kronshtadt and, thus, 211 ships escaped capture by the German imperialists. In battles during the Civil War, our sailors heroically defended the achievements of the Revolution on land and at sea. In the period between the Civil War and the Great Patriotic War the development of the Navy proceeded swiftly. The aging Baltic and Black Sea fleets were reconstructed and strengthened, and the Pacific and Northern fleets were created anew.

During the Great Patriotic War, the Soviet Navy took part in defensive and offensive operations, protected the flanks of the Soviet Army from the sea, and was active on sea and ocean shipping lanes. The fleets and flotillas of the Navy carried out 114 operational and tactical assault landings of Ground Forces troops during the war, destroyed 791 enemy troop and freight transports and 708 warships and auxiliary vessels on shipping lanes. The achievements of Soviet sailors are highly valued by the Motherland. More than 350 thousand sailors, petty officers, officers and admirals were awarded orders and medals. Five hundred and thirteen of the most outstanding navy men were awarded the title of Hero of the Soviet Union. The Northern, Red Banner Baltic, Black Sea, and Pacific fleets were awarded the Order of the Red Banner in honor of the 20th Anniversary of the victory over fascist Germany.

Following the end of the Great Patriotic War, the Central Committee of the Communist Party and the Soviet government immediately tackled the task of the accelerated development and renewal of the Navy. As a result, even during the first postwar decade, our fleet was replenished with a large number of new and up-to-date warships, including cruisers, destroyers, submarines, escort vessels, minesweepers, submarine hunters, and torpedo boats.

The construction of new ships was paralleled by the modernization of prewar ships: their anti-aircraft, anti-submarine and anti-mine armament was increased, their reconnaissance and fire control systems, and other equipment, were improved.

The creation of an ocean-going atomic submarine fleet armed with nuclear missiles marked a new qualitative jump in the development of the Armed Forces.

The Navy comprises *submarines* armed with missiles and torpedoes, *naval aviation*, various classes of *surface ships*, *auxiliary vessels* for various purposes, *coastal missile and artillery units*, and *marine infantry*.

Submarines and aircraft represent the main strength of our Navy. The power-to-displacement ratio of a modern submarine is almost 100 times higher than that of a prewar submarine, its diving depth is over 5 times as great, and its underwater speed 3-4 times faster.

The Navy's main striking forces, consisting of atomic powered missile-

carrying submarines and naval missile-carrying aircraft, are intended to inflict nuclear strikes on major enemy targets.

Atomic submarines are armed with long-range missiles and homing torpedoes with nuclear payloads, and are equipped with up-to-date observation, target detection, and other radio-electronic gear. They are capable of effectively destroying at great ranges naval targets as well as targets on the enemy's seaboard and deep in his rear.

Capable of high speeds, possessing good maneuvering qualities and the ability to operate at great depths, atomic submarines can successfully engage highly mobile groups of enemy surface ships.

Diesel submarines have not lost their importance. They can carry out reconnaissance patrols, destroy enemy convoys, and attack coastal targets with missiles.

The naval missile-carrying air arm, which has all-weather long-range jet aircraft armed with missiles, is capable of inflicting strikes on large, highly mobile groups of enemy surface warships and convoys in remote regions of seas and oceans, as well as on his ports and naval bases.

Apart from missile-carrying aircraft, the naval air arm usually includes ASW aircraft and helicopters equipped with modern weapons for combatting enemy submarines.

Modern weapons, especially nuclear missiles capable of striking the enemy at great distances and with great effectiveness, have considerably increased the Navy's potential, changed the forms and methods of naval warfare, and thus made it necessary to approach the training and education of personnel from a new angle.

Equipped with the latest technology and modern weapons, the Soviet Navy is a formidable force which reliably guarantees the security of the sea frontiers of our Motherland.

A HIGH HONOR AND A GREAT RESPONSIBILITY

Dear comrades! It is a great honor to be a fighter in the mighty Army of the Soviet people—the builders of communism and the Army, a bulwark of peace on earth. But your responsibility for the security and defense of the socialist Homeland is also very great.

The interests of further strengthening the fighting power of the Soviet Armed Forces require persistent improvement of political and military knowledge, vigilance and combat readiness, mastery of fighting equipment and weapons, and high standards of organization and discipline on the part of all personnel.

(From the Message of Greeting of the Central Committee of the CPSU, the Presidium of the Supreme Soviet of the USSR and the Council of Ministers of the USSR to the fighters of the heroic Armed Forces of the Soviet Union in connection with the 50th Anniversary of the Soviet Army and Navy. *KPSS o Vooruzhennykh Silakh Sovetskogo Soyuza* [The CPSU on the Armed Forces of the Soviet Union], p. 455.)

Soviet fighting men are conscious of their enormous responsibility for the defense of the Motherland and its security. This responsibility is particularly great at the present time, when the American imperialists are intensifying military preparations against the Soviet Union and other socialist countries, expanding their aggression in Vietnam, encouraging the Israeli invaders, and supporting the revanchist aspirations of the ruling circles of the Federal Republic of

Germany. The Communist Party and the Soviet government are dealing a decisive rebuff to the treacherous plans of the imperialists, and rendering all-round assistance and support to the peoples struggling for their freedom and independence. We applaud this Leninist policy warmly and wholeheartedly.

If the imperialists dare to encroach on the Soviet Union and its sacred frontiers, they will feel the force of our arms. The Armed Forces are served by well-trained, educated and experienced officers' cadres. The Motherland has entrusted us with first-rate weapons and equipment. We shall spare neither strength nor labor in order to improve our moral and fighting qualities, to tirelessly strengthen military discipline, good organization and order, to doggedly master our modern fighting equipment, and to maintain the combat readiness of subunits, units, ships, and formations at the highest level. Lenin's precept—learn military science the right way—was, is, and will be the law of our combat service and training.

The number of soldiers and sailors with excellent ratings in political and military training, the numbers of military specialists, outstanding subunits, units and ships are increasing. We are proud of the high standard of our military work. But we have not yet reached the limit. We consider it our sacred duty to put into practice, precisely and steadfastly, the instructions of the Party, always to be at our posts and in a state of full combat readiness to defend the achievements of the Great October Revolution.

We assure the Central Committee of the Communist Party, the Presidium of the Supreme Soviet of the USSR, and the Soviet government that the fighting men of the Armed Forces of the Great Soviet State will always be worthy sons of the Motherland and will justify the great confidence placed in them for the defense of the socialist state.

(From a letter to the Central Committee of the CPSU, the Presidium of the Supreme Soviet of the USSR, and the Council of Ministers of the USSR from the soldiers, sailors, noncommissioned and petty officers, and officers in connection with the 50th Anniversary of the Soviet Army and Navy).

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Sovetskaya aviatsiya i kosmonavtika [Soviet Aviation and Cosmonautics]. Voenizdat, 1968.

Voyska protivovozdushnoy oborony strany [The National Air Defense Forces]. Voenizdat, 1968.

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DATES OF THE MOST IMPORTANT EVENTS

1917

7 November (25 October)—Great October Socialist Revolution. Victory of the armed uprising in Petrograd.

7–15 November (25 October–2 November)—Armed uprising and establishment of the Soviet regime in Moscow.

- 8 November (26 October)—Formation of the Military and Naval Committee (Military Collegium of People's Commissars from December, 1917).
- 9-14 November (26 October-1 November)—Overthrow of the counterrevolutionary uprising of Kerenskiy and Krasnov.
- 8 December (25 November)—Appeal of the Council of People's Commissars (SNK) "To the entire population calling on them to struggle against the counterrevolutionary uprisings of General Kaledin and Ataman Dutov."
- November—Formation of the Caspian Naval Flotilla and commencement of its combat activities.
- December—Formation of the Chief Artillery Directorate.

1918

- 28 (15) January—Decree of the Council of People's Commissars on the organisation of the Workers' and Peasants' Red Army.
- 1 February (19 January)—Formation of the First Red Army Corps begun in Petrograd.
- 11 February (29 January)—Decree of the Council of People's Commissars on the organization of the Workers' and Peasants' Red Fleet.
 - Defeat of the counterrevolutionary advance of General Kaledin on the Don.
- 12 February (30 January)—Creation of the Collegium of the People's Commissariat for Naval Affairs.
- 13 February (31 January)—Council of Armored Units ("Tsentrobron'") set up by order of the People's Commissariat for Military Affairs (Armored Directorate from 30 August, 1918).
- 19 February-27 February—Transfer of ships of the Baltic Fleet from Revel to Helsingfors.
- 23 February—Day of mass mobilization of the workers for defense of the socialist Fatherland and of the first victories in the armed struggle against the enemies of the revolution. Celebrated annually as a national holiday—Day of the Soviet Armed Forces.
- 3 March—Peace treaty between Soviet Russia and Germany signed at Brest.
- 4 March—Adoption of a decree by the Council of People's Commissars on the creation of a Supreme Military Council to direct the defense of the country, and on the organization of the Armed Forces.
 - Formation of the Headquarters of the Supreme Military Council to direct all military operations (reorganized as the Headquarters of the Revolutionary Military Council of the Republic in September 1918).
- 12 March-2 May—Transfer of ships of the Baltic Fleet from Helsingfors to Kronshtadt.
- 8 April—Adoption of a decree by the Council of People's Commissars on the setting up of a local apparatus for the raising of the Red Army—*volost'*, *uyezd*, *guberniya* and *okrug* commissariats.*
 - Creation of the All-Russian Bureau of Military Commissars.
- 22 April—Decrees of the All-Russian Central Executive Committee (VTsIK): on the compulsory military training of workers and working peasants between the ages of 18 and 40; on the procedure for filling posts in the Red Army (abolition of the election of officers). Approval of the text of the "Solemn promise on admission to the Workers' and Peasants' Red Army."
- April-July—Formation and commencement of combat activities of the Volga and Vol'sk naval flotillas and the Simbirsk Naval Detachment.
- 8 May—Establishment of the All-Russian General Staff (Vserosglavshtab), subsequently brought under the Revolutionary Military Council of the Republic on 6 September 1918 and merged with the Field Headquarters of the Revolutionary Military Council of the Republic (RVSR) to form the unified Red Army Staff on 10 February 1921.
- 24 May—Creation of the Chief Directorate of the Workers' and Peasants' Red Air Force.
- 29 May—Decree of the All-Russian Central Executive Committee (VTsIK) on the changeover to general mobilization of workers and the poorest peasants into the Red Army.

* Russian administrative-geographical units [U.S. Ed.].

- 10 July—Adoption of a resolution by the 5th All-Russian Congress of Soviets on the building of a mass regular Workers' and Peasants' Red Army.
- 25 July—Commencement of the formation of the Onega Naval Flotilla (Petrozavodsk).
- 30 July—Decision by a Moscow City Conference of the RCP (b) to mobilize a fifth of all the members of the Moscow Party organization for the Eastern Front within one week.
- July—Formation and commencement of combat activities of the Astrakhan-Caspian Naval Flotilla (Astrakhan).
- Beginning of August—Formation of the North Dvina Naval Flotilla (Kotlas).
- 20 August—Soviet forces went over to the attack on the Tsaritsyn sector of the Southern Front.
- End of August—The Soviet Taman Army left Gelendzhik and began the legendary campaign to link up with the main North Caucasian forces, subsequently converted into the 11th Army. (The army joined up with the main forces at the village of Dondukovskaya on 13 September).
- August-November—Transfer of six destroyers and three minesweepers from the Baltic Sea to the Volga and the Caspian Sea to strengthen the flotillas operating there.
- 2 September—The All-Russian Central Executive Committee (VTsIK) declared the Soviet Republic a united military camp. Establishment of the Revolutionary Military Council of the Republic (RVSR).
- 5 September—Commencement of the advance of the Red Army on the Eastern Front.
- 6 September—Creation of the post of Commander-in-Chief (Glavkom) of the Armed Forces of the Republic by decree of the Revolutionary Military Council of the Republic (RVSR).
- 11 September—Creation of the Southern and Northern fronts.
—Revolutionary military councils of the fronts and armies formed by decree of the Revolutionary Military Council of the Republic.
- September—Creation of the Field Directorate of the Red Air Force attached to the General Staff (transformed into the HQ of the Commander of the Air Force in March 1920).
—Establishment of the post of Commander of Naval Forces of the Republic.
- October—Opening of the General Staff Academy (renamed the Red Army Military Academy in August 1921; the "M. V. Frunze" Military Academy since 1925).
- 13 November—Resolution of the All-Russian Central Executive Committee (VTsIK) abrogating the Brest Treaty with Germany.
- 29 November—Approval of the Internal Service Regulations by the All-Russian Central Executive Committee (VTsIK).
- 30 November—Resolution of the All-Russian Central Executive Committee (VTsIK) setting up the Workers' and Peasants' Defense Council headed by V. I. Lenin (transformed into the Council of Labor and Defense in April 1920).
- 5 December—Approval by the Council of People's Commissars of the Statute on the Commander-in-Chief of all the Armed Forces of the Republic.
—Order of the Revolutionary Military Council of the Republic concerning the organization of political sections in the Red Army and Navy.
- 8 December—Formation of the Caspian-Caucasian Front.
- 10 December—Liberation of Minsk by Soviet forces.
- 25 December—Resolution of the Central Committee of the Party "On the policy of the War Department."
- 28 December—First Field Regulations of the Red Army approved (Part 1, War of Movement).
- December—Setting up of the Soviet Naval General Staff.
—Formation of the Central Aero-Hydrodynamic Institute (TsAGI)—the center of Soviet aviation science and technology.
- 1918—Creation, on the initiative of V. I. Lenin, of the Nizhegorodskaya Laboratory, the start of the organization of scientific research in the field of radio.
—Commencement of the organization of the air defense of Moscow, Petrograd, Kronshtadt, Tula and Saratov.
—Creation of the Defense Engineering Board under the chairmanship of military engineer K. I. Velichko.
—Organization of the Higher Small-arms School under the direction of the outstanding specialist, N. M. Filatov.

1919

- 1 January—Setting up of a commission consisting of F. E. Dzerzhinskiy and J. V. Stalin by the Central Committee of the RCP(b) and the Defense Council to establish the reasons for the surrender of Perm and to take measures to restore the situation in this region.
- 3 January—Liberation of Riga by the Red Army.
- 4 January—Soviet forces on the central sector of the Southern Front went over to the counter-attack against Krasnov's White Cossack Army.
—Formation of the Ukrainian front.
- 6 January—Liberation of Vil'no (Vil'nyus) by the Red Army.
- 22 January—Soviet forces on the Eastern Front liberate Orenburg and join up with the forces of Soviet Turkestan.
- 30 January—Disciplinary Regulations of the Red Army confirmed by the All-Russian Central Executive Committee (VTsIK).
- 5 February—Defeat of the forces of the Central Rada and entry of the Red Army into Kiev.
- 19 February—Formation of the Western Front.
- 4-6 March—Commencement of the first combined campaign of the Entente against the Soviet Republic.
- 18-23 March—8th Congress of the RCP (b), at which the military situation was discussed.
- 20-21 March—3rd Siberian Conference of underground Bolshevik organizations of the Urals, Siberia and the Far East, marking a new tactic in the struggle in the rear of the enemy, held in Omsk.
- March—Creation of the Dnepr Naval Flotilla.
- 6 April—Liberation of Odessa from the intervening Anglo-French and White Guard forces.
- 10 April—Letter from V. I. Lenin to the workers of Petrograd on assistance to the Eastern Front.
- 11 April—Thesis of the CC RCP (b) in connection with the situation on the Eastern Front, written by V. I. Lenin.
- 19 April—V. I. Lenin, M. I. Kalinin and F. E. Dzerzhinskiy present at the first graduation of students from the General Staff Academy. Speech by V. I. Lenin at the meeting.
- 22-26 April—As a result of hard fighting around the Salmys River (north of Orenburg), the Red Army inflicted the first major defeat on the attacking forces of Kolchak.
- 23 April—Examination of measures for the defense of the Soviet Republic by the Political Bureau of the CC RCP(b).
- 28 April—Commencement of a counterattack by the forces of the Eastern Front against the White Guard armies of Kolchak.
- 15-19 May—Belebey operation of the southern group of armies of the Eastern Front resulting in the defeat of Kappel's Corps.
- 22 May—Publication of an appeal of the Central Committee of the RCP(b) "For the defense of Petrograd!"
- 13-16 June—Suppression of the counterrevolutionary uprising in the Krasnaya Gorka and Seraya Loshad' forts near Petrograd.
- 21 June-30 August—Counterattack of the forces of the 7th and 15th Armies of the Western Front against the armies of Yudenich towards Narva and Pskov.
- 24 June-9 August—General attack of the forces of the Eastern Front against Kolchak.
- 3-4 July—Discussion by a plenary session of the CC RCP(b) of important questions arising in connection with the start of the second combined campaign of the Entente.
- 9 July—Publication of a letter of the CC RCP(b), "Everything for the struggle with Denikin!" written by V. I. Lenin.
- 19 July—Resolution of the CC RCP(b) on the mobilization of Party members for the front.
- 10 August—Instruction by V. I. Lenin to the Revolutionary Military Council of the Republic to force the attack on the Southern Front.
- 11 August—Order of the Revolutionary Military Council of the Republic on the division of the Eastern Front into two fronts: Eastern and Turkestan.

- 28 August—Publication of the "Letter to the workers and peasants on victory over Kolchak," written by V. I. Lenin.
- 31 August—Sinking of the British destroyer "Victoria" by the Soviet submarine "Pantera" near Seskaran Island (Gulf of Finland).
- 21 September—Examination of the situation on the Southern Front by a plenary session of the CC RCP(b) and adoption of a resolution on its consolidation.
- 24 September—Adoption of a resolution by the Defense Council on preparation for the defense of the Moscow region, Vitebsk, Chernigov, Voronezh, Tambov and Shatsk against the attacking forces of Denikin.
- 26 September—Examination of the views of the High Command of plans for the fight against Denikin at a plenary session of the CC RCP(b).
- 27 September—Division of the Southern Front into two independent fronts: Southern and Southeastern.
- 9 October—Introduction of an institute of political leaders (*politruki*) of companies, squadrons, batteries and equivalent subunits.
- 15 October—Resolution of the CC RCP(b) on the situation at the front and on measures to strengthen the defense of the Republic.
- 20 October—Liberation of Orel by Soviet forces of the Southern Front.
- 21–25 October—Decisive battles of the Red Army against the forces of Yudenich around the Pulkovo Heights. Enemy advance on Petrograd halted.
- 26 October–21 December—Counterattack of the 7th and 15th Armies of the Western Front against the White Guard forces of Yudenich.
- October—Creation of the Communications Directorate of the Red Army.
- October–November—Counterattack of the forces of the Southern Front against the White Guard armies of Denikin.
- 11 November—Creation of the First Cavalry Army.
- 19 November 1919–9 January 1920—General attack of the armies of the Southern and Southeastern Fronts against White Guard armies of Denikin.
- 26 December—The forces of the Red Army on the Southeastern Front go over to general attack.
- 28 December—"Letter to the workers and peasants of the Ukraine on the victory over Denikin," written by V. I. Lenin.
- 1919—Letter of the CC RCP(b) "On Party work in the Red Army."
- School for the training of air observers opened in Moscow.
 - Entry into force of the first Combat Regulations of the Red Army Artillery.
 - Creation of the government Commission on Heavy Aircraft (KOMTA).
 - Publication of the draft of the Instructions on the Use of Aviation in War.

1920

- 8 January—Liberation of Rostov-on-Don by Soviet forces of the Southern Front.
- 15 January—Abolition of the Eastern Front as a result of the destruction of Kolchak's army.
- 15 February–27 March—Kuban-Novorossiysk (Don-Manych) operation of the Caucasian Front. Capitulation of the forces of Denikin in the Novorossiysk region.
- 16 February—Khabarovsk entered by the revolutionary forces and partisans of the Maritime Territory (Primor'ye).
- 21 February—Liberation of Archangel by troops of the 6th Soviet Army.
- February—Liberation of the Ukraine from White Guard forces completed by the Red Army.
- First trials of Soviet-designed training aircraft.
- 1 March—Large forces of Denikin's troops defeated by the First Cavalry Army and troops of the 10th Army near the village of Yegorlykskaya.
- 13 March—Liberation of Murmansk by troops of the 6th Army. Completion of the defeat of the intervening forces and White Guards in the Soviet north.
- 19 March—Approval of the Short Field Regulations for Private Soldiers in the Red Army.

- 29 March–5 April—9th Congress of the RCP(b), at which a resolution "On transition to the militia system" was adopted.
- 7 April—Liberation of the Semirech'ye completed by Soviet forces of the Turkestan Front.
- 28 April—Baku entered by armored trains of the 11th Soviet Army of the Caucasian Front with the support of the Volga-Caspian Flotilla.
- April—Creation of the Military-Political Institute, transformed in May 1925 into the Military-Political Academy (now the "V. I. Lenin Academy").
- 23 May—Publication of a thesis of the Central Committee of the RCP(b) "The Polish Front and Our Mission."
- 26 May–4 July—Counterattack of Soviet forces of the Southwestern Front against the Polish armies in the Ukraine.
- May—Creation of the Azov and Black Sea Naval Forces.
- 5 June—Polish Front breached by the First Cavalry Army.
- 9–10 June—Breakthrough by the southern detachment of the Dnepr Flotilla at Tripol'ye.
- 12 June—Kiev liberated from the Polish occupying forces by forces of the Southwestern Front.
- 2 August—Adoption of a resolution by the Political Bureau of the CC RCP(b) making the Crimean sector of the Southwestern Front into the independent Southern Front.
- 7 August–3 September—Counterattack by forces on the Southwestern Front against Wrangel.
- 22 August–7 September—Defeat of Wrangel's landing force in the Kuban' by forces of the Caucasian Front in collaboration with the Naval Expeditionary Division and ships of the Azov Flotilla.
- 1 September—War Department instructed by the Politburo of the CC RCP(b) to take the Crimea before the beginning of winter.
- 21 September—Creation of the Southern Front against Wrangel's army.
- 22–25 September—Discussion on the conclusion of peace with Poland and on preparation for the final defeat of Wrangel at the IX All-Russian Conference of the RCP(b).
- 22 October—Liberation of Chita by units of the Army of National Liberation of the Far Eastern Republic.
- 23 October—Resolution of the Council of Labor and Defense on the restoration of the Baltic Fleet.
- 28 October–1 November—Counterattack of the forces of the Southern Front against Wrangel in Northern Crimea.
- 7–17 November—Perekop-Chongar operation. Completion of the defeat of Wrangel.
- 12–17 November—Liberation of the Crimea.
- 1 December—Report to V. I. Lenin by the Munitions Council on the construction of the first Soviet tank by the Sormovskiy Plant with the assistance of the Izhorskiy Plant and the AMO Plant (Moscow).
- 24 December—Adoption by the Council of Labor and Defense of a resolution noting the extreme heroism of the men and officers of the Southern Front, who had defeated the White Guard forces of Wrangel under adverse conditions, and liberated the Crimea.
- December—Setting up of the Military Scientific Society administered by the General Staff Academy.
- 1920—Creation of the Jet-Propulsion Laboratory at the artillery range (Petrograd) (the Gas Dynamics Laboratory, from 1928), the staff of which worked on the development of solid-fuel jet motors and rocket shells.
 - Construction of a 12 kilowatt radio-telephone transmitter (1.5 kilowatts in the United States at this time) with an operational radius of more than 2,000km.
 - Publication of the Internal Service Regulations for Naval Vessels of the RSFR.

1921

- 12 January—Circular letter of the CC RCP(b) "On the Red Army."
- January—A commission set up by decision of the Council of Labor and Defense (STO) to prepare a program for the development of aviation and the aircraft industry.

- 10 February—Formation of the Red Army Staff from the Field Staff of the Revolutionary Military Council of the Republic (RVSR) and the Ali-Russian General Staff.
- 25 February—Tiflis (Tbilisi) entered jointly by Soviet forces of the Caucasian Front and Georgian revolutionary detachments.
- 8–16 March—X Congress of the RCP(b), at which a resolution was adopted on the military question.
- 18 March—Suppression of the counterrevolutionary Kronshtadt mutiny by units of the Red Army and delegates of the X Party Congress.
- 25 June—Resolution of the CC RCP(b) "On the staffing of military training establishments."
- 31 October—Instruction of the CC RCP(b) to Red Army and Navy branch organizations of the RCP(b) in the rear and at the front.
- 1921—Air detachments combined into naval and air force squadrons.
- Publication of the draft, Naval Disciplinary Regulations of the RSFR.

1922

- 12 February—Final defeat of the White Guards and the Japanese forces of intervention near Volochayevka.
- 14 February—Khabarovsk entered by the Red Army and the People's Revolutionary Army of the Far Eastern Republic (DVR).
- 27 March–2 April—XI Congress of the RCP(b), at which a resolution was adopted on the strengthening of the Red Army.
- 1 April—Meeting of the military delegates to the XI Congress of the RCP(b). Discussion of the theses for a unified Soviet military doctrine.
- 9 October—Defeat of the White Guards in the Spasskiy fortified district.
- 16 October—Resolution of the V All-Russian Congress of the Communist Youth League (Komsomol) on the sponsorship of the Navy by the Komsomol.
- 25 October—Japanese forces of intervention expelled from Vladivostok. Liberation of the Far East completed (except for Southern Sakhalin).
- 1922—First special design office for the development of new types of ammunition set up by decision of the Soviet government.
- Construction of the ANT-1 airplane designed by A. N. Tupolev.
- Creation of the I-400 fighter plane by the Soviet designers N. N. Polikarpov, I. P. Kostkin and A. A. Popov.
- Publication of a draft of the Manual on Field Military Engineering for the Instruction of All branches of the Services of the Red Army.

1923

- 12 January—Decision of the Revolutionary Military Council of the Republic on the transfer of the first ten regular infantry divisions to the local militia.
- 17–25 April—XII Congress of the RCP(b).
- 8 August—Decree of the Central Executive Committee (TsIK) and the Council of People's Commissars of the USSR on the organization of local military units and the military training of workers.
- 1923—Production of the I-1 fighter plane, with a maximum speed of 264km/hr at ground level, by the design team of N. N. Polikarpov.
- Self-propelled mounting for a 45mm cannon or a 60mm howitzer designed by the Soviet engineer P.V. Koroteyev.
- Construction of the 750 hp 12-cylinder aircraft engine RAM (the Russian Aviation Motor) under the direction of A. D. Shevtsov.
- Red Army Telegraph and Telephone Manual brought into force.

1924

- 24 February—Provisional Combat Regulations of the Red Army Artillery approved.
- 28 March—Order of the Revolutionary Military Committee of the Republic on reorganization and simplification of the central organization of the People's Commissariat for Naval Affairs (Narkomvoenmor).
- 31 March-2 April—Resolution of a plenary meeting of the CC RCP(b) "On the War Department."
- 9 May—Provisional Red Army Garrison Duty Regulations approved.
- 23-31 May—XIII Congress of the RCP(b), at which work on the reorganization of the Armed Forces was approved.
- 9 July-24 August—Voyage of the cruiser "Aurora" and the training ship "Komsomolets" from Kronstadt to Archangel and back, calling at the Swedish port of Goteborg and the Norwegian port of Bergen. The first foreign cruise of ships of the Baltic Fleet.
- 12 July-19 November—Transfer of the gunboat "Vorovskiy" from Archangel to Vladivostok (around Europe and Asia).
- 20 July-23 October—Voyage of the gunboat "Krasnyy Oktyabr'" of the Far Eastern Naval Flotilla from Vladivostok to Wrangel Island (Arctic Ocean) and back.
- October—First separate tank regiment formed in Moscow.
- 19 November—Manual of Engineering and Technology for Line Officers of all branches of the Services of the Red Army approved.
- 20 December—Instruction on branches of the RCP(b) in the Red Army and Navy approved by the CC RCP(b).
- 1924—Directorate for the Investigation and Use of Military Experience and the Examination of Problems of Military Science established in the Red Army General Staff.
- Flight trials of the ANT-2, the first Soviet all-metal aircraft, commenced.
 - Production of the first 100-hp M-11 Soviet aircraft engine designed by A. D. Shevtsov.
 - First anti-tank mine constructed by the military engineer D. M. Karbyshev.
 - Entry into force of the Temporary Manual on the Military Use of the Air Forces of the USSR (Part 1. Army Aviation).
 - The first jet engine working on an air-benzine mixture constructed by the Soviet inventor F. A. Tsander.

1925

- 26 January—M. V. Frunze appointed Chairman of the Revolutionary Military Council and People's Commissar for Military and Naval Affairs of the USSR.
- 6 March—Letter of guidance of the CC RCP(b) "On unity of command in the Red Army."
- 15 April—The Provisional Manual on the Defense of Centers of Population in the Rear, Communications Routes, Factories and Plants against Airborne and Chemical Attack, was put into operation.
- 25 April—Graduation of the first aviation engineers from the "N. Ye. Zhukovskiy" Military Air Academy.
- 22 May—All-Union meeting of the Military Science Society. Report by M. V. Frunze "Our military construction and the tasks of the Military Science Society."
- 27 July—Regulations on work among members of the Komsomol in the Red Army and the Red Navy approved by the CC RCP(b), the CC of the Komsomol, and the Political Directorate of the Revolutionary Military Council (PUR).
- 24 August—Temporary Regulations of the Red Army Armored Forces approved.
- 18 September-9 October—Cruise of the destroyers "Nezamozhnik" and "Petrovskiy" in the Mediterranean, calling at Istanbul (Turkey) and Naples (Italy)—the first foreign cruise by ships of the Black Sea Fleet.
- 23 September—Adoption of the Law on Compulsory Military Service in the USSR.

- 18–31 December—A special section "On Party Organizations in the Red Army" introduced for the first time into the Statutes of the All-Union Communist Party (Bolshevik) (ACP(b)).
- 1925—The ANT-3 aircraft adopted as a reconnaissance plane (R-3) for the Air Force.
 - Construction of the ANT-4 (TB-1) heavy bomber.
 - Construction of the M-15 450-hp 9-cylinder radial aircraft engine designed by A. A. Bessonov and A. P. Ostrovskiy.
 - Publication of the Temporary Field Regulations of the Red Army (Part 2. Division and Corps).
 - The Temporary Combat Regulations of the Red Army Artillery became operational.

1926

- 23 January—Approval of the Service Regulations for a mine division on ships of the Red Navy (submarines).
- March—Introduction of the Regulations on the State Provision of Specialist Officers of the Red Army.
 - First All-Union Congress of the Military Scientific Society.
- 18 June—Approval of the Regulations for the Artillery Department on Vessels of the Red Navy.
- 31 August–2 September—Flight of an ANT-3 aircraft piloted by M. Gromov, with Ye. Rodzevich as flight mechanic, over the route Moscow-Berlin-Paris-Rome-Vienna-Warsaw-Moscow (7,000km in 34 hours flying time).
- December—Adoption of a 6-year plan for naval ship-building in the USSR (1926–1932).
- 1926—Forces supplied with the first series of Soviet-produced medium-wave and long-wave tube radio sets for combined forces formations and special branches.
 - Production of the M-13 V-12 aircraft engine developed by A. A. Mikulin.
 - Telegraph-Telephone Manual put into effect. (Part 2. Fixed Station Telephone Equipment).

1927

- 13 August—Implementation of the Combat Regulations of the Red Army Cavalry (Part 3. Field Service).
- August—Flight of the ANT-3 aircraft, with S. Shestakov as pilot and D. Fufayev as mechanic, on route Moscow-Tokyo-Moscow (approximately 22,000km in 153 hours flying).
- 2 November—Decree of the Central Executive Committee (TsIK) of the USSR awarding the Honorary Revolutionary Red Banner to the cruiser "Avrora" for the heroic deeds of the crew during the October armed uprising in Petrograd.
- 1927—Adoption of V. A. Degtyarev's light machine gun—the first Soviet-produced automatic weapon.
 - A team directed by the designer N. N. Polikarpov designs the R-5 light single-engined bomber and reconnaissance aircraft, which takes first place in an international aviation competition.
 - Creation of the Soviet-produced I-3 fighter designed by N. N. Polikarpov (speed 280km/hr).
 - Creation of the first twin-engined, metal-hulled seaplane, the ROM-1 (open sea reconnaissance aircraft), speed 165–170km/hr, by a team headed by the designer D. P. Grigorovich.
 - The first short-wave link, Moscow-Tashkent, opened in the Soviet Union. From this time radio communication in the Armed Forces went over to short-wave.
 - Implementation of the Combat Regulations of the Red Army Artillery (Part 1, Book 1. Light Artillery; Book 2. Heavy Artillery. Part 2. Principles of Combat Use).

1928

- January—Successful trials of the U-2 (Po-2) training aircraft, the best in the world, created under the direction of N. N. Polikarpov.
- 20 February—Decision of the Central Executive Committee (TsIK) of the USSR awarding the Honorary Revolutionary Red Banner to the Baltic Fleet.
- 3 March—The first solid-fuel rocket projectile tested in the USSR.
- 30 October—Decision of the CC ACP(b) "On the political and moral state of the Red Army."
- 24 November—Publication of the Statute on commissars, commanders with unified authority, and deputy commanders for political affairs.
- 1928—Commencement of serial production of the TB-1 (ANT-4) twin-engined bomber designed by A. N. Tupolev.
- Implementation of the Combat Regulations of the Red Army Infantry (Part 2).

1929

- 25 February—Decision of the CC ACP(b) "On the executive and political personnel of the Red Army."
- 25 March—Implementation of the Combat Regulations of the Red Army Armored Forces (Part 1, Book 1. Tanks).
- 24 April—Implementation of the Combat Regulations of the Red Army Air Force (Book 1. Fighter Aviation).
- May—Design office established at the Gas Dynamics Laboratory (GDL) in Leningrad to develop liquid-fuel rocket motors.
- 8 June—Implementation of the Manual of the Naval Navigation Branch.
- 15 July—Decision of the CC ACP(b) "On the state of defense of the USSR."
- July–August—An ANT-9 piloted by M. M. Gromov completed a flight on the route Moscow–Berlin–Paris–Rome–London–Warsaw–Moscow (9,037km in 53 flying hours, average 177km/hr).
- 6 August—Order of the Revolutionary Military Council of the USSR setting up the Special Far Eastern Army.
- 23 August–1 November—Flight from Moscow–London–Keflavik–Goose Bay–New York by the Soviet pilots S. A. Shestakov and F. Ye. Boltov, with F. D. Fufayev as flight mechanic and B. V. Sterligov as navigator-radio operator, in the twin-engined ANT-4 ("Land of the Soviets"). The flight lasted 70 days (21,242km covered in 142 hours).
- 11 October–20 November—Chinese militarists who had provoked a conflict on the Chinese–Eastern Railroad defeated by troops of the Special Far Eastern Army assisted by the Amur Naval Flotilla.
- 22 November 1929–18 January 1930—Transfer of the battleship "Paris Commune" and the cruiser "Profintern" from Kronshtadt to Sevastopol (around Europe).
- November—Creation of the Red Army Motorization and Mechanization Directorate, and of armored vehicle and tank sections in military districts.
- Flight by S. A. Shestakov, with B. V. Sterligov as navigator, in the ANT-4 (military version TB-1) from Moscow to New York across Siberia and the Pacific Ocean, 21,242km.
- 1929—Creation in the USSR of the first parachute subunits (sections) in the world, which took part in trial exercises and maneuvers.
- Red Army Field Regulations (PU-29) approved by the Revolutionary Military Council of the USSR.
- K. E. Tsiolkovskiy conceived the idea of producing multistage rockets capable of developing the velocities for space flight.
- Publication of "The Theory of Jet Engines" by Academician B. S. Stechkin—the founder of the modern theory of jet engines.

—Construction of the first experimental liquid-fuel jet engine in the USSR, to the design of F. A. Tsander.

1930

- 22 February—Implementation of the first Manual on the Use of Naval Aviation.
- 27 February—Implementation of the Combat Regulations of the Red Army Naval Forces (BU-30).
- 26 June–13 July—XVI Congress of the ACP(b), at which the need to strengthen the defensive capacity of the country was stressed in a resolution on the CC Report.
- August—Parachute landing with arms and munitions at an Air Force demonstration exercise in the Moscow Military District.
- November—Commissioning of the first "D" class submarine ("Dekabrist") in the Baltic Fleet.
- 1930—Equipping of the Soviet Air Force with the I-5 fighter plane.
 - Adoption of V. A. Degtyarev's tank machine gun with G. S. Shpagin's ball-and-socket mounting.
 - Red Army equipped with F. V. Tokarev's 7.62mm semiautomatic pistol.
 - Soviet designers create a 37mm anti-tank gun with a rate of fire of up to 20 rounds a minute.

1931

- 25 January—Patronage of the Air Force of the USSR assumed by the IX Congress of the Komsomol.
- January—Creation in Moscow of a jet engine section of the Central Council of the Society for the Promotion of the Defense of the USSR, and the Aviation and Chemical Industry (Osoaviakhim), subsequently to become the Central Group for the Study of Jet Propulsion and Rocket Flight (TsGIRD).
- 5 June—Decision of the CC ACP(b) on the executive and political personnel of the Red Army.
- 30 July—Decision of the CC ACP(b) on the publication of the "History of the Civil War."
- 1931—Commencement of serial production of the R-5 twin-engined reconnaissance plane designed by N. N. Polikarpov (ceiling 6,500m, speed 230km/hr).
 - Soviet Air Force equipped with the TB-3 heavy bomber.
 - Commencement of the broad development of Soviet tank construction and the supply of new models of equipment to the forces on a mass scale.
 - Adoption of F. V. Tokarev's quadruple-mount anti-aircraft gun.
 - Production of the prototype of the Soviet SU-14 self-propelled 152mm howitzer.
 - Red Army supplied with the 1931 model of the new 76mm anti-aircraft gun.
 - Production of the first Soviet 82mm battalion trench mortar by B.I. Shavyrin's design office.
 - Production by Soviet designers of the first track-mounted 203mm heavy howitzer.
 - Development of a 76mm anti-aircraft gun mounted on a tank chassis (T-28 and T-26) by Professor Khlystalov (Artillery Academy).
 - Soviet designers produce a 120mm cannon with a firing range of approximately 20km.
 - Commencement of the use of the RV-61 ultrashort-wave radio set designed by V. A. Vvedenskiy. This was the first officially recorded set.
 - Combat Regulations of the Red Air Force (Book II. Reconnaissance Aviation) issued.

1932

- 21 April—Formation of the Far Eastern Naval Forces, renamed the Pacific Fleet in 1935.
- 1932—Commencement of the formation of mechanized corps in the Red Army.
 - Independent airborne brigades formed in the Soviet Union.

- Soviet aircraft equipped with a machine gun developed by the designers B. G. Shpital'nyy and I. A. Komaritskiy (ShKAS), which had a higher rate of fire than foreign systems.
- Soviet designers produced a new 45mm anti-tank gun—the most powerful anti-tank weapon of that time.
- Special training of anti-aircraft gunners commenced in the Artillery Academy.

1933

- January—Basic specifications for self-propelled artillery worked out by a special commission, including the designer, I. I. Ivanov, and Professor Khlystalov.
- 1 March—The testing of a Soviet jet engine produced by F. A. Tsander.
- 28 April—Decree of the Council of People's Commissars of the USSR establishing an annual holiday "Air Force Day" on 18 August.
- 1 June—Formation of the Northern Naval Flotilla, renamed the Northern Fleet on 11 May 1937.
- 30 September—Ascent of the stratospheric balloon "USSR-1" to an altitude of 19,000 meters.
- September—Commissioning of the first "Shch" class submarine ("Shchuka" series V) in the Pacific Fleet.
- October—Commissioning of the first "L" class submarines ("Leninets") in the Black Sea and Baltic Fleets.
- November—Creation in Moscow of the Jet Propulsion Research Institute, combining the Leningrad Hydrodynamic Laboratory (in existence since 1920) and the Jet Propulsion Study Group.
- 1933—The Air Force equipped with the TB-4 heavy bomber.
- Soviet Forces began to receive the 6PE and 5AK short-wave radio sets, the 71TK tank radio, the 11AK, 11SK, 13SK and other aircraft radios.
 - Testing of the RD (ANT-25) single-engined all-metal aircraft (monoplane), operational range 15,000km.
 - Construction of the I-15 fighter plane by the design office headed by N. N. Polikarpov.

1934

- 26 January-10 February—XVII Congress of the ACP(b), at which the Statutes of the ACP(b), including a special section "On Party organizations in the Red Army," was adopted.
- 30 January—The Soviet balloonists I. D. Usyskin, A. B. Vasenko and P. F. Fedoseyenko ascended to an altitude of 22,066m in the stratospheric balloon "Osoaviakhim-1," establishing a world record.
- January—A Soviet rocket with a launch weight of 19kg reached an altitude of 1,500m.
- 16 April—Decree of the Central Executive Committee (TsIK) of the USSR "On the establishment of a high order of merit—the title "Hero of the Soviet Union."
- April—The majority of Chelyushkin's expedition were taken off the ice floes in R-5 aircraft by the military pilots M. V. Vodop'yanov, I. V. Doronin, N. P. Kamanin, S. A. Levanevskiy, A. V. Lyapidevskiy, V. S. Molokov and M. M. Slepnev. For their life-saving feat, the pilots were the first people in the country to receive the title of Hero of the Soviet Union.
- 13-18 August—First flight of a group (flight) of the AIR-6 light aircraft designed by A. S. Yakovlev, on the route Moscow-Irkutsk-Moscow (4,263km in 35 flying hours).
- 12-15 September—Non-stop flight of 12,411km over a closed circuit by M. M. Gromov (world record).
- September—Commissioning of the first "M" class submarines ("Malyutka," series VI) in the Black Sea Fleet.
- 1934—Construction of the ANT-20 "Maksim Gor'kiy" 8-engined aircraft, the largest in the world. Load-carrying capacity 80 passengers, maximum speed 280km/hr, flight range 2,000km.

- V. A. Degtyarev's submachine gun adopted by the Soviet Army.
- Creation of the first original design of an armor piercing shell in the Red Army.
- Creation of the I-16 fighter plane (a monoplane with retractable undercarriage) by the designer, N. N. Polikarpov; speed 450km/hr (up to 500km/hr in later versions).
- Creation of the all-duralumin SB bomber (speed 420km/hr, flight range 1,000km, bomb load 500kg) under the direction of the designer, A. N. Tupolev.
- Publication of K. E. Tsiolkovskiy's work "The Energy of the Chemical Combination of Matter and the selection of the Propellant Components for a Jet Engine."
- 1934-1935—Creation of the first liquid-fuel military rockets in the USSR, with a thrust of 100kg. Height of ascent 9-11km, flight range 12km.

1935

- 27 May—Decree of the Central Executive Committee (TsIK) and the Council of People's Commissars (SNK) of the USSR concerning the introduction of the new naval ensigns, which are still in use.
- May—Trials of the I-16 fighter plane designed by N. N. Polikarpov. The last modifications of this aircraft developed a speed of up to 525km/hr.
- 11 July—Trials of the UT-2 (AIR-10) trainer aircraft designed by A. S. Yakovlev, which was in serial production between 1936 and 1946.
- 22 September—Decree of the Council of People's Commissars (SNK) of the USSR on the transformation of the Main Staff of the Red Army into the General Staff.
- Decree of the Central Executive Committee (TsIK) and the Council of People's Commissars (SNK) of the USSR concerning the introduction of the title of Marshal of the Soviet Union and military ranks for the officers of the Red Army.
- 21 November—Pilot V. K. Kokkinaki reached an altitude of 14,575m in a serially produced fighter plane designed by N. N. Polikarpov, and exceeded the world record.
- 1935—1,800 parachutists were dropped and an airborne landing of 5,700 men was made in the Byelorussian maneuvers.
- Construction of the highspeed twin-engined SB bomber (monoplane) with a speed of 400km/hr, designed by A.A. Arkhangel'skiy and his colleagues.
- Flight test of the DB-3 twin-engined bomber, designed by S. V. Il'yushin (maximum speed 400km/hr, bomb load 1,000kg, flight range 4,000km).
- Production of a 152mm self-propelled gun in the Soviet Union.
- Implementation of the Engineering Manual for all Red Army Services (INZh-35).

1936

- 2 July-17 October—Transfer of 2 destroyers from Kronshtadt to Vladivostok via the White Sea-Baltic Canal and the Northern Sea Route.
- 17 July—Test pilot V. K. Kokkinaki raised a commercial payload in a TsKB-2 aircraft to an altitude of 11,458m, establishing a world record.
- 20-22 July—The Soviet pilots, V. P. Chkalov, G. F. Baydukov and A. V. Belyakov made a non-stop flight in a single-engined aircraft along the route Moscow-Franz Josef Land-Severnaya Zemlya-Tiksi Bay-Petropavlovsk-on-Kamchatka-Udd Island, covering 9,374km in 56 hr 20 min.
- 7 September—Pilot V. K. Kokkinaki raised a load of 2,000kg to an altitude of 11,005m.
- 28 October—Pilot A. B. Yur'ashev, flying a heavy four-engined TsAGI-6 aircraft with a payload of 5,000kg, reached an altitude of 8,980m.
- 1936—Acceptance by the Red Army of the first 7.62mm automatic rifle with knife bayonet (S. G. Simonov's system).
- Acceptance by the Red Army of a new 76mm divisional gun, the 1936 model (F-22), produced by the design office of V. G. Grabin.

- Airborne landing of an entire division carried out during the Gorokhovets maneuvers.
- Construction in the USSR of a two-stage rocket with aerodynamic stabilizing surfaces.

1937

- March—Implementation of the Temporary Regulations of the Red Navy.
- 27 April—Decree of the CC ACP(b) "On the creation of the USSR Committee of Defense."
- 10 May—Decree of the Central Executive Committee (TsIK) and the Council of People's Commissars (SNK) of the USSR on the introduction of the institution of military commissars in the Red Army.
- 16 May—Decree of the Central Executive Committee (TsIK) and the Council of People's Commissars (SNK) of the USSR on the formation of military councils in the military districts, armies and fleets.
- 21 May—The Soviet pilot M. V. Vodop'yanov made the first landing ever of an aircraft in the region of the North Pole.
- 18–20 June—Flying a single-engined ANT-25 aircraft, V. P. Chkalov, G. F. Baydukov and A. V. Belyakov covered the route Moscow-North Pole-Vancouver (United States) flying more than 12,000km without landing in 63 hours and setting a world record for nonstop flight.
- 12 July—Flying an ANT-25 aircraft (all-metal monoplane) M. V. Gromov, A. B. Yumashev and S. A. Danilin flew from Moscow across the North Pole to San Jacinto (California, United States).
- July—Military trials in the USSR of RS-82 rocket missiles fired from aircraft.
- 1937—Soviet Air Force equipped with the I-15, I-16 and I-153 fighter planes and the SB and TB-7 bombers.
- RS-82 rocket missiles adopted as weapons for the Soviet I-15 and I-16 fighter planes.
 - Red Army supplied with the 1937 model of the 152mm gun howitzer.
 - Red Army equipped with ultrashort-wave radio sets. An improved 82mm battalion mortar added to the armament of the Red Army.
 - Development of a design for a jet engine by the Soviet scientist A. M. Lyul'ka.
 - Commencement of the development in the USSR of several designs of inclined-launch unguided rockets.

1938

- 29 July–11 August—Incursion of Japanese troops onto Soviet territory, and their defeat by the Red Army in the region of Lake Khasan.
- 24–25 September—Non-stop flight of Marina Raskova, Polina Osipenko and Valentina Grizodubova on the Moscow-Far East route. (Women's world record).
- 8 December—Implementation of the Combat Regulations of the Red Army Infantry (Part i).
- 1938—Red Army equipped with T-35 heavy tanks.
- Rocket missiles (RS-132) adopted as armament for Soviet high-speed bombers.
 - Adoption of the large-caliber 12.7mm heavy machine gun for use against armored vehicles and aircraft. V. A. Degtyarev, G. S. Shpagin and I. N. Kolesnikov contributed to its development.
 - The new 1938 model of the 76mm anti-aircraft gun received by the Red Army.
 - Adoption as equipment for the Red Army of a 50mm company mortar (range 800m); a 107mm mountain-pack mortar (range 6,300m) and a 120mm regimental mortar (range 5,700m).
 - Adoption of the 20mm automatic cannon of B. G. Shpital'nyy and S. V. Vladimirov as equipment for Soviet aircraft.
 - Adoption of the 7.62mm semiautomatic rifle with knife bayonet (F. V. Tokarev's system).
 - Development by a team of Soviet designers of the RS-132 truck-mounted multiple launcher for salvo firing.

- Production of the short-range BB-22 (Yak-4) bomber by the design team of A. S. Yakovlev; the speed of 560km/hr of this aircraft was far in excess of that of any other aircraft in the world.
- Development of a 122mm howitzer by the design office of F. F. Petrov.

1939

- 3 January—A new text of the military oath and procedure for its administration approved by the Presidium of the Supreme Soviet of the USSR.
- 10-21 March—XVIII Congress of the ACP(b).
- 16 March—Decree of the Presidium of the Supreme Soviet of the USSR "On the length of active service in the Navy."
- 28 May-15 September—Military operations of Soviet-Mongolian forces to defeat the Japanese-Manchurian invaders in the region of Khalkhin-Gol (Mongolian People's Republic).
- 15 June-24 August—Movement of a flotilla of minesweepers from Kronshtadt to Vladivostok (through the Panama Canal).
- 22 June—Decree of the CC ACP(b) and the Council of People's Commissars (SNK) of the USSR on the institution of Navy Day (on the last Sunday in July) as an annual holiday.
- August—Soviet fighter planes equipped with rocket missiles (RS-82) used for the first time in operations in the region of Khalkhin-Gol.
- 1 September—Adoption of the Universal Military Service Law by a session of the Supreme Soviet of the USSR.
- 17 September—Commencement of a campaign of liberation by the Red Army with the object of preventing the seizure of Western Byelorussia and the Western Ukraine by Fascist Germany.
- 11 October—Decree of the Council of People's Commissars (SNK) of the USSR on the protection of the sea boundaries of the Soviet Union.
- October—Commissioning of the "S" class submarine, series IX-bis, by the Baltic Fleet.
- 30 November 1939-12 March 1940—Soviet-Finnish War.
- December—Commissioning of the first "K" class submarines, XIV series, by the Northern Fleet.
- 1939—Complete changeover in the USSR from a mixed system in the development of the Armed Forces to a Regular Army.
 - Red Army equipped with the 1939 model of the 85mm anti-aircraft gun and the 1939 model of the 37mm automatic anti-aircraft gun.
 - Adoption of the 1939 model of the 208mm mortar (BR-5), the 1939 model of the 210mm gun (BR-17) and the 1939 model of the 305mm howitzer (BR-18) as equipment for the Red Army.
 - V. K. Kokkinaki and M. Kh. Gordiyenko made a non-stop flight from Moscow to the United States across the Atlantic Ocean in an aircraft designed by S. V. Il'yushin (TsKB-30).
 - Construction of the light high-speed fighter plane, the Yak-1, by the design office of A. S. Yakovlev.
 - Construction of the high altitude fighter plane, the MiG-1, (speed 640 km/hr) by the designers A. I. Mikoyan and M. I. Gurevich.
 - Development of the T-32 tank by the Soviet designers M. I. Koshkin and A. A. Morozov.
 - Theoretical proof of the possibility of a fission chain reaction by the Soviet physicists Ya. B. Zel'dovich and Yu. B. Khariton.
 - Commencement of the supply of RUS-t air search radar to the Soviet Forces.
 - The first test in the world carried out in the USSR of a rocket powered by a jet engine designed by I. A. Merkulov.

1940

- 28 February—The Soviet pilot V. P. Fedorov made the world's first flight in a rocket plane.
- March—Plenary session of the CC ACP(b) at which the results and lessons of the Soviet-Finnish War were examined.
- 7 May—Decree of the Presidium of the Supreme Soviet of the USSR on the establishment of military ranks (generals and admirals) for higher command officers of the Red Army and Navy.
- 17 June—The Danube and Pina naval flotillas formed from the Dnepr Naval Flotilla.
- 28–30 June—Liberation of Northern Bukovina and Bessarabia by the Red Army.
- 7 August—Formation of the Onega Naval Flotilla.
- 12 August—Decree of the Presidium of the Supreme Soviet of the USSR "On the strengthening of sole command and responsibility in the Red Army and Navy."
- 2 September—Decree of the Presidium of the Supreme Soviet of the USSR on the institution of the "Marshal's Star," a decoration for marshals.
- 12 December—Commissioning of the cruiser "Maksim Gor'kiy" in the Baltic Fleet.
—Implementation of the Temporary Instructions on the Conduct of Naval Operations by the Soviet Navy.
- December—Knowledge about the start of the Second World War and the Soviet-Finnish War was correlated at an All-Army conference of senior officers held in Moscow.
- 1940—Publication of draft Combat Regulations for the Red Army Infantry (Part 2).
—Commencement of serial production of I-26 (Yak-1) fighter planes designed by A. S. Yakovlev.
—F. V. Tokarev's automatic rifle adopted as equipment.
—Degtyarev's submachine gun approved for mass production.
—Adoption of the new T-34 medium tank (designer M. I. Koshkin).
—The first flight in an aircraft powered by a liquid-fueled rocket motor designed by L. S. Dushkin.
—Construction of the new KV heavy tank by a team of designers headed by Zh. Ya. Kotin.
—Construction of the Pe-2 dive-bomber, with a maximum speed of 540km/hr at an altitude of 5,000m, under the direction of V. M. Petlyakov.
—Construction of the Il-2 attack aircraft by the design office of S. V. Il'yushin.
—Commencement of the construction in the USSR of the first prototypes of a bypass turbojet, with a thrust of 600kg, designed by A. M. Lyul'ka.
—The designers A. I. Mikoyan and M. I. Gurevich developed the MiG-3 high-altitude fighter plane powered by an engine designed by A. A. Mikulin. Serial production began in 1941.
—Construction of the LaGG-1 fighter plane (modified LaGG-3) by the designers S. Lavochkin, V. Gorbunov and M. Gudkov.

1941

- 15–20 February—XVIII Conference of the ACP(b).
- 25 February—Adoption of a decree by the CC ACP(b) and the Council of People's Commissars of the USSR "On the reorganization of the Red Air Force."
- 22 June—Treacherous attack of fascist Germany on the Soviet Union. The beginning of the Great Patriotic War of the Soviet people.
—Announcement of the mobilization of reservists in 14 military districts of the USSR.
- 23 June—Decree of the Council of People's Commissars (SNK) of the USSR and the CC ACP(b) setting up the General Headquarters of the Armed Forces of the USSR.
—Directive of the People's Commissar of Defense on the formation of the Southern Front.
- 23–29 June—Tank battle in the vicinity of Lutsk, Brody and Rovno.
- 29 June—Publication of a directive of the Council of People's Commissars (SNK) of the USSR and the CC ACP(b) to Party and Soviet organizations in regions near the front, setting out a program for the mobilization of all forces and resources to repulse the enemy.
- 30 June—Creation of the State Defense Committee (GKO) of the USSR.

- 1 July—General instruction of the CC CP(b) to the Byelorussian Party, and Soviet and Kom-somol organizations, on the development of partisan warfare in the enemy's rear.
- 2 July—Publication of a decree of the Council of People's Commissars of the USSR "On universal compulsory training of the population for air defense."
- 3 July—Radio broadcast by J. V. Stalin, Chairman of the State Defense Committee.
- 5 July—Decree of the CC CP(b) of the Ukraine on the creation of partisan units and a Bolshevik underground organization in occupied districts.
- 10 July—Decree of the GKO transforming the General Headquarters into the Headquarters of the Supreme Command.
- 10 July–10 September—Battle of Soviet Forces for the defense of Smolensk.
- 11 July–19 September—Defense of Kiev.
- 14 July—The first Soviet rocket battery, commanded by Captain I. A. Flerov, fired the first salvo on the German invaders in the Orsha *rayon*. *
- 16 July—Decree of the Presidium of the Supreme Soviet of the USSR on the reorganization of bodies concerned with political propaganda and the introduction of the institution of military commissars in the Red Army (this decree was extended to cover the Navy on 20 July).
- 18 July—Resolution of the CC ACP(b) "On the organization of combat activities in the rear of the German forces."
 - Signing of an agreement between the governments of the USSR and Czechoslovakia on joint action against Germany and the formation of Czechoslovak fighting units in the USSR.
- 30 July—The signing of a Soviet-Polish agreement on the establishment of diplomatic relations, mutual assistance in war, and the formation of Polish military units in the USSR.
- 5 August–16 October—The heroic defense of Odessa.
- 8 August—J. V. Stalin appointed Supreme Commander of the Armed Forces of the USSR.
 - First flight of aircraft of the Baltic Fleet against military targets in Berlin.
- 30 August–6 September—Defeat of German Fascist forces in the vicinity of Yel'nya.
- 8 September 1941–27 January 1944—Heroic defense of Leningrad.
- 17 September—Decree of the GKO on universal compulsory military training in the USSR.
- 18 September—First steps in the setting up of the Soviet Guards: 100th, 127th, 153rd and 161st Infantry Divisions renamed the 1st, 2nd, 3rd and 4th Guards Divisions.
- 30 September 1941–7 January 1942—The great battle around Moscow.
- 30 October 1941–4 July 1942—The heroic defense of Sevastopol (individual subunits and groups fought until 9 July).
- 7 November—Military parade in Red Square.
- 22 November—Opening of the ice route across Lake Ladoga to Leningrad (the "Road of Life").
- 24 November—Decree of the State Defense Committee (GKO) proclaiming the Air Defense Forces an independent Service.
- 26 November–28 December—counterattack by Soviet Forces around Tikhvin. Liberation of Tikhvin (9 December).
- 29 November—Liberation of Rostov-on-Don by Soviet Forces.
- 5 December 1941–7 January 1942—counterattack by Soviet Forces around Moscow.
- 26 December 1941–2 January 1942—The Kerch-Feodosiya airborne landing operation.
- 1941—Creation of the first jet fighter in the world by a design team headed by V. F. Bolshovitinov.
 - Red Army supplied with 57mm self-propelled anti-tank guns.
 - Adoption of the 14.5mm anti-tank rifle (system of V. A. Degtyarev and S. G. Simonov).
 - Publication of the Red Army Field Regulations (draft).
 - Adoption by the Red Army of a new model of G. S. Shpagin's 7.62 mm submachine gun (PPSh).
 - Adoption of the new TM-41 anti-tank mine with pressed metal body.

* Soviet administrative-geographical unit [U.S. Ed.].

1942

- 4 January—Soviet parachute unit of 416 men dropped in the region of Bol'shoy Fat'yanov (southeast of Vyaz'ma).
- 18–21 and 28 January—652 Soviet parachutists dropped near Zhelan'ye (northwest of Yukhnov). Airborne landing of a force of 1,643 men in the same region.
- January–April 1942—General attack by Soviet Forces. The enemy is thrown back between 100 and 350km to the west.
- On the night of 17 February—Soviet airborne landing (312 men) near Rzhev to reinforce surrounded troops of the 29th Army of the Kalinin Front.
- 17–20 February—Airborne landing of the 4th Airborne Corps (6,988 men in all) to assist troops on the Western Front to end the encirclement of the Yukhnov grouping.
- February—First steps in the formation of the first Czechoslovak military unit in the USSR, at Buzuluk.
- 17 March—Red Army Staff Field Service Manual approved.
- 4 April—Award of the title of "Guards' Ship" to the eight best fighting ships, including the "Krasnyy Krym," the flotilla leader "Minsk," and the minelayer "Marti."
—Defense boats of the Black Sea Fleet accompanying large supply ships used 82 mm rocket missiles (naval "Katyushas") against enemy dive bombers.
- 8–19 May—Defensive operation of troops of the Crimean Front in the Kerch Peninsula.
- 10 May—First steps in the formation of the 1st Czechoslovak Brigade at Novokhopersk.
- 15 May—Pilot G. Ya. Bakhchivandzhi tests the first jet aircraft in the world, designed by V. F. Bolkhovitinov.
- 21 May—Decree of the Presidium of the Supreme Soviet of the USSR "On the introduction of guards' ranks in the Red Armed Forces."
- 30 May—Creation of the Central Headquarters of the Partisan Movement in the USSR.
- 2 June—Mountain Warfare Manual (Part 1) approved.
- 7–24 July—Defensive operation of troops of the Southwestern and Southern Fronts in the large bend of the Don and in the Donets Basin.
- 17 July–18 November—Defensive period of the battle of Stalingrad.
- 17 July 1942–2 February 1943—Battle of Stalingrad.
- 25 July–31 December—Battle for the Caucasus. Defensive period.
- 9 October—Decree of the Presidium of the Supreme Soviet of the USSR "On the establishment of unified command and the abolition of the institution of military commissars in the Red Army." (This Decree was extended to the Navy on 13 October.)
- 9 November—Approval of the Combat Regulations of the Red Army Infantry (Parts I and II).
- 19 November 1942–2 February 1943—Counterattack by troops of the Southwestern, Don and Stalingrad fronts.
- 23 November—Completion of the encirclement by the Red Army of a grouping of 330,000 German Fascist troops near Stalingrad.
- November 1942–March 1943—Attack by the Red Army in the winter campaign of 1942/43.

1943

- 1 January–4 April—Operations of Soviet Forces to liberate the North Caucasus.
- 6 January—Decree of the Presidium of the Supreme Soviet of the USSR instituting new insignia of rank, epaulets, for Red Army personnel (for Naval personnel from 15 February).
- 10 January–2 February—Liquidation of the German troops surrounded near Stalingrad.
- 12–18 January—Lifting of the blockade of Leningrad by troops of the Leningrad and Volkhov Fronts, assisted by the Baltic Fleet.
- 16 January—Decree of the Presidium of the Supreme Soviet of the USSR instituting additional

- military ranks (marshal) for the higher officers of the Air Force, Artillery, and Armored Troops.
- 24 January–17 February—Voronezh-Kastornoye offensive by troops of the Voronezh and Bryansk Fronts.
- 29 January–18 February—Offensive by troops of the Southwestern and Southern Fronts in the Donets Basin.
- January—Soviet Army equipped with the SU-76 and SU-122 self-propelled guns.
- 2 February–3 March—Offensive operations of troops of the Voronezh Front and the left flank of the Bryansk Front towards Kursk and Ryl'sk, and towards Kharkov and Poltava. Liberation of Kharkov (16 February) and Kursk (8 February).
- 19 February–3 March—Defensive operation of the Southwestern Front, south of Kharkov.
- 27 February—Decree of the Presidium of the Supreme Soviet of the USSR "On the institution of the "Marshal's Star," a decoration for Marshal of Artillery, Marshal of Aviation and Marshal of Armored Troops."
- 8 March—First battle of the 1st Czechoslovak Battalion at the village of Sokolovo.
- 9 May—Commencement of the formation of the 1st Polish Division (the "Tadeusz Kosciuszko" Division) in the USSR on the initiative of the Union of Polish Patriots.
- 5 July—The start of the Battle of Kursk.
- 12 July–23 August—Counterattack by Soviet Forces near Kursk.
- 5 August—Liberation of Orel and Belgorod by Red Army Troops. First artillery salute in Moscow. Order of the Supreme High Commander awarding the battle honors "Orel" and "Belgorod" to the units and formations that distinguished themselves.
- 21 August—Decree of the Council of People's Commissars of the USSR and the CC ACP(b) on the organization of the Suvorov military schools.
- 10 September–9 October—The Novorossiysk-Taman' offensive operation of the North Caucasus Front and the Black Sea Fleet.
- 25–26 September—Commencement of the forcing of a crossing of the Dnepr by troops of the Steppe and Southwestern Fronts.
- During the night of 26 September—Airborne landing by the Red Army of 4,575 men (3rd Airborne Brigade) and more than 1,000 men of the 5th Brigade, who operated in the enemy's rear in the areas north and south of Kanev and in the area of Cherkassy for 50 days, assisting the 52nd Army to force a crossing of the Dnepr.
- 9 October—Decree of the Presidium of the Supreme Soviet of the USSR on the institution of the military ranks of Chief Marshal of Artillery, of the Air Force, and of Armored Troops, and also the ranks of Marshal and Chief Marshal of Engineering Troops and Communications Troops.
- 1–11 November—Kerch landing operations of the North Caucasus Front, the Black Sea Fleet, and the Azov Naval Flotilla.
- 4–7 November—Participation by the 1st Czechoslovak Brigade as part of the 38th Army of the Voronezh Front in the fighting for the liberation of Kiev, the capital of the Ukraine.
- November—First steps in the formation of the Romanian Volunteer Division (the "Tudor Vladimirescu" Division) in the USSR.
- 24 December 1943–12 May 1944—Operations for the liberation of the Right-Bank Ukraine and the Crimea
- 1943—Formation in the Soviet Army of field engineer-assault engineer teams attached to operational formations.
- Soviet troops equipped with the new 7.62mm heavy machine-gun designed by P. M. Goryunov, V. Ye. Voronkov and M. M. Goryunov.
 - Adoption of the new 300mm high explosive rocket missile, for use against defense works as equipment for Soviet Forces.
 - Soviet Forces supplied with the 160mm mortar designed by I. G. Teverovskiy.
 - The SU-152 self-propelled gun-howitzer constructed on the basis of the KV tank.
 - The SU-85 and SU-100 self-propelled guns constructed on the basis of the T-34 tank.
 - Commencement of mass production of the JS heavy tanks, developed by a design team headed by Zh. Ya. Kotin.

- Red Army equipped with anti-tank weapons: the 1942 model 45mm gun and the 1943 model 57mm gun firing sub-caliber ammunition, and the 1942 model 76mm gun.
- A. I. Sudayev's submachine gun adopted as standard equipment for Soviet troops.

1944

- 14 January–1 March—Offensive operation of troops of the Leningrad, Volkhov and Second Baltic Fronts, assisted by aircraft of the Baltic Fleet and partisans, near Leningrad and Novgorod.
- 3–17 February—Encirclement and destruction of a large grouping of enemy forces by Soviet Forces in the Korsun'-Shevchenkivskiy region.
- 20 March—Decree of the Presidium of the Supreme Soviet of the USSR concerning the establishment of the "Marshal's Star" as a decoration for Marshal of Engineering Troops and Marshal of Communications Troops.
- 2 April—Romanian territory entered by Soviet Forces.
- 8 April–12 May—Crimean offensive operation of troops of the 4th Ukrainian Front, the Independent Coastal (Primorskaya) Army and the Black Sea Fleet with the assistance of partisans. Expulsion of the enemy from the Crimea.
- 2 May—Formation of the 128th Independent Czechoslovak Air Force Squadron completed (transformed into the 1st Independent Czechoslovak Fighter Regiment in June 1944).
- 9 May—Liberation of Sevastopol by troops of the 4th Ukrainian Front in cooperation with the Black Sea Fleet.
- 10 June–9 August—Offensive operation by troops of the Leningrad and Karelian Fronts, the Baltic Fleet and the Ladoga and Onega Naval Flotillas. Liberation of the whole of Leningrad oblast* completed.
- 21 June–9 August—Svirsk-Petrozavodsk operation on the Karelian Front.
- 23 June–29 August—Byelorussian operation by troops of the 1st Baltic and the 3rd, 2nd and 1st Byelorussian Fronts.
- 25–27 June—Encirclement and destruction of a large group of the enemy in the Vitebsk region by troops of the 1st Baltic and 3rd Byelorussian Fronts.
- 27–29 June—Encirclement and destruction of a group of German fascist troops at Bobruysk by troops of the 1st Byelorussian Front.
- 3 July—Liberation of Minsk by troops of the 3rd and 1st Byelorussian Fronts.
- 3–11 July—Encirclement and destruction of a large group of the enemy east of Minsk by troops of the 3rd, 2nd and 1st Byelorussian Fronts.
- 10 July–22 October—Offensive by Soviet Forces in the Baltic region.
- 13 July—Liberation of Vil'nyus by troops of the 3rd Byelorussian Front.
- 13 July–29 August—The L'vov-Sandomirsk offensive by troops of the 1st Ukrainian Front.
- 17 July—Troops of the 1st Ukrainian Front cross the frontiers of the USSR and enter Poland.
- 18–22 July—Encirclement and destruction of a large group of the enemy west of the town of Brody by troops of the 1st Ukrainian Front.
- 20 July—Troops of the 1st Byelorussian Front force the Western Bug and enter Poland.
- 20 August–27 September—Yassy-Kishinev operation by forces of the 2nd and 3rd Ukrainian Fronts cooperating with the Black Sea Fleet and the Danube Naval Flotilla.
- 24 August—Liberation of Kishinev by troops of the 3rd Ukrainian Front.
- 24–29 August—Encirclement and destruction of a large group of the enemy in the vicinity of Kishinev by troops of the 2nd and 3rd Ukrainian Fronts.
- 8 September—Soviet Forces enter Bulgaria.
- 14 September–22 October—Attack by Soviet Forces in the Baltic region by the forces of four fronts (3rd, 2nd and 1st Baltic Fronts and the Leningrad Front) in collaboration with the Baltic Fleet with the object of complete liberation of the Soviet Baltic region.
- 15 September—Sofia entered by troops of the 3rd Ukrainian Front.

* Soviet administrative-geographical unit [U.S. Ed.].

- 22 September—Liberation of Tallin by troops of the Leningrad Front in cooperation with the Baltic Fleet.
- 28 September–21 October—Belgrade offensive operation of the 3rd Ukrainian Front.
- 6 October—Troops of the 38th Army of the 1st Ukrainian Front and the 1st Czechoslovak Army Corps occupy the Dukla Pass and enter Slovakia.
- 7 October–1 November—Petsamo-Kirkenes operation of the Karelian Front and the Northern Fleet for the liberation of Soviet territory in the Arctic.
- 13 October—Liberation of Riga by troops of the 3rd and 2nd Baltic Fronts.
- 17–18 October—Soviet troops enter Eastern Prussia
- 20 October—Liberation of Belgrade by troops of the 3rd Ukrainian Front and units of the People's Liberation Army of Yugoslavia.
- 21 October—Decree of the Presidium of the Supreme Soviet of the USSR establishing 19 November as an annual holiday "Artillery Day."
- 22 October—Troops of the Karelian Front reach the frontier between the USSR and Norway.
- 25 October—Liberation of the Norwegian town of Kirkenes by Soviet Forces.
- 29 October 1944–13 February 1945—Budapest Operation of the 2nd and 3rd Ukrainian Fronts.
- 31 October—Liberation of Bucharest by Soviet Forces.
- 1944—Red Army equipped with the 1944 model of the 100mm gun.—Adoption of V. A. Degtyarev's modernized light machine gun.

1945

- 12 January–3 February—Vistula-Oder operation by troops of the 1st Byelorussian and the 1st Ukrainian Fronts assisted by armies from the left flank of the 2nd Byelorussian Front and the right flank of the 4th Ukrainian Front.
- 12 January–28 February—Operations by troops of the 4th and 2nd Ukrainian Fronts in the Western Carpathians to liberate Slovakia and southern regions of Poland.
- 13 January–25 April—East Prussian offensive by forces of the 3rd and 2nd Byelorussian Fronts and the Baltic Fleet.
- 17 January—Liberation of Warsaw by troops of the 1st Byelorussian Front and the 1st Army of the Polish Forces.
- 29 January—Troops of the 1st Byelorussian Front cross the German frontier west and northwest of Poznan.
- 30 January–9 April—Encirclement and destruction of an enemy group at Konigsberg by troops of the 3rd Byelorussian Front.
- 1–17 February—Encirclement and destruction of a group of German Fascist troops in the region of Schneidermuhl (Pila) by troops of the 1st Byelorussian Front.
- 3 February—Troops of the 1st Byelorussian Front begin to force the crossing of the Oder.
- 13 February—Liberation of Budapest by troops of the 2nd and 3rd Ukrainian Fronts.
- 15 February–6 May—Encirclement and destruction of an enemy group in the region of Breslau (Wroclaw) by troops of the 1st Ukrainian Front.
- 5–15 March—Balaton defensive operation by troops of the 3rd Ukrainian Front.
- 16 March–15 April—Vienna offensive operation by the 3rd and 2nd Ukrainian Fronts.
- 18–20 March—Encirclement and defeat of an enemy group in the region of Oppeln (Opole) by troops of the 1st Ukrainian Front.
- 4 April—Liberation of Hungary from the German Fascist invaders completed by troops of the 3rd and 2nd Ukrainian Fronts.
- 13 April—Vienna occupied by troops of the 3rd and 2nd Ukrainian Fronts.
- 16 April–8 May—Berlin operation of the 1st and 2nd Byelorussian Fronts and the 1st Ukrainian Front.
- 25 April—Encirclement of Berlin completed by troops of the 1st Byelorussian and 1st Ukrainian Fronts.
- Troops of the 1st Ukrainian Front reach the river Elbe in the region of Torgau, where they meet up with the American 1st Army.

- 2 May—Troops of the 1st Byelorussian and 1st Ukrainian Fronts complete the defeat of the surrounded Berlin group and completely occupy the German capital.
- 8 May—Act of unconditional capitulation of the German Armed Forces signed by representatives of the German High Command in Karlshorst (a suburb of Berlin).
- 9 May—The Day of Victory over Fascist Germany.
—Liberation of the capital of Czechoslovakia, Prague, by troops of the 1st Ukrainian Front supported by detachments of armed insurgents.
- 24 June—Victory Parade in Moscow's Red Square.
- 8 August—Declaration of war on imperialist Japan by the Soviet Union.
—Representatives of the USSR, the United States, Britain and France sign an agreement setting up the International Military Tribunal to try the main war criminals.
- 9 August—Commencement of Military operations by the Soviet Armed Forces against imperialist Japan.
- 9 August–2 September—Manchurian offensive operation by forces of the Transbaykal and the 1st and 2nd Far Eastern Fronts, the Pacific Fleet, and the Amur Flotilla.
- 11–25 August—Southern Sakhalin offensive operation of the 2nd Far Eastern Front and the Pacific Fleet.
- 18 August–1 September—Landing on the Kuril Islands by troops of the Kamchatka Defense Region and the Petropavlovsk Naval Base. Liberation of the Kuril Islands.
- 22 August—Liberation of Port Arthur and Talien (Dairen) by Soviet airborne troops.
- 24 August—Liberation of Pyongyang by troops of the 1st Far Eastern Front.
- August—Airborne landings by the 1st Far Eastern Front in the region of Harbin (500 men), Girin (200 men), the Yangtze (300 men), and Pyongyang (150 men).
—Airborne landings by the Transbaykal Front in the region north of Mukden (300 men), in Changchun (300 men), Mukden (300 men), Dal'niy (500 men), and Port Arthur (500 men).
- 1 September—Total defeat of the Japanese Kwantung Army by Soviet Forces.
- 2 September—Signing of the Act of Unconditional Capitulation of Japan. End of World War II.
- 3 September—The Day of Victory over Japan.
- 1945—Publication of the Field Service Regulations of the Red Army (draft).

1946

- 1 June—Implementation of the Disciplinary Regulations of the Soviet Armed Forces.
- 11 July—Decree of the Presidium of the Supreme Soviet of the USSR establishing the second Sunday in September as an annual holiday, "Tank Man's Day."
- 24 July—Internal Service Regulations of the Soviet Armed Forces approved.
- 25 December—Start-up of the first uranium-graphite reactor constructed by I. V. Kurchatov and his colleagues.
- 1946—Initial steps in the formation of the first rocket units in the Soviet Army.
—Introduction of a company machine gun using 7.62mm rifle cartridges.
—Commencement of trials of the Soviet MiG-9 and Yak-15 jet aircraft.
—Construction of the MiG-9 fighter. Speed 910km/hr, altitude 13,000m.

1947

- 17 January—Implementation of the Drill Manual of the Soviet Armed Forces.
- March—Statute on the political bodies of the Soviet Armed Forces approved by the Central Committee of the Party.
- 10 June—Decree of the Presidium of the Supreme Soviet of the USSR approving the texts of the Military Oath and the Instructions on the Procedure for Administering the Military Oath.
- 24 June—G. Kondrashov catapulted from a Tu-2K aircraft; the first time this operation had been carried out in the USSR.
- 18 October—Successful launching of the first ballistic missile in the Soviet Union.

1947—Delivery of the MiG-15, the first serially produced Soviet swept-wing jet fighter. Flight speed 1,060km/hr, altitude up to 15,200m.

1948

23 February—30th Anniversary of the Soviet Army and Navy.

1949

20 February—Implementation of the Garrison and Guard Duty Regulations of the Soviet Armed Forces.

August—Nuclear weapon test held in the USSR.

1949—Ascent by Soviet geophysical rockets carrying apparatus weighing more than a ton to an altitude of more than 100km.

1950

February—A serially produced MiG-17 fighter reaches the speed of sound in level flight.

1951

21 August—The parachutist V. Kochetkov catapulted from the cockpit of a MiG-15 at a speed of 1,036km/hr.

1951—Creation of the first electronic computer (MESM) in the Soviet Union under the direction of Academician S. A. Lebedev.

1952

5-14 October—XIX Party Congress.

1952—Construction of the M2 and M3 universal mini-computers in the USSR.

1953

3 August—Detonation of a thermonuclear device in the Soviet Union.

January—The staff of the Armed Forces begin to study atomic weapons and operations when atomic weapons are used.

September—The first large military exercise involving the detonation of a real atomic bomb held in the Soviet Union.

1954—A start was made on the elaboration of a wide variety of questions related to the conduct of military operations in nuclear warfare.

1955

3 March—Decree of the Presidium of the Supreme Soviet of the USSR establishing the military rank of Fleet Admiral of the Soviet Union.

25 May—Decree of the Presidium of the Supreme Soviet of the USSR on ratification of the Warsaw Defense Pact concluded between the socialist states of Central and Southeastern Europe on 14 May 1955.

1955—Trials of an "aerial cross-country vehicle" (the hovercraft principle) constructed in the Soviet Union under the direction of V. Kozhokhin.

1956

14-25 February—XX Congress of the CPSU.

November—At the request of the Hungarian Revolutionary Workers' and Peasants' Government, Soviet troops assisted the Hungarian people in crushing a counterrevolutionary uprising.

—The testing in the USSR of the intercontinental ballistic rocket by means of which an artificial earth satellite was placed in orbit in October 1957.

1957

April—All-Army Conference of holders of proficiency badges for excellence in combat and political training.

May—Armed Forces Military Scientific Conference.

20 August—Delayed drop from an altitude of 15,388m by Meritorious Master of Sport N. Nikitin.

27 August—Communique from the Soviet news agency TASS on successful trials of an intercontinental ballistic missile in the Soviet Union and on detonations of nuclear and thermonuclear (hydrogen) weapons.

October—Adoption of a resolution by the October plenary session of the CC CPSU "On improving Party-political work in the Soviet Armed Forces."

28 October—Address of the CC CPSU, the Council of Ministers of the USSR, and the Presidium of the Supreme Soviet of the USSR to members of the Soviet Armed Forces on the occasion of the 40th Anniversary of the Great October Socialist Revolution.

1958

17 April—Resolution of the CC CPSU and the Council of Ministers of the USSR "On the Military Councils of the Soviet Armed Forces."

April—New instructions to Komsomol organizations in the Soviet Armed Forces approved by the CC of the Komsomol and the Chief Political Directorate of the Soviet Armed Forces.

October—New regulations governing political organizations in the Soviet Armed Forces approved by the CC CPSU.

1959

3 January—Implementation of the Drill Manual of the Soviet Armed Forces.

31 October—Test pilot G. K. Mosolov set up an absolute world record with a speed of 2,388 km/hr in a serially produced MiG-21F tactical fighter.

17 December—The Strategic Rocket Forces, a new Service, established by decree of the Council of Ministers of the USSR.

1960

1 May—American U-2 reconnaissance plane shot down over the USSR by a Soviet rocket.

May—All-Army Conference of the secretaries of primary party organizations.

18 August—Resolution of the CC CPSU on alteration of the structure of Party organizations in the Soviet Armed Forces.

23 August—Internal Service Regulations and Disciplinary Regulations of the Soviet Armed Forces approved by the Presidium of the Supreme Soviet of the USSR.

1961

17-31 October—XXII Congress of the CPSU; adoption of the Party Program and Statutes.
1961—Creation in the USSR of a supersonic fighter with an assisted take-off unit, and with a very short take-off run.

1962

1962—Pilot G. K. Mosolov sets up an absolute world record with a flying speed of 2,681km/hr.

1963

22 August—Garrison and Guard Duty Regulations of the Soviet Armed Forces approved by the Presidium of the Supreme Soviet of the USSR.
1963—Soviet intercontinental rockets tested for target accuracy.—Successful production in the Soviet Union of stable plasma of considerable density with a temperature of 40 million degrees.

1964

21 April—Decree of the Council of Ministers of the USSR approving the naval flags and pennants for fighting ships, the ships of border troops, auxiliary vessels and officials of the Ministry of Defense and the Committee of State Security (KGB).

1965

26 March—Decree of the Council of Ministers of the USSR instituting the M. V. Frunze Prize for Outstanding Works of Military Science.
23 April—The launching in the Soviet Union of the first "Molniya-1" communications satellite providing communications between Moscow and Vladivostok for several hours.
1965—Creation in the Soviet Union of a new and powerful rocket by means of which the "Proton-1" space laboratory was placed in Earth orbit on 16 July. Total payload (excluding the final carrier stage) 12.2 tons.
—Creation of the honorary titles "Meritorious Military Pilot of the USSR" and "Meritorious Military Navigator of the USSR" by the Presidium of the Supreme Soviet of the USSR.

1966

29 March-8 April—XXIII Congress of the CPSU.
7 May—Decree of the CC CPSU and of the Council of Ministers of the USSR "On the present state as regards the work of the Volunteer Society for Cooperation with the Army, Air Force and Navy Fleet (DOSAAF SSSR) and measures for its improvement."
21 November—First flight of the 24-seater Yak-40 jet aircraft created by a team headed by chief designer A. S. Yakovlev. Cruising speed 500-600km/hr, range 2,000km.
3 December—Solemn interment in the walls of the Moscow Kremlin of the remains of the unknown soldier, one of the heroic defenders of Moscow.
1966—Creation of a new type of powerful laser by a group of scientific officers at the Institute of Physics, USSR Academy of Sciences, under the direction of Academician A. M. Prokhorov.

1967

- 21 January—Resolution of the CC CPSU "On measures to improve Party-political work in the Soviet Armed Forces."
- 10 July—In honor of the 50th Anniversary of the Revolution, the CC CPSU, the Presidium of the Supreme Soviet and the Council of Ministers of the USSR established 300 memorial banners as a symbol of valor in battle for military formations, units, and ships.
- September—*Dnepr*, a large-scale exercise involving forces of the Byelorussian, Carpathian and other military districts. Military delegations from friendly armies were present at the exercise.
- 12 October—Adoption of the Universal Military Service Law by the 3rd session of the Supreme Soviet of the USSR of the seventh convocation.
- 2 November—Announcement in the Soviet press of the world record set up by Pilot Mikhail Komarov. Flying a serially produced supersonic Ye-266 fighter, designed by A. I. Mikoyan, he covered a 500 kilometer closed course at an average speed of 2,930km/hr.

1968

- 22 February—Awarding of the Order of Lenin to the Leningrad and Moscow Military Districts and to the Moscow Air Defense District by decree of the Presidium of the Supreme Soviet of the USSR; awarding of the Order of the Red Banner to the Byelorussian, Kiev, Odessa, North Caucasus, and Turkestan Military Districts; awarding of the Order of the October Revolution to the cruiser "Avrora."
- 23 February—Greetings of the Central Committee of the CPSU, the Presidium of the Supreme Soviet of the USSR and the Council of Ministers of the USSR to the members of the heroic Armed Forces of the Soviet Union on the occasion of the 50th Anniversary of the Soviet Armed Forces.
- 21 August—Together with the troops of other fraternal armies, Soviet Forces went to the assistance of the Czechoslovak people in defense of the achievements of socialism against the threat of internal and external counterrevolution.

1969

- 17 March—Approval at a meeting of the Political Consultative Committee in Budapest of the statute on the Committee of Defense Ministers of the Warsaw Pact States, a new statute on the Joint Armed Forces, Joint Command and other documents.
- 27 May—Greetings of the CC CPSU to the political organizations, commanders and political workers of the Soviet Armed Forces on the occasion of the 50th anniversary of the creation of the Political Department of the Revolutionary Military Council of the Republic.
- 5 November—Institution of the Jubilee Medal by decree of the Presidium of the Supreme Soviet of the USSR, and celebration of the hundredth anniversary of the birth of Lenin by the institution of two citations: "For Valiant Labor. In celebration of the 100th Anniversary of the Birth of Lenin" and "For Military Valor. In celebration of the 100th Anniversary of the Birth of Lenin."
- 26 November—All-Army conference of junior officers in Moscow.

1970

- March—The *Dvina* maneuvers, in which all branches of the Services of a number of military districts took part.
- 22 April—Centenary of the birth of Lenin.
- April-May—*Okean* maneuvers of the Soviet Navy.

9 May—25th Anniversary of the victory of the Soviet People and its Armed Forces over Fascist Germany.

30 July—Socialist competition begun in the Armed Forces of the USSR as a fitting preparation for the XXIV Congress of the CPSU, on the initiative of the staff of the "G. I. Kotovskiy" Proskurov Berlin Guards Tank Regiment (Orders of Lenin, the Red Banner and Kutuzov).

Chapter 6. THE MILITARY PROFESSION

Accomplishing the tasks of strengthening the Armed Forces of the Soviet State the CPSU continues, as in the past, to pay great attention to the training, education and placement of military personnel. The Party proceeds on the basis that line, political, and technical personnel are the most important element, the backbone and cohesive force of the Armed Forces. They play the leading role in all aspects of the life and combat activities of the forces.

Command cadres are conveyors of the ideology and policy of the Party and the State in the forces, bearers of the class spirit of the army and its fighting traditions. They organize the combat training and education of servicemen, imbue them with a love of military science, train them to be proficient in the use of weapons and the fundamentals of battle tactics, instill in them sound moral and fighting qualities and conscious military discipline, and reinforce order and organization in the forces. Their knowledge, experience, will, authority, and organizing abilities are important factors in ensuring a high level of fighting efficiency and combat readiness of the forces, and the achievement of victory in battle. All this is confirmed by the rich experience of Soviet military development.

THE CONCERN OF THE COMMUNIST PARTY FOR THE TRAINING AND EDUCATION OF MILITARY CADRES

The task of training military cadres from among the people faced our Party immediately after the formation of the Red Army. The Party was convinced that only new officers from among the people, dedicated to the Soviet regime and capable of correctly understanding the Party's general and military policies and steadfastly carrying them into effect, could ensure the peak fighting efficiency of the army of the dictatorship of the proletariat.

"... The old officer corps," said V. I. Lenin, "consisted mainly of the spoiled and depraved sons of capitalists, who had nothing in common with the simple soldier. Therefore, in building our new army, we must select officers from among the people. Only Red officers will have authority among the soldiers and be able to strengthen socialism in our army. Such an army will be invincible."¹

¹ Lenin, XXXVII, 200.

During the first months in the development of the new army, the Party appointed officers from among Party officials and leading workers who had gained combat experience during revolutionary battles in the ranks of the Red Guards and also those members of the Party who had carried out major work in the Red Army before the October Revolution. Revolutionary soldiers and sailors, as well as former non-commissioned officers, were also appointed to command positions.

However, these measures alone were insufficient for the establishment of large military cadres. It was necessary to set up an extensive network of officers' courses and military schools. The first Moscow revolutionary machine gun school for line officers was established on Lenin's personal instructions. By 15 December 1917 all the student quotas in the school had been filled. On 14 February 1918 by order of the People's Commissariat for Military Affairs the opening of the first thirteen officers' courses in Moscow, Petrograd, Oranienbaum, Tver' and Kazan' was announced. These were courses for training line and political officers for the infantry, cavalry, artillery, engineering troops, machine gunnery, the communications troops, armored vehicle and electrotechnical units, as well as armorers, medical officers, etc. The opening of these courses marked the beginning of the development of the Red Army's system of military training establishments.

By the end of 1918, there were 63 military training establishments in the country, by September 1919 there were 107, while in November 1920 there were as many as 153. The number of students in them was approximately 54,000. During this period about 40,000 Red officers took these courses.

These training establishments turned out officers of middle rank. But the Army also needed senior and higher command officers from among the workers and peasants. To fulfill this need the following higher military training establishments were created in 1918 and 1919: the General Staff, Artillery, Military Engineering, Military Medical, and Military Economic Academies. In 1919 the Petrograd Teachers' Institute, later the Military Political Academy, opened its doors. At the same time, the Higher Small-arms School for Officers, the Higher Military Aviation Institute, the Higher Artillery School, and the Higher Military Cavalry School were opened.

V. I. Lenin paid a great deal of attention to the training of future Red Army officers. On the first mass graduation of line officers in Petrograd, he sent them a telegram saying: "I send greetings to 400 comrade workers who today have completed the course for officers of the Red Army and who are entering its ranks as leaders . . . thousands and thousands of other workers will follow your example, and with such administrators and officers the victory of communism will be assured."²

November 24, 1918, was proclaimed as "Red Officers' Day" throughout the country. Lenin addressed the participants in a parade in honor of this day from the balcony of the Mossovet* Building. In his speech, he emphasized that the Red Army was a completely new army, that it was called upon to defend the interests of the workers, and that it needed a new proletarian officer corps, capable of realizing the Party's influence in the Army, and organizing the repulse of the enemies of the Revolution.

Despite the fact that he was extremely preoccupied with state affairs, Vladimir Il'ich often put in an appearance at officers' training centers, military schools, and academies, and spoke to the trainees. Many times he spoke to trainees on officers' courses in the Kremlin and visited the Moscow Aviation School, officers' heavy artillery courses, and the Military Academy of the Workers' and Peasants' Red Army.

² Lenin, XXXVII, 88.

* Acronym for Moscow City Soviet of Workers' Deputies [U.S. Ed.].

Questions relating to the training of military cadres were discussed at Party congresses. An extremely important role in this connection was played by the VIII Congress of the RCP(b). The "military opposition," which demanded the election of officer personnel and collectivity of troop control, etc., opposed the Party line on questions of military development and particularly the training of cadres. The congress rejected their demands for the election of officers and declared that it was expedient to consolidate the principle, already proved in practice, of the appointment of officers by the appropriate military bodies. As the congress indicated, the main approach to the training of command personnel must be through the training and education of our own officers from among the workers and peasants. In addition, despite the "military opposition," the Party deemed it necessary to enlist military specialists of the old army into the Red Army.

A resolution on the military question adopted by the X Party Congress outlined measures for improving the training of military cadres during the period of agricultural reorganization after the Civil War. It was pointed out that there was a need to improve military training work and step up political instruction activities among the command officers. The congress proposed that measures be taken to further improve the social composition of the officers' cadres, to make more regular and systematic use of Red officers in command positions.

Trotsky, who overrated the role of the old military specialists, belittled that of the new Red officers and opposed the nomination of the latter for responsible command positions, opposed these Party principles. The Party dealt a decisive rebuff to Trotsky's anti-Party views and actions.

During the period of military reform and technical reequipment of the Army and Navy, the growth of the officers' cadres continued more rapidly than before. During the 12 years from 1925 through 1937, the military schools and colleges turned out 135,000 officers and the academies, approximately 13,000. Among the command personnel the proportion of officers with technical and specialist training continually increased.

The training of executive and political cadres was conducted with great intensity in the pre-war years, when dozens of new schools for all Services and branches of the Services were opened in connection with the development of the regular army. Whereas in January 1939 we had 14 academies and six military departments attached to civilian higher educational establishments, by the beginning of the war there were 19 academies, 10 military departments and seven higher naval schools. The number of students in these training establishments had increased by more than one and a half times during this period.

The Communist Party carried out an enormous amount of work in the training of command, engineering, and political officers during the Great Patriotic War. During the war, the network of military training establishments was expanded and the student intake increased, and numerous officer retraining and refresher courses were organized. By the beginning of the third period of the war, cadres of command and engineering and technical officers were being trained by 31 higher military training establishments, 220 military schools, and taking more than 200 different courses for the training and

retraining of specialist officers, the annual graduation output being between four hundred and five hundred thousand officers.

Nearly two million officers were trained by the entire network of military training establishments during the war.

Many talented generals and officers were nominated for command positions during the war. The remarkable organizational abilities, political maturity, and high level of military training of our command and political officers were vital factors in the historical victory of the Soviet State and its Armed Forces over the Fascist invaders.

During the postwar period, especially in connection with the revolution in military affairs, further demands were made on our military cadres. As Engels indicated, when the waves of the technical revolution are raging around us, we need younger, bolder heads. Soviet officers are required to be experts in the handling of modern weapons and new methods and forms of conducting battles and operations; they must significantly broaden their military theoretical outlook, and improve their teaching qualifications.

The increased role of the officer corps is expressed primarily in the fact that there has been a significant increase in the proportion of officers in the total number of servicemen. Whereas during World War I there was one officer to every 15-19 soldiers and noncommissioned officers, there is now one officer to every 7-11 other ranks in the armies of the most powerful states, while in the air force, rocket and other special forces the proportion is even higher. The increased role of officer personnel is also manifested in the fact that the most complex fighting equipment, various types of assemblies and radio-electronic equipment are, in most cases, controlled directly by officers who are either engineers or technicians.

Thanks to the Party's constant concern, our Armed Forces now have cadres of command and specialist officers, who are wholly devoted to the people and the cause of communism, politically mature, highly trained in military technical skills and capable of expertly leading the troops, both in peacetime and in war. Approximately 93% of all officers, generals, and admirals of the Armed Forces are Party or Komsomol members. More than 30% of the officers and, in some branches of the Services, almost 100%, have had a higher military or specialist education. Half of the officer personnel are engineers and technicians. Two-thirds of the officer personnel at regimental level are junior officers.

Tasks in the further training and education of command, political and technical personnel of the Soviet Armed Forces, and the improvement of the political, working and moral qualities of military personnel are formulated in the Program of the CPSU and the resolutions of the XXIII Party Congress.

The Communist Party is ceaselessly preoccupied with the training and education of command, political, and technical cadres, recruited from the best representatives of the people and selflessly devoted to the cause of communism. The Party considers it essential that command and all staff officers should have a sound knowledge of Marxist-Leninist theory, a high level of military technical training, satisfy all the requirements of modern military theory and practice, and reinforce military discipline.

To resolve this problem, a whole complex of measures has been put into effect: many secondary military training establishments have been converted into higher military training establishments; appropriate changes have been introduced into combat and political training programs, etc.

The decisive element in the training of officer personnel is their ideological hardening, arming them with Marxist-Leninist theory. Only on the basis of materialist dialectics and a profound understanding of the laws of social development, can officer personnel correctly understand the objective laws of modern wars, their political and technical character and features, master all the forms and means of armed combat, and advance the cause of Soviet military science.

The most important element in the ideological training of officers is the study of the Marxist-Leninist doctrine on war and the army, and Party resolutions on questions of military development and the armed defense of socialism and communism. The study of Lenin's military writings and Party resolutions broadens the officer's political and military outlook, helps him to deepen his comprehension of the most important theoretical and practical problems of military development, and to resolve more successfully specific problems in the training and education of personnel.

Officers of the Armed Forces are required to possess an excellent knowledge of military matters, and continuously improve their own military-technical and scientific training. This is dictated by a true revolution in military matters which was brought about by progress made in science and technology.

New technology and complex forms and methods of waging war necessitate new procedures and methods of training personnel. Therefore, officers are called upon to work continually to improve their methods, to be more bold in putting into practice all the new and valuable knowledge acquired in the process of training different categories of servicemen, and to seek ways of further increasing the fighting efficiency of subunits, units, and ships.

"... In order to govern," said V. I. Lenin, "one must be competent ... and have some scientific education."³ Applied to an officer, this implies that he must be able to meet all the requirements of contemporary military theory and practice, study in detail such current problems as the nature and features of modern war, changes in the methods of conducting combat operations associated with the emergence of new weapons, ways of achieving a high level of combat readiness of the forces, improvement of troop control, etc.

Continuous improvement of one's knowledge is also necessary, because both technology and the people going into the Armed Forces are changing. The educational and cultural level of our young people increases year by year. The influx into the Army of young people with secondary and higher education has increased still further as a result of the introduction of the Universal Military Service Law, passed by the Supreme Soviet of the USSR. It is a difficult matter to train and educate such people. It requires that the

³ Lenin, XL, 215.

officer possess a sound technical knowledge and a broad cultural outlook.

Modern war imposes unprecedented demands on the moral, psychological, and physical qualities of command officers called upon to lead troops in conditions which have become extremely complex. The nature of modern war insistently dictates an urgent need to further consolidate sole command responsibility, which the Party regards as the most important principle of military development. Sole command responsibility is the strictest centralization of troop control, the unconditional subordination of all servicemen to the will of the leader so as to ensure unity of action and coordination of effort in carrying out the assigned task. It provides for the full combination of the wide powers granted to officers with respect to subordinates, and personal responsibility for all aspects of the life and activities of personnel.

"Since we are preparing our Army for decisive battle with strong and formidable enemies," wrote M. V. Frunze, "our units must be led by people possessing sufficient independence, firmness, initiative, and responsibility. We need officers who can keep their heads in any situation, who would be able to make the appropriate decision, bearing responsibility for all its consequences, and firmly carry it out."⁴

The implementation of sole command responsibility assumes the all-round strengthening of military discipline, regulation procedures, and organization in the forces. This follows from the nature and features of modern war. The more complex and powerful the weapons, the higher the standard of military discipline must be, the more precisely all orders, instructions and directives on the use of the equipment must be complied with, and the greater the degree of promptness, efficiency, and execution required of each serviceman.

The training of subordinates to be conscientious, disciplined defenders of the Motherland is the most important duty of an officer. He is called upon to educate servicemen in the spirit of Soviet patriotism and proletarian internationalism, conscientious fulfillment of his military duty, respect for military labor, and to develop in them an inner desire to adhere faithfully to the principles of communist morality.

Of considerable importance in the solution of this problem is the officer's sense of discipline and his ability to be self-critical, analyze his work and conduct, and thence draw the right conclusions.

The Soviet officer is characterized by his patriotism, faithfulness to communist ideals, hatred of the enemies of the Soviet Motherland, and irreconcilability to bourgeois ideology. He is also distinguished by his Party commitment, purposefulness, steadfastness, endurance, strong will, and command requirements in accordance with regulations.

Soviet officers learn the art of leadership from Lenin. Vladimir Il'ich demonstrated models of wise leadership of the masses, developed a certain style of work, the mastery of which is a vital necessity for every Soviet leader and every officer of the Armed Forces.

Lenin's style of work is understood to be the total combination of the

⁴ Frunze, 1965, p. 480.

methods of work concerning the building of socialism and communism, and leadership and education of the masses. The Lenin style is a combination of lofty ideology, commitment to Party principles, unity of word and deed, communist enterprise, concreteness and purposefulness, a feeling for the new and a profound analysis of reality, a creative and scientific approach to work, reliance on the experience of the masses, and constant concern for the satisfaction of their needs and demands.

The most important condition for success in the work of the officer is his ability to rely on the Party organization and to arrange his work in close cooperation with political officers. To rely on the Party organization means to maintain daily businesslike contact with it, to assign to Party and Komsomol members specific tasks which follow from combat and political training plans, to help them to play a leading role in training and service life, to direct their activities into the strengthening of conscious military discipline and react promptly and attentively to criticism of shortcomings in the activities of the unit or subunit.

The endeavors of a commander, or a superior, can be considered successful only when the entire mass of servicemen is closely united around him, bound by a common purpose and profound faith in the experience, knowledge and ability of their leader. This presupposes the close relationship of the officer with the soldiers or sailors, knowledge of their moods, concern for the satisfaction of their needs and requirements. An officer who is attentive to his subordinates strengthens his authority and wins their confidence.

* * *

At an All-Army conference of junior officers in Moscow, the Minister of Defense of the USSR, Marshal of the Soviet Union A. A. Grechko declared: "The officer is the main element, the principal figure in the Armed Forces. The Party and the Government have raised the importance of the officer to a high level, they have entrusted him with the training and education of people, granted him the right to give them orders, and lead them into battle, in the fulfillment of the most difficult and complex tasks."¹

The officer corps of the Soviet Armed Forces is called upon to rise to every occasion and carry out its assigned tasks, its civil and military duty, in a fitting manner.

MILITARY SERVICE REQUIREMENTS FOR OFFICER PERSONNEL OF THE ARMED FORCES OF THE USSR (principal provisions)

In conformity with the Universal Military Service Law, officers of the Armed Forces of the USSR serve on the active military service list and in the reserve until the following maximum ages:

¹ *Krasnaya zvezda* [Red Star], 27 November 1969.

Military ranks	Age Limits			
	Active military service	category I reserve	category II reserve	category III reserve
Junior lieutenants, lieutenants and equivalent ranks	40	40	45	50
Senior lieutenants, captains and equivalent ranks	40	45	50	55
Majors and equivalent ranks	45	45	50	55
Lieutenant colonels and equivalent ranks	45	50	55	60
Colonels and their equivalents	50	55	—	60
Generals and admirals up to lieutenant general, vice-admiral and corresponding ranks	55	60	—	65
Colonel-generals, admirals and their corresponding ranks, army generals, marshals of branches of the Services, fleet admirals	60	—	—	65

Women officers included in the register of those obligated to military service on account of their professional qualifications are put on the category III reserve list, irrespective of the rank conferred upon them. The maximum age for women officers serving in the reserve is 50 years.

Officers who have reached the maximum age for active military service are subject to discharge from military service. In case of need, individuals who have reached the age limit may be retained on active military service for a period of up to five years in the manner determined by the Council of Ministers of the USSR.

Officers who have not reached the maximum active military service age may be discharged prematurely:

- for health reasons, in accordance with the findings of a military medical commission;
- in connection with staff reductions, when there is no possibility of utilizing their services;
- for non-conformity to service requirements in the assessment of their qualifications;
- for committing offenses which discredit the high rank of a Soviet officer;
- for being convicted of a criminal offense.

The officer reserve pool of the Armed Forces of the USSR is made up of:

- a) officers, generals and admirals discharged from active military duty and put on the reserve list;
- b) soldiers, sailors, noncommissioned and petty officers with higher or secondary education, who have served their period of active military duty and have been given officer's rank after passing the specified examinations on being discharged into the reserve;

c) individuals who have undergone military training in civilian higher or secondary special educational establishments and having attained officer's rank after passing the specified examinations;

d) reserve soldiers, sailors, noncommissioned and petty officers who have acquired higher or secondary specialist civilian education and a related training qualification in a corresponding military profession, after achieving officer's rank;

e) reserve soldiers, sailors, noncommissioned and petty officers with at least grade-eight education, who have served their period of active military service and attained officer's rank after undergoing a reserve officer's course of instruction and passing the specified examinations.

Reserve officers undergo training and may be called up as follows:

a) category I reserve—annually for a period of up to three months;

b) category II—for two training periods of up to three months each;

c) category III—for one two-month training period.

In addition, between these training periods, reserve officers may be called up for purposes of examinations for periods up to 10 days.

The total length of the training periods during service in the reserve may not exceed 30 months.

The lengths of training periods for different groups and specialist categories of officers, generals and admirals within the limits specified by the present clause, are determined by the Minister of Defense of the USSR.

In case of necessity, the Minister of Defense has the right to retain reserve officers, generals, and admirals on training call-ups for a period of up to two months in excess of the terms specified by the present law, and also to increase the number of reserve officer training periods, not exceeding the total training time specified in items a), b), and c) of the present paragraph.

Between call-ups, category I reserve officers put in 30–60 study hours on officer training courses organized by garrison commanders and military commissariats. Reserve officers are enrolled in these courses once in three years. The courses are conducted in the officer's place of residence: for those living in towns—without time off from work and with partial time off from work for a period of up to two days during the entire course; for those living in the country—with time off from work.

Reserve officers may be appointed to active military duty in peacetime to officers' positions as follows:

a) on a voluntary basis—by decree of the Minister of Defense of the USSR;

b) by call-up for a period of two to three years for individuals up to the age of 30 years, the number and specialization categories being determined by the Council of Ministers of the USSR.

Officers who have reached the age limit for reserve service or have been determined to be unqualified because of health reasons are taken off the registration list for military service and retired.

INTERNAL SERVICE REGULATIONS OF THE ARMED FORCES OF THE USSR (extracts)

Chapter 1

Servicemen and Relationships between Them

General Duties of Servicemen

1. A serviceman in the Armed Forces of the USSR is a defender of his Motherland—the Union of Soviet Socialist Republics.

A serviceman must observe the laws sacredly and be true to the military oath; must be disciplined, honest, just and brave, and must spare no resources, not even life itself, in the fulfillment of his military duty; he must obey his commanders implicitly and defend them in battle; and guard his unit's banner as the cherished symbol that it is.

2. A serviceman is obliged to be thoroughly conversant with, and efficiently and conscientiously carry out, the requirements of military regulations and his own duties; to make constant efforts to improve his military and political knowledge; to know perfectly and to take care of the weapons and fighting equipment entrusted to him, and also to look after military and state property; to display intelligent initiative; to steadfastly endure all the burdens and deprivations of military service; to value the comradeship of fellow servicemen, to help his comrades in word and deed, to restrain them from unworthy acts and, without thought for his own life, to extricate them from danger; to be vigilant and safeguard military and state secrets.
3. The serviceman should cherish the honor and military glory of the Armed Forces of the USSR and his own unit, and the honor of his military rank.

He must fulfill his military duty to the Soviet Motherland to the end. Nothing, not even the threat of death, must make a serviceman of the Armed Forces of the Soviet Union surrender.

If, however, a serviceman in a helpless condition as a result of a serious wound or shell-shock should be captured by the enemy, he must do everything possible to free himself and his comrades from captivity, and return to his own forces.

As a prisoner of war, the serviceman must firmly uphold the honor and dignity of the Soviet fighting man, scrupulously maintain military and state secrecy, display endurance and courage, friendship and mutual support for his fellow prisoners, restrain them from assisting the enemy, contemptuously rejecting all attempts by the enemy to use him for the purpose of causing damage to the Armed Forces of the USSR and the Soviet Motherland.

4. A serviceman must show respect to commanders and superiors, cooperate with them in maintaining order and discipline, strictly observe the rules of military etiquette and saluting, and always be properly, cleanly, and neatly dressed.

The serviceman is obliged to report all that happens to him and all reprimands made to him to his immediate superior.

5. In official matters the serviceman must approach his immediate superior; only with the latter's permission may a serviceman approach the next highest in the chain of command.

As a rule, the serviceman should also approach his immediate superior on personal matters as well, but in case of special necessity, he may also appeal to a senior superior.

In submitting complaints and requests, the serviceman is guided by the instructions contained in Disciplinary Regulations.

Military Ranks

6. Each serviceman is given a military rank in accordance with Service Regulations.
7. For especially outstanding services to the Motherland in the leadership of all the Armed Forces of the State during wartime, the Presidium of the Supreme Soviet of the USSR personally confers the highest military rank of **Generalissimo of the Soviet Union**.
8. For outstanding services in leadership of the forces the Presidium of the Supreme Soviet of the USSR personally confers the military rank of **Marshal of the Soviet Union**.
9. For outstanding services in naval leadership the Presidium of the Supreme Soviet of the USSR personally confers the military rank of **Fleet Admiral of the Soviet Union**.

Superiors and Subordinates, Seniors and Juniors

10. According to their official position and military rank, some servicemen may be superior or subordinate in relation to others.

Superiors have the right to give orders to subordinates and they must ensure that these orders are carried out. Subordinates are obliged to obey superiors implicitly.

11. Superiors to whom servicemen are subordinate in service matters are direct superiors, even though only temporarily.

The direct superior closest to the subordinate is his immediate superior.

12. By reason of their military rank, the following individuals on the active military service list are superiors:

—Marshals of the Soviet Union, Fleet Admirals of the Soviet Union, chief marshals of branches of the Services and special forces—for all officers, noncommissioned and petty officers, soldiers, and sailors;

—army generals, marshals of branches of the Services and special forces, fleet admirals, generals, admirals, colonels, and captains 1st rank
—for all junior officers, noncommissioned and petty officers, soldiers and sailors;

—officers—for all noncommissioned and petty officers, soldiers, and sailors;

—noncommissioned and petty officers—for soldiers and sailors in their own units.

13. Servicemen who by reason of their official positions and military ranks (paras. 11 and 12) are not superiors or subordinates with respect to other servicemen, may be seniors or juniors.

Seniority is determined by servicemen's military ranks.

Seniors in rank are obliged in all cases to require juniors to observe military discipline, public order and dress, as well as the rules of military conduct and saluting.

Junior ranks must fulfill the requirements of seniors unquestioningly.

14. Where servicemen who are working together are not subordinate to each other, when their service relationships have not been determined by a superior, the superior is the one who holds the most senior position, and where the positions are equivalent, the senior in rank.

Issuing and Carrying out Orders

15. As a rule, orders are given according to subordination.

If, in view of extreme necessity, a superior gives a subordinate an order, by-passing the subordinate's immediate superior, the subordinate who received the order carries it out and reports the matter to his immediate superior.

16. A serviceman, on receiving an order, replies, "Yes, sir!" and then carries it out.

Where it is necessary to be sure that an order given to a subordinate has been correctly understood, the superior demands a brief repetition of the order.

The serviceman is obliged to report that he has carried out the order to the superior who gave it to him.

17. If a serviceman, carrying out an order, receives a second order from another superior, senior in position, and this interferes with his fulfillment of the first order, he informs the superior who gave him the second order and, if the latter order is confirmed, the serviceman carries it out.

The individual who gave the second order reports the facts to the superior who gave the first order.

Saluting

18. All servicemen on meeting (passing) are obliged to salute each other, strictly observing the rules of the Drill Regulations.

Subordinates and juniors in rank salute first.

19. In addition, servicemen are obliged to salute:
- the Lenin Mausoleum;
 - common graves of servicemen who died in battles for the freedom and independence of our Motherland;
 - the banners of military units, and also the Naval ensign on boarding and leaving a warship;
 - funeral processions escorted by troops.
20. Military units and subunits in formation salute on command:
- the Chairman of the Presidium of the Supreme Soviet of the USSR, the Chairman of the Council of Ministers of the USSR, the Generalissimo of the Soviet Union, the Minister of Defense of the USSR, Marshals of the Soviet Union, and Fleet Admirals of the Soviet Union;
 - the Chairman of the Presidium of the Supreme Soviet and the Chairman of the Council of Ministers of the union republic in which the given unit is located;
 - chief marshals, army generals and marshals of branches of the Services and special forces, fleet admirals, colonel-generals, admirals, and all direct superiors, as well as persons appointed to lead an inspection of a unit (subunit).
21. Military units and subunits also salute on command:
- the Lenin Mausoleum;
 - common graves of servicemen who died in battles for the freedom and independence of our Motherland;
 - on meeting one another;
 - the banners of military units and, aboard ships, the Naval ensign when it is being hoisted or lowered;
 - funeral processions escorted by troops.
22. When the Chairman of the Presidium of the Supreme Soviet of the USSR, the Chairman of the Council of Ministers of the USSR, the Generalissimo of the Soviet Union, the Minister of Defense of the USSR, Marshals of the Soviet Union and Fleet Admirals of the Soviet Union are saluted by troops in formation, bands play the "Greeting March" and the National Anthem of the Soviet Union.
- A guard of honor is formed to meet the above-mentioned persons on arrival in a garrison.
- The saluting by military units of direct superiors beginning with their own commanders and higher, and persons appointed to carry out an inspection, is accompanied by bands playing the "Greeting March."
23. When not in formation, both during work and off-duty periods, military units and subunits salute on the command "Attention!" or "Stand up! Attention!" The command to salute is given by the senior superior present or the serviceman who first notices the arrival of a superior.
- On hearing this command, all present turn their heads towards the newly arrived superior and stand at attention, the officers with heads covered additionally render a hand salute. They remain in this position until given the order "At ease!" The senior superior present, while saluting, then reports to the newly arrived superior. No report is made to

- the latter if he is accompanied by the commander of the unit (subunit).
24. In headquarters and institutions, saluting on command is reserved for direct superiors and persons appointed to carry out an inspection.

The command "Attention!" or "Stand up! Attention!" for saluting is given by the first individual who notices an approaching superior.

25. The command "Attention!" or "Stand up! Attention!" and a report are given only during a superior's first visit to a unit or subunit on a given day. An order to a subunit (unit) to salute a junior superior is not given in the presence of a senior superior, nor is a report made to him.

The command "Attention!" or "Stand up! Attention!" is given at the beginning and end of each classroom lesson.

Servicemen who are not in formation, but present when a report is given, act as indicated in paragraph 23.

The command "Attention!" or "Stand up! Attention!" before reporting to a superior officer is given only if there are other servicemen present; if there are not, a report only is given.

26. During the playing of the National Anthem of the Soviet Union and the anthems of union republics, servicemen who are in formation stand at attention without the appropriate command being given, while commanders of subunits from platoons and higher salute.

Servicemen not in formation when an anthem is being played come to attention and, if wearing a cap, salute.

27. The order to salute is not given to military units and subunits:
- during halts on a march as well as during tactical exercises;
 - on the firing line and at the firing position when firing is in progress;
 - on airfields when flying is in progress;
 - when carrying out housekeeping work or work for educational purposes, during special lessons and operations in workshops, garages, depots, hangars, laboratories, drawing offices, in telephone and telegraph exchanges and at radio stations;
 - during sports competitions and games;
 - during meals and after the sounding of "Retreat" until "Reveille";
 - in sick quarters.

In the cases enumerated above, the superior or senior present simply reports to any superior who arrives on the scene.

On being addressed by a superior, subordinates, unless they are sick, stand at attention.

Units and subunits taking part in a funeral procession do not salute.

28. At general and ceremonial meetings, at shows, concerts, and the cinema, as well as at Party and Komsomol meetings and conferences, the order to salute is not given and no one reports to a superior.
29. When engaged in activities when not in formation and also at meetings of officers, generals and admirals, the command "Comrade officers" is given on the arrival of superior officers.

On this command all those present turn their heads in the direction of the superior and come to attention; those wearing caps will salute.

The superior, having received the report, gives permission for the work or the meeting to resume with the response "Comrade officers."

30. The response to a superior's or senior's greeting ("Good day, comrades") given by all servicemen, whether in or out of ranks, is: **"We (I) wish you health"**; if the superior or senior is taking his leave ("Goodbye, comrades"), the response is: **"Goodbye."**

At the end of the response, the word "comrade" is added together with the short form of the superior's or senior's military rank, leaving out reference to the arm of the Services or service and the words "engineer" or "technician."

31. If a superior congratulates or thanks a serviceman in the course of duty, the latter replies: **"I serve the Soviet Union."**

If a superior congratulates a military unit (subunit), the response is a long drawn-out **"Hurrah,"** and if he thanks the unit (subunit), the response is: **"We serve the Soviet Union."**

Order of Presentation to Superiors

32. The only person who presents himself to a senior superior on his arrival at a unit is the commander of the unit. Other individuals present themselves only when the senior superior addresses them directly, or in case of special instructions.
33. Servicemen present themselves to their immediate superiors:
- on being appointed to a position;
 - on relinquishing a position;
 - on being promoted to the next military rank;
 - on receiving a government award;
 - on departure for, and return from, detached duty or leave.
34. On presenting themselves to their superior, servicemen state their official position, rank, surname, and the reason for their appearance before the superior.
35. Officers, newly appointed to a regiment, present themselves to the regimental commander, then his deputies, and on being appointed to a company, to the battalion commander and the company commander.

In addition to this, the regimental commander or his deputy present newly appointed officers to the officers of the regiment at the next officers' meeting following their arrival.

Order of Presentation for Inspection and Verification

36. If the serviceman who has come to inspect is of a rank equal to, or higher than, that of the commander of the unit, the latter presents himself to the former; if, on the other hand, the serviceman is of a lower rank than that of the commander the former presents himself to the latter.

Before the beginning of the inspection, the commander of the unit

presents the commanders of the subunits being inspected to the inspecting officer.

37. The inspecting officers visiting the subunits are met by the subunit commanders, who report to them.

If the rank of the inspecting officer who arrives in a subunit together with the unit commander is equal to or higher than that of the unit commander the report is made to the inspecting officer.

If a senior superior arrives during the inspection, the commander of the unit (subunit) reports to him and the inspecting officer presents himself.

38. On the arrival of servicemen in a unit to carry out individual service assignments, the unit commander presents himself to the senior ranking member of the group only. The rest present themselves to the commander and report the purpose of their visit.
39. All the instructions of the inspecting (verifying) officials or servicemen who are carrying out a senior superior's order are transmitted through the unit commander. The above-named individuals are obliged to inform the commander of the unit (subunit) about the results of the inspection (verification) or the fulfillment of the assignment given to them.

In conducting an inspection interrogation of servicemen in a unit (subunit), inspection officials follow the instructions in paragraph 64.

On the Military Etiquette and Conduct of Servicemen

40. All servicemen in addressing one another are obliged to be courteous and restrained. On service matters they must address each other using the formal form of address.

In addressing a serviceman personally, the military rank is used without reference to the arm of the Services or service and without the words "engineer" or "technician."

Superiors and seniors, when addressing subordinates and juniors on service matters, use their rank and surname or simply their rank, in the latter case prefixing the rank with the word "comrade."

Subordinates and juniors, when addressing superiors and seniors on service matters, use their rank prefixed with the word "comrade."

41. When addressing one another and giving and receiving orders when not in formation, servicemen must come to attention and, when wearing head gear, salute.

When giving or receiving a report, the serviceman remains at the salute until the end of the report. If the command "Attention!" was given before reporting, the individual making the report drops his arm from the saluting position on the command "At ease!"

42. Before addressing another serviceman in the presence of a superior or a senior it is necessary to request the superior's (senior's) permission.
43. When a question put by a superior or senior requires an affirmative reply, the serviceman answers: "Yes, sir," and when a negative response is called for: "No, sir."

44. Servicemen are obliged to be constant examples of culture, modesty, and restraint; to observe strictly the requirements of communist morality; and to behave with dignity in public places and in the streets.

Servicemen are obliged to salute any superior or senior they meet in public places, on trams, trollybuses, buses, the subway, suburban trains, etc., and, if seated and there are no unoccupied places, offer to let the superior or senior have his.

If a serviceman meets a superior (senior) and it is not easy for them to get by each other freely, the subordinate is obliged to make way for the superior, and, in so doing, salute him; if it is necessary for him to pass ahead of the superior (senior) under such conditions, he should ask his permission to do so.

When travelling by rail (water) or air transport, servicemen must always be in proper uniform on leaving the cars (cabins) or aircraft.

Servicemen must be courteous to civilians, contribute to the protection of their honor and dignity and the maintenance of public order, as well as render them assistance in case of accident or natural disasters.

45. Servicemen are forbidden to walk about with their hands in their pockets, or to sit or smoke in the presence of a superior or senior without his permission. Servicemen must refrain from smoking in the street or in places not reserved for smokers.
46. Generals, admirals, and officers, noncommissioned and petty officers, soldiers and sailors on extended service are authorized to wear civilian clothes off duty, both away from the unit and on station, when visiting officers' clubs, unit clubs, officers' messes, sports grounds, and stadiums.
47. The rules of military etiquette, conduct and saluting are also obligatory for reserve and retired officers, generals and admirals when wearing military uniform. Reserve and retired officers, generals and admirals must adhere strictly to the established rules governing the wearing of military uniforms.

Chapter 2

General Duties of Direct Superiors

48. The commander of a unit (subunit) has absolute and sole military and political authority and is personally responsible to the Communist Party and the Soviet government for the constant combat and mobilizational readiness of the unit (subunit) entrusted to him.

He is responsible for combat and political training, ideological education, military discipline and moral and political state of the personnel; the condition of the weapons, fighting equipment and transport, and the provision of material, housekeeping, and medical facilities of the unit (subunit).

The commander must have a comprehensive knowledge of the actual state of the unit (subunit) entrusted to him and take all the steps neces-

sary to ensure its combat and mobilizational readiness and provide for all its needs.

49. The commander is obliged to exercise direct control of combat and political training, to maintain a high standard of military discipline in the unit (subunit) entrusted to him, to study the personnel thoroughly through personal contact with them, both on duty and in their daily lives, and to consider subordinates' suggestions. He should know the service and political and moral qualities of his subordinates, continuously strive to improve their combat proficiency, personally involve himself in the day-to-day political and military education of the personnel, relying in his activities on Party and Komsomol organizations and exploiting their influence to the fullest extent for the successful fulfillment of the tasks which confront the unit (subunit).

The commander is obliged to supervise the selection, placement, and evaluation of officers, in cooperation with his deputies and the appropriate heads of services.

50. The commander is obliged to strive constantly to improve his military and political knowledge; to know his fighting equipment and weapons; to supervise military scientific, rationalization, and invention work; to study advanced techniques in the combat and political training of troops and the ideological education of personnel and to pass them on to his subordinates in the subunit.
51. The commander is obliged to establish and maintain firm internal order in his unit (subunit), promptly eliminate any noted violations of service routine, and resolutely bar all activities which might jeopardize the fighting efficiency of the unit (subunit) entrusted to him.

Every commander (superior) must pay special attention to the reinforcement of conscious discipline and the prevention of misdemeanors by subordinates by ascertaining and removing the underlying causes; he should also make every possible use of the resources of the spirit of public consciousness within the unit (subunit) in dealing with offenders against military discipline and public order.

In case of an incident in the unit (subunit) the commander is obliged to report this fact promptly to his superior commander (superior).

52. The commander must act independently within the limits of the authority granted to him, demand that subordinates precisely and promptly fulfil the requirements of military regulations, their official duties and orders (instructions), reward them for displaying intelligent initiative and deeds, for outstanding performances in their work, and deal firmly with those who are negligent.
53. The commander is obliged to develop and maintain in his subordinates an awareness of the sacredness and inviolability of the military oath. He must instill in them high moral and fighting qualities, boundless devotion to the Soviet Motherland, the Communist Party, and the Soviet government, an honest and zealous attitude towards work, courage, endurance, resourcefulness, a high degree of political vigilance and readiness to fight

the enemies of our Motherland until total victory is won, sparing neither strength nor life itself.

The maintenance of the unit's traditions and the passing on of the most valuable experience of those who have excelled in combat and political training is one of the most important duties of all commanders. A Book of Honor is kept in every unit for this purpose.

54. The commander must set an example in boldness and endurance, impeccable conduct, strict fulfillment of laws and the military oath, the requirements of military regulations and orders (instructions). He must be fair to his subordinates, and refrain from rudeness and humiliation of their personal pride.
55. The commander must take an active interest in raising the standard of physical fitness, protecting and building up the health of his subordinates; he must concern himself with their daily lives and needs, see that they are issued their full statutory state allowances and check the quality of those being received; where necessary, he must assist subordinates and intercede on their behalf with the superior commander (superior).
56. In order to be able to deal with the personal needs and requests of servicemen on a timely basis, subunit commanders should have individual conversations with their subordinates and, in addition to this, unit commanders should receive servicemen and members of their families at least twice a month at a specified time.
57. The commander must ensure that the necessary safety measures are established for marches, exercises, live firing, special lessons or work, internal and guard duties, and that these measures are brought to the attention of subordinates in good time together with a demand that they be strictly adhered to.
58. The commander must always have exact and detailed information on the officially listed and available personnel in the unit (subunit) entrusted to him, also on the existence and state of weapons, fighting equipment, ammunition and transport.
59. In case of temporary absence, the commander's duties are performed by a deputy.

If a deputy is not indicated for the duration of the commander's absence, and there is no official deputy, the officer with the senior position or rank assumes command and, having done so, reports the fact to the superior commander (superior).
60. Newly appointed unit commanders assume command on the basis of instructions or orders of a superior commander (superior). A unit commander announces his assumption of command in an order and reports to his superior commander (superior).
61. Unit commanders take over and hand over their affairs and duties in person in the presence of a representative of the superior commander (superior).

Commissions are appointed by order of the superior commander (superior) for the purpose of taking over and handing over affairs and duties.

These commissions verify the general state of the unit and carry out individual checks on the existence and condition of weapons, fighting equipment, ammunition, and transport and a separate check on unit property, all of which are documented.

The document pertaining to the transfer and acceptance of affairs and duties indicates: the officially listed and present complement of the unit, the political and moral state of the personnel, the unit's state of discipline, combat and political training, and combat and mobilizational readiness.

The document pertaining to the transfer and acceptance of arms, fighting equipment, ammunition and transport indicates: the quantity listed in the documents, the actual numbers, qualitative and technical condition of the arms, fighting equipment, ammunition, and transport, and the conditions under which they are kept and stored.

The document pertaining to the transfer and acceptance of property indicates: the quartering and housekeeping conditions, the existence and state of buildings, structures, stock, and equipment; the existence, condition, records, and manner of storing provisions, material, technical, and other property, both of the current allowance and of the reserve stock, as well as financial resources.

The documents are signed by the accepting commander, the outgoing commander, and members of the commission, and then presented to the superior commander (superior).

62. The transfer and acceptance of the affairs and duties of subunit commanders is effected personally by them on the basis of a unit order.

Reports on the transfer of affairs and duties are submitted to the unit commander.

The officer who assumes command submits, with his report, the document of acceptance of the subunit.

This document indicates: the officially listed and present complement of the subunit; the political and moral state of the personnel, the state of discipline, combat and political training, and the state of the subunit's combat readiness; the condition of the arms, fighting equipment, ammunition, transport, and property which are listed in the unit's account books for the subunit and those which are available.

The document is drawn up and signed by the officers handing over and taking over the position.

63. The specified maximum permissible period for the transference and acceptance of the affairs and position of regimental commander is 10 days, that of deputy regimental commander for rear services 20 days, battalion and company commanders, 5 days.
64. Newly appointed commanders of units and subunits from company commander and higher, on assuming command, will question the servicemen in the unit (subunit) in order to ascertain and deal with their complaints and requests. The time and manner of the questioning is announced 1-2 days beforehand.

Officers conducting such interviews must familiarize themselves with the unit's complaint and request book and the decisions pertaining to these entries, and ensure that complaints and requests submitted during the questioning are entered in the book.

Complaints made during an inspector's interrogation are not entered in the complaint and request book.

DISCIPLINARY REGULATIONS OF THE ARMED FORCES OF THE USSR (extracts)

Chapter 1

General Considerations

1. Military discipline is the strict and precise observance by all servicemen of the regime and rules embodied in laws and military regulations.
2. Military discipline is based on the awareness by each serviceman of his military duty and personal responsibility for the defense of his Motherland—the Union of Socialist Soviet Republics.
3. Military discipline obliges each serviceman:
 - to observe the laws strictly and to carry out precisely the requirements of the military oath, military regulations, and the orders and instructions of superiors;
 - to steadfastly endure all the burdens and deprivations of military service; to spare neither blood nor life itself in carrying out his military duty;
 - to maintain strict military and state secrecy;
 - to be honest and just, to conscientiously study military affairs, and take care of military and state property in every way;
 - to show respect for superiors and seniors, strictly observe the rules of military etiquette and saluting;
 - to conduct himself with dignity and honor when away from his unit, not to commit offenses against public order, to restrain others from such actions, and to assist in the protection of citizens' honor and dignity.
4. Sound military discipline is achieved:
 - by instilling in servicemen high moral-political, and fighting qualities and conscious submission to superiors;
 - the maintenance of a strict regulation system in the unit (subunit, ship);
 - by the insistence of superiors on high standards of performance by subordinates, and by the skillful combination and correct application of persuasion and compulsion.
5. Every superior is bound to educate his subordinates in the spirit of faithful fulfillment of all the requirements of military discipline; to de-

velop and maintain in them an awareness of military honor and duty; to encourage those who display intelligent initiative, keenness, and outstanding achievements in their work; and to deal firmly with those who are negligent.

Superiors must pay special attention to the timely detection of the causes of subordinates' misdeameanors, the adoption of preventive measures, and the creation of an intolerant attitude towards violations of military discipline. In addition, the commander is obliged to utilize the resources of the spirit of public consciousness in every possible way.

A superior must always be an example to his subordinates in the strict observance of laws, the military oath, military regulations, orders, instructions, and standards of communist morality.

6. The interests of the defense of the Motherland oblige superiors to be resolute and firm in demanding observance of military discipline and order, and to take action in every single case of a misdemeanor by a subordinate.

A superior's order is law to his subordinates. An order must be carried out unquestioningly, precisely, and promptly.

7. In case of open insubordination or resistance on the part of a subordinate, and in order to restore order, a superior is obliged to apply all measures of compulsion up to arresting the offender and holding him legally responsible. In such a case, arms may be used only in a combat situation, and in peacetime only in exceptional cases in which urgency is of paramount importance, when the offender's actions are clearly aimed at the betrayal of the Motherland, the failure of a combat assignment, or when they create a real threat to the lives of the superior, other servicemen, or civilians.

The use of arms is an extreme measure and is permitted if all other measures taken by the superior have proved unsuccessful, or when the conditions of the situation do not permit other measures to be taken.

If circumstances permit, before using arms, the superior is bound to warn the insubordinate serviceman of his intention. The use of the weapon is immediately reported by the superior to the senior officer.

A superior who fails to take effective measures to restore order and discipline bears the responsibility for this.

Every serviceman is bound to cooperate with his superior to restore military discipline and order.

8. Only those direct superiors and superiors referred to in chapter 11 may give award incentives or impose military punishments.

Disciplinary punishments may be revoked by a direct superior who has disciplinary power at least equal to that of the superior who imposed the punishments.

9. The disciplinary power granted to junior superiors always belongs to senior superiors as well.
10. In dealing with subordinates, superiors with the rank of noncommissioned or petty officer whose positions are not referred to in the present

Regulations exercise disciplinary power in accordance with the military rank stipulated in tables of organization for the position occupied:

- a) junior sergeant, sergeant, petty officer 2nd class, petty officer—1st class—the authority of a squad commander;
 - b) senior sergeant and chief petty officer—the authority of a—deputy platoon commander;
 - c) petty officer and warrant officer—the authority of a company sergeant—major (section petty officer).
11. In dealing with subordinates, superiors with the ranks of officers, generals, and admirals whose positions are not referred to in the present Regulations, exercise disciplinary authority in accordance with the military rank stipulated in tables of organization for the position occupied:
- a) junior lieutenant, lieutenant, and senior lieutenant—the authority of a platoon (group) commander;
 - b) captain and captain-lieutenant—the authority of a company commander (commander of a 4th class ship);
 - c) major, lieutenant colonel, captain 3rd rank, and captain 2nd rank—the authority of a battalion commander (commander of a 3rd class ship);
 - d) colonel and captain 1st rank—the authority of a regimental commander (commander of a 2nd class ship);
 - e) major general and rear admiral—the authority of a divisional ([naval] brigade) commander;
 - f) lieutenant general and vice-admiral—the authority of a corps commander (commander of a [naval] squadron);
 - g) colonel-general and admiral—the authority of an army (flotilla) commander;
 - h) marshal of a branch of the Services and special forces, army general, Chief Marshal, Fleet Admiral of the Soviet Union and Marshal of the Soviet Union—the authority of a commander of a military district, front, fleet.
12. In dealing with subordinates, deputy (assistant) commanders of subunits, units, ships, and formations, and chiefs of staff, exercise disciplinary authority one degree lower than the rights granted to their immediate superiors.
- On ships which have an executive officer and an assistant executive officer, the latter exercises disciplinary authority one degree below the rights granted to the executive officer.
13. A superior who assumes the responsibilities of a position on a temporary basis, this being announced in an order, exercises the disciplinary authority attached to the position being temporarily filled.
14. Battalion, company, and platoon commanders and personnel with corresponding positions, when serving as commanders of subunits or crews which are on temporary duty and when carrying out a task separately from their own unit, exercise disciplinary authority one degree higher than the position being occupied.

Soldiers, sailors, noncommissioned and petty officers appointed as crew commanders in the above mentioned cases exercise the disciplinary authority of a company sergeant major (section petty officer), and those with the rank of petty officer and warrant officer, the authority of a platoon (group) commander.

15. Officers commanding cadet subunits in military schools exercise disciplinary authority one stage higher than the position occupied in dealing with subordinates.
16. These Regulations apply to:
 - a) all servicemen in the Armed Forces of the USSR;
 - b) all military reservists and conscripts during training call-up periods, maneuvers, and other military exercises;
 - c) officers, generals, and admirals on the reserve and retired lists when wearing military uniform.

Chapter 2

Incentive Awards Applicable to Soldiers, Sailors, Noncommissioned and Petty Officers

17. The following incentive awards are applicable to **soldiers, sailors, non-commissioned and petty officers**:
 - a) an expression of appreciation in the presence of the assembled ranks or in an order;
 - b) cancellation of a previously imposed disciplinary punishment;
 - c) the granting of up to 48 hours leave to soldier, sailor, noncommissioned and petty officer conscripts;
 - d) the granting of a short vacation leave of up to 10 days, exclusive of travelling time, to soldier, sailor, noncommissioned and petty officer conscripts;
 - e) the award of certificates, valuable gifts, or money;
 - f) the award of a photograph of the serviceman taken in front of the unfurled banner of the unit;
 - g) an announcement to the general public or the people living in the serviceman's former place of employment, informing them of his exemplary service and awards;
 - h) the award of the badge "Outstanding Serviceman";
 - i) the entry of the names of soldiers, sailors, noncommissioned and petty officers in the unit's Book of Honor.
18. In addition to the incentives enumerated in paragraph 17, students of military schools who complete their training course with distinction have their names inscribed on the Honors Board.

Chapter 3

The Rights of Superiors to Grant Incentive Awards to Subordinate Soldiers, Sailors, Noncommissioned and Petty Officers

19. A **squad commander**, a **deputy platoon commander** and a **company sergeant major** (section petty officer) have the right:
 - a) to express appreciation in front of the assembled ranks;
 - b) cancel a disciplinary punishment previously imposed by them.
20. A **platoon commander** (group commander) has the right:
 - a) to express appreciation in front of the assembled ranks;
 - b) cancel a disciplinary punishment previously imposed by him;
 - c) authorize up to three special leave periods to soldier, sailor, noncommissioned and petty officer conscripts, the number of days and hours of such leaves being established by the unit commander.
21. A **company commander** (commander of a 4th class ship) and a **battalion commander** (commander of a 3rd class ship) has the right:
 - a) to express appreciation in front of the assembled ranks;
 - b) cancel disciplinary punishments previously imposed by them;
 - c) authorize up to 48 hours leave for soldier, sailor, noncommissioned and petty officer conscripts;

Commanders (superiors) of individual units who exercise the disciplinary authority of a battalion commander (commander of a 3rd class ship) have the right, in addition to this, to award the incentives indicated in paragraph 22, subparagraphs "c", "f", and "h."
22. A **regimental commander** (commander of a 2nd class ship), a **divisional commander** ([naval] brigade commander), a **corps commander** (commander of a [naval] squadron), an **army commander** (flotilla commander) have the right:
 - a) to express appreciation in front of the assembled ranks or in an order;
 - b) to cancel a disciplinary punishment previously imposed by him;
 - c) to authorize short vacation leave of up to 10 days for soldiers, sailors, noncommissioned and petty officer conscripts;
 - d) to award certificates, valuable gifts, or money;
 - e) to award a personal photograph of the serviceman taken in front of the unfurled banner of the unit;
 - f) to inform the general public or the people living in the serviceman's former place of employment about his exemplary service and awards;
 - g) to award the badge "Outstanding Serviceman";
 - h) to inscribe the serviceman's name in the Book of Honor.
23. **Commanders of military districts, fronts, and fleets**, in addition to the rights enumerated in paragraph 22, have the right to inscribe on the Honors Board the names of students of military schools who complete their training courses with distinction.

Chapter 4

Incentive Awards Applicable to Officers, Generals and Admirals

24. The following incentive awards are applicable to **officers, generals, and admirals**:
 - a) an expression of appreciation, verbally or in an order;
 - b) cancellation of a previously imposed disciplinary punishment;
 - c) the award of certificates, valuable inscribed gifts, or money;
 - d) advanced promotion to the next military rank;
 - e) the award of inscribed ceremonial daggers, swords, and firearms.
25. In higher military training establishments (courses), in addition to the incentives enumerated in paragraph 24, the commandants of these establishments also have the authority to inscribe on the Board the names of cadets and students who graduated from their training course with gold medals (distinction).

Chapter 5

The Rights of Superiors to Award Incentives to Subordinate Officers, Generals, and Admirals

26. A **company commander** (Commander of a 4th class ship) and a **battalion commander** (commander of a 3rd class ship) has the right:
 - a) to express appreciation verbally;
 - b) to cancel a disciplinary punishment previously imposed by him.
27. A **regimental commander** (commander of a 2nd class ship), **divisional commander** ([naval] brigade commander), **corps commander** (commander of a [naval] squadron), **army commander** (flotilla commander), **commander of a military district, front, fleet** has the right:
 - a) to express appreciation verbally or in an order;
 - b) to cancel a disciplinary punishment previously imposed by him;
 - c) to award certificates, valuable inscribed gifts, or money;
 - d) to recommend advanced promotion to the next military rank.
28. In addition to the rights granted to a commander of a military district, front and fleet to award incentives to all classes of servicemen of the Armed Forces of the USSR, Deputy Ministers of Defense of the USSR, the Chief of the General Staff, Commanders-in-Chief of Services and the Chief of the Rear of the Ministry of Defense have the right to award inscribed ceremonial daggers, swords, and firearms.
29. The Minister of Defense of the USSR has the right to apply all the incentive measures to the fullest extent of the present Regulations to all classes of servicemen of the Armed Forces of the USSR.

Chapter 6

Punishments for Breaches of Military Discipline

30. If a serviceman commits a breach of discipline or public order, a superior must, depending on the nature of the offense, remind him of his service obligations, or subject him to disciplinary punishment, or refer the matter for review by the public organizations.
31. For the purpose of public censure of offenders of military discipline and public order, servicemen's offenses may be dealt with at the discretion of commanders (superiors) as follows: soldiers and sailors—at meetings of the personnel of companies, batteries, battalions, ships and corresponding elements; noncommissioned and petty officers—at meetings of noncommissioned and petty officers of battalions and comparable units; officers—at meetings of the officers of regiments, separate units, and corresponding elements.

In addition, officers' offenses may be dealt with by officers' comradely courts of honor. The decision as to whether to transfer officers' offenses for examination by a court of honor rests with the commanders (superiors) of those units and formations (institutions, establishments) in which the court is convened.
32. In cases where the law on criminal responsibility for military offenses provides for different punishments, depending on the degree of guilt, of which some are handed down by the court, and others are provided for in the disciplinary system, the commander decides whether to send the case to the military investigation authorities or to limit his action to the imposition of a disciplinary punishment. This question and the extent of the disciplinary penalty are decided by the commander who, by law, decides whether or not to send the case to the military investigation authorities.
33. A serviceman who has been disciplined for unlawful actions, subject to punishment by court verdict, is not exempt from committal for trial.
34. Officers, generals and admirals should not be removed from their posts except in the most extreme cases which admit of no delay.

Chapter 12

Procedure for Imposing Disciplinary Punishments

72. Each disciplinary punishment must correspond to the degree of guilt and seriousness of the offense committed. In determining the guilt and the disciplinary measure it is necessary to consider: the nature of the offense, the circumstances in which it was committed, the defendant's former conduct, and his length of service and knowledge of service procedure.
73. Arrest is one of the extreme measures and is used, as a rule, in cases

- where other measures taken by a superior have proved unsuccessful.
74. In imposing a disciplinary punishment or reminding a subordinate of his duties, a superior must not be hasty in determining the type and extent of the punishment, must not humiliate a subordinate's personal dignity, or be rude.
 75. It is forbidden to impose several punishments for one and the same offense or to combine one punishment with another, to inflict a punishment on all the personnel of a subunit, instead of punishing the immediate culprits; it is also forbidden to keep anyone in custody as a form of punishment without defining the period of custody.
 76. The strictness of the disciplinary punishment is increased: when the offender has committed the offense repeatedly or participated in a collective breach of discipline and public order; when the offense was committed while carrying out official duties; or when, as a consequence, there was a serious breach of order.
 77. If a superior recognizes that the disciplinary authority granted to him is insufficient to deal with an offense committed by a subordinate on account of its gravity, he requests that the offender be punished by the authority of a senior superior.
 78. A superior who exceeds the disciplinary authority granted to him bears the responsibility for this.
 79. A senior superior does not have the right to revoke or reduce a disciplinary punishment imposed by a junior superior based on the severity of the punishment, unless the latter exceeded the authority granted to him.

If a senior superior finds that the disciplinary punishment imposed by a junior superior does not correspond to the seriousness of the offense, he has the right to revoke it and impose a stricter one.
 80. All disciplinary punishments must be imposed within 10 days of the date on which the superior became aware of the offense in question and, if an investigation or inquiry is carried out, within 10 days of its completion.
 81. Disciplinary punishments for offenses committed by personnel while on guard duty cannot be imposed until after the guard has been changed.
 82. A disciplinary punishment is not imposed on an offender in a drunken state, nor are any kind of explanations obtained from him until he has recovered from the effects of intoxication, for which purpose he may, if necessary, be put under provisional arrest and kept in the guardhouse.

Chapter 13

Procedure for Carrying Out Disciplinary Punishments

83. As a rule, a disciplinary punishment is carried out immediately and, in exceptional cases, no later than one month after its imposition. After that time, the punishment is not carried out, but entered on the serviceman's record. In the latter case, a punishment is imposed on the individual whose fault it was that the above punishment was not carried out.

84. The performance of an imposed disciplinary punishment is not suspended on the submission of a complaint until a senior superior gives the order to cancel it.
85. The imposition of disciplinary punishments is announced: to soldiers and sailors—personally or before the assembled ranks; to noncommissioned and petty officers—personally, at a noncommissioned or petty officers' meeting, or before the assembled ranks of noncommissioned or petty officers; to officers—personally, in an instruction, at an officers' meeting, or in an order.

AWARDS OF THE MOTHERLAND

The orders and medals of the Soviet Union, and also the highest classes of distinction—the titles Hero of the Soviet Union and Hero of Socialist Labor—are instituted as an incentive to workers, collective farmers, servicemen and other Soviet citizens who have rendered special services in the matter of socialist construction and ensuring the freedom and independence of the Soviet State.

The awarding of the orders and medals of the USSR is a recognition of the services of the person receiving the award to the country, and an incentive to achieve further successes for the good and the prosperity of our Motherland—the Union of Soviet Socialist Republics.

Under the legislation in force, orders of the USSR may be awarded both to individual citizens and to entire collectives—enterprises, institutions, organizations, military formations and units.

Those to whom orders and medals of the USSR are awarded may be awarded the same orders and medals again, or new ones for subsequent new services.

Orders and medals of the USSR are instituted by the Presidium of the Supreme Soviet of the USSR. Each order has its own Statute, and each medal a Medal Certificate ratified by the Presidium of the Supreme Soviet of the USSR.

Those to whom an order or medal of the USSR has been awarded may be deprived of the award only by decision of the Presidium of the Supreme Soviet of the USSR, on the basis of a court verdict, or of a misdemeanor committed by the person to whom the award was made.

Citizens who wear orders and medals of the USSR without being entitled to do so commit a criminal offense.

Highest Classes of Distinction of the USSR

“Hero of the Soviet Union” is a title awarded for personal or collective services to the State connected with the performance of an heroic deed. Instituted by Decree of the Central Executive Committee (TsIK) of the USSR dated 16 April 1934.

Heroes of the Soviet Union receive the highest award of the USSR—the

Order of Lenin, a "Gold Star" medal and a Citation from the Presidium of the Supreme Soviet of the USSR.

A Hero of the Soviet Union who performs a second heroic deed, no less heroic than that for which others who have performed a similar deed are awarded the title of Hero of the Soviet Union, is awarded a second "Gold Star" medal, and to celebrate his heroic deeds a bronze bust of the person to whom the award is made is erected in the birthplace of the Hero, with a suitable inscription on the base.

For a third heroic deed similar to the deeds previously performed, a Hero of the Soviet Union who has been awarded two "Gold Stars" and who has been honored by the erection of a bust in his birthplace, is awarded a third "Gold Star."

When second and third "Gold Stars" are awarded, the Hero of the Soviet Union receives a Citation from the Presidium of the Supreme Soviet of the USSR along with the medal.

Under the terms of a Decree of the Presidium of the Supreme Soviet of the USSR dated 6 September 1967 persons awarded the title of Hero of the Soviet Union have the right to the All-Union personal pension instituted by the award, and enjoy privileges in obtaining and in paying for living space, in traveling by intercity and urban transport, and in obtaining authorizations for sanatorium treatment; they also have the right to other privileges and advantages laid down by USSR legislation.

"Hero of Socialist Labor" is a title awarded to individuals who by their especially outstanding activity as innovators in industry, agriculture, transport, trade, scientific discoveries and inventions have rendered exceptional services to the State, and have contributed to the development of the economy, culture and science, and to the growth of the might and fame of the USSR. It was instituted by the Decree of the Presidium of the Supreme Soviet of the USSR dated 27 December 1938.

Heroes of Socialist Labor receive the highest award of the USSR—the Order of Lenin, the "Hammer and Sickle" gold medal and a Citation from the Presidium of the Supreme Soviet of the USSR.

A Hero of Socialist Labor may be awarded a second "Hammer and Sickle" medal for outstanding services. In this case a bronze bust, with an appropriate inscription, is erected in the birthplace of the person to whom the award is made.

Heroes of Socialist Labor enjoy the same privileges and advantages as are laid down for Heroes of the Soviet Union.

Orders of the USSR

The **Order of Lenin** is the highest order of the USSR. It was instituted on 6 April 1930.

The Order of Lenin is awarded to individual citizens, collectives, institutions, enterprises and public organizations of the USSR for particular services in socialist development:

a) for activity that has resulted in outstanding quantitative and qualitative achievements in industry, agriculture, transport, commodity circulation, and the procurement operations of state and cooperative institutions, enterprises and organizations;

b) for particular successes in *kolkhoz*, *sovkhoz* and cooperative development;

c) for outstanding path-breaking experimental managerial work;

d) for the introduction of technical improvements of national importance in industrial and agricultural production, in transport and for outstanding inventions in these spheres;

e) for the outstanding fulfillment of assignments of special importance to the state in the sphere of industry, agriculture, trade, national defense, transport and cooperation;

f) for outstanding scientific research in the sphere of socialist development;

g) for new urban and rural construction of outstanding artistic and social importance.

The Order of Lenin is also awarded to individuals awarded the title of Hero of the Soviet Union or Hero of Socialist Labor.

The Order of the October Revolution was instituted on 31 October 1967 to celebrate the 50th Anniversary of the Great October Socialist Revolution.

The Order of the October Revolution is awarded to citizens of the USSR, to enterprises, institutions, organizations and other groups of workers, military units and formations, as well as to republics, *krais*, *oblasts*,* and cities:

—for active revolutionary work and for great contribution to the establishment and consolidation of the Soviet regime;

—for outstanding services in the building of socialism and the development of communism;

—for outstanding achievements in the sphere of development of the national economy, science, and culture;

—for special courage and bravery shown in battle with the enemies of the Soviet State;

—for outstanding services in strengthening the defensive capacity of the Soviet State;

—for particularly fruitful governmental and social activity;

—for active work directed toward the development and deepening of all-round friendly links between the peoples of the Soviet Union and other states, and toward the strengthening of peace between the peoples.

The Order of "Victory" is the highest military order of the USSR. It was instituted on 8 November 1943.

The Order of "Victory" is awarded to senior command personnel of the Soviet Army for the successful conduct of military operations on the scale of several fronts or of one front, as a result of which the situation is basically changed in favor of the Soviet Army.

* Soviet administrative-geographical units [U.S. Ed.].

The names of the holders of the Order of "Victory" are to be entered on the Honor Board in the Great Kremlin Palace.

The Order of the Red Banner was the first Soviet order to be created. It was instituted on 1 August 1924.⁶

The Order of the Red Banner is awarded to serving enlisted men and officers of the Armed Forces and to other citizens who show particular bravery, self-sacrifice, and courage in direct combat and also to military units and groupings for particular merit in battles against the enemies of the Soviet Union.

The Order of Suvorov is a military order. It was instituted on 29 July 1942 to reward command personnel for outstanding success in the command of troops, for distinguished organization of combat operations, and for decisiveness and persistence in carrying them out, as a result of which victory was achieved in battles for the Motherland in the Patriotic War.

The Order of Suvorov has three classes. The Order of Suvorov I Class, the highest of them, is awarded to the commanders of fronts and armies, their deputies, chiefs of staff, heads of operational directorates, operational sections, and commanders of Branches of the Services fronts and armies. The Order of Suvorov II Class is awarded to commanders of corps, divisions, and brigades, their deputies and chiefs of staff. The Order of Suvorov III Class is awarded to commanders of regiments and battalions, to commanders of regimental staffs, and also to company commanders.

The Order of Ushakov is a military order. It was instituted on 3 March 1944 for award to officers of the Navy for outstanding success in devising, conducting, and ensuring active naval operations, as a result of which victory was achieved over a numerically superior enemy in battles for the Motherland.

The Order of Ushakov has two classes. The highest class of the order is I Class.

The Order of Kutuzov is a military order. It was instituted on 29 July 1942 for award to commanders of the Soviet Army for a well-devised and conducted plan of operations for a front, an army, or a separate formation, as a result of which the enemy was badly defeated, while our forces retained their fighting capacity.

The Order of Kutuzov has three classes. The highest class of the order is I Class. The Order of Kutuzov I Class is awarded to commanders of fronts and armies, their deputies, and chiefs of staff. The Order of Kutuzov II Class is awarded to commanders of corps, divisions, and brigades and chiefs of staff. The Order of Kutuzov III Class is awarded to commanders of regiments, battalions and companies and to regimental chiefs of staff.

The Order of Nakhimov is a military order. It was instituted on 3 March

⁶ Before that time only orders of the Soviet Republics existed: the Order of the Red Banner (instituted on 16 September 1918) in the RSFSR, the Order of the Red Star and the Silver Star in the Armenian Republic, the Order of the Red Banner in the Georgian Republic, etc. The awarding of orders by the Republics was discontinued when the single All-Union Order of the Red Banner was instituted.

1944 for award to naval officers for outstanding successes in devising, conducting, and ensuring naval operations as a result of which an offensive operation of the enemy was repulsed or active operations of the fleet were ensured, considerable losses were inflicted on the enemy, and our main forces were preserved.

The Order of Nakhimov has two classes. The highest class of the Order is I Class.

The Order of Bogdan Khmel'nitskiy was instituted on 10 October 1943 for award to commanders and men of the Soviet Army and Navy, to leaders of partisan detachments and partisans who showed particular decisiveness and ability in operations to defeat the enemy, and high patriotism, bravery, and self-sacrifice in the struggle for liberation of the Soviet land from the German Fascist invaders.

The Order of Bogdan Khmel'nitskiy has three classes. The highest class of the Order is I Class. The Order of Bogdan Khmel'nitskiy I Class is awarded to commanders of fronts, fleets, armies, flotillas, their deputies, chiefs of staff, heads of operational directorates and sections, and commanders of Branches of the Services of fronts, fleets, armies and flotillas, and commanders of formations of partisan detachments. The Order of Bogdan Khmel'nitskiy II Class is awarded to corps, divisional, brigade, and regimental commanders and their deputies, to chiefs of staff, commanders of formations of partisan detachments, their deputies and chiefs of staff, and commanders of partisan detachments. The Order of Bogdan Khmel'nitskiy III Class is awarded to private soldiers, noncommissioned officers, warrant officers and officers up to battalion commander and corresponding ranks inclusive, commanders of partisan detachments, commanders of subunits of partisan detachments and partisans.

The Order of Aleksandr Nevskiy is a military order. It was instituted on 29 July 1942 for award to commanders in the Soviet Army who showed personal bravery, courage, and daring in battles for the Motherland in the Patriotic War and who, by ability in command, ensured the successful operation of their units.

The Order of Aleksandr Nevskiy is awarded to commanders of divisions and brigades, to commanders of regiments, battalions, companies, and platoons.

The Order of the Patriotic War was instituted on 20 May 1942 for award to enlisted men and those in command positions of the Soviet Armed Forces, to troops of the Ministry of Internal Affairs, and to partisan detachments which exhibited courage, steadfastness, and valor in battles for the Soviet Motherland during the Great Patriotic War, as well as to servicemen who by their actions promoted the success of the military operations of Soviet troops.

The Order of the Patriotic War has two classes. The highest class of the Order is I Class.

The Order of the Red Banner of Labor was instituted on 7 September 1928 for award to individuals, enterprises, institutions, and groups of workers to

mark their exceptional services to the Soviet Union in the sphere of production, scientific activity, government or public service.

The Order of the Red Star was instituted on 6 April 1930 for award to enlisted personnel and those in command positions in the Soviet Army and to military units and formations, collectives, institutions, enterprises, and public organizations who rendered outstanding service in the defense of the Soviet Union in time of war and of peace.

The Order "Badge of Honor" was instituted on 25 November 1935 for award to individual citizens and groups of workers for high output in industry and agriculture and in transport and trade; for special achievements in scientific research, culture, and sport; for the introduction of technical improvements and inventions of major economic importance in all spheres of socialist development; and for services in increasing the fighting efficiency of the Soviet Army and the defense capability of the Soviet Union.

The Order of Glory was instituted on 8 November 1943 for award to privates and noncommissioned officers of the Soviet Army and, in the Air Force, to individuals having the rank of junior lieutenant, for personal deeds of heroism, bravery, courage, and fearlessness by them in battles for the Soviet Motherland.

The Order of Glory has three classes. The highest class of the Order is I Class. The Order of Glory is awarded in classes, beginning with III Class.

Those who are awarded the Order of Glory of all three classes are promoted: privates, corporals, and sergeants to sergeant-major, sergeant-majors to junior lieutenants, and junior lieutenants in the Air Force to lieutenant.

Under USSR legislation, individuals awarded the Order of Glory in all three classes enjoy privileges and benefits in pensions, in the allocation of, and payment for, living quarters, in travel by intercity and urban transport, etc.

Medals of the USSR

The medal "For Bravery" was instituted on 17 October 1938 for awarding to enlisted, command, and staff personnel of the Soviet Army, the Navy and Border Troops for personal courage and bravery in action against the enemies of the Soviet Union in a theater of war, in defense of the inviolability of the State boundaries, or in the struggle against saboteurs, spies, and other enemies of the Soviet State.

The Ushakov Medal is a military medal. It was instituted on 3 March 1944 for awarding to enlisted men, sergeants, and petty officers in the Navy for personal courage and bravery in action against the enemies of the Soviet Union in naval theaters.

The medal "For Combat Merit" was instituted on 17 October 1938 for awarding to enlisted, command, and staff personnel of the Soviet Army, the Navy and Border Troops, and also to other citizens who, by their capable, enterprising, and bold acts involving risk to life in the struggle against the enemies of the Soviet State, have contributed to the success of operations at the front.

The medal "For Distinguished Services in Defense of the National Frontiers of the USSR" was instituted on 13 July 1950 for awarding to Border Troops and to the civilian population for military exploits and special services in defense of the national frontiers of the USSR.

The medal "For Outstanding Service in the Preservation of Public Order" was instituted on 1 November 1950 for awarding to personnel of the militia, internal security forces, and interior troops for exploits and services in the struggle against enemies of the Soviet State, against crime, and for the preservation of public order in the country.

The Nakhimov Medal is a military medal. It was instituted on 3 March 1944 for awarding to enlisted, sergeant and pettyofficer personnel in the Navy, and also to individuals not in the ranks of the Navy, who, by their capable, enterprising, and bold action involving risks to life in the struggle against enemies of the Soviet State in naval theaters, have contributed to the successful carrying out of the combat duties of ships, naval units, and sub-units.

The medal "20th Anniversary of the Workers' and Peasants' Red Army" is an anniversary medal. It was instituted on 24 January 1938 to mark the 20th Anniversary of the Red Army and Navy for awarding to enlisted, command, and staff personnel:

- who had served in the ranks of the Soviet Army and Navy for 20 years by 23 February 1938 and who had served their country in the Civil War in the ranks of the Armed Forces;

- who had been awarded the Order of the Red Banner for distinguished services in battle during the Civil War.

The medal "For Labor Valor" was instituted on 27 December 1938 for awarding to workers, collective farmers, employees, engineering and technical and managerial workers, transport and construction workers, workers in trading and cooperative organizations, and in cultural and scientific institutions who are leading fighters for socialist development in their self-sacrificing working activity, who set brilliant examples in the use of technology and give high standards of labor productivity, and who promote the development of science, technology, and culture.

The medal "For Distinguished Labor Service" was instituted on 27 December 1938 for awarding to workers, collective farmers, employees, engineering and technical and managerial workers, transport and construction workers, workers in trading and cooperative organizations, and workers in cultural and scientific institutions for outstanding shock work of vital importance, high production figures, and services to the development of science, technology, and culture.

The Anniversary Medal Celebrating the Centenary of the Birth of Vladimir Il'ich Lenin. The medal was instituted on 5 November 1969 with two designations: "For heroic labor. To mark the centenary of the birth of Vladimir Il'ich Lenin", and "For military valor. To mark the centenary of the birth of Vladimir Il'ich Lenin", to be awarded:

- to leading workers, collective farmers, economic specialists, workers in

State institutions and public organizations, and scientific and cultural workers who have worked in an exemplary manner during preparation for the Lenin centenary;

—to individuals who have played an active part in the struggle for the establishment of the Soviet regime, or in defense of the Homeland or who by their labor have made an appreciable contribution to the building of socialism in the USSR, who by their personal example and public work help the Party to educate the rising generation;

—to Red Armed Forces servicemen and troops of the Ministry of Internal Affairs, to troops and bodies of the Committee of State Security administered by the Council of Ministers of the USSR who have achieved excellent results in combat and political training, and good results in the leadership of troops and in sustaining their combat readiness in the course of preparation for the Lenin centenary.

Members of the civilian population are awarded the Anniversary Medal with the inscription "For Meritorious Labor. To mark the centenary of the birth of Vladimir Il'ich Lenin"; servicemen are awarded the medal with the inscription "For Military Valor. To mark the centenary of the birth of Vladimir Il'ich Lenin".

The Anniversary Medal is also awarded to members of the international communist and workers' movement and to other foreign progressive public figures.

The medal "For Bravery in Dealing with Fires" was instituted on 31 October 1957 for awarding to workers of the fire brigade, members of volunteer fire services, military personnel and other citizens for courage, bravery, and self-sacrifice in dealing with fires and in their prevention.

The medal "For Saving from Drowning" was instituted on 16 February 1957 for awarding to lifeguards and other citizens of the USSR, and also to foreigners for courage, bravery and self-sacrifice in lifesaving in the water, for high vigilance and resourcefulness as a result of which drowning disasters were prevented, and also for exemplary organization of the lifeguard service.

The medal "For a Partisan of the Patriotic War" was instituted on 2 February 1943 for awarding to partisans of the Patriotic War who distinguished themselves in the partisan struggle in the rear of the German Fascist aggressors.

The medal has two classes. The I Class is the higher.

The medal "For a Partisan of the Patriotic War" I Class is awarded to partisans, leaders of partisan detachments, and organizers of the partisan movement for special services in the organization of the partisan movement and for courage, heroism, and outstanding successes in the partisan struggle in the rear of the German Fascist aggressors.

The medal "For a Partisan of the Patriotic War" II Class is awarded to partisans, leaders of partisan detachments, and organizers of the partisan movement for personal distinction in battle and in carrying out orders and assignments, and for active contribution to the partisan struggle against the German Fascist aggressors.

The medal "For the Defense of Leningrad" was instituted on 22 December 1942 for awarding to all servicemen and members of the civilian population who took a direct part in the defense of Leningrad.

The medal "For the Defense of Moscow" was instituted on 1 May 1944 for awarding to all servicemen and members of the civilian population who took a direct part in the defense of Moscow.

The medal "For the Defense of Odessa" was instituted on 22 December 1942 for awarding to all servicemen and members of the civilian population who took a direct part in the defense of Odessa.

The medal "For the Defense of Sevastopol" was instituted on 22 December 1942 for awarding to all servicemen and members of the civilian population who took a direct part in the defense of Sevastopol.

The medal "For the Defense of Stalingrad" was instituted on 22 December 1942 for awarding to all servicemen and members of the civilian population who took a direct part in the defense of Stalingrad.

The medal "For the Defense of Kiev" was instituted on 21 June 1961 for awarding to all who took part in the defense of Kiev—servicemen and workers who played a part in the defense of Kiev in the ranks of the Home Guard, in the erection of defensive fortifications, by working in factories and plants supplying the front, and members of the Kiev underground movement and partisans who fought around Kiev.

The medal "For the Defense of the Caucasus" was instituted on 1 May 1944 for awarding to all servicemen and members of the civilian population who took a direct part in the defense of the Caucasus.

The medal "For the Defense of Soviet Territory within the Arctic Circle" was instituted on 5 December 1944 for awarding to all military personnel and members of the civilian population who took a direct part in the defense of Soviet territory within the Arctic Circle.

The medal "For Victory over Germany in the Great Patriotic War, 1941–1945" was instituted on 9 May 1945 to mark the victory won over Fascist Germany in the Great Patriotic War, 1941–1945, for awarding to military personnel and civilians who were on active service during the war and also to those who contributed to victory by their work in military districts.

The medal "20th Anniversary of Victory in the Great Patriotic War of 1941–1945" is an anniversary medal. It was instituted on 7 May 1965 to mark the 20th anniversary of the victory over Fascist Germany, for awarding to servicemen and civilian employees who took part in the Great Patriotic War in the ranks of the Armed Forces from 1941–1945, to the partisans of the Great Patriotic War, and to all personnel of the Armed Forces and other individuals awarded the medal "For Victory over Germany in the Great Patriotic War of 1941–1945."

The medal "For Victory over Japan" was instituted on 30 September 1945 to mark the victory won over imperialist Japan, for awarding to servicemen and civilians who had played a direct part in operations against Japanese forces and in supporting these operations.

The medal "For the Taking of Budapest" was instituted on 9 June 1945

for awarding to servicemen directly involved and to the leaders of the heroic storming and taking of Budapest.

The medal **"For the Taking of Königsberg"** was instituted on 9 June 1945 for awarding to servicemen directly involved and to the leaders of the heroic storming and taking of Königsberg.

The medal **"For the Taking of Vienna"** was instituted on 9 June 1945 for awarding to servicemen directly involved and to the leaders of the heroic storming and taking of Vienna.

The medal **"For the Taking of Berlin"** was instituted on 9 June 1945 for awarding to servicemen directly involved and to the leaders of the heroic storming and taking of Berlin.

The medal **"For the Liberation of Belgrade"** was instituted on 9 June 1945 for awarding to servicemen directly involved and to the leaders of the heroic storming and liberation of Belgrade.

The medal **"For the Liberation of Warsaw"** was instituted on 9 June 1945 for awarding to servicemen directly involved and to the leaders of the heroic storming and liberation of Warsaw.

The medal **"For the Liberation of Prague"** was instituted on 9 June 1945 for awarding to servicemen directly involved and to the leaders of the heroic storming and liberation of Prague.

The medal **"For Valiant Labor in the Great Patriotic War of 1941-1945"** was instituted on 6 June 1945 for awarding to workers, engineers, technicians, and office workers in industry and transport, collective farmers and agricultural specialists, scientific workers, technicians, artists and writers, workers in governmental, party, trade union, and other public organizations who, by their valiant and self-sacrificing labor, ensured victory over Fascist Germany in the Great Patriotic War.

The medal **"For the Restoration of Ferrous Metallurgy Undertakings in the South"** was instituted on 18 May 1948 for awarding to workers, employees, engineering and technical and managerial workers for outstanding work, high output figures, and services in the restoration of the ferrous metallurgy industry in southern districts of the USSR.

The medal **"For Restoration of the Coal Mines of the Donets Basin"** was instituted on 10 September 1947 for awarding to workers, employees, engineering and technical and managerial workers for outstanding work, high output figures and services in the restoration of the coal industry of the Donets Basin.

The medal **"For the Cultivation of Virgin Lands"** was instituted on 20 October 1956 for awarding to individuals who distinguished themselves in the cultivation of virgin and fallow lands in Kazakhstan, Siberia, the Urals, the Volga region, and the North Caucasus.

The medal **"To Commemorate the 800th Anniversary of Moscow"** was instituted on 20 September 1947 to mark the 800th Anniversary of the city of Moscow, for awarding to servicemen, workers and employees, and also to housewives who had taken an active part in the economic and social life of the city, provided that they had resided in Moscow or its suburbs for at least 5 years.

The medal **"To Commemorate the 250th Anniversary of Leningrad"** was instituted on 16 May 1957 to commemorate the 250th anniversary of the city of Leningrad.

The medal **"XXX Years of the Soviet Army and Navy"** is an anniversary medal. It was instituted on 22 February 1948 to commemorate the 30th anniversary of the Soviet Army and Navy for awarding to servicemen in the ranks of the Soviet Army, the Navy, the Ministry of Internal Affairs (MVD) and the Ministry of State Security (MGB) on 23 February 1948.

The medal **"Forty Years of the Armed Forces of the USSR"** is an anniversary medal. It was instituted on 18 December 1957 to commemorate the 40th anniversary of the Soviet Army and Navy for awarding to servicemen in the ranks of the Soviet Army and Navy, the forces of the Ministry of Internal Affairs (MVD) and the Committee of State Security administered by the Council of Ministers of the USSR on 23 February 1958.

The medal **"Fifty Years of the Armed Forces of the USSR"** is an anniversary medal. It was instituted on 26 December 1967 to mark the 50th anniversary of the Armed Forces of the USSR for awarding:

- to servicemen who were, on 23 February 1968 in the ranks of the Soviet Armed Forces, the forces of the Ministry for the Preservation of Public Order (MOOP) of the USSR and the forces and agencies of the Committee of State Security (KGB) administered by the Council of Ministers of the USSR;

- to generals on the reserve and retired lists, officers and reenlisted men with 20 calendar years of service or more;

- to former Red Guards and servicemen who took part in operations for the defense of the Soviet Motherland in the ranks of the Armed Forces, as well as to individuals who, during their active service, were awarded orders of the USSR or the medal "For Valor", the Ushakov Medal, the medals "For Services in Battle", "For Distinguished Service in Defense of the State Boundary of the USSR", the Nakhimov Medal, the medals "For Labor Prowess" and "For Distinguished Labor Service".

The medal **"Fifty Years of the Soviet Militia"** is an anniversary medal. It was instituted on 20 November 1967 to mark the 50th anniversary of the Soviet Militia for awarding:

- to officers and men of the militia serving on 21 November 1967 in the agencies, institutions, and training establishments of the Ministry for the Preservation of Public Order (MOOP) of the USSR;

- to individuals holding special ranks in the militia, transferred from bodies for the defense of public order to the reserve and retirement with 25 years service or more.

The medal may also be awarded to the officers and enlisted personnel of the services and subunits of the Ministry for the Preservation of Public Order (MOOP) of the USSR who actively assist the organs of the militia in their duties.

The medal **"For Exemplary Service"** was instituted by order of the Ministry of Defense of the USSR on 25 January 1958 for awarding to servicemen who have served for 10, 15, and 20 years in the Armed Forces who have good records and who successfully carry out their service duties.

The medal has three classes. The III Class is awarded to servicemen with 10 years of service, II Class to those with 15 years, and I Class to those with 20 years of service.

The medal is awarded once a year, on 23 February, timed to coincide with Soviet Armed Forces Day.

The Wearing of Orders and Medals, the Ribbons of Orders and Medals, and Breast Badges on Military Uniforms

1. The wearing of orders and medals or the ribbons of orders and medals and military chest badges on military uniforms is compulsory.

2. The "Gold Star" medal of the order Hero of the Soviet Union and the "Hammer and Sickle" of the order Hero of Socialist Labor, and also the chest badge "Pilot-Cosmonaut of the USSR" are worn on all types of military uniforms (apart from fatigue dress).

3. The following are worn on parade dress uniform:

- the "Gold Star" medal of the order Hero of the Soviet Union and the "Hammer and Sickle" medal of the order Hero of Socialist Labor;
- orders and medals;
- the chest badge "Pilot-Cosmonaut of the USSR";
- the badges for winners of the Lenin Prize and the USSR State Prize;
- the chest badges for: "Meritorious Test Pilot of the USSR," "Meritorious Test Navigator of the USSR," "Meritorious Military Pilot of the USSR" and "Meritorious Military Navigator of the USSR";
- deputies' chest badges;
- the Komsomol badge;
- the chest badge "25th Anniversary* of Victory in the Great Patriotic War";
- the "Pilot-Cosmonaut" chest badge;
- the chest badges for class specialists among the officers, generals and admirals of the Armed Forces of the USSR;
- the submarine commander's chest badge;
- the "Guards" badge;
- chest badges to mark graduation from military training establishments;
- badges of merit and class specialists' badges (soldiers, sailors, noncommissioned, and petty officers);
- the "For Re-enlistment" chest badge.

The same decorations and badges worn on the chest are worn on dress-off duty uniform, service uniform, and field uniform, but orders and medals are replaced by bars bearing the ribbons of the orders and medals.

4. It is permitted to wear the following chest insignia (badges) on all uniforms (apart from fatigue dress):

- badges showing graduation from institutions of higher education;
- "Parachute Instructor";

* Listed elsewhere as "20th Anniversary . . ." [U.S. Ed.].

- “Excellent Parachutist”;
- “Parachutist”;
- Sports badges and medals;
- other insignia instituted by Decrees of the Presidium of the Supreme Soviet of the USSR and the Union Republics, by enactments of the government of the USSR and the Union Republics, and by orders of the Ministry of Defense of the USSR.

5. The “Gold Star” medal of the order Hero of the Soviet Union and the “Hammer and Sickle” medal of the order Hero of Socialist Labor are worn on the left side of the chest above all orders, medals, and ribbons of orders and medals and are fastened to the uniform by a rectangular bar covered by the ribbon. When two or more of the medals “Gold Star” of the order Hero of the Soviet Union and “Hammer and Sickle” of the order Hero of Socialist Labor are worn, they are fastened to the uniform in a single row.

The “Gold Star” medal of the order Hero of the Soviet Union and the “Hammer and Sickle” medal of the order Hero of Socialist Labor are worn:

- to the left of the lapel on an open double-breasted coat (jacket) and double-breasted high-collared tunic, so that the upper edge of the medal bar is on the same level as the upper corner of the lapel;

- to the left of the lapel on an open single-breasted coat and single-breasted high-collared tunic so that the upper edge of the medal bar is on a level with the projection of the lapel;

- on a closed high-collared tunic so that the upper end of the star is on a level with the center of the top button;

- on flannel and uniform shirts so that the lower ends of the star are 65mm above the lower corner of the cutaway portion of the collar.

6. Orders and medals worn on ribbons are positioned on the left side of the chest, while orders worn without ribbons are positioned on the right side of the chest.

7. Orders and medals worn on the left side of the chest are attached by bars covered with ribbons of these orders and medals and are placed: on an open coat (jacket)—beginning from the bottom and continuing upward along the lapel; on flannel and white uniform shirts—from right to left.

Orders and medals are arranged in the following order:

- The Order of Lenin;
- The Order of the October Revolution;
- The Order of the Red Banner;
- The Order of the Red Banner of Labor;
- The Order “Badge of Honor”;
- The Order of Glory I Class;
- The Order of Glory II Class;
- The Order of Glory III Class;
- The medal “For Valor”;
- The Ushakov Medal;
- The medal “For Services in Battle”;

The medal "For Distinguished Service in Defense of the National Frontier of the USSR";
 The medal "For Outstanding Service in the Preservation of Public Order";
 The Nakhimov Medal;
 The Anniversary medal "XX Years of the Workers' and Peasants' Red Army";
 The medal "For Labor Valor";
 The medal "For Distinguished Labor Service";
 The medal "For Bravery in Dealing with Fire";
 The medal "For Saving from Drowning";
 The medal "For a Partisan of the Patriotic War" I Class;
 The medal "For a Partisan of the Patriotic War" II Class;
 The medal "For the Defense of Leningrad";
 The medal "For the Defense of Moscow";
 The medal "For the Defense of Odessa";
 The medal "For the Defense of Sevastopol";
 The medal "For the Defense of Stalingrad";
 The medal "For the Defense of Kiev";
 The medal "For the Defense of the Caucasus";
 The medal "For the Defense of Soviet Territory within the Arctic Circle";
 The medal "For Victory over Germany in the Great Patriotic War of 1941-1945";
 The medal "The 20th Anniversary of Victory in the Great Patriotic War of 1941-1945";
 The medal "For Victory over Japan";
 The medal "For the Taking of Budapest";
 The medal "For the Taking of Königsberg";
 The medal "For the Taking of Vienna";
 The medal "For the Taking of Berlin";
 The medal "For the Liberation of Belgrade";
 The medal "For the Liberation of Warsaw";
 The medal "For the Liberation of Prague";
 The medal "For Valiant Labor in the Great Patriotic War of 1941-1945";
 The medal "For the Restoration of Ferrous Metallurgy Undertakings in the South";
 The medal "For Restoration of the Coal Mines of the Donets Basin";
 The medal "For the Cultivation of Virgin Lands";
 The medal "To Commemorate the 800th Anniversary of Moscow";
 The medal "To Commemorate the 250th Anniversary of Leningrad";
 The anniversary medal "XXX Years of the Soviet Army and Navy";
 The anniversary medal "40 Years of the Armed Forces of the USSR";
 The anniversary medal "50 Years of the Armed Forces of the USSR";
 The anniversary medal "50 Years of the Soviet Militia";
 The medal "For Exemplary Service" I Class;
 The medal "For Exemplary Service" II Class;
 The medal "For Exemplary Service" III Class;

8. Orders and medals are arranged on the same bar. Orders and medals that do not fit into one row are carried over to a second row placed below the first, and so on.

Placing is as follows:

on the open coat (jacket) so that the lower edge of the lapel covers two thirds of the first row bar.

The bar of the second row is fastened beneath the orders and medals of the first row and should extend for two thirds of its width beneath the orders and medals of the first row, the third and subsequent rows being positioned in the same manner;

on flannel and uniform shirts—in the middle so that the upper edges of the orders are on a level with the lower corner of the cutaway of the collar.

Orders and medals are placed no lower than the upper buttons on a double-breasted coat and no lower than the second button from the top on a single-breasted coat.

9. The Order of "Victory" is worn on the left side of the chest, to the left of the bar bearing the orders and medals.

10. The anniversary medals "For Military Valor. To mark the centenary of the birth of Vladimir Il'ich Lenin," and "For Heroic Labor. To mark the centenary of the birth of Vladimir Il'ich Lenin" are fastened to a rectangular bar and placed on items of dress uniform on the left side of the chest 15mm below the "Gold Star" medal of the order Hero of the Soviet Union and the "Hammer and Sickle" of the order Hero of Socialist Labor, and, in the absence of these medals, in their place.

11. Orders worn on the right side of the chest are fastened separately and arranged in order of seniority in one or more rows:

on the open coat (jacket)—beginning from the bottom and continuing upward along the lapel;

on flannel and uniform shirts—from left to right.

Orders and medals are placed in the following sequence:

Order of Suvorov I Class;

Order of Ushakov I Class;

Order of Kutuzov I Class;

Order of Nakhimov I Class;

Order of Bogdan Khmel'nitskiy I Class;

Order of Suvorov II Class;

Order of Ushakov II Class;

Order of Kutuzov II Class;

Order of Nakhimov II Class;

Order of Bogdan Khmel'nitskiy II Class;

Order of Suvorov III Class;

Order of Kutuzov III Class;

Order of Bogdan Khmel'nitskiy III Class;

Order of Aleksandr Nevskiy;

Order of the Patriotic War I Class;

Order of the Patriotic War II Class;

Order of the Red Star.

In the placing of orders on the open ceremonial coat (jacket) the orders must be the same distance from the edge of the lapel as orders and medals worn on the left side of the chest.

On flannel and dress uniform shirts orders must be placed 5mm apart in a row. Orders in the second row are placed 15–20mm below the first. When there are orders and medals on the left side of the chest, the centers of the orders in the first row on the right side of the chest must be on the same level as the middle of the first bar of orders and medals placed on the left side of the chest.

In the absence of orders and medals on the left side of the chest, orders are placed on the right side of the chest so that the lower edges of the orders are on a level with the lower corner of the cutaway of the collar.

12. Orders and medals of foreign powers on ribbons are worn on the left side of the chest beneath the lower row of orders and medals of the Soviet Union. Orders worn without ribbons are placed on the right side of the chest beneath the lower row of orders of the Soviet Union.

13. Marshals of the Soviet Union, Fleet Admirals of the Soviet Union, Chief Marshals and Marshals of Service branches, and Fleet Admirals wear Marshal's Stars on the tie with the ceremonial and the dress-off duty coat (jacket).

14. The ribbons of orders and medals are worn on bars on the left side of the chest:

- on open double-breasted coats, jackets, and high-collared tunics approximately 20mm below the level of the lapel buttonhole of the coat or tunic;

- on open single-breasted coats and high-collared tunics approximately 30 mm below the upper edge of the lapel;

- on closed high-collared tunics (in the Navy)—5mm above the pocket;

- on closed high-collared tunics (in the Soviet Army)—in the middle of the left front on a level with the center of the second button from the top;

- on flannel and dress uniform shirts—in the middle, so that the upper edge of the bar is on a level with the lower corner of the cutaway of the collar.

15. The ribbons of orders and medals worn on bars are placed from right to left in the following order:

- The ribbon of the Order of Lenin;

- The ribbon of the Order of the October Revolution;

- The ribbon of the Order of the Red Banner;

- The ribbon of the Order of Suvorov I Class;

- The ribbon of the Order of Ushakov I Class;

- The ribbon of the Order of Kutuzov I Class;

- The ribbon of the Order of Nakhimov I Class;

- The ribbon of the Order of Bogdan Khmel'nitskiy I Class;

- The ribbon of the Order of Suvorov II Class;

- The ribbon of the Order of Kutuzov II Class;

- The ribbon of the Order of Nakhimov II Class;

- The ribbon of the Order of Bogdan Khmel'nitskiy II Class;

The ribbon of the Order of Suvorov III Class;
 The ribbon of the Order of Kutuzov III Class;
 The ribbon of the Order of Bogdan Khmel'nitskiy III Class;
 The ribbon of the Order of Aleksandr Nevskiy;
 The ribbon of the Order of the Patriotic War I Class;
 The ribbon of the Order of the Patriotic War II Class;
 The ribbon of the Order of the Red Banner of Labor;
 The ribbon of the Order of the Red Star;
 The ribbon of the Order "Symbol of Honor";
 The ribbon of the Order of Glory I Class;
 The ribbon of the Order of Glory II Class;
 The ribbon of the Order of Glory III Class;
 The ribbon of the medal "For Bravery";
 The ribbon of the Ushakov Medal;
 The ribbon of the medal "For Services in Battle";
 The ribbon of the medal "For Distinguished Services in Defense of the State Boundary of the USSR";
 The ribbon of the medal "For Outstanding Service in the Preservation of Public Order";
 The ribbon of the Nakhimov Medal;
 The ribbon of the anniversary medal "XX Years of the Workers' and Peasants' Red Army";
 The ribbon of the medal "For Labor Prowess";
 The ribbon of the medal "For Distinguished Labor Service";
 The ribbon of the anniversary medal "For Heroic Labor (For Military Valor). To mark the centenary of the birth of Vladimir Il'ich Lenin";
 The ribbon of the medal "For Bravery in Dealing with Fires";
 The ribbon of the medal "For Saving from Drowning";
 The ribbon of the medal "For a Partisan of the Patriotic War" I Class;
 The ribbon of the medal "For a Partisan of the Patriotic War" II Class;
 The ribbon of the medal "For the Defense of Leningrad";
 The ribbon of the medal "For the Defense of Moscow";
 The ribbon of the medal "For the Defense of Odessa";
 The ribbon of the medal "For the Defense of Sevastopol";
 The ribbon of the medal "For the Defense of Stalingrad";
 The ribbon of the medal "For the Defense of Kiev";
 The ribbon of the medal "For the Defense of the Caucasus";
 The ribbon of the medal "For the Defense of Soviet Territory within the Arctic Circle";
 The ribbon of the medal "For Victory over Germany in the Great Patriotic War, 1941-1945";
 The ribbon of the medal "20th Anniversary of Victory in the Great Patriotic War of 1941-1945";
 The ribbon of the medal "For Victory over Japan";
 The ribbon of the medal "For the taking of Budapest";
 The ribbon of the medal "For the taking of Königsberg";

The ribbon of the medal "For the taking of Vienna";
The ribbon of the medal "For the taking of Berlin";
The ribbon of the medal "For the Liberation of Belgrade";
The ribbon of the medal "For the Liberation of Warsaw";
The ribbon of the medal "For the Liberation of Prague";
The ribbon of the medal "For Meritorious Labor in the Great Patriotic War of 1941-1945";

The ribbon of the medal "For the Restoration of Ferrous Metallurgy Undertakings in the South";

The ribbon of the medal "For Restoration of the Coal Mines of the Donets Basin";

The ribbon of the medal "For the Cultivation of Virgin Lands";

The ribbon of the medal "To Commemorate the 800th Anniversary of Moscow";

The ribbon of the medal "To Commemorate the 250th Anniversary of Leningrad";

The ribbon of the anniversary medal "XXX Years of the Soviet Army and Navy";

The ribbon of the anniversary medal "40 Years of the Armed Forces of the USSR";

The ribbon of the anniversary medal "50 Years of the Armed Forces of the USSR";

The ribbon of the anniversary medal "50 Years of the Soviet Militia";

The ribbon of the medal "For Exemplary Service" I Class;

The ribbon of the medal "For Exemplary Service" II Class;

The ribbon of the medal "For Exemplary Service" III Class;

16. The ribbons of orders and medals of foreign powers are worn on separate bars below the bars bearing the ribbons of orders and medals of the USSR.

17. The chest badge "Pilot-Cosmonaut of the USSR," the chest badges of winners of the Lenin Prize and the State Prize of the USSR, and the chest badges "Meritorious Test Pilot of the USSR," "Meritorious Test Navigator of the USSR," "Meritorious Military Pilot of the USSR" and "Meritorious Military Navigator of the USSR" are worn on the right side of the chest, below the place allocated for orders:

—on open double-breasted coats, jackets, and high-collared tunics—so that the upper edge of the bar of the badges is on the same level as the upper corner of the lapel;

—on open single-breasted coats and high-collared jackets—to the right of the lapel so that the upper edge of the bar of the badges is on a level with the projection of the lapel;

—on a closed high-collared tunic—on a level with the top button.

18. The chest badge of a deputy of the Supreme Soviet of the USSR (or of a Union Republic) is worn on the left side of the chest:

—on open double-breasted coats, jackets, and high-collared tunics—in the middle of the lapel, on a level with the buttonhole;

—on open single-breasted coats and high-collared tunics—in the middle of the lapel, 10mm below the level of the end of the lapel;
—on closed high-collared tunics, dress uniform shirts, and flannel shirts—above the orders and medals or above the bars bearing the ribbons of orders and medals.

19. Military and other insignia for wearing on the chest are worn on the right side of the chest and placed in the following order:

the badge "25th Anniversary of Victory in the Great Patriotic War";

the badge "Pilot-Cosmonaut";

badges for military specialists among the officers, generals, and admirals of the Armed Forces of the USSR;

the badge "Submarine Commander";

the badge "Guards";

badges awarded on graduation from military training establishments;

badges for exemplary service;

badges for military specialists among noncommissioned officers and enlisted men;

the badge "Parachute Instructor";

the badge "Excellent Parachutist";

the badge "Parachutist";

the badge "For Reenlistment" and other badges listed under section 97 of the present Regulations.

Badges to be worn on the chest are placed on the right side of the chest, from left to right, in a row:

if orders and medals are worn—10mm below them, and if orders and medals are not worn—in their place.

Badges to be worn on the chest that do not fit into one row are carried over to a second row and so on.

20. When servicemen have badges to be worn on the chest, awarded on graduation from two or more higher military training establishments, only one badge is worn. A badge awarded on graduation from a civilian institution of higher education (university, institute) may be worn along with a badge awarded for graduation from a higher military training establishment. This badge is worn to the right of the badge awarded for graduation from the higher military training establishment, on the same level as it.

When there is a badge awarded for graduation from a higher military training establishment, a badge awarded for graduation from a secondary military training establishment is not worn.

A chest badge awarded on graduation from a Suvorov military school is worn on the ceremonial, the dress-off duty uniform, the service uniform, and on the field uniform.

A badge awarded on graduation from a Nakhimov naval school is worn on ceremonial, the off-duty dress uniform, and on the service uniform.

Badges awarded on graduation from Suvorov and Nakhimov service schools are worn on the right side of the chest and placed on the same level as badges awarded on graduation from higher or secondary military training

establishments, to the right of them, and in the absence of these badges—in their place.

21. The "Komsomol" badge is worn on the left side of the chest in the middle, 15–20mm below the orders or order bars, and in the absence of orders—in their place.

The chest badge "25th Anniversary of Victory in the Great Patriotic War," is worn on the right side of the chest below the orders, but above all other army insignia. On service and field uniforms it is permitted to wear a bar with the ribbon of the medal "For Victory over Germany in the Great Patriotic War of 1941–1945" in place of the badge on the right side of the chest. The bar is placed 1cm above the badge for graduation from an educational establishment.

HIGHER MILITARY EDUCATIONAL INSTITUTIONS AND ADVANCED STUDIES

Regulations for Admission to Higher Military Educational Institutions (general provisions)

The higher military educational institutions (*VVUZ*)* of the Armed Forces produce highly qualified officer personnel for the Soviet Armed Forces. They accept officers, servicemen on short service and extended service, those with a military obligation (including reserve officers), young people from Suvorov military schools, Nakhimov naval schools, and young civilians possessing high moral and political qualities, who have completed secondary general or technical education, whose state of health qualifies them for instruction in a *VVUZ*,* and who have successfully passed competitive entrance examinations.

Officers who received short courses of military education before 1962 and who subsequently completed officers' retraining and advanced courses lasting for at least eight months are admitted to the competitive entrance examinations for higher military educational institutions along with individuals who have completed the full course of military schools, if these officers satisfy all the other conditions for admission to such institutions.

Individuals educated as engineers are not as a rule admitted to the engineering departments of higher military educational institutions.

When officers who have taken courses at higher command, aviation, and naval schools enter the command and command engineering departments of most military academies, they take entrance examinations only in their major field of specialization. Officers who have graduated from the enumerated higher schools with a gold medal take the examination in only one of the

* Standing for the Russian *vysheye voyenno-uchebnoye zavedeniye*, translated as above [U.S. Ed.].

major fields of specialization and, should they obtain an excellent grade, are exempted from further examination.

Candidates for entry to a *VVUZ* who have completed courses at secondary military educational institutions with a first-class ranking ("excellent"), or who have graduated from civilian technical institutes with a diploma with honors, or from secondary schools with a gold or silver medal, take the competitive entrance examinations only in the major field of specialization.

Individuals who have completed courses at Suvorov military schools and Nakhimov naval schools are accepted for higher command and higher naval schools respectively, without entrance examinations. Individuals who have completed courses at Suvorov and Nakhimov schools take competitive entrance examinations for other higher military educational institutions on a universal basis.

Officers who have been in command of subunits that have been rated "excellent" and "good" for military and political training, discipline, and combat readiness for the three years preceding their entry to a *VVUZ* are accepted for higher military educational institutions if they successfully pass entrance examinations without competition.

Noncommissioned officers (petty officers), soldiers, and sailors who obtain excellent reports for military and political training throughout their service (but for not less than a year) are also accepted without competition.

Individuals who have graduated from technical colleges or other equivalent civilian secondary technical educational institutions, and also individuals who since 1946 have graduated from secondary military, military technical and special (technical) military schools with a national diploma or with a certificate in lieu of a diploma are accepted into higher military educational institutions on the basis of having completed secondary education.

Individuals enlisted as regular officers from among those called up for 2-3 years, and also Armed Forces volunteers who have graduated from civilian institutions of higher education and have undertaken military training in them, are accepted in command academies (departments) and in the V. I. Lenin Military-Political Academy on an equal footing with individuals who have graduated from military schools, if they have at least two years' experience of command and political duties and satisfy the other conditions for entry into these educational institutions.

The maximum age for individuals entering a *VVUZ*, their length of command or of work, and also their length of service as officers or in appropriate posts, are established in relation to the type of military educational institution or its department.

Servicemen wishing to enter higher military educational institutions (except for higher command, higher aviation, and higher naval schools) submit reports to their superior officers no later than 15 September of the year preceding the year of entry, in which they state their military rank, surname, given name and patronymic, the post held, their year and month of birth, their general and military education, and also the name of the *VVUZ* and department which they wish to enter.

The report must be accompanied by evidence of general secondary and military education in the form of an appropriate document (an appropriate certificate or diploma) or a certified copy of such a document.

Servicemen who, by decision of a unit commander (commandant of an institution) merit being sent for training are medically examined by garrison medical boards, after which their documents (reports, personal files, medical records, service records etc.) are sent to the personnel department of the district, group of forces, fleet, or formation.

The selection of candidates is carried out by commissions appointed for this purpose on the order of commanders of military districts and air defense districts, groups of forces, fleets, Air Force commanders of military districts and fleets, commanders of formations, and the Commander of the Railway Troops.

The decisions of the selection commissions, approved by those who appointed them, are conveyed to the candidates no later than 15 December.

Servicemen approved as candidates for training may be transferred only on appointment to higher posts; they are not sent on lengthy missions and, as a rule, are not assigned to various forms of duties on free days and holidays.

Officers who are candidates for a *VVUZ* are freed of officers' duties and have the right to use at least three free evenings a week after 1700 hours on working days for preparation for examinations.

All servicemen allowed to take entrance examinations to a *VVUZ* are given a 30 day leave (in addition to their regularly entitled leave). Candidates who have previously taken such leave on entering a *VVUZ* previously are not given a second leave.

Officers permitted to take entrance examinations to a *VVUZ* are allowed to take the whole of their leave entitlement in the first half year, no later than May.

Servicemen are not permitted to sit for competitive entrance examinations to a *VVUZ* more than 3 times.

Thirty-day preparatory courses are held for the servicemen candidates before the start of the entrance examinations on the basis of the additional leave granted to the candidates. As a rule the courses are organized directly at the *VVUZ*.

The competitive entrance examinations are held by the examination boards of the *VVUZ* from 20 July through 20 August, or by visiting examination boards from 10 July through 10 August.

Candidates who have received an unsatisfactory grade for one of the disciplines are not admitted to further examinations, and are returned to their former place of service.

It is not permitted to retake examinations when an unsatisfactory grade has been obtained, or to retake one in order to increase a grade.

The selection of candidates for entry to a *VVUZ* from among those who have passed entrance examinations is made by the admission boards of the *VVUZ* (visiting admission boards).

When candidates have gained an equal number of passes in the examinations, consideration is given in the first instance to the grades obtained in the disciplines most corresponding to the requirements of their future specialization.

A preferential right to admission to a *VVUZ* among candidates who have successfully passed the entrance examinations and have the same grades overall is enjoyed by Heroes of the Soviet Union, Heroes of Socialist Labor, individuals awarded orders and medals of the Soviet Union, and also candidates who have obtained higher grades in the major field of specialization, skilled craftsmen and Class I specialists, officers with great practical experience of service in the branch of specialization, and young civilians with a longer period of practical employment relative to the course offered by the higher military training establishment.

Training by Correspondence of Officers in Higher Military Educational Institutions

The object of training of officers by correspondence is to produce specialists with higher education in the system of higher military educational institutions, with minimum disturbance to the direct performance of their service duties by the officers.

Training by correspondence is carried out in correspondence departments and sections of the *VVUZ*.

Correspondence students who have satisfied all the requirements of the curriculum and who have defended a thesis project (paper), or passed State examinations receive diplomas, chest badges and gold medals in the same way as those who complete the residence courses in the corresponding *VVUZ*. The qualification obtained by officers in the course of training by correspondence is taken into consideration in their subsequent assignments in the service.

Students are accepted for the correspondence training departments of a *VVUZ* in accordance with the general regulations governing admissions to higher military educational institutions as approved by the Ministry of Defense.

Correspondence study departments are made up in the main of officers serving in specialties related to the courses offered by the department concerned. There is, as a rule, no age limit on the admission of officers to correspondence departments. Competitive entrance examinations for admission to correspondence study departments are held at the same time as the entrance examinations to residence-course departments.

Students who, for valid reasons, give up a course of study in residence-course departments in the second year or in later years, may, by decision of the commandant of the *VVUZ*, be admitted without entrance examination to corresponding courses of correspondence study departments teaching

related subjects, with consideration given to the disciplines previously taken by these students in the residence-course department of the *VVUZ*.

The study of correspondence students consists of independent work and study under the supervision of the teaching staff of the *VVUZ*. Correspondence students engage chiefly in independent work.

Study under the supervision of the teaching staff is carried out at study courses in the *VVUZ* and also at outlying tutorial points organized in garrisons in which there are many correspondence students.

Study courses are organized at the beginning of the first academic year immediately after completion of the entrance examinations and subsequently at the end of each academic year (the courses lasting two months). Examinations are held during the period of the study courses. A concluding and graduating course is held at the end of the last year of study in order to complete the course of study, to take examinations and tests for the final year of the course, and to work on, and defend, thesis projects (take State examinations).

The concluding and graduating course lasts 4–6 months for engineering and technical students (depending upon the course), and 3 months for students taking other subjects.

With the object of creating favorable conditions for successful study by officers who are correspondence students, commanders of military units (commandants of institutions) are made responsible for verifying that correspondence students carry out the teaching assignments of the *VVUZ*, for assisting them to have the necessary tutorial help for providing them with literature, for making the prescribed time available for independent study, etc.

An officer who is a correspondence student has the right, in his turn: to be assigned to a *VVUZ* to attend training and concluding and graduating courses; to be excused from planned officers' training, to use three full days a month (apart from days off) and three evenings a week after 1600 hours for study, and also to receive written and oral advice from the instructors of the *VVUZ* in which he is registered.

For his part, a *VVUZ* correspondence student is obliged to carry out study assignments, tests, and course projects conscientiously and on time and to take examinations and tests at the fixed time.

Advanced Studies*

Advanced studies (postgraduate studies)[†] at higher military educational and scientific research institutions of the Ministry of Defense are the form of training for scientific instructors and scientific specialists drawn from among generals, admirals, and officers with practical experience relating to

* *Ad'yunktura* in the original [U.S. Ed.].

[†] The term "advanced studies" is subsequently understood also to mean postgraduate studies, which exist in some higher military training and scientific research institutions.

the content of a selected scientific specialty who have displayed a capacity for teaching and scientific research.

Advanced studies are organized with leave of absence from duty (advanced residence studies) and without leave of absence from duty (advanced correspondence studies). The time spent on advanced studies should not exceed 3 years for residence studies, and 4 years for correspondence studies.

Officers are accepted up to the age of 40 for advanced residence studies in all *VVUZ* and scientific research institutions, and up to 45 for correspondence study.

Officers are accepted for advanced studies who have completed their higher education and who have had at least two years experience in practical work relevant to the selected scientific specialty after graduation from the *VVUZ*, and who have shown ability for scientific research and teaching.

It is also permitted to enroll for advanced studies officers who have shown especially great capacity for study and a disposition for scientific research and teaching immediately after they graduate from a higher military educational institution.

Officers who wish to proceed to advanced studies submit a report to their superior officer. Copies of the reports are sent directly to the commandant of the higher military educational or scientific research institution.

Along with the report, officers submit their scientific work, whether published or unpublished, descriptions of inventions with evaluations of them and, in their absence, scientific papers (abstracts) on the selected specialty.

Other requirements for submission are the following:

- an authenticated copy of a diploma of graduation from the higher educational institution and a transcript of his study records;
- a record of service from the last place of work;
- a Party-political (Komsomol) reference;
- a health certificate stating the feasibility of taking advanced studies;
- an extract from the minutes of the council of the higher military educational institution for officers recommended for post-graduate studies by such councils immediately after their graduation from a higher educational institution;
- a certificate of having passed the candidacy examination laid down for the specialty, for individuals who have passed candidacy examinations in whole or in part.

Students are accepted for advanced studies between 1 April and 1 October, while those who have graduated from a *VVUZ* and are recommended for advanced studies in the course of the year are accepted at times related to the time of graduation from a *VVUZ*.

Individuals who satisfy the stated requirements and whose submitted scientific work or abstracts have been judged to be satisfactory are admitted to entrance examinations.

Within a month of receiving documents from a candidate for admission to advanced studies the admissions board is obliged to inform him whether he is being admitted to the competitive entrance examinations or refused.

Officers who are allowed to take examinations for advanced studies with or without being excused from duty are given a month's leave (apart from their regular leave entitlement) on full pay to prepare for and take the examinations. Officers, accepted for advanced studies, who have partly passed candidacy examinations and who are excused in this connection from taking some entrance examinations, are given additional leave to take the examinations for the remaining disciplines on a basis of 10 days for each examination. Those who are accepted for advanced studies without having to pass entrance examinations have no right to additional leave.

Individuals who have completely passed the candidacy examinations for a given specialty are excused from having to take entrance examinations. Officers who have partly passed candidacy examinations may be excused from taking the corresponding entrance examinations. In this case they are credited with the grades of the candidacy examinations which they have passed.

Individuals who have passed candidacy examinations in part, and also individuals who have produced scientific works and inventions, are permitted to take candidacy examinations instead of entrance examinations at the same times.

Officers who have completely or partly passed candidacy examinations before commencing advanced studies may have the length of their advanced studies reduced by one year.

During the time spent on advanced studies, graduate students must acquire thorough mastery of the selected specialty and of research and teaching methods and procedures, must pass candidacy examinations and prepare theses within the established periods.

Correspondence students taking advanced studies are permitted four full free days a month (apart from regular days off) and three free evenings a week from 1700 hours. They are also allowed an annual additional leave of 30 days, not counting time spent traveling and from the *VVUZ* or scientific research institute.

Individuals who have passed candidacy examinations and who have defended or submitted a candidacy thesis within the established period during their graduate residence, are regarded as having completed advanced studies.

Individuals who have passed candidacy examinations and who have defended a thesis are given a regular diploma, while individuals who have submitted a candidacy thesis within the stated period are given a regular certificate.

PRIVILEGES AND PENSIONS OF OFFICERS

Privileges for Officers

What are meant by privileges for officers are various advantages arising from their military service or total or partial relief from certain obligations. They cover various aspects of the life of officers and their families.

Privileges in the sphere of labor provide that time spent on military service shall be included in the total length of service in qualifying for pensions and allowances, in admission to study, etc.

The period of service in the Armed Forces is included in the unbroken length of service provided that work is begun within three months of the day of release from military service.

Military service is included in the total length of work irrespective of whether or not the individual had a period of work before being called up for military service.

For individuals who have begun to work after release from the Armed Forces, the time spent in military service is included in the length of trade union membership provided that they were members of a trade union before entering the Armed Forces.

Officers released from the ranks of the Armed Forces to the reserve have the right to work in any sector of the economy consonant with their special training and work experience. Those released from the ranks of the Armed Forces have a preferential right to enter schools and courses to acquire new professions, and to employment in the enterprises and institutions of the Ministry of Defense.

Officers released from military units stationed in remote localities and officers who have signed agreements to work in the regions of the Far North or in equivalent localities have the time of their uninterrupted military service in these localities included in their uninterrupted length of work for the purposes of obtaining pay increments and other benefits.

Officers' wives also have the right to labor benefits. Thus, when an officer's wife is released from work in connection with the transfer of the husband to another locality she retains a record of uninterrupted work irrespective of the time of starting work elsewhere. Officers' wives who graduate from institutes of higher education and technical colleges have the right to be sent to work in the place where the husband is permanently stationed.

The privileges regarding accommodations are that: officers and their families are allocated State-owned accommodations in the place of service of the head of the family, retain the right to accommodations, pay a reduced rent for an apartment, are given assistance in individual housing construction, and have other advantages.

Officers keep their accommodations when they are studying, on long assignments, in camp, and undergoing training if their established post is kept for them during their absence, and also in time of war, and during service in remote localities and outside the USSR.

Members of officers' families who go abroad to live with the head of the family keep their accommodations.

Senior officers, released to the reserve or retired after serving for 25 years or more, retain the right to the accommodations occupied by themselves and their families and, should they change their place of residence, have the right to receive new accommodations.

Serving officers pay for the accommodations occupied by them at a privileged rate (in accordance with the existing legislation on accommodations).

Officers released to the reserve or retired are given assistance in the allocation of plots of land, in the construction of individual dwelling houses, and in the delivery of building materials.

Travel benefits consist of the free use of transport in the transfer of officers and members of their families, and also in the moving of household effects.

All officers have the right to free travel on military travel orders for the journey to and from the place of leave, and also if they are given sick leave for a period of no less than 30 days with a change in place of residence, or are sent to therapeutic establishments for in-patient treatment.

Members of officers' families sent for in-patient treatment to therapeutic establishments and also to sanatoria, have the right to free travel on orders issued by military medical authorities.

In the case of appointment to a post or transfer connected with movement to a new place of service, enrollment as a regular, being sent to study involving removal from the unit manning document, being released to the reserve or being retired, officers and their families have the right to free travel to the new place of service or to the selected place of residence.

On appointment to a post, on transfer to a new place of service, on enlisting as a regular, on being sent to study, and on release to the reserve, or on retirement, movement orders are also issued for the transportation of household effects within the standard limits laid down for this purpose.

Benefits in the sphere of education provide that all officers studying in military establishments and schools, in higher military training establishments, and also on officers' refresher and retraining courses retain all types of allowances from their last post in the forces.

Officers who are candidates for admission to a *VVUZ* are given unit leave of 30 days to prepare for and take the entrance examination.

In addition, officers have a number of advantages in entry to educational institutions.

The benefits for service in remote localities are quite varied. When serving in remote localities officers receive increased salaries for their posts.

Officers serving in remote localities receive the right of transfer to other military districts at the end of the established period.

They are permitted to combine regular leaves over a period of two years (provided that the officer should not be absent from the unit for more than three months).

During the time spent by an officer in a remote locality, his family is assured occupation of its living accommodations in the place of permanent residence.

When reckoning the length of service for the purpose of fixing the length of service pension, the time spent by an officer in a remote locality is reckoned on a preferential basis (one and a half or two years for each year of service, depending on locality).

Health service benefits ensure all officers on active military service, and also senior and higher officers released to the reserve or retired on grounds of age or illness after having served for 25 years or more (calculated on a

preferential basis), the right to receive medical assistance for themselves and the members of their families and, in case of need, sanatorium and spa treatment through the polyclinics, sanatoria, and rest homes of the Ministry of Defense of the USSR.

Pensions and Allowances

Pensions are allotted to officers on discharge from the forces for length of service or on grounds of disability.

Length of service pensions are awarded for life to officers who have served for 20 years or more.

Pensions for service of between 20 and 25 years are awarded to officers discharged from the ranks of the Armed Forces on grounds of reduction in force, age, illness, or poor health, who are 40 years old by the day of discharge and, irrespective of age, to officers discharged directly from flying duties, submarines, and minesweepers. The size of the pension for officers for service of between 20 and 25 years is fixed in relation to their age: 40% of the rate of pay for those who have reached the age of 50 years by the day of discharge, and 30% of the rate of pay for those who have not reached the age of 50 years.

Pensions for service of 25 years or more are fixed at 50% of the rate of pay, with the addition of 3% of the rate for each year of service in excess of 25 years, but no more than 75% of the rate of pay. Officers with 25 years' service, placed on the reserve list on grounds of age or illness, who have reached the age of 55 years on the day of release, and also officers placed on the retired list, are awarded a pension of 60% of the rate of pay plus 3% of the rate for each year of service, but no more than 75% of the rate of pay.

Officers who are test pilots—1st class and test navigators—1st class, who have the honorary title "Meritorious Test Pilot of the USSR" or "Meritorious Test Navigator of the USSR," whose service amounts to 25 years or more, including at least 12½ years service in test flying, who are discharged directly from the duties of test pilots or test navigators, receive an increment to the length of service pension amounting to 10% of the pension.

Length of service pensions may also be awarded with allowance for the length of labor service:

- to officers having a total length of labor service of at least 25 calendar years, of which not less than half are military service—amounting to 30% of the rate of pay;

- to officers having a total length of labor service of at least 30 calendar years, of which no less than half is military service—40% of the rate of pay.

The following are included in the term of service for a pension: military service in the Soviet Armed Forces, in forces of the Committee of State Security administered by the Council of Ministers of the USSR (NKGB-MGB), forces of the Ministry of Internal Affairs (NKVD-MOOP), detachments of the Red Guards, partisan detachments, units of the Home Guard and Labor Armies; time spent in the Red Army reserve, periods of attachment to civilian ministries and bodies, and also, under certain conditions and

at stipulated periods, service in state security agencies, agencies of the MVD (NKVD-MOOP), time spent on long training courses, in captivity, in encirclement, and in the territory of neutral countries as internees.

The following are calculated as preferential conditions in calculating the term of service for a pension:

—six months for one month of service as a permanent member of punitive rifle companies and battalions and assault rifle battalions of an active army during the Great Patriotic War;

—three months for one month of service in military units forming part of an active army, in partisan detachments and formations in a period of military operations, in the hero cities of Odessa, Leningrad, Sevastopol and Stalingrad (during stated periods), time spent continuously on treatment in therapeutic establishments in the case of wounds, contusions, or mutilations received at the front, and also as a result of illnesses at the front during the Great Patriotic War connected with military service;

—two months for one month of service in combat jet and combat turbo-prop aircraft in aircrew posts, and also in a number of remote localities (in Kamchatka *Oblast'*,* the Chukotka National *Okrug*,* on the Kuril Islands, the islands in the Bering Sea, the seaboard and islands of the Arctic Ocean, etc.);

—one and a half months for one month in aircrew posts (except crew members of combat jet and combat turboprop aircraft); in commissioned submarines; on minesweepers when sweeping for mines; in the control centers of formations of commissioned submarines and formations of minesweepers when sweeping for mines (in accordance with the special list of posts); as regular divers; in frontier posts, in commandants' offices and in equivalent sub-units of the Border Troops, in commissioned naval frontier ships, small boats and vessels directly responsible for defense of the State boundaries of the USSR, and also in a number of remote localities (on the island of Sakhalin, in Murmansk, etc.).

In all instances, except for time spent in an active army and on treatment occasioned by a war wound, periods of fixed term service are reckoned in the term of service for a pension only on a calendar basis.

Military officers who have become unfit for duty during military service and who have become disabled have the right to a disability pension irrespective of the length of their military service.

Disability pensions are awarded to officers accepted for discharge from military service by the Medical Commission for Determination of Disability (VTEK) as disabled persons in categories I, II and III, if the disability occurred during the period of military service or no later than three months from the day of discharge from military service, or later than this period, but as a result of a wound, contusion, mutilation, or illness that occurred during the period of military service or during a period spent in captivity.

* Soviet administrative-geographical units [U.S. Ed.].

Pensions of the following sizes (as percentages of rates of pay) are awarded, depending on the cause and category of the disability:

	Category of disability		
	I	II	III
a) To servicemen who have become disabled as a result of: a wound, contusion, or mutilation received in defense of the USSR or in carrying out other military duties; illness at the front; wounds, contusion, mutilation, or illness occurring during a period spent in captivity	75	55	40
b) To servicemen who have become disabled as a result of: illness unconnected with being at the Front, or an accident unconnected with the carrying out of military duties, which occurred during the period of military service; accident or disease which did not occur in the period of military service, provided that the disability began no later than three months from the day of discharge from military service	60	45	30

If a disability pension has been calculated from pay rates of less than 200 rubles a month, the pension is increased by 5% of the rate of pay for five years' service and, additionally, by 1% of the rate of pay for each year of service in excess of five years. However, the total disability pension with increments for length of service may not exceed:

—for pensioners listed under point "a" 75% of the rate of pay for a category I disability, 65% for a category II disability, and 45% for a category III disability;

—for pensioners listed under point "b" 70% of the rate of pay for a category I disability, 55% for a category II disability, and 35% for a category III disability.

Servicemen whose disability pension is awarded from a rate of pay of 200 rubles or more are not given an increment for length of service.

Pensioners whose pension is less than 110 rubles for a disability of category I and less than 90 rubles for a disability of category II have their pension increased by 15%, provided that the increased pension should not exceed 110 rubles a month for disabled persons in category I, and 90 rubles a month for disabled persons in category II.

Officers discharged from military service receive a grant amounting to 2 months' salary. In addition, officers discharged from military service on grounds of age, sickness, reduction in force, or poor state of health, who are not entitled to a pension, retain the pay of their military rank for one year.

OFFICERS' COMRADELY COURTS OF HONOR

Officers' comradely courts of honor are elected bodies of the officer corps of the Armed Forces. Their purpose is to maintain the dignity and honor of the high calling of a Soviet officer and to inculcate high moral, political and military qualities in officers.

In accordance with the principles of unity of command and personal responsibility of a commander for the ideological education of his subordinate officers in force in the Soviet Armed Forces, courts of honor function under the direct leadership of commanders exercising unity of command, who have the exclusive right to decide questions relating to the referral of a misdemeanor by an officer to a court of honor.

Officers' comradely courts are set up:

- in regiments, on 1st class ships and in other independent units—to examine misdemeanors and offenses by junior officers;

- in divisions, naval bases and corresponding establishments—to consider misdemeanors and offenses by senior officers of all units of the division or naval base, and separately to consider misdemeanors and offenses by junior officers of the directorate and the individual subunits of the division, naval base, or corresponding establishments;

- in directorates of districts and fleets, in military training establishments and military establishments, and also in chief and central directorates of the Ministry of Defense of the USSR—to give separate consideration to misdemeanors and offenses by junior and senior officers.

The size of officers' courts of honor is related to the number of officers. The decision as to how many officers are required is taken by the commanders of formations, superiors of corresponding and higher ranks. The officers of a unit without a court of honor owing to a lack of officers participate in the election of the court of honor of one of the nearby units (establishments) or of the next higher command. These courts of honor also examine misdemeanors and offenses by the officers of the unit concerned.

Officers' courts of honor consist of seven or nine members elected at officers' meetings. The members of officers' courts of honor for junior officers are elected at a general meeting of the officers of the unit. One or two senior officers may be elected, in addition to junior officers, as members of these courts.

An officers' court of honor is elected at a meeting of senior officers in order to review misdemeanors by senior officers. The commander (senior ranking officer) of the unit, formation, or establishment in which a court of honor is set up is not, as a rule, elected as a member of the court.

The meeting to elect an officers' court of honor is convened by the appropriate commanding officer (senior ranking officer). When necessary, elections for a court of honor may be held at a delegate meeting upon the decision of the commander of a formation (or his equivalent).

The members of the court are elected by secret ballot. Each person attending the meeting has the right to propose and reject any candidate. The question of rejection is decided by a show of hands.

The candidates who have received the greatest number of votes, but not less than half those taking part in the voting, are deemed to have been elected members of the court.

The members of an officers' court of honor elect a chairman of the court, a deputy chairman and a secretary of the court from among their own number by show of hands.

An officers' comradely court of honor is elected for a term of two years. The election of the court is carried out at the time laid down by the commander (senior ranking officer) of the unit, formation, or establishment, and takes place around the start of the training year. The composition of the elected court is announced in an order by the commander (senior ranking officer) concerned.

One year after election, and also on the expiration of the term of office, officers' courts of honor report on their activity at meetings of officers.

If members of a court are transferred from the unit before the expiration of their term of office, or if they are recalled by a meeting of officers on the grounds that they have not justified the trust placed in them, additional elections of members of the court are arranged.

The composition of a court of honor in session is five, seven, or nine members. In the absence of the chairman of the court, his functions are carried out by the deputy chairman or by one of the members of the court.

Should it be necessary to examine misdemeanors and offenses by commanders of formations with the rank of "Colonel," "Captain 1st Rank," of regimental commanders, commanders of 1st and 2nd class ships and officers of equivalent ranks, a five-man officers' court of honor is set up on each occasion by order of the commander of the military district or fleet. In such instances, those appointed as members of the court are commanders of formations and their equivalents, in addition to the officer in direct command of the officer who has committed the misdemeanor.

Officers' comradely courts of honor examine cases:

- relating to misdemeanors unworthy of the rank of an officer, detrimental to military honor and incompatible with the principles of communist morality;

- relating to infringements of military discipline and public order by an officer;

- relating to offenses committed by officers that may legally be referred to comradely courts;

- relating to property claims by officers against each other for a sum of up to 100 rubles, if they agree that the case should be examined in a comradely court.

The commander (senior ranking officer) of the unit or formation in which the court is set up decides what cases shall be examined in an officers' comradely court of honor.

The decision to examine a case may be taken by the commander (senior ranking officer) on his own initiative, on the basis of a resolution from a meeting of officers, in connection with a submission by an injured party, or on the proposal of the officers' comradely court of honor.

The officers' comradely court of honor examines a case within 15 days of its submission to the court.

It is compulsory for the accused officer to attend the court session. Senior officers are also present at a session of the court for junior officers. Junior officers do not take part in sessions of the court of honor for senior officers.

The court hears the testimony of the accused, the injured party, and witnesses and examines all the assembled information on the case. Officers present at the session, and also the injured party, may put questions, with the permission of the court, and speak on matters of substance relating to the case under consideration. The accused officer has the right to question witnesses and the injured party.

The court reaches its decision in a separate room, in which only the members of the court are present. Should it be necessary to clarify additional information, the court has the right to renew the session or to transfer it to another date.

The court arrives at its decision by a majority vote of the members of the court by show of hands. The decision sets out the essence of the misdemeanor by the officer, the judgment on it, and defines the public sanction.

An officers' comradely court of honor may decide to apply one of the following sanctions:

- to issue a comradely warning;
- to issue a public censure;
- to issue a public reprimand;
- to initiate the process for reduction in position;
- to initiate the process for reduction in military rank by one rank;
- to initiate the process for the dismissal of a studying officer from a higher training establishment;
- to initiate the process for the discharge of an officer from the ranks of the Armed Forces.

Irrespective of which of the stated social sanctions is applied, the court of honor may require a guilty person to compensate damage to property up to a limit of 100 rubles.

The court of honor may also confine itself to an examination of a misdemeanor by an officer without applying the social sanctions listed above; it may acquit the officer if his innocence is established, but may, if necessary, petition for criminal proceedings against him.

In determining the sanction, the court of honor considers the nature of the misdemeanor or offense, the circumstances and the consequences of the act, the officer's former conduct, and other factors which may influence the decision of the court.

The substance of questions examined at meetings of courts of honor of senior officers, and the decisions adopted by these courts, are not communicated to junior officers. It is also forbidden to take matters relating to the activity of comradely courts of honor outside the officer ranks.

An appeal against a decision by an officers' comradely court of honor may be submitted directly to the commander (senior ranking officer) of the unit

in which the court is set up, within three days of rendering the decision. An appeal must be examined within 7 days or, should it be necessary to verify the appeal, within 20 days. The applicant is informed of the decision adopted on the appeal.

Decisions by an officers' comradely court of honor on the application of social sanctions remain in force for a year. If, during the course of this period, the officer is not disciplined and does not have sanctions applied to him for other misdemeanors or offenses, the sanction applied to him by the comradely court is regarded as cancelled.

If the officer is of exemplary behavior and has a conscientious attitude toward service, the comradely court of honor has the right to lift the social sanction applied to him, but only after a minimum of 6 months.

Should an officer be sent to another unit, the officers' comradely court of honor in the new place of service can lift the social sanction ahead of schedule on the same basis.

Officers who are reduced in position and/or military rank, or who are removed from a training establishment, may be restored to their former rank, appointed to higher posts, or accepted into a training establishment for training after the social sanction applied to them has been lifted by decision of the court of honor, or cancelled on account of the lapse of a period of a year, on the same basis as officers to which these sanctions have been applied without a petition of the court of honor. In relation to officers discharged from the Armed Forces on petition by officers' comradely courts of honor, the cancellation or renewal of this measure of social sanction does not entail their reinstatement in the ranks of the Armed Forces, and does not entail any change of principle in the order of discharge.

Reserve and retired officers who were reduced in rank on petition of a court of honor during their active service, and who have proved themselves in productive and other socially beneficial labor, may be reinstated in their former military rank on the petition of the military commissariat by order of the Ministry of Defense of the USSR, but not within 3 years of the reduction in rank.

What To Read On This Section

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Chapter 7. THE ARMIES OF THE WARSAW PACT COUNTRIES

The Great October Socialist Revolution shook the capitalist world to its foundations when it overthrew the system of exploitation and oppression in our country. It indicated ways and revealed forms and methods of achieving the revolutionary transformation of society which acquired an international character.

Now, a whole complex of European, Asian, and American countries is developing along the lines established by the October Revolution. The victories of social revolution in these countries enlarged the boundaries of socialism. A world socialist system has been formed. A social, economic, and political community of free sovereign nations has evolved, united by common aims and interests and close bonds of international proletarian solidarity. Being in the forefront of the class struggle against imperialism, for peace, and the social progress of mankind, the socialist community is making a decisive contribution to the cause of developing the world revolutionary process.

Taking into consideration the great historical role which the world system of socialism plays in the destiny of mankind, our Party and government are doing everything they can to strengthen the might and solidarity of the great community of socialist states. The CPSU confidently follows a policy of closer political cooperation with fraternal socialist countries, the maintenance of increasingly close and regular contacts with the leaders of the communist parties and governments of fraternal countries, political coordination, and the development of different forms of communication and exchange between our peoples.

In the development of relationships between the USSR and other socialist states, an important role is played by bilateral friendship, cooperation, and mutual assistance pacts. As the XXIII Congress of the CPSU emphasized, these agreements represent genuine charters of friendship, which embody the experience accumulated over many years, the maturity and warmth of relationships between fraternal nations, and their lofty international spirit. They serve our common revolutionary cause well and will continue to do so.

"Under present-day conditions, the community of socialist states is exceptionally important in the strengthening of our defenses. This task has our constant attention. Above all, this concerns relationships with the member

countries of the Warsaw Pact, which is a powerful instrument of political and defensive cooperation among the socialist countries.”¹

The military cooperation of the socialist countries, the further strengthening of the Warsaw Pact organization, acquires special importance in view of the activation of aggressive imperialist forces aimed at undermining the socialist system in individual countries and weakening the ideological ties which unite the socialist states.

THE TRUSTWORTHY SHIELD OF SOCIALISM

On 14 May 1955 in the city of Warsaw, a Treaty of Friendship, Cooperation, and Mutual Assistance was concluded by Albania, Bulgaria, Hungary, the German Democratic Republic, Poland, Romania, the Soviet Union, and Czechoslovakia. Albania, by virtue of the position taken by its leaders, has not participated in the work of the Warsaw Pact organization since 1963.

The conclusion of the Warsaw Pact was forced upon us. As is known, the imperialists of the USA and other countries had formed themselves into the North Atlantic Bloc, NATO, as early as 1949. In 1954 the Paris Military Agreements were signed, on the basis of which a new military-political grouping emerged—the West European Alliance, and the Federal Republic of Germany, whose reactionary forces follow an aggressive, revanchist policy, was brought into NATO under US pressure in 1955. As a result of this, the threat to the security of the peace-loving European states increased.

Thus, the military alliance of the fraternal nations originated as an objectively lawful act of self-defense, a measure to strengthen the defensive capacity and consolidate the resources of the European socialist states in response to the military preparations of the Western Powers, primarily the American imperialists, the formation and strengthening of aggressive military-political blocs, and the establishment of numerous military bases around the socialist countries. The alliance is a trustworthy shield for the achievements of the socialist countries, the powerful protector of their security and independence, and an important factor in the preservation of peace in Europe and the whole world. The CPSU and the Marxist-Leninist parties of other fraternal socialist countries proceed on the basis that, while the imperialists continue to increase their military might and threaten the socialist community, the Warsaw Pact will be maintained and strengthened.

The Warsaw Pact is a genuinely defensive organization. In the text of the Pact, the European socialist countries declare that they will take “the coordinated measures necessary for strengthening their defensive capacities in order to protect the peaceful labor of their peoples, guarantee the inviolability of their frontiers and territories, and ensure their defense against possible aggression.”

Article 4 of the Pact states: “In case of an armed attack in Europe on one or several member states of the Pact by any state or group of states, each

¹ L. I. Brezhnev, *50 let velikikh pobed sotsializma* [Fifty Years of the Great Victories of Socialism], p. 55.

member state of the Pact, in exercising the right to individual or collective self-defense, in accordance with article 51 of the United Nations Charter, will render the member state or states of the Pact every assistance by whatever means are necessary, including the use of armed force. The member states of the Pact will immediately hold consultations concerning the adoption of the joint measures necessary to restore and maintain international peace and security."

In accordance with the Warsaw Pact and with the agreement of the governments concerned, Soviet troops are temporarily stationed on the territory of the German Democratic Republic, Hungary, Poland, and Czechoslovakia, the numerical strength of these troops being determined by special agreements. Relationships between Soviet troops and state bodies of fraternal countries are regulated by agreements on the Legal Statute of the Soviet Forces, and are based upon the principles of socialist internationalism, fraternal mutual assistance, equality, respect for national integrity, state independence, sovereignty, and non-interference in each other's internal affairs.

The highest controlling body of the Warsaw Pact organization is the Political Consultative Committee, which meets periodically to discuss various problems connected with the strengthening of the defensive capacity of the socialist countries, and ensuring their security. In Budapest on 17 March 1969 at the meeting of the Committee of Defense Ministers of the Member States of the Warsaw Pact, the new Regulations of the Combined Armed Forces and Combined Command and other documents were examined in detail and unanimously confirmed, thus further improving the efficiency of the structure and the controlling agencies of the Warsaw Pact defensive organization.

The Joint Armed Forces (JAF) are the common military bodies, forces, and resources earmarked, by agreement, for joint action and headed by the Commander-in-Chief. His deputy commanders-in-chief represent the armed forces of the allied states. There is a JAF Military Council. JAF HQ, which includes representatives of the armies of all Member Countries of the Pact, comes under the Commander-in-Chief.

The Warsaw Pact countries are in the front line of socialism, directly facing the imperialist states, which are hatching insane plans for liquidating the world system of socialism. The communist and workers' parties and the governments of the socialist countries are focusing their attention on military development, and are constantly preoccupied with measures for increasing the fighting power of their armies.

Like the Soviet Army, the armed forces of the Warsaw Pact countries are of a new type. Unlike the imperialist armies, which are pillars of the capitalist system and instruments of aggression, the armies of the socialist countries are a military organization of workers and peasants. The root source of their strength lies in Marxist-Leninist ideology, close and unbreakable ties with the people, proletarian internationalism, and the leadership of the communist and workers' parties. They are united by their knowledge of the need for joint defense of the national independence and revolutionary achievements of each

country and the socialist community as a whole. Practice and the experience of the Warsaw Pact confirm convincingly the viciousness and harmfulness of the anti-Leninist nationalistic thesis of the "left" revisionists which espouses: "reliance on one's own resources" in the matter of defense against imperialist aggressors.

During the years since the people came to power a new officer corps nurtured by Marxist-Leninist ideas has been created in the fraternal armies under the leadership of communist and workers' parties. Line, political, and engineering personnel are trained in military academies and schools. As in the past, numerous officers pass through military educational institutions in the USSR, receiving a high standard of training in all branches of modern military affairs. The overwhelming majority of officers are Party members, having proven through their actions their loyalty and devotion to the people and the common aims of the socialist community.

Thanks to the successful development of the national economies of the socialist countries, which provide the basis for their own defense industries, together with the continuous and unselfish assistance of the Soviet Union, the standard of the weapons and fighting equipment of the fraternal armies has improved immeasurably. These armies are equipped with sufficient modern weapons and resources for conducting armed combat on land, in the air, and at sea. They possess rocket missiles, first-rate armor, jet aircraft, reliable air defense facilities, and modern warships.

The armed forces of the Warsaw Pact countries share common views on the nature and methods of waging modern war. Their development, technical equipment, organizational structure, training, and education are organized in accordance with the requirements of joint operations involving all the armed forces of the Warsaw Pact, with due regard for the extremely rich combat experience of the Soviet Armed Forces.

The armies of the fraternal socialist countries are kept up to strength on the basis of universal military service laws. Military service is looked upon as a sacred obligation and an honorable duty. Each year that passes sees increasingly knowledgeable replacements coming into the army. As a rule, the period of service is 2-3 years in the Ground Forces and 3-5 years in the Navy.

The armed forces of the socialist countries consist of ground forces, air forces (including air defense forces), navies, and border troops.

The fraternal countries now have completely up-to-date regular armies. Their organization, technical equipment, and personnel training are planned with regard to the revolutionary changes in military affairs, and on the basis of the latest achievements of socialist military science. Their troops are trained for both nuclear and conventional warfare.

Joint exercises and maneuvers play an important role in further strengthening the military cooperation of the Warsaw Pact countries and increasing the combat readiness of the allied armies. *October Storm*, *Vltava*, *Maneuver*, *Rhodopes*, *Brotherhood-in-Arms*, and many other exercises carried out by the armies, air defense forces, and navies in recent years, have demonstrated the high standard of training of all personnel and their ability to resolve successfully any

combat tasks, including the most complex. The constant combat readiness of the armies of the socialist community for victorious armed defense of the achievements of socialism and communism has also been demonstrated by joint command post exercises, Soviet, East German, and Polish naval, and other exercises carried out recently.

The ideological and political education of personnel is a major factor in the armies of the socialist countries. Commanders, political agencies, and Party organizations devote considerable effort to instilling in servicemen devotion to their country, faithfulness to their international duty, and constant combat readiness. Party members bind together the ranks of the forces; by word and personal example they inspire servicemen to fulfill their service duties in an exemplary fashion. Youth organizations are of great assistance to commanders and Party organizations in the ideological education of young soldiers and sailors.

The development, organization, and training of the armies of the socialist states have much in common, yet each army manifests certain differences, which have their origin in the characteristics of these countries, their traditions, and customs.

THE BULGARIAN PEOPLE'S ARMY

The fighting traditions of the Bulgarian forces originate with the glorious revolutionary traditions of the Bulgarian Communist Party. They were born in the National Liberation Insurgent Army formed by the Bulgarian Communist Party during the armed struggle against the Nazi occupation and the monarchist-fascist dictatorship (1941-1944).

On 8 September 1944 Soviet troops, fulfilling their international duty, crossed into Bulgarian territory, thus expediting the victory of the anti-fascist national uprising. The monarchist-fascist regime fell on the 9th of September. The Government of the Patriotic Front, formed by the rebels under the leadership of the Bulgarian Communist Party, declared war on Nazi Germany.

The Bulgarian People's Army (BPA) emerged during the victorious days of the national revolution of 9 September 1944. In addition to the revolutionary detachments and workers' and peasants' squads which had fought against the Nazi occupation forces and internal reactionaries, the army included reorganized units and formations of the old army.

During the final stage of the war, approximately 500,000 Bulgarian troops took part, together with the Soviet Army, in battles against the German Fascist invaders in the territories of Yugoslavia, Hungary, and Austria. The capital of the Soviet Union, Moscow, thrice saluted the Bulgarian fighting man for valor and bravery displayed in the Balaton operation and other engagements.

The Armed Forces of socialist Bulgaria now consist of the Ground Forces, the Air Force, the Air Defense Force, and the Navy.

The General Staff and the respective chief and central directorates are incorporated in the Ministry of National Defense.

Thanks to the country's economic growth and the unselfish assistance of the Soviet Union, the Bulgarian National Army is equipped with first-rate modern weapons and fighting equipment. For example, the mechanical power of the motorized infantry divisions of the BPA during the period of popular rule has increased by a factor of 30, and that of the tank formations by a factor of 50. The weight of a single salvo of a motorized infantry formation is now six times greater than it was during World War II. Servicemen in the BPA work night and day to achieve mastery of their new weapons and learn to use them with skill in the difficult conditions of a combat situation. The army personnel are fully aware of their great responsibility in guarding the freedom and independence of their own country and, together with the other fraternal armies, in guaranteeing the security of the entire socialist community.

Citizens are called up for service in the army on reaching the age of 19. Volunteers who have reached the age of 18 are also accepted in units and formations. The period of service for privates and NCO's in the Army, the Air Force, and the Air Defense Force is 2 years, and in the Navy, 3 years.

The military ranks in the BPA are basically the same as those in the Soviet Armed Forces.

Bulgarian People's Army Day is celebrated on 23 September, in honor of the September armed uprising of 1923 against the monarchist-fascist dictatorship when, under the leadership of the Bulgarian Communist Party, the first combat detachments and volunteer groups were formed.

THE HUNGARIAN PEOPLE'S ARMY

In the fall of 1944, Soviet troops, carrying out a mission of liberation, crossed into Hungarian territory, thus promoting a new upsurge in the struggle of the communist-led Hungarian workers against fascism. The Provisional Hungarian Government, formed on 22 December, declared war on Nazi Germany. On the initiative of the Hungarian Communist Party it called upon the people and the soldiers to join the new Hungarian Armed Forces and to take up arms against the German occupation troops.

At the beginning of 1945 several Hungarian subunits fought on the side of the Soviet Army against Nazi forces. During the struggle for the Hungarian capital, Budapest, the Buda Volunteer Regiment fought bravely together with Soviet units. Following the liberation of Budapest this regiment was incorporated in the 1st Infantry Division of the new Hungarian Army. Later two other divisions which were formed became part of our 3rd Ukrainian Front.

The fighting power of the Hungarian People's Army (HPA) increased from year to year. After the defeat of the counterrevolutionary rebellion in the fall of 1956, the Hungarian Socialist Working Party and the Revolutionary Workers' and Peasants' Government reorganized the Army, having reinforced it with command cadre dedicated to the cause of socialism. Now approximately 90% of the officers of the Hungarian People's Army are the

sons of workers and peasants. The overwhelming majority of these are Party members.

The Hungarian People's Army consists of the Ground Forces, the Air Defense Force (which includes military aviation), units of river vessels, and Border Troops. During recent years the per capita technical equipment of the Army has increased several times. Formations of the HPA now have four times as many tanks as they had in 1960; the Army's fire power has increased by a factor of 8.

The army rank and file are recruited in accordance with the Home Defense Law passed by the State Assembly of the Hungarian People's Republic in December 1960. All male citizens between the ages of 18 and 50 who are fit for service in the Army are liable for military duty. The term of active military service is up to three years. The Minister of Defense has the right to reduce this term.

Personnel in the HPA are subdivided into privates (*honvédök*), sergeants, sub-officers,* officers, and generals. Regular service sub-officers* include junior command personnel who have expressed a wish to serve in the Army. The ranks of senior sergeant, sergeant-major, and chief sergeant-major have been established for sub-officers.* They occupy the positions of sergeant-majors of subunits, armorers, and sometimes platoon commanders. Officers' and generals' ranks in the HPA are similar to those in the Soviet Army.

Officers of all branches of the Services are trained by a combined military training school, which accepts youths of call-up age with secondary education. The military academy is a higher military educational institution.

People's Army Day is observed on 29 September in memory of the celebrated date of the national liberation struggle of the Hungarian people. (On 29 September 1848 a revolutionary army of Hungarian *honvédök* led by Kossuth gained victory over the forces of the Austrian conquerors).

THE NATIONAL PEOPLE'S ARMY (NPA) OF THE GERMAN DEMOCRATIC REPUBLIC (GDR)

The NPA of the GDR is one of the youngest armies in the socialist countries. The law governing its establishment was passed by the People's Chamber of the German Democratic Republic on 18 January 1956. Its first units were formed on 1 March 1956. This day is observed in the GDR as National People's Army Day. The creation of the army was necessitated by the fact that the inclusion of the Federal Republic of Germany in the aggressive NATO bloc freed the hands of the surviving Nazi generals, who openly began to recruit a West German army—the Bundeswehr. The National People's Army stood on guard to protect the socialist achievements of the workers of the GDR.

The appellation "national" applied to the army of the GDR underlines the fact that it expresses the fundamental interests of the whole German nation.

* *Podofitsery* [U.S. Ed.].

The word "people's" indicates that it is an army of the working people, the army of a workers' and peasants' state.

Recruitment for the Army is based on the military service law, passed on 24 January 1962. Its command cadre consist of active members of the revolutionary movement, fighters against fascism. Ninety-five percent of the officers, more than 50% of the NCO's and approximately 20% of the soldiers of the NPA are members and candidates of the Socialist Unity Party of Germany.

The National People's Army of the GDR is prepared to repel any enemy attack. Its fire power has been significantly increased as a result of its equipment with operational-tactical missiles, missile launchers, self-propelled guns, modern computers, fire control apparatus, and communications facilities. Now the fully motorized ground forces of the NPA consist of motorized infantry and tank formations. The Republic's air space is protected by the Air Force and the Air Defense Force, which incorporate fighter aircraft, radiotechnical troops, and air defense artillery units. The Air Force is equipped with modern all-weather supersonic fighter interceptors. The maritime frontiers of the GDR are protected by the People's Navy, which is equipped with modern warships and coastal artillery units. The Navy's striking force consists of high-speed missile and torpedo boats. It has dozens of rocket launchers. The frontiers of the GDR are well protected by its Border Troops.

The personnel of the NPA are consistently improving their fighting skill. In a comparatively short time, the soldiers, NCO's and officers of the NPA have succeeded in mastering many complex forms of combat training.

The rank and file serve two years in the Army, and three years in the Air Force and Navy. The serviceman's uniform is inherited from the German volunteers who, in 1813, fought together with Russian troops against Napoleon's army.

The military ranks in the Army are: soldier, lance-corporal, staff corporal, *Unteroffizier* (junior sergeant), *Unterfeldwebel* (sergeant), *Feldwebel*, *Oberfeldwebel* (sergeant major), *Stabsfeldwebel* (in the artillery a *Feldwebel* has the rank of *Wachmeister*), *Unterleutnant* (junior lieutenant), lieutenant, senior lieutenant, *Hauptmann* (captain), major, *Oberst-leutnant** (lieutenant-colonel), *Oberst* (colonel), general-major, general-lieutenant, general-colonel, general of the army.

The military ranks in the Navy are: *Matrose* (seaman), *Obermatrose* (senior seaman), *Stabsmatrose*, *Maat* (leading seaman), *Ober-maat* (petty officer), *Meister* (chief petty officer), *Ober-meister* (ensign), *Stabs-obermeister*, junior lieutenant, lieutenant, senior lieutenant, captain lieutenant, *Korvetten-kapitän* (captain 3rd rank), *Fregatten-kapitän* (captain 2nd rank), *Kapitän zur See* (captain 1st rank), *Kontr-admiral*, vice admiral, admiral.

* Appears in the text, erroneously, as *ober-leutenant* [U.S. Ed.].

THE POLISH PEOPLE'S ARMY

On 12 October 1943 the Tadeusz Kosciuszko 1st Polish Division, formed on Soviet territory, engaged the Nazi invaders near the small town of Lenino, in the Mogilev *Oblast'*, as part of the 33rd Army of the Soviet forces. At Lenino, the Polish soldiers, fighting together with Soviet troops against the common enemy, sealed the fraternal friendship and comradeship-in-arms of the Soviet and Polish peoples with their jointly spilt blood.

The date of that historic battle—the 12th of October—is celebrated every year in Poland as Polish People's Army Day.

After the formation of the 1st Division on Soviet territory, the formation of other Polish units and formations (including tank, artillery, and air force) was begun. These formed the basis of the 1st Polish Corps, which was established in the USSR at the end of 1943. The 1st Polish Army was formed in the USSR at the beginning of 1944. On 21 July 1944 the Polish Army combined with the Ludow Partisan Army to form the Polish People's Army. Its soldiers participated with Soviet troops in a series of combat operations during the final period of the war against the German Fascist invaders.

The formation and development of the Polish People's Army was facilitated by all-round fraternal assistance from the Soviet Union. During the last war, the Soviet government gave the Polish Army approximately 700,000 rifles and sub-machine guns, more than 15,000 medium machine guns, 3,500 guns, 1,000 tanks, 1,200 aircraft, more than 11,500 motor vehicles, and other fighting equipment.

The armed forces of Poland now consist of the Ground Forces, the Air Force, the Air Defense Force, the Navy, and Internal Defense and Border Troops.

Armored and mechanized divisions, provided with up-to-date fighting equipment, became the main types of combined arms formations. Units were equipped with various types of rockets, supersonic multi-purpose aircraft, radars, etc. Now, for every five Polish soldiers, there is some kind of vehicle or complex technical equipment. The armored division of the Polish Army now has almost twice as many medium tanks as there were in the whole of the bourgeois Polish army.

The Polish forces are kept up to strength by the annual call-up for army service of citizens who have reached the age of 19 years. Two- and three-year terms of active military service are established by law. More than 70% of the officers and 35% of the NCO's* in the Polish Army are members of the Polish United Workers' Party. One in four of the officers has a higher education.

The personnel of the Polish People's Army are subdivided into privates, noncommissioned officers, *choraży*† (junior officers), officers, generals, and

* *Podofitser* in Russian (U.S. Ed.).

† *Choraży* and the other non-English words in this paragraph are the Polish words for these ranks. The English words are translations of the Russian translations of the Polish words [U.S. Ed.].

admirals. The following military ranks have been established for privates and NCO's (master-sergeants and sergeants): *szeregowiec* (private), *starszy szeregowiec* (lance-corporal), corporal, *plutonowy*, (sergeant, senior sergeant), junior officers: lieutenant, senior lieutenant. Officers in the Army and the Air Force are given the ranks of: *podporucznik* (second lieutenant), *porucznik* (lieutenant), captain, major, lieutenant colonel, colonel. The military ranks of naval personnel are *matros* (seaman), *mat* (leading seaman), *bosmanmat* (boatswain's mate), *bosman* (boatswain), *starszy bosman* (senior boatswain), *chorąży flota* (naval cornet), *starszy chorąży flota* (senior naval cornet), *podporucznik flota* (naval second lieutenant), *porucznik flota* (naval lieutenant), *kapitan flota* (naval captain), *komandor-podporucznik* (second lieutenant commander), *komandor-porucznik* (lieutenant commander), *komandor* (commander). The ranks established for generals are: *general brygadi* (brigade general), *general dywizji* (divisional general), *general broni* (general of the army); for admirals: *kontra admiral* (rear admiral), *wice admiral* (vice admiral). The highest military rank is *Marszałek Polski* (Marshal of Poland).

THE ROMANIAN PEOPLE'S ARMY

On 25 October 1944 Soviet and Romanian troops completed the liberation of Romania from the German Fascist forces. This date is celebrated as Armed Forces Day in socialist Romania.

The history of the formation of the Romanian People's Army is closely connected with the struggle of Romanian workers under the leadership of the Communist Party against fascism. The victorious attack of the Soviet Army during the last war led to an intensification of the dissolution of the Romanian forces which had fought on the side of Nazi Germany. Communist-led patriotic Romanian forces, together with military units which had gone over to the side of the people, carried out an armed insurrection on 23 August 1944. Antonescu's fascist dictatorship was overthrown and a popular revolution began throughout the country. The Romanian Army turned against Nazi Germany.

Shoulder to shoulder with the Soviet Army, the Romanians fought the Nazis, throwing into the battle sixteen infantry divisions as well as a flotilla on the Danube River, an air corps, an air defense artillery division and other forces. A total of over 350,000 Romanian officers and men fought in the war against Nazi Germany. The Romanian divisions advanced more than 1,000 kilometers, freeing over 3,000 populated points. Over 1,500 officers and men were awarded Soviet orders for heroism and bravery in the struggle with the fascist invaders.

Many Romanian formations distinguished themselves in engagements with the Nazi forces; these included the 1st Volunteer Infantry Division named after the national hero Tudor Vladimirescu. This was formed on Soviet soil in 1943 from Romanian anti-fascist emigres and prisoners-of-war who had expressed a wish to take up arms against the common enemy.

The Armed Forces of the Socialist Republic of Romania consist of the Ground Forces, the Air Defense Force (including aviation), the Navy and the Border Troops. As a result of the successful development of the country's heavy industry and large-scale assistance from the USSR, the Romanian People's Army is provided with all that is necessary to carry out the tasks entrusted to it. The Army is mechanized, equipped with tanks, rocket artillery, supersonic jet aircraft, modern warships, rocket weapons, armored personnel carriers, and amphibious vehicles.

The Army is kept up to strength on the basis of the military service law. NCO's and the rank and file must serve a two-year term on active service. The personnel are improving the standards of their combat and political training and becoming proficient in the handling and operation of new fighting equipment.

Romanian servicemen fall into the following categories: privates, non-commissioned officers, sub-officers,* officers, generals, and admirals. On the whole, the military ranks correspond to those of the Soviet Army.

THE CZECHOSLOVAK PEOPLE'S ARMY

The Czechoslovak People's Army (CPA) was born during the joint struggle of the Soviet and Czechoslovak peoples against the common enemy—the German Fascist invaders. It was formed on the basis of partisan detachments which fought against the forces of the Nazi occupation and internal reaction, together with military formations which fought against the common enemy with the Soviet Army.

The first military unit of the CPA (the 1st Czechoslovak Independent Battalion) was formed in February 1942 in the town of Buzuluk in the Orenburg *Oblast'*, and in March 1943 Czechoslovakian soldiers under the command of Lieutenant Colonel Ludvic Svoboda, forming part of the Soviet 25th Guards Infantry Division in the region of the village of Sokolovo near Khar'kov, began their combat career.

During the course of the war, the battalion grew into a brigade, and then into an army corps. The biggest battle in which the Czechoslovaks participated together with Soviet troops was the Carpathian-Dukel operation. Having smashed the enemy's defenses, forward units of the Soviet Army and the Czechoslovak Corps reached the Dukel Pass and crossed into Czechoslovak territory on 6 October 1944. By a ruling of the Government of the Czechoslovak Republic in 1950, this date was proclaimed Czechoslovak People's Army Day.

The Armed Forces of the Czechoslovak Republic consist of the Army and the Internal and Border Troops.

In recent years, the CPA has been transformed into a modern army, equipped with the latest weaponry and materiel. It includes the Ground Forces, the Air Force, and the Air Defense Force. The Ground Forces are

* *Podofitsery* in Russian [U.S. Ed.].

of modern structure and organization, fully motorized and equipped with tanks, infantry, and artillery weapons. The Air Force is equipped with various types of jet fighters and bombers.

The CPA is kept up to strength in accordance with the military law. Persons between the ages of 18 and 60 years are subject to military service, the call-up age being 19. NCO's and the rank and file serve two years in the armed forces.

The rank and file are divided into: *vojin** (private), *svobodnik* (lance-corporal); NCO ranks are *desátník* (junior sergeant), *četař* (sergeant), *rotný* (senior sergeant); sub-officers' ranks are *rotmistr*, *nadrotmistr*, *podpraporščik* (sub-warrant officer), (warrant officer), *nadpraporščik* (senior warrant officer).

The following officers' ranks are stipulated by the Officers' Service Regulations: *podporučík* (junior lieutenant), *poručík* (lieutenant), *nadporučík* (senior lieutenant), captain, major, *podplukovník* (lieutenant colonel), *plukovník* (colonel); for generals: *general major* (general-major), *general-poručík* (general-lieutenant), *general-plukovník* (general-colonel), *armadni general* (general of the army).

STRENGTHENING INTERNATIONAL SOLIDARITY

The armies of the fraternal socialist countries stand with the Armed Forces of the USSR in a united system. Their fighting cooperation is a source of strength and a reliable guarantee of the security of the socialist countries. It is necessary to maintain and strengthen this great international concentration of brothers-in-arms.

(From the Message of Greeting of the Central Committee of the CPSU, the Presidium of the Supreme Soviet of the USSR, and the Council of Ministers of the USSR to the fighting men of the heroic Armed Forces of the Soviet Union in connection with the 50th Anniversary of the Soviet Army and Navy. *KPSS o Vooruzhennykh Silakh Sovetskogo Soyuza* [The CPSU on the Armed Forces of the Soviet Union], p. 455.)

The Soviet people, developing their national economy and increasing the defensive capacity of the country, consider it their international duty to do everything possible to strengthen the economic and military-political potential of the world socialist community as a whole, and each of the countries which form it. With all its invincible might and determination to uphold the revolutionary achievements of peoples, our community opposes the imperialist policy of exporting counterrevolution.

(From *Tezisy Tsentral'nogo Komiteta Kommunisticheskoy partii Sovetskogo Soyuza* "K 100-letiyu so dnya rozhdeniya Vladimira Il'icha Lenina" [Theses of the Central Committee of the Communist Party of the Soviet Union "On the 100th Anniversary of the Birth of Vladimir Il'ich Lenin"], *Pravda*, 23 December 1969).

* *Vojin* and the other non-English words in this and the next paragraph are the Czech words for these ranks [U.S. Ed.].

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Chapter 8. THE ARMED FORCES OF THE IMPERIALIST STATES

Bourgeois armies have always been the principal means of asserting the economic and political domination of the capitalists, and an instrument of the oppression of workers within the country and the enslavement of peoples of other states. V. I. Lenin wrote that a permanent army in the capitalist countries is "an instrument of reaction, the servant of capital in the struggle against labor, the executioner of the people's freedom."¹

According to historians, during the 400-year period from the 16th through the 20th centuries the armed forces of Britain have participated in 230 wars—predatory wars, wars of conquest. It was not for nothing that F. Engels named the British Army the most "brutish" in the world. "Pillage, violence, murder . . .," he wrote, "have long been the established privileges, the acknowledged right of the British soldier."² British arms have been the means of enslaving hundreds of millions of people. On the eve of World War II, the British Empire was 140 times larger in area than its parent state. Within this empire there lived 535,000,000 people—11 times more than in the parent state.

The entire history of the armed forces of the USA is characterized by robbery and coercion of other nations. From the beginning of the last century right down to our own times the American military clique has not ceased its aggressive actions against the Latin American countries—Cuba, Panama, Venezuela, the Dominican Republic, and others. American troops celebrated the capture of Hawaii and the Philippine Islands with particular cruelty and ferocity. "Burn and kill; there is no time to take prisoners now. The more you burn and kill the better. Kill everyone over ten years old." This was the order given by General D. Smith, who commanded the interventionist forces in the Philippine Islands.

In the less than 200 years of their existence, the US armed forces have participated in 114 predatory wars. Today, more than a million American soldiers are on the territory of 33 foreign states.

The armed forces of the USA, Britain, France, Germany, and Japan

¹ Lenin, XII, 113.

² F. Engels, *Izbrannyye voyennyye proizvedeniya* [Selected Military Works]. Voenizdat, 1956, p. 121.

brought inextinguishable shame upon themselves when they intervened against the young Soviet Republic. They landed in the North, South, and Far East of our country, and mounted an attack from the West. Shooting, hanging, imprisonment, robbery, atrocities—all were used by the imperialist military clique in order to strangle the embryo socialist revolution in Russia. The American general, Graves, boasted with cynical frankness that his soldiers “roamed through the country like wild animals, robbing and killing the peaceful inhabitants.”

Even now, the imperialists make extensive use of their armed forces for smothering national liberation movements and interfering in the internal affairs of other countries. This is particularly evident from the example of the armed intervention of the US imperialists in Vietnam. The crimes of the American military clique on Vietnamese soil are reminiscent of the evil deeds of the fascist monsters. The shameful path of the American interventionists in Vietnam is marked by the murder of peace-loving inhabitants, the systematic destruction of towns and villages, the destruction of schools, hospitals, and crops.

At the present time, the armed forces are playing an especially important role in the politics of the imperialists, since they consider war to be the principal means of resolving the all important contradiction—the contradiction between capitalism and socialism, as well as their own internal contradictions. For this reason, the imperialists, primarily the reactionary circles in the USA, are directing their military power against the USSR, the world socialist system as a whole, and national liberation and revolutionary movements.

What sort of armies do each of the principal imperialist states possess?

THE ARMED FORCES OF THE USA

In carrying out their aggressive foreign policy, the imperialists of the United States of America look upon the armed forces as the principal means of resolving international problems from a position of strength and of achieving their set military-political objectives, which, in the final analysis, amount to the achievement of world domination.

The USA has the largest and best technically equipped armed forces of all the capitalist countries in the world. The US Army is the foundation of the military might of international imperialism.

The armed forces of the USA consist of regular armed forces and organized reserves. There are more than 3.5 million men in the regular armed forces, which consist of three independent services: the Ground Forces (Army), the Air Force, and the Navy.

The reserves, numbering 950,000, are considered as the basis of the mobilization deployment of the armed forces in wartime.

The development, equipment, and training of the American armed forces are implemented in accordance with the requirements of *US military doctrine*, the basis of which is the strategy of “flexible response.” This covers

preparation for any kind of war: world, local, nuclear, conventional, large, and small.

Proceeding from this, the armed forces include:

- the Strategic Attack Force, consisting of intercontinental ballistic missile formations and units, atomic submarines armed with Polaris missiles, strategic bombers and reconnaissance aircraft, tanker aircraft, and supporting systems;

- the Strategic Defense Force consisting of air defense resources—surface-to-air missiles, interceptor aircraft, and information and control systems; anti-missile and space defense resources, and space detection and tracking systems;

- the General Purpose Force—the Army, the Tactical Air Force, and the Navy (excluding atomic missile-carrying submarines);

- Strategic Troop Transport Forces and resources, including transport aircraft and naval transport facilities, designed for the rapid movement of troops, arms, and supplies from the USA to probable theaters of operations;

- Armed Forces Reserves—the source of replenishment of the regular armed forces, and the basis of their mobilization deployment.

Higher military command and control bodies. In accordance with the constitution of the USA, the Supreme Commander of the Armed Forces is the President, who exercises military leadership through the National Security Council, the National Resources Mobilization Planning Directorate, and the Ministry of Defense.

The National Security Council consists of the President (Chairman), Vice-President, Secretary of State, Secretary of Defense, and the Chief of the National Resources Mobilization Planning Directorate. Sometimes it includes other leaders of government establishments. The Central Intelligence Agency is subordinate to the Council.

The National Resources Mobilization Planning Directorate is responsible for elaborating plans for the utilization of human and material resources in the event of war, implements practical measures to this end, and coordinates the activities of all institutions in the field of civil defense.

The Department of Defense exercises direct control over the Armed Forces. The Secretary of Defense, a civilian, exercises operational control of the Armed Forces through the Chiefs of Staff Committee and, on other matters, through his assistants and the departments of the Army, Air Force, and Navy and the Commandant of the Marine Corps.

The Chiefs of Staff Committee is the working body of the Secretary of Defense in the administration of the Armed Forces. It is responsible for elaborating and implementing plans for the development and mobilization deployment of the Armed Forces, warfare and operations plans; it is also responsible for their all-round support. The Committee consists of a chairman and member chiefs of staff of the Army, Air Force, and Navy.

The working authority of the Chiefs of Staff Committee is the Combined Staff, headed by the Chief of Staff, the members of which are generals and officers of the three services, each service being represented by an equal number of members.

Three combined directorates, Nuclear Ammunition, Intelligence, and Communications, are also subordinate to the Chiefs of Staff Committee.

The departments of the Army, Air Force, and Navy are responsible for recruitment and mobilization deployment, the combat training of personnel, logistics, scientific research in the field of organization, equipment, and combat utilization of formations, units and subunits.

Responsibility for the operational planning and utilization of trained formations, units, and subunits of the Services is borne by unified and special commands, which are subordinate to the Secretary of Defense through the Chiefs of Staff.

Commands made up of strategic formations, formations, and units of the different Services are classified as unified commands; commands composed of forces of one Service only are classified as specified commands. Army, Air Force, and Naval formations and units included in the composition of unified and special commands are headed by their own commanders, and are withdrawn from operational subordination to the departments of the Army, Air Force and Navy.

Fundamental recruitment and training principles. At present there is a mixed system of armed forces recruitment in the USA: by enlisting volunteers and by calling up reservists under the military service law.

Those accepted as volunteers are "politically reliable" American subjects and foreigners of both sexes: males between the ages of 17 and 34, females between the ages of 18 and 34. On entering active service in regular units, volunteers sign contracts for a period of three to six years.

Military service is obligatory for all male US citizens from 18½ to 26 years old and, for persons who have had deferments, to 35 years old. In peacetime, it comprises active service in the regular armed forces and the reserve. The total period of active service is six years, of which two are spent on active service in the regular armed forces, two in the first line reserve (including the Army or Air National Guard) and two in the second line reserve.

The National Guard is made up of militia units, the personnel of which occupy the status of civilians assigned to specific units and formations. Recruitment for the National Guard is accomplished by enlisting volunteers on a territorial basis. There are National Guard troops in every state. These are intended as reinforcements for the regular forces in wartime; in peacetime they are used by the local authorities for suppressing revolutionary and strike movements. In recent years they have been used extensively in the southern states for the suppression of demonstrations by the Negro population.

The main formations of the National Guard are infantry, armored, and mechanized divisions equipped with modern weapons. They have the same organization as the regular army. The equipment of these formations is kept in storage, in special depots and armories. In the event of war National Guard units become part of the regular forces.

Army, Air Force, and Naval reserves are kept up to strength on the basis of a composite principle: by the enlistment of volunteers and on the basis of the military service law.

Officers' training. The officer corps of the regular armed forces consists of

regular officers and reserve officers enlisted for active service for limited periods. In peacetime regular officers are trained for the army by the US Military Academy at West Point, for the Navy by the US Naval Academy at Annapolis, and for the Air Force by the US Air Force Academy at Colorado Springs. The courses of instruction last four years.

Some of the regular officers are selected from among the warrant officers (intermediate rank between officer and sergeant), sergeants, specialists, and privates who have graduated from officer candidate schools and passed the requisite examination. Besides this, officer's rank may be conferred on persons who have completed an officer's training course with distinction in a civilian higher educational establishment, and on National Guard and reserve officers.

Reserve officers are frequently enlisted for a 2-year term of service in the regular armed forces. Some of them may be recruited for a term of three to six years.

Officers are recruited mainly from bourgeois elements, in order to ensure the class influence over the privates and NCO's. As a rule, the overwhelming majority of the officers lend themselves to shameless anticommunist propaganda activities and try to educate their subordinates in the spirit of readiness to defend the interests of the ruling classes.

The Ground Forces. The Ground Forces (Army) are considered to be one of the most important services which form the general purpose forces and they are trained for combat operations in universal nuclear and limited wars. In conformity with this, the main focus of attention is directed at maintaining a high degree of military preparedness in the forces stationed overseas, training the strategic reserves and maintaining them in a high state of readiness for sea or air transfer from the continental US to the theater of operations, improving the organizational structure of formations and units, increasing their fire and striking power, their mobility on the battlefield, and their capacity for resolute attack and stubborn defense.

The numerical strength of the regular Army exceeds 1,500,000 officers and men. It consists of 19 divisions, including eight infantry, four mechanized, four armored, two airmobile and one airborne, a large number of independent brigades and regiments, rocket, artillery, and anti-aircraft divisions, units, and subunits of the Army Air Force (with over 9,500 aircraft and helicopters), logistic support, engineer and communications units, etc.

The Army consists of branches and services. Infantry, armor, and artillery are classified as branches.

The services are subdivided into main and special. The main services include: engineer, communications, chemical, artillery engineering, intelligence and counterintelligence, quartermaster, transport, military police, and other services. The special services include the medical, military legal, chaplain, and other services.

The army aviation, the engineer, communications, intelligence, and counterintelligence services carry out both combat support tasks and tasks in the direct conduct of combat operations.

Divisions, independent brigades, and units are formed into army corps, field armies, and army commands, which, as a rule, are incorporated in unified commands of the US armed forces in zones, and are subordinate to the Department of the Army only on matters concerning personnel recruitment, combat training, and logistic support.

The following come under the heading of US Army commands: the European Army Command, the army commands in the Pacific Zone, Alaska, the South and Central American zones, and the continental US. The last-mentioned command directs the mobilization planning and deployment of the Army, the setting up and combat training of formations and units of the regular Army, the National Guard, and reserves on US territory, the operation of military schools and training centers.

Five army military districts and the military district of Washington are subordinate to the Continental Army Command.

An important place in the US Army system is occupied by the Army Organization and Utilization Research and Development Command. It is responsible for the elaboration of views on the role and tasks of the ground forces in different types of wars; it evolves the organizational structure of major field forces, formations, units, and subunits, requirements with respect to new types of weapons, combat materiel and equipment; it participates in the conduct of exercises and maneuvers in order to check the organization and tactics of the forces and the effectiveness of the weapons and fighting equipment; it also prepares and publishes field regulations and instructions.

The Logistic Support Command carries out research and experimental design work on the production of new, and the improvement of existing, models of weapons, combat materiel, and other equipment; conducts equipment tests; organizes production, and is responsible for supplying the Army with weapons, combat materiel, technical facilities and equipment, and their storage, repair, and maintenance.

Operational formations and major operational field forces. The highest major operational-strategic formation (major tactical force, according to American views) of ground forces in a theater of operations is the army group, which, depending on the situation and the tasks being solved, may consist of two to four field armies, independent corps, and divisions. An army group command is not usually concerned with administrative functions and troop supply matters; these are dealt with by the theater command or special commands of a communications zone.

A field army is a major operational and administrative field force which incorporates a staff, two to four army corps, units of the army artillery, and technical and administrative services.

An army corps is a tactical formation which consists of a staff, two to four divisions (of which one or two are armored), one or two independent armored cavalry regiments, corps artillery, engineer and communications units and, when the corps is acting independently, logistic support units.

The basic tactical formation of the Army is the division. At the present there are five types of divisions: infantry, mechanized, armored, airborne, and

airmobile. All divisions have a unified organization and consist of two main elements: the divisional framework and combat battalions, the number of which depends upon the type of division.

The divisional framework includes: a staff and divisional headquarters company; three brigade staffs and headquarters companies, an intelligence battalion, a communications battalion, an engineering battalion, divisional artillery, a rear services command and a company of military police and, in infantry and airborne divisions, an army aviation battalion as well.

Depending on the task being undertaken and the conditions in the theater of operations, a division may have a varying number of battalions of branches of the services, and this determines its type. For example, an infantry division usually includes eight infantry and two tank battalions; a mechanized division, seven motorized infantry and three tank battalions; an armored division, six tank and five motorized infantry battalions; an airborne division, nine parachute battalions and a battalion of light tanks.

The main operational-tactical principles. The main principles of combat operations are:

- large-scale use of nuclear and other mass destruction weapons, which makes it possible to inflict damage on numerically superior enemy forces in short periods of time, and ensures success;

- purposefulness of action, i.e., a determined effort to defeat the opposing enemy group of forces and to capture a specific target (line, region), thus ensuring a rapid solution of the ultimate task with the minimum expenditure of forces and resources;

- surprise, which is achieved by rapidity of action, deceiving the enemy about the intentions of one's own forces, the use of weapons and methods which the enemy does not anticipate, intelligence work, and the maintenance of security;

- economy of forces and resources by utilizing the minimum quantity of them in secondary sectors of operation, concentration of main efforts on the principal (decisive) line of operation in order to ensure domination of the enemy for his rapid defeat;

- maneuverability, which ensures the assumption of an advantageous position in relation to the enemy, and makes it possible to obtain superiority in forces and resources in a decisive sector;

- simplicity of planning, which facilitates proper understanding and intelligent implementation of the plan and the assigned tasks and, in the final analysis, the successful achievement of the set objective;

- unity of command, which ensures the unification of the efforts of all the forces by coordinating their actions in the fulfillment of the common task;

- combat support, including measures to defend the troops from sudden enemy attack, ensure their freedom of action, and keep their plans secret from the enemy.

The principal types of ground forces combat operations are considered to be offense and defense; parallel with these, the concentrated use of nuclear weapons and a high degree of troop maneuverability create conditions for

conducting a meeting engagement, which may occur in the course of an offensive or counterattacks (counterblows) in a defensive action.

An offensive may be carried out against an enemy who has hastily switched to a defensive posture or on an enemy with a prepared defense.

An *offensive* against an enemy who has hurriedly switched to the defensive is considered to be the most typical and frequently used form of combat operation. It is characterized by preparation in the shortest possible time, and lack of sufficient information on the disposition of enemy forces, and is usually carried out by troops advancing in columns without occupying initial areas and, at the start of a war, from their permanent deployment points or the regions occupied by the troops when the combat alert is given.

An offensive against a prepared defense will be undertaken most frequently under conditions of close contact with the enemy.

The principal forms of maneuver in an offensive are considered to be the breakthrough, the envelopment, and the outflanking maneuver. More often than not, the forces will combine these forms of maneuver, especially in a nuclear war.

Defensive actions are undertaken for the purpose of breaking away from or repelling an enemy attack, holding on to an occupied position, gaining time, defeating attacking forces, and creating favorable conditions for a subsequent switch to the attack. Defense is divided into two categories: mobile defense and area defense. Depending on the situation, they can be used either independently or in combination.

In mobile defense, the main stress is laid, not on holding the forward defense area, but on breaking up the main enemy grouping; for this purpose, a large number of troops is organized as a second echelon (reserve) and the minimum requisite forces and resources are deployed in the forward area. It is considered most expedient to conduct mobile defense on a wide front with forces of mechanized and armored divisions. The smallest unit capable of conducting a mobile defense is the brigade.

Area defense is undertaken for the purpose of holding a specific sector of terrain, and is based on the maximum use of fire weapons, mainly nuclear weapons, the engineer organization of the terrain, and the disposition of the main forces and resources in the forward defense area.

The troops defending the forward area offer maximum resistance to the enemy in order to direct his attack at the area most favorable to the defender, where the enemy could be destroyed by means of nuclear weapons and counterattacks by the second echelon (reserves).

On the march, a division usually proceeds in a 20–30km zone along two, three, or more routes. The troops' order of march includes reconnaissance, security, main body, and rear services (which follow as independent columns behind the combat units).

The average rate of progress: by day—tank and mixed columns—up to 30km/hr, motorized infantry up to 40km/hr; at night—15–20km/hr. Average distance travelled in 24 hours—200–280km.

The length of the order of march of a mechanized division moving along two routes is 110–120km, along three routes, 60–70km.

Width and Depth of Combat Zone for Subunits, Units and Formations on Offense and Defense

Subunits, units and formations.	Offense		Defense	
	zone width	tasks ^a	zone width	depth of defense
Motorized infantry section	100-150m	—	up to 100m	—
Motorized infantry platoon	500m	—	up to 750m	200m
Motorized infantry company	up to 1,500m	—	1,500m	1,100m
Motorized infantry battalion	2-3.5km	3-4km	3km	2.5km
Mechanized (armored) brigade	6-10km	6-8km	10-12km	6-8km
Mechanized division	15-20km	15-20km	up to 25km	30-40km
Armored cavalry regiment	or more	up to 85km	or more	
	up to 10km	5-8km	10-12km	6-8km
Armored division	20km	up to 20km	20km	30km
	or more	up to 40km	or more	or more
Army corps	40-50km	up to 100km	50-80km	up to 70-80km
(Mechanized division—2,		80-100km		
Armored division—1,				
Armored cavalry regiment—1)				

^a Depth of tasks from the front line: numerator—most immediate task, denominator—following task.

The Air Force. The US Air Force is subdivided into the regular Air Force and the organized reserves (the National Guard and the Air Force Reserve). The main air commands, which are the major operational field forces of the US Air Force are: Strategic Air Command (SAC), Tactical Air Command (TAC), Aerospace Defense Command (ASDC), Military Airlift Command (MAC) and the USAF commands in the European, Pacific, Alaskan, and South American zones.

There are over 900,000 officers and men in the Air Force. The Air Force has 1,054 intercontinental ballistic missiles (ICBM's), approximately 14,000 aircraft and helicopters, as well as a large quantity of anti-aircraft missiles. In addition to these, 2,700 serviceable aircraft and helicopters are kept in storage.

The Strategic Air Command (SAC) was formed in 1946 and is the largest higher air formation in the Air Force. It combines the strategic aviation and missile resources of the Air Force, and is intended to carry out independent aerospace operations by inflicting nuclear strikes on the entire complex of targets which represent an enemy's military power and military-economic potential, in order to weaken the enemy's will to resist and continue the war.

SAC consists of three air armies (2nd, 8th and 15th) and independent formations and units which are stationed in the continental US. The air armies differ in their composition and organization. Normally, an air army consists of five or six divisions, which are the main formations of strategic aviation, and ICBM's. In terms of organization and composition, the divisions are subdivided into aerospace and aviation. An aerospace division consists of a staff and three or four wings (missile, aerospace, aviation—heavy bomber, medium bomber, or reconnaissance), as well as logistic support subunits.

An aviation division consists of from two to four wings (aerospace, heavy bombardment and refueling) as well as logistic support subunits.

A missile wing of Minutemen ICBM's consists of a staff, three or four missile squadrons (a squadron consists of five detachments, each with 10 launchers), a combat support group, and mobile technical maintenance subunits.

A missile wing of Titan 2 ICBM's consists of a staff, two missile squadrons (a squadron consists of nine detachments per launcher), a combat support group and mobile technical maintenance subunits.

An aerospace wing consists of one or two squadrons of heavy bombers and one or two tanker squadrons.

A heavy bomber wing consists of one or two squadrons of heavy bombers and one or two tanker squadrons.

A medium bomber wing consists of three squadrons of medium bombers and one or two tanker squadrons.

A SAC air reconnaissance wing consists of two or three reconnaissance squadrons.

A tanker wing consists of two or three tanker squadrons. All the aerospace and aviation wings have headquarters, airfield maintenance groups and logistic support subunits.

SAC has a total of one thousand Minuteman ICBM's, fifty-four Titan 2 ICBM's, over five hundred strategic heavy bombers and approximately eighty medium strategic bombers.

The Tactical Air Command (TAC) was formed in 1946. Unlike the tactical air commands in probable theaters of operation, TAC was charged with the following specific tasks: the equipment and training of units and subunits intended for the reinforcement of USAF tactical groupings deployed in overseas theaters of operations; the creation of mobile air strike formations and provision of the means of transferring them to theaters of operations for use in cooperation with the Army and the Navy, both in a limited and in a general nuclear war; verification of the effectiveness of the tactical air weapons systems and elaboration and verification of views on the use of the Tactical Air Force; support of the Continental Air Defense Command; conducting exercises independently and as part of the Strike Command.

The Tactical Air Command includes tactical fighter, reconnaissance, and airborne transport aviation which is formed into air armies, air divisions, wings, and squadrons, operational training wings, an air diversion wing, a tactical air intelligence center, as well as air base support wings and groups.

TAC is operationally subordinate to the Strike Command; it consists of three air armies, special and maintenance units. The basic formation of the Tactical Air Force is the tactical air army, which may have several aviation wings formed into air divisions.

A TAC air division consists of a headquarters, three tactical fighter wings, an air reconnaissance wing and logistic support subunits.

An airborne transport division consists of a headquarters, two or three airborne transport wings, and logistic support subunits.

A tactical fighter wing consists of a headquarters and three tactical fighter

squadrons, each of which includes four flights, an air base support group, and technical maintenance subunits. Each wing has approximately 3,500 officers and men and up to 75 tactical fighter aircraft.

The Aerospace Defense (ASD) Command is responsible for the planning and operational direction of all the air defense, antimissile, and space defense forces and resources (including those of the Army and the Navy) of the continental USA. The Command consists of regions, all the resources of which are formed into air divisions. Approximately 20 National Guard fighter-interceptor squadrons are also assigned to the ASD Command.

The Military Airlift Command (MAC) provides for the requirements of all branches of the United States armed forces for air transportation to overseas theaters of operations. MAC is made up of two air transport armies, four independent wings and special services (rescue, meteorological and cartographic).

The MAC fleet numbers approximately 1,000 aircraft of different types, including over 400 heavy transports. In addition to these, MAC is assigned approximately 230 Reserve and National Guard transports and over 350 transports of the Civil Air Reserve.

The Navy. The political leadership of the USA regards the Navy as one of the principal means of unleashing and waging war against the USSR and other socialist states, and suppressing national liberation movements in Asian, African, and Latin American countries. For this purpose the USA has created, and maintains in a state of constant combat readiness, the largest navy in the capitalist world; it is charged with the following principal tasks:

- to inflict nuclear strikes on the most important coastal and remote targets, industrial and administrative centers of the enemy, and to destroy his naval forces at sea and in their bases;

- to blockade sea areas and straits in order to deny enemy ships, especially submarines, access to the open sea (ocean);

- to carry out seaborne assaults on a strategic and tactical scale;

- to cooperate with the ground forces by supporting them from the sea, by carrying out seaborne landings, and by transporting troops and various kinds of supplies;

- to defend sea and ocean lines of communication;

- to defend the territory of the USA, especially against missile strikes by enemy submarines.

The US Navy has approximately 1,680 ships and vessels, 8,880 aircraft and helicopters and four divisions of Marines with reinforcement and maintenance units. There are approximately 1,050,000 officers and men in the Navy, including about 300,000 Marines.

The composition of the main types of vessels is as follows:

Atomic missile-carrying submarines—41

Strike aircraft carriers (one atomic)—16

Antisubmarine carriers—9

Assault helicopter carriers—9

Guided missile cruisers (one atomic)—11

- Atomic torpedo-carrying submarines—39
- Guided missile frigates and destroyers (two atomic)—55
- Cruisers—25
- Frigates and destroyers—333
- Submarines—127
- Escort vessels (including 5 guided missile)—265
- Assault ships and vessels—246
- Minesweepers—180
- Auxiliary vessels—370.

In both peacetime and wartime, the Navy has two parallel organizational structures: administrative and operational. The administrative organization provides for the administrative structure of the Navy in two main fleets by branches of the service, the organization of the permanent basing and registry of vessels, the combat training of homogeneous forces, personnel recruitment, the logistic support of ships and units. The administrative control of the Navy is the responsibility of the Chief of Naval Staff.

The operational organization provides for the organizational structure of the Navy as part of the combined commands of the US Armed Forces, the deployment of the Navy in the principal theaters, the training of the heterogeneous forces and the control of the Navy in the carrying out of its missions in peacetime and wartime. The operational control of the Navy is the responsibility of the Chiefs of Staff.

The US Navy, in accordance with its administrative organization, is formed into two main fleets (the Atlantic and the Pacific) and five naval districts.

The Atlantic and Pacific fleets have basically similar organizational structures.

The Atlantic Fleet (the headquarters of which is located at the main naval base, Norfolk) in terms of administrative organization incorporates homogeneous forces of the fleet: air, cruiser and minelaying, submarine, minesweeping, amphibious, Marine Corps, and maintenance; as well as the Experimental and Training Commands.

Naval Air includes seven strike carriers, five antisubmarine carriers and approximately 2,000 naval aircraft and helicopters. The strike and antisubmarine carriers are formed into divisions (two or three to a division), the carrier-borne aircraft into air strike wings (one wing to each strike carrier) and air groups (one to each antisubmarine carrier). Naval air also includes formations and units of base aircraft.

The Cruiser and Minelaying Force consists of flotillas which may contain one to three missile cruisers and two to four squadrons (each squadron consisting of two or three divisions of three to five destroyers). The total number of vessels in the cruiser and minelaying force exceeds 150, including six guided missile cruisers.

The Submarine Force includes atomic missile-carrying, atomic torpedo-carrying, and diesel-electric submarines. The atomic missile-carrying subma-

rines are formed into the 14th, 16th, 18th and 20th squadrons (consisting of seven to nine vessels each).

Conventional and atomic torpedo-carrying submarines are formed into flotillas consisting of two or three squadrons (of two or three divisions with four to six vessels in each).

The Minesweeping Force consists of several squadrons of minesweepers of three to five divisions each (with four to six minesweeper-destroyers or coastal minesweepers per division).

The Amphibious Force includes two amphibious groups containing six amphibious squadrons (of seven to twelve assault vessels and transports each).

The Fleet Marine Force consists of ground forces (the 2nd Marine Division, reinforcement and maintenance units) and aircraft (the 2nd Wing, which has up to 400 aircraft and helicopters).

The Fleet Maintenance Force includes four squadrons, which are formations of the mobile logistics support force at sea, as well as shore establishments and units for repairing weapons and equipment, freight transportation, etc. The maintenance force contains more than 250 auxiliary vessels.

In terms of operational organization, the homogeneous forces of the Atlantic Fleet provide units for the operational formations in the Atlantic zone, the Central and South American, European and Mediterranean zones.

The main operational formations are the 2nd and 6th Fleets. The 2nd Fleet does not have a fixed composition: its principal bases are, Norfolk, Newport, Mayport and Charleston (USA). It is intended for action in the Northeastern Atlantic, and comprises the basis of the NATO Atlantic Strike Fleet. The 6th Fleet operates in the Mediterranean and serves as the basis of the NATO Striking Force in the Southern European theater of operations. It normally consists of two strike carriers, one or two cruisers, more than 15 destroyers, two to four submarines, a division of minesweepers, an amphibious squadron (of six to eight assault vessels) with a battalion of Marines and several auxiliary vessels.

The Pacific Fleet (the headquarters of which is located in Pearl Harbor Naval Base). The following are administratively subordinate to the Commander-in-Chief of the Pacific Fleet:

Naval Air, which includes nine strike carriers, four antisubmarine carriers, and over 2,500 combat aircraft and helicopters. The shore servicing of these forces in the Pacific theater is provided for by ten fleet air bases, three naval bases, two fleet auxiliary and one rear base. The strike carriers are formed into divisions (one to three in each) and the antisubmarine carriers are formed into antisubmarine groups.

The Cruiser and Minelaying Force, consisting of more than 170 warships, including seven missile cruisers, which are formed into flotillas, squadrons and divisions.

The Submarine Force, which is combined into two flotillas of submarines based at San Diego and Pearl Harbor. Atomic submarines armed with Polaris missiles (seven vessels in all) form the 15th Squadron, which is based at Apra (Guam).

The Minesweeping Force, combined into a flotilla consisting of squadrons and divisions, which include a total of more than 40 minesweeping destroyers, coastal and harbor minesweepers.

The Amphibious Force, consisting of two amphibious groups with three amphibious squadrons in each (and 10–11 assault vessels in a squadron).

The Marines, including three Marine divisions (1st, 3rd, and 5th), reinforcement units (a tank battalion, three batteries of 203.2mm howitzers, three batteries of 155mm guns, three SAM divisions of Hawks, etc.) and maintenance units, as well as the 1st and 3rd Marine Air Wings.

The Maintenance Forces, including over 100 auxiliary vessels.

The main operational formations of the Pacific Fleet are the 1st and 7th Operational Fleets.

The 1st Fleet, its headquarters and forces, organized as operational formations, groups, and detachments, are engaged in the training of ships and units of the Pacific Fleet for action as part of the forward dispositions in the Far East and Southeast Asia. Its operational zone takes in the central and eastern part of the Pacific Ocean, including the Aleutian and Hawaiian islands and the western seaboard of the USA.

The 7th Fleet is the forward striking force of the USA in the Western Pacific. It consists of strike carrier formations (five strike carriers) with 400 aircraft; anti-submarine carriers, destroyers, escort vessels, amphibious and minesweeping ships and vessels, marine divisions, and other forces.

In all, the 7th Fleet has approximately 170 fighting ships and over 800 aircraft and helicopters. Three strike carriers (250–300 combat aircraft) and approximately 70 screening vessels, amphibious and minesweeping forces, as well as over two divisions of marines, are directly engaged in aggressive military operations against the Vietnamese people.

The Unified Commands of the US Armed Forces in zones include major field forces, formations, and units of different services and are the highest major operational-strategic forces. The commander-in-chief of a unified command is directly subordinate to the Secretary of Defense through the Chiefs of Staff Committee, and is responsible for combat readiness, the elaboration of operational plans, and the utilization of the armed forces assigned to him. The unified commands include the Armed Forces Commands in the European, Pacific, Atlantic and Alaskan zones, the Aerospace Defense Command and the Strike Command.

The Armed Forces Command in the European Zone is the largest grouping of American armed forces. Its zone of responsibility extends over the whole of Western Europe and adjacent seas (including the Mediterranean), North Africa, the Near and Middle East.

The Command consists of the Army Command (the 5th and 7th Army Corps, the South European Tactical Group, reinforcement and logistic support units); the Air Force Command (the 3rd and 17th Air Armies, an air defense division, an air transport division, independent units and logistic support elements), and the Naval Command, the basis of which is the 6th Operational Fleet.

The Armed Force Command in the Pacific Zone controls a vast expanse

of territory in the Far East (Japan, South Korea, Taiwan and Okinawa), Southeast Asia (South Vietnam, Thailand, and the Philippines) and other Pacific regions. The Command consists of the Air Force Command (the 5th, 7th, and 13th Air Armies, an airborne transport division and an air division transferred to the operational control of SAC), the Naval Command (a formation of strategic atomic missile-carrying submarine forces, the 1st and 7th Operational Fleets, ASW forces, naval operational formations in South Vietnam, Japan, South Korea and other regions), the Army Commands in South Korea, South Vietnam and Japan.

The Strike Command incorporates all the combat-ready formations and units of the Army and the Tactical Air Force in the continental USA earmarked for the reinforcement of existing, and the deployment of new, groupings in overseas theaters of operations.

The Armed Forces Commands in the Alaskan, Central and South American zones incorporate independent units and subunits of the Air Force, the Army and the Navy.

THE ARMED FORCES OF THE FEDERAL REPUBLIC OF GERMANY (FRG)

The reactionary forces of West Germany, encouraged by imperialistic circles in the USA and other western countries, ignoring the lessons of two world wars, have, from the very beginning of the existence of the FRG, adopted a policy of militarizing the country and preparing it for a new revanchist war. This is confirmed by the restoration of the domination of monopolies and banks, West Germany's entry into the aggressive NATO bloc and the formation of the Bundeswehr, the restoration of the country's military-economic potential (the supplies and technology base of the West German military machine), the rehabilitation of Nazi war criminals, anticomunist and anti-Soviet propaganda and subversive activity, revanchist propaganda, and demands to reexamine the results of World War II, aspirations to acquire nuclear weapons, the passing of extraordinary laws aimed at the further militarization of the country, and a number of other measures.

Resting on the military strategy of the NATO bloc, the West German militarists are making increasing efforts to exert a decisive influence on the elaboration of fundamental elements of this strategy and, in the final analysis, to adapt it to the revanchist aims of West German imperialism. While acknowledging the fundamental arguments of the American strategy of "flexible response," the West German military command considers that certain of these arguments applicable to Europe, and especially to the FRG, should be changed. In its opinion, nuclear weapons should be used at the very beginning of a conflict, since West Germany, as part of the NATO zone, is only a strategic battle area deprived of depth, especially as a result of the withdrawal of France from NATO and, therefore, does not permit either loss of space or weakening of its military potential. In this connection, it is reckoned that the FRG together with its NATO allies, must be in a constant state of readiness to wage:

—a general nuclear war, which from the very beginning will be of a coalitional nature, waged on a global scale with massive, unlimited use of nuclear weapons and other means of mass destruction directed at the entire complex of the military might and the military-economic potential of a probable enemy;

—a general nuclear war arising as a result of the expansion of the scale of a limited armed conflict;

—armed conflicts in the course of which conventional weapons only, or both conventional and tactical nuclear weapons, are used.

Proceeding from the strategic position of West Germany, the political leadership came to the conclusion that in the event of war, the main ground and air battles would develop primarily on German territory. Therefore, it put forward to the NATO leadership the so-called "front lines" concept, which was approved in September 1963. According to this concept, it is proposed to deploy, in peacetime, the main groupings of NATO forces immediately on the frontiers of the socialist bloc countries. The military command of the FRG, in contrast with the views of the US leadership, not only does not admit of a possible withdrawal of NATO forces from the border area, but emphasizes the need for the front-line groupings of these forces to develop offensive actions from the very start of a war, and to carry the ground combat operations onto the territories of the Warsaw Pact countries.

To realize the "front lines" concept, a unique nuclear barrier in the form of a nuclear mine belt was created along the eastern boundary of the FRG. Relying on this, the NATO forces will be able to organize the dispositions of their forces for attack in decisive sectors and, in the event of failure, conduct successful defensive actions.

In the opinion of the Bundeswehr Command, the nature of modern war and the decisive role of its initial operations necessitate the maintenance of forces in peacetime which would be able to carry out the missions of the first phase and, possibly, the entire initial period of a war without substantial reinforcement.

The West German militarists consider that a dominant position in Western Europe in peacetime and the achievement of military-strategic objectives in the event of war, can only be achieved from a position of strength and for this it is essential to create powerful armed forces which surpass the armies of West Germany's NATO allies. The Bundeswehr is one of the largest armies of the capitalist states of Europe. Its numerical strength, excluding the Border Troops, has reached approximately 460,000 including: 284,000 in the Army (approximately 63% of the total number of personnel), 98,000 in the Air Force (21%), 34,000 in the Navy (7%), and over 40,000 in the Territorial Defense Forces (9%).

The higher military control bodies. In peacetime, the Commander-in-Chief of the Armed Forces is the Minister of Defense, a civilian post held by a member of the governing party. In wartime, the post is held by the Federal Chancellor (the head of the Government). The right to declare war and a state of mobilization (a so-called "state of defense") belongs to the Lower

Chamber of Parliament (the Bundestag), subject to subsequent confirmation by the President, and in individual cases requiring an immediate decision, this right is exercised by the President, but with the consent of the Federal Chancellor. Actually, these reservations and the extraordinary laws passed in May and June 1968 eliminate the West German Parliament from discussion of the question of declaration of war.

The higher military control bodies are the Defense Council and the Ministry of Defense.

The Defense Council is a higher consultative body under the Federal Chancellor. It elaborates and takes decisions on all important questions of military policy and the development of the Armed Forces. Included in the composition of the Council are the Chancellor (Chairman), Vice-Chancellor and the ministers of Defense, Foreign Affairs, Internal Affairs, Finance, Economic Affairs, and the Minister for Scientific Research Problems, who is mainly concerned with atomic issues.

The Minister of Defense exercises control of the Armed Forces through chief directorates, directorates, and departments of the Ministry. The following are subordinate to him: the Deputy Minister of Defense (Secretary of State), three chief directorates (Military Issues, Weapons and Materiel, and Military Administrative), two directorates (Personnel, and Budgetary and Financial), three departments (Planning, Organization, Press and Information), and the Chancellery. The Chief Directorate of Military Issues, in fact, fulfills the functions of a general staff and is headed by the Inspector General of the Armed Forces, who has under his command the Inspectors (Commanders) of the Army, the Air Force and the Navy, the Territorial Troops, the Medical Troops, and the Armed Forces Combat Training Directorate.

The Higher Military Council under the Inspector General is the consultative and coordinating body for matters relating to the control of the Armed Forces, plans for their development, combat training, and other questions common to all the Armed Forces. The members of the Higher Military Council are the Inspector General (Chairman), the inspectors of the Services and the Territorial Troops, and the Head of the Chief Directorate of Weapons and Matériel.

The main principles of recruitment and service. The FRG operates a mixed system of recruitment for the Armed Forces: on the basis of the call-up of reservists under the terms of the Universal Military Service Law passed in July 1956 and by voluntary enlistment. According to the Universal Military Service Law, in peacetime all males from 18 to 45 years of age are called up for military service, NCO's and officers up to and including 60 years of age. In wartime, all males up to 60 years of age are considered to be reservists.

Armed Forces personnel are divided into three categories: regular servicemen who have chosen the military profession as a career, volunteers, and persons who are serving their obligatory term in accordance with the Universal Military Service Law.

Regular servicemen remain in the Armed Forces until they reach the age of 60, after which they are discharged and put on the reserve list for a period

of 5 years. Volunteers are soldiers and NCO's who, after completion of their period of active service, remain in the Armed Forces for a further 3-15 years, and officers on contract service. The first contract, which is for a minimum of 3 years, can be extended for a period of up to 15 years. After this, volunteers may be discharged into the reserve or remain in the regular forces.

Males who have reached the age of 18 years are called up for military service. There are two call-ups a year: from 1 April through 30 June and from 1 September through 15 December. The first three months of service are usually devoted to basic training; the remainder of the term is served in units and subunits, training in the specialized fields of the various branches of the services.

NCO's are recruited from volunteers and servicemen who have expressed a wish to remain in the Armed Forces. NCO's are eligible for selection up to the age of 23 years. Candidates are given 16 or more months of training in special schools for NCO's. During this period they are obliged to serve one year in units and subunits on a general basis.

The officer corps is recruited from cadres of the former Hitler Wehrmacht and from among short service and re-enlisted soldiers and NCO's. Officer candidates are enlisted from persons between the ages of 17 and 25 years. Their period of training lasts 38 months. Military ranks are conferred according to the post occupied, length of service, and education.

After being discharged from the Armed Forces, privates are enrolled in educational assemblies lasting for up to 9 months, and reserve NCO's and officers up to 18 months.

Short-term servicemen account for only 50% of the personnel in the Army, less in the Air Force, and almost none in the Navy.

The Armed Forces of the FRG consist of regulars, who form part of the Combined NATO Forces, and Territorial Defense Forces, which are at the disposal of the National Command.

The regular Armed Forces, which represent the main source of the country's military strength, are made up of three independent services: the Army, the Air Force, and the Navy.

The Army is considered to be the most important of the services and accounts for 63% of the total numerical strength of the Armed Forces.

The Army is headed by the Inspector (Commander), who has under his command: army corps, independent units, and military training establishments for officers and NCO's.

The Army consists of 12 divisions (seven motorized, three tank, a mountain infantry and an airborne division, four battalions of Sergeant guided missiles, as well as independent artillery, engineer and communications units, etc., which form three army corps—the highest army commands.

An army corps includes two or three motorized infantry, one tank division, as well as independent corps units and subunits: a battalion of Sergeant guided missiles (four installations), a mixed artillery battalion (twelve 155mm and six 203.2mm guns), an artillery instrument reconnaissance battalion, a

sapper battalion, an ABC (atomic, biological, and chemical) defense battalion, a transport regiment, and an army air battalion.

The motorized infantry division is the main Army formation, capable of conducting combat operations both with and without nuclear weapons. It has up-to-date weapons and fighting equipment and is fully motorized. The division consists of a staff and a headquarters company, two motorized and one tank brigade, an artillery regiment, an air defense artillery battalion, reconnaissance, sapper, army air, communications, medical, and two reserve battalions; ABC, military police, ordnance, repair, and quartermaster companies. The division has more than 200 medium and 28 light tanks, six Honest John ballistic missile installations, twelve 175mm self-propelled guns, six 203.2mm and 36 155mm self-propelled howitzers and approximately 30 helicopters.

The tank division is considered to be the main tactical formation of the Tank Force, the best adapted for conducting military operations in a nuclear war. It has two tank and one motorized infantry brigade; the other elements of the division are similar in organization, composition, and equipment to a motorized infantry division. The division is equipped with approximately 300 tanks, and it has the same quantity of artillery and helicopters as a motorized infantry division, as well as approximately 650 armored personnel carriers and 3,000 motor vehicles of various types. The numerical strength of the division is 16,750 officers and men.

The Mountain Infantry Division is considered as the tactical formation of the Army intended for conducting combat operations in mountainous terrain. It consists of: a staff, a headquarters company, two mountain infantry and one motorized infantry brigade, an artillery regiment, an air defense artillery battalion, reconnaissance, sapper, communications, and medical battalions; transport, pack animal transportation, ordnance, repair, military police, and ABC companies. The numerical strength of this division is 17,500 officers and men; its equipment consists of approximately 200 tanks, four Honest John ballistic missile launchers, four 203.2mm howitzers, twelve 155mm howitzers, 36 105mm howitzers, 86 mortars, 70 40mm double-barreled anti-aircraft guns, approximately 60 90mm self-propelled anti-tank guns, up to 500 armored personnel carriers, and approximately 3,000 motor vehicles.

The airborne division is considered to be the highest formation of the Bundeswehr Airborne Forces, and is intended mainly for conducting military operations in the enemy's rear and only in isolated cases for carrying out the usual combat tasks of a motorized infantry division. The division consists of: a staff and a headquarters company, two parachute brigades, an artillery regiment; sapper, communications, and supply battalions; reconnaissance, military police, and ABC companies; an army air squadron. There are approximately 11,000 men in the division.

The main types of ground forces combat operations are considered to be offense and defense, which can be conducted by major field forces, formations, and units simultaneously or successively.

Width and Depth of Combat Zone of Subunits, Units, and Formations on Offense and Defense

Subunits, units and formations	Offense		Defense	
	zone width	missions*	zone width	depth of defense
Motorized infantry section	100-150m	—	30-100m	—
Motorized infantry platoon	200-300m	—	250-400m	150m
Tank platoon	250m	1.5-2km	up to 400m	150-200m
Motorized infantry company	700-900m	1-1.5km	1.5km	approx. 1km
Tank company	500-750m	2-3km	1-1.5km	400-600m
		2km		
		4km		
Motorized infantry battalion	1.5-2km	2-3km	2-3km	2km
Tank battalion	1-1.5km	6-8km	2-3km	2km
		2-3km		
		6-8km		
Motorized infantry brigade	8-12km	6-8km	8-12km	12km
Tank brigade	6-10km	16-20km	8-12km	12km
		6-8km		
		16-20km		
Motorized infantry division	up to 25-30km	16-20km	25-30km	50km
Tank division	up to 30km	30-40km	20-25km	30-40km
		16-20km		
		30-40km		
Army corps (2 mot divs, 1 tk div)	50-60km	up to 35km up to 80km	80km or more	60-80km

* Numerator—the most immediate task; denominator—the following task (from the front line).

The offensive is the chief form of combat action envisaged for the purpose of defeating an enemy and taking important lines and objectives which provide favorable conditions for the development of combat operations. An offensive must combine movement, fire, and a thrust in a selected direction. It can be undertaken without preparation, i.e., without stopping the action in progress, when the advantage in forces and combat readiness do not lie with the enemy, or when it is necessary to exploit the element of surprise, and with systematic preparation when the enemy has the advantage in combat readiness, forces, and weapons and has succeeded in creating a prepared defense. The basic forms of maneuver on the offensive are considered to be the frontal attack and the outflanking maneuver from one or two directions.

There are two forms of defense—static and mobile. Static defense is organized in advance in order to hold specific areas (lines) of terrain for the purpose of wearing down and halting an advance by a superior enemy. If there is no immediate contact with the enemy in front of the defense line, a security zone 20-40km deep is created. Mobile defense is employed after an unsuccessful encounter battle, when repelling a counterattack (counterstrikes) of superior enemy forces, or following unsuccessful actions in a static defense operation. Troops engaged in mobile defense can conduct holding actions, temporarily hold defense positions, carry out a withdrawal, or mount an attack with a limited objective.

The most important condition for success in conducting warfare is considered to be the use of nuclear weapons.

The Air Force. In the plans of the West German command, the Air Force is assigned the role of the Bundeswehr's main striking force. The Inspector (Commander) exercises control of this force through the Air Force Headquarters.

The highest major operational field forces are the "North" and "South" commands, which form the 2nd and 4th NATO Tactical Air Command Formations, respectively.

The Air Command consists of three air divisions: Combat, Air Defense, and Rear Support. The Combat Division consists of two or three F-104G fighter-bomber squadrons, two G.91 light combat squadrons, an RF-104G reconnaissance squadron, and a Pershing guided missile squadron (two battalions each with four launchers). The Air Defense division has a fighter squadron of air defense F-104G aircraft, three battalions of Nike surface-to-air guided missiles (each with 36 launchers), four or five battalions of Hawk surface-to-air guided missiles (each with 24 launchers), radar units, and others.

The Rear Support Division combines four or five communications units, two or three supply regiments, an engineer battalion, and two or three training regiments.

The wing is the basic tactical unit of the Air Force, which carries out combat tasks independently or as part of a formation. F-104G wings have two squadrons (each containing 18 aircraft) and two groups: a technical group (in which there are 14 reserve aircraft) and an airfield maintenance group. Light combat wings of G.91 aircraft consist of two wings: one fighter-bomber and one reconnaissance, each containing 18 aircraft.

The Air Force also incorporates the Air Transport Command, which is directly subordinate to the main staff of Air Force. It includes three air transport wings of Noratlas and Transall aircraft (two squadrons in each).

The Air Force has a total of 600 combat and over 110 transport aircraft, Pershing missile launchers, 216 Nike surface-to-air missile launchers and the same number of Hawk installations.

In developing the Air Force, the main attention is directed towards maintaining it at an up-to-date technical standard by equipping it in a timely manner with the latest types of aircraft and missiles, as well as by training the requisite number of flying and technical personnel.

In the view of the West German Command, the main combat efforts of the Air Force should be concentrated on carrying out the following tasks: achieving and maintaining air superiority, attacking the enemy's communications and bases, providing direct air support for the Army and the air defense of the territory.

The Navy consists of the Fleet, the Fleet Air Arm, and the Marine Corps and includes more than 200 fighting vessels (including: 22 destroyers, escort and other similar vessels, 10 submarines, 74 minesweepers, 40 torpedo boats and 26 assault vessels), approximately 80 auxiliary vessels, over 200 aircraft and helicopters of various types, and a battalion of marines.

The ships and aircraft (helicopters) are formed into 23 squadrons, including three destroyer squadrons, one squadron of escort vessels, four squadrons of torpedo boats, six squadrons of minesweepers, one squadron of minelayers, one squadron of assault vessels, one submarine squadron, and four squadrons of naval aircraft.

The squadrons are formed into five flotillas (destroyers, submarines, torpedo boats, the minesweeping force, and supply ships), the Naval Air Command, and an amphibious group.

The Navy is headed by the Inspector (Commander) of the National Navy, who exercises operational control of the Fleet through the Commander-in-Chief of the Fleet (who is the Commander-in-Chief of the Baltic Fleet), and resolves questions relating to development, personnel training, and logistic support for the Navy through the Naval Directorate. The Commander-in-Chief of the North Sea Fleet is subordinate to the Commander-in-Chief of the Baltic Fleet.

Taking into account the geographical position of the FRG and the importance of the Baltic Straits for NATO, the leadership of the Bundeswehr considers that the main task of the West German Navy, in case of a war, should be to deny the socialist countries access to the North Sea, and, consequently, an outlet to the Atlantic for their navies. This task must be solved jointly with the Danish Fleet and with the close cooperation of air and ground forces operating in the zone of the Baltic Straits and with the support of American and British carrier strike forces. Additionally, the West German Navy is responsible for assisting its own forces engaged in maritime operations with supporting fire, by providing transportation for troops and materiel and by carrying out landing operations in coastal regions and deception operations for the purpose of distracting and misleading enemy forces.

Approximately 75% of the naval forces belong to the Baltic Fleet and are based at the naval bases of Kiel, Flensburg, Olpenitz, and Neustadt. The remaining combat forces of the Navy are incorporated in the North Sea Fleet, based at Wilhelmshaven, Cuxhaven, and Emden-Borkum to secure sea communications in the approaches to West German North Sea ports.

The Territorial Troops. Beginning in 1963, and especially intensively since 1965, the West German Command has been speeding up the formation of the so-called Territorial Troops, which are under national command, calculating thereby to use them as the basis for the deployment of a multimillion-man army in the event of war, on the model of Fascist Germany.

The Territorial Troops do not constitute one of the Services. They are called upon to ensure the freedom of action of NATO forces by protecting important military and non-military targets on West German territory, repelling airborne landings and diversionary groups, protecting and restoring essential communications, erecting and maintaining engineering structures, providing personnel, transportation facilities, engineering supplies, and communications facilities for the regular forces, organizing civil defense, jointly with the local civil authorities, and ensuring the uninterrupted operation of industry, transport, communications, etc.

The Territorial Troops are headed by the Inspector (Commander-in-Chief), who is directly subordinate to the Inspector-General of the Bundeswehr. The main headquarters is established under him, and at NATO

Headquarters in the North European theater of operations, the Northern and Central Army Groups, there are Bundeswehr representatives who coordinate the activities of the Territorial Troops with those of the NATO forces.

The Commander-in-Chief and staff of the Territorial Troops have six military districts under their command:

Military districts	Territorial boundaries	Location of district HQ
1st Military District	Schleswig-Holstein and the city of Hamburg	Kiel
2nd Military District	Lower Saxony and the city of Bremen	Hannover
3rd Military District	North Rhine-Westphalia	Düsseldorf
4th Military District	Hessen, Rhineland-Pfalz, Saarland	Mainz
5th Military District	Baden-Württemberg	Stuttgart
6th Military District	Bavaria	Munich

Each military district is divided into military provinces (in all there are 29 territorial provinces), and the provinces are subdivided into two or three territorial regions. In peacetime the Territorial Troops consist solely of executive bodies and a small number of units and subunits for conducting the combat training of reservists, and servicing equipment. The bulk of the forces are maintained in the form of skeleton units and subunits of the Territorial Reserve, and will be deployed only in the event of war.

Since 1966 the Territorial Troops system has included the so-called "Home Defense Force" ("Heimatschutz"), consisting of infantry battalions, guard companies, and military police platoons. The personnel in this force are drawn from servicemen who have completed their period of compulsory military service in the Bundeswehr, privates up to the age of 45 years, officers up to the age of 60.

In May 1968 the West German Command decided to incorporate the Territorial Troops in the Army, which should simplify the system of leadership, facilitate the mobilization deployment of the troops, improve cooperation both within the Bundeswehr and with NATO forces, as well as reduce the cost of their maintenance.

THE ARMED FORCES OF GREAT BRITAIN

Great Britain, at one time a great colonial sea power, has lost her former independence and has been forced to follow in the wake of the politics and strategy of the USA and NATO. Such a state of affairs came about as a result of Great Britain's loss of her colonies and influence on the Commonwealth countries and, consequently, the loss of military bases, human, and material resources. This in turn led to a weakening of the country's economic position and a reduction in its military potential. The most important factor influencing Britain's present-day policies is the incompatibility between her military obligations to NATO, CENTO, and SEATO and her comparatively limited economic and financial resources.

British strategy is based on the use of both nuclear strike forces in a general

war and conventional armed forces in various parts of the world: Europe, the Near and Middle East, Southeast Asia, and Africa.

The recent change in the principles of the "East of Suez" military policy provides evidence that Great Britain cannot maintain large-scale armed forces on foreign soil. Her present military policy provides for the maintenance of minimal forces overseas, and at home a strong, mobile strategic reserve and a specific quantity of air and sea transport facilities, capable of ferrying reserves to any part of the globe in the shortest possible time, as well as airlifting supplies for troops in combat areas.

The establishment of numerically small, but highly mobile armed forces, capable of conducting military operations both with and without nuclear weapons, conforms to this basic trend in Britain's military development.

The higher military control bodies. According to the constitution, the Supreme Commander of the Armed Forces is the King (at present, the Queen); however, in fact, the responsibility for preparing the country for war rests with the Prime Minister, who heads the Cabinet, to which the Defense Committee and the Minister of Defense are subordinate.

The Defense Committee evolves the general principles of military policy and determines the main line to be followed in preparing the country for war and developing the Armed Forces, and coordinates the related activities of ministers and departments. The Defense Committee consists of the Prime Minister (Chairman) and the ministers of Defense, Foreign Affairs, Home Affairs, Finance, Labor, and National Service; other ministers and representatives of the High Command may also be invited to attend meetings of the Committee.

The Ministry of Defense, headed by a civilian who is a Member of Parliament belonging to the governing party, exercises direct control over the development of the Armed Forces, military scientific work, and military production; elaborates the fundamentals of the country's military policy; and, following their approval by the Defense Committee, undertakes the appropriate practical measures.

The Minister of Defense exercises operational control of the Armed Forces through the Chiefs of Staff Committee. The Chairman of the Chiefs of Staff Committee fulfills the function of Chief of the Defense Staff, being the Chief Military Adviser of the Minister of Defense. The Committee is made up of the Chief of the General Staff (the Army Staff), the Air Force Chief of Staff, and the Chief of Naval Staff.

Major questions concerning leadership of the Armed Forces are resolved by the Defense Council formed under the Minister of Defense. The members of the Defense Council are the Minister of Defense, the Chief of the Defense Staff, the Deputy Minister for Administration and Armament, the Chiefs of Staff of the Services, the Parliamentary Deputy Ministers of Defense for the Services, the Permanent Deputy Minister of Defense, and the Chief Scientific Adviser to the Minister of Defense.

Army, Navy, and Air Force Councils, attached to the Defense Council,

are responsible for the training and logistic support of their respective services.

Recruitment for the Armed Forces is by voluntary enlistment for periods from 6 to 22 years. The draft was abolished in 1961. Personnel enlisted for service in the Regular Army have the right after a six-year period of service (after six, nine years, etc.) to withdraw from active military service, and in this case, after six years of service, personnel are placed on the reserve list for six years; after nine years, on the reserve list for three years. After the expiration of their contract, servicemen may extend it to 22 years and then for another five years.

NCO's are recruited from the most capable privates who have served in the Army for at least six months. There are junior and senior NCO's: corporal (bombardier in the Artillery), junior sergeant, sergeant, and staff sergeant are junior NCO ranks; warrant officer 1st and 2nd classes are senior NCO ranks.

Regular Army officers are trained at Sandhurst Military College (the training period lasts two years) and are partially supplemented by NCO's and graduates of higher civilian educational institutions.

Naval officers are drawn mainly from graduates of Dartmouth Naval College and partially from naval petty officers and the ranks of the Navy.

During the course of their term of service, Army, Air Force, and Naval officers take refresher and retraining courses lasting from six to ten months. The main higher military training establishments of the Armed Forces are the Army, Royal Air Force, and Naval Staff Colleges, the Combined Staff College, and the Imperial Defense College.

The Army consists of the regular Army and reserves. The numerical strength of the former (including colonial troops, enlisted volunteers from the populations of colonies and dependent countries) is 210,000 officers and men. The main grouping of British Forces is located in West Germany (the British Army of the Rhine, consisting of three divisions, independent reinforcement, combat, and logistic support units numbering 50,000 men) and, in the UK, the Strategic Command, which incorporates all the formations and units of the Army with a total numerical strength of over 100,000 officers and men.

Army units and subunits are also stationed in the Middle East (the Persian Gulf area), the Far East (Hong Kong). Southeast Asia (Singapore, Malaysia), and other regions.

The army reserves are subdivided into the Regular Army Reserve and the Officers' Reserve. The Regular Army Reserve is the principal one in the ground forces, including the Army Volunteer Reserve (warrant officers and other ranks placed on the reserve list after completing their service contract) and the Army Emergency Reserve (personnel who have completed a period of service in the Royal Artillery, the Royal Engineers, the Royal Corps of Signals, etc., and been placed on the reserve list), as well as civilian specialist volunteers enlisted for two, three, or four year terms.

The Regular Army Reserve of Officers consists of regular officers and generals serving in the reserve.

The Army consists of branches of the Services (Infantry, Royal Artillery, Royal Engineers,* and the Royal Army Corps of Signals) and services (Royal Army Supply Corps, Royal Army Ordnance Corps, Royal Electrical and Mechanical Engineers, Royal Army Medical Corps, Intelligence Corps,* Physical Training Corps, Corps of Chaplains, Corps of Military Police, etc.).

The highest operational-strategic formation of the Army in a theater of operations is considered to be the army group, which consists of two or three corps, independent formations, and reserve units of the main command, as well as logistic support units and subunits.

A corps does not have a permanent organizational structure: it may contain up to three divisions, two or three armored vehicle reconnaissance regiments, artillery units, rear units and services; organic corps units (an artillery survey regiment, a communications regiment and engineer regiments formed into an engineer group).

A division is a tactical formation of variable composition. Depending on the situation and the assigned task, it can have two to four infantry or armored brigades, a missile-howitzer regiment, an air defense artillery regiment, and other units and subunits.

The infantry brigade is the main combined forces tactical formation. This consists of a headquarters, three infantry battalions, a tank regiment, a field artillery regiment, a field engineer squadron, a communications squadron, an intelligence platoon, an army air reconnaissance detachment, a platoon of military police, and rear services subunits. An infantry brigade has a total of more than 5,000 officers and men, 54 tanks, approximately 30 armored reconnaissance vehicles, 18 105mm howitzers, 24 120mm recoilless guns, six army aircraft and helicopters, approximately 750 motor vehicles, and other equipment.

The armored brigade is the main tactical formation of armored troops. It consists of a headquarters, three tank regiments, an infantry battalion, a medium self-propelled artillery regiment, a squadron of armored personnel carriers, and other subunits (as in an infantry brigade). The total number of officers and men in an armored brigade exceeds 5,000; it has 162 tanks, 65 reconnaissance vehicles, 18 155mm self-propelled howitzers, approximately 100 armored personnel carriers, and up to 740 motor vehicles.

The parachute brigade has basically the same organization as the infantry brigade, but no tank regiment, and parachute battalions instead of infantry battalions.

Attack is considered the main form of combat operation. The width of the attack frontage and combat task depth depend on the situation, the relationship of the forces, the assigned task and the nature of the terrain. A division, operating in the direction of main thrust of a corps has an attack frontage of 20km or more, a brigade, six to ten km. The immediate task of a division

* *Sapernaya sluzhba*—the Russian equivalent of the British "Royal Sappers and Miners," now the "Royal Engineers," was included in the Russian text after "Intelligence Corps" [U.S. Ed.].

is usually put at a depth of up to 15km; the next one, 30–40km. The depth of the immediate task, of a brigade is put at six to eight km and the next task up to 15km.

Troops go over to the defensive temporarily for the purpose of holding terrain, wearing down the enemy, inflicting losses, and gaining time to prepare a fresh attack. Defense must be active and stable. A division in defense occupies a frontage of 25–30km and a depth of 25km. The defense zone of a division consists of a forward defense area security zone (10–20km in depth where there is no contact with the enemy), battle outpost positions (1–3km from the front line) and a main defense area, in which two positions are established for first echelon brigades and one for a second echelon brigade.

An infantry brigade defends a zone with a 10–15km front and up to 10km in depth.

The Royal Air Force. In 1967 the military-political leadership of Great Britain re-examined the former organizational structure of the Royal Air Force and adopted a new one. In accordance with this, three main commands were created: the Strike Command, the Air Support Command, and the Air Training Command.

The Strike Command (headquarters at High Wycombe) consists of a combination of Bomber and Fighter Commands. Initially its composition is planned to consist of two air groups: the Bomber Group and the Fighter Group. The following are the main tasks of the Command: to carry out independent and joint (with the US Air Force SAC) strategic air operations; carry out missions in the interests of NATO, CENTO, and SEATO armed forces; and protect the most important military targets, industrial, administrative, and political centers of the country from air attack. It is proposed that, initially the Command should consist of three wings (of three squadrons each) of Vulcan B.2 and Victor B.2 medium strategic bombers, one wing of Victor tankers, a squadron of reconnaissance aircraft, and five squadrons of tactical fighters.

The Air Support Command is a major operational field force, the functions of which are to airlift troops to overseas theaters of operations, to support the regrouping and supply of troops from the air within theaters of operations, as well as landing operations. It is planned that the Command should have approximately ten squadrons of heavy VC10, Belfast, Britannia, Comet C.4 and Hercules C.MkI aircraft, three squadrons of Argosy and Andover medium military transports, three squadrons of transport helicopters, two squadrons of ground attack aircraft, Phantom and Harrier tactical fighters, etc.

The Air Training Command is to be based on the Flight Training Command and the Technical Training Command.

Other commands include: Coastal Command, which it is planned to incorporate in the Strike Command; Signals Command; and Logistic Support Command.

In addition, there are RAF commands in theaters of operations; these are intended for participation in combat operations involving the NATO,

CENTO, and SEATO blocs, supporting the deployment of British troops in overseas theaters of operations, air defense, protection of air, sea, and ground communications, and other tasks.

RAF commands in theaters of operations do not have a standard organization or permanent composition. These commands include:

- the RAF in West Germany: four squadrons of Canberra B.8 light bombers, two squadrons of tactical reconnaissance aircraft, and two air defense fighter squadrons;

- the RAF in the Near East (Cyprus): a wing of Canberra light bombers, two squadrons of tactical reconnaissance aircraft, and one air defense fighter squadron;

- the RAF in the Middle East (the Persian Gulf area): two squadrons of ground attack aircraft, two squadrons of transport aircraft, a squadron of helicopters and a squadron of coastal patrol aircraft;

- the RAF in the Far East: a squadron of light bombers, two air defense squadrons, a tactical reconnaissance squadron, a squadron of ground attack aircraft, and three squadrons of transport aircraft.

The Royal Navy. The Royal Navy comprises a force of over 280 ships, including five strike carriers, two assault helicopter carriers, three cruisers, six guided missile destroyers, over 80 destroyers and escort vessels, 43 submarines (including three atomic), and other vessels. It has 160 reserve vessels and 36 under construction.

The main operational formations of the Navy are the Western and Far Eastern fleets.

THE ARMED FORCES OF ITALY

With her entry into the aggressive NATO bloc in 1949, Italy became involved in the arms race and began to follow a policy of close cooperation with the countries of this bloc; control of the main structure of its armed forces was handed over to NATO.

The total numerical strength of the Italian Armed Forces is approximately 500,000 officers and men, including 270,000 in the Army, 60,000 in the Air Force, 40,000 in the Navy, 80,000 in the military police force (Carabinieri), and 40,000 Border Troops. The country has over 800,000 trained reservists.

The Supreme Commander of the Armed Forces is the President of the Republic. The Minister of Defense exercises direct control of the Armed Forces.

The Armed Forces are kept up to strength in conformity with the Universal Military Service Law. Males between the ages of 18 and 55 years are subject to military service. The period of service is 15 months in the Army and the Air Force and 24 months in the Navy.

For military administration purposes Italy is divided into six military, three air, and six naval districts. The main Italian army grouping is in the northern and northeastern regions of the country. Units of the United States Army, Air Force, and Navy are also stationed in Italy.

The Army. The highest main tactical field force of the Army is the army corps, which usually consists of one armored and two infantry divisions* (or three infantry divisions, or three or four alpine brigades), an armored cavalry regiment, one or two heavy artillery regiments, one or two army aviation detachments, and corps combat and logistic support units.

The Army consists of seven divisions (two armored and five infantry), twelve brigades (one armored cavalry, four infantry, five alpine, one parachute and one missile), as well as a large number of reinforcements and logistic support units.

An armored division consists of a staff and a headquarters company, two tank brigades equipped with M47 and M60 tanks, a motorized infantry brigade (with M113 armored personnel carriers), an artillery brigade; reconnaissance, engineer, and communications battalions; and maintenance subunits. A tank brigade has two tank battalions (of over 100 tanks) and a motorized infantry battalion; reconnaissance, sapper and communications companies; and support subunits. A motorized infantry brigade differs from a tank brigade in that it has one tank and two motorized infantry battalions.

An infantry division consists of a staff, a headquarters company, two infantry and one infantry-tank regiment, a field artillery regiment; reconnaissance, engineer and communication battalions; an air detachment and maintenance subunits. A division has over 16,000 officers and men, approximately 130 light and medium tanks, over 100 armored personnel carriers and armored vehicles, 72 105mm and 155mm guns.

An independent infantry brigade consists of a staff and a headquarters company, an infantry regiment (of two or three battalions), a tank battalion, a division of field artillery, a communications company, an engineer company, a flight of army aircraft, and maintenance subunits.

An alpine brigade consists of a staff and a headquarters company, an alpine regiment (of three or four battalions), a regiment of mountain artillery (three or four batteries) and communications, engineer, and mechanized companies, a flight of army aircraft, and maintenance subunits.

The organization of a parachute brigade is similar to that of an infantry brigade, the only difference being that it has no tank battalion, while a parachute regiment may have two or three parachute battalions.

A missile brigade is the main nuclear support formation of the Italian Army. It contains three divisions of Honest John ballistic missiles, two divisions of 203.2mm howitzers, an infantry battalion (for outpost tasks), and control and logistic support subunits.

The units and subunits of the Italian Army are equipped mainly with weapons and fighting equipment of foreign design (American, French, etc.).

The Air Force has about 450 aircraft. The main tactical subunit of the Air Force is the squadron (16-25 aircraft). Three squadrons form an air brigade. The Air Force comprises: two fighter-bomber brigades, two fighter brigades, a reconnaissance brigade, a brigade of Nike-Ajax and Nike-Hercules surface-

* The word "divisions" was inserted by the translator [U.S. Ed.].

to-air guided missiles, as well as several independent squadrons of combat and auxiliary aircraft, logistic support units and subunits.

The Italian Air Force is equipped mainly with American F-84s, F-86s, and F-104s. Italian Fiat G.91s are used as fighter-bombers and reconnaissance aircraft.

The Navy consists of the Fleet, Coastal Aviation and the Marine Corps. The Fleet has over 200 combat and auxiliary vessels, including two guided missile cruisers ("Giuseppe Garibaldi" and "Vittorio Veneto"), two guided missile frigates, 10 submarines, two guided missile destroyers, four destroyers, 36 escort vessels, and a large number of other vessels.

The Naval Air arm has three air groups of patrol aircraft (40) (which organizationally form part of the Air Force, but which are subordinate to the Navy in matters of employment), as well as about 50 helicopters.

The Marines include independent sabotage and reconnaissance groups.

The principal naval bases are Taranto, Spezia, Naples, Ancona, Brindisi, Messina, and Cagliari.

THE ARMED FORCES OF TURKEY

Together with Greece, Turkey, occupying a favorable military-strategic position, forms NATO's southeastern flank—the springboard for the deployment of this aggressive bloc's armed forces directly on the frontiers of the Soviet Union and other Warsaw Pact countries.

According to the Turkish constitution, the Supreme Commander of the Armed Forces is the President. He is also the Chairman of the National Security Council, which includes the Prime Minister, his deputies, the Chief of the General Staff and the ministers of Foreign Affairs, National Defense, Finance, Industry, Transport, Public Works, as well as the Deputy Chief of the General Staff, commanders-in-chief of the Services, and the General Secretary of the Committee of National Security. The Council determines the government's military policy, exercises general supervision of the development of the Armed Forces, and determines measures for preparing the country for war and for the mobilization of the country's resources for military purposes.

The Chief of the General Staff exercises direct control of the Armed Forces through the General Staff and the commanders-in-chief of the Services.

The Armed Forces consist of the Army, the Air Force, and the Navy. Their overall numerical strength is 480,000 officers and men.

The Army forms the basis of the Armed Forces and numbers approximately 400,000 men. The Army's combat forces comprise 17 divisions (13 infantry, one armored, and three training), 11 independent brigades (four armored and seven military police), up to 10 independent infantry, armored cavalry, cavalry, and frontier regiments, and other independent support, combat, and logistic support units. The formations, independent units, and subunits are organized into six army corps, which form three field armies: the 1st Field Army deployed in Western Turkey, the 3rd Field Army in the

eastern regions (Eastern Anatolia), and the 2nd Field Army in the southern and central regions of the country.

An army corps includes two or three divisions, one or two brigades, independent infantry, armored cavalry, tank, artillery, and engineer units and subunits, as well as logistic support units.

The infantry division, based on the former structure of the American pentomic division, is the principal tactical formation of the Turkish Army. It consists of: a staff and a headquarters company, five combat groups, divisional artillery (direct support—three divisions of 105mm and 155mm towed howitzers and two divisions of 105mm and 155mm self-propelled howitzers; general support—a missile howitzer division), tank, reconnaissance, engineer, and communication battalions, an army aviation company, and an army aviation repair group, as well as a rear division (medical, transport, and ordnance battalions; HQ, quartermaster, and administrative companies). A division contains a total of approximately 13,750 officers and men, 123 tanks, 60 105–155mm guns, four 203.2mm howitzers, and two Honest John ballistic missile launchers.

The Air Force, for organizational purposes, is formed into two air armies (forces). These consist of air defense fighter-bomber and fighter units and Nike surface-to-air guided missile divisions, reconnaissance and transport units (subunits), and auxiliary aviation (communication, training, medical). The Turkish Air Force has approximately 450 aircraft (more than half of which are combat aircraft) of American manufacture: F-84, F-86 (various modifications), F-100, F-104, F-5, C-47, and C-130.

The basic subunit of the Air Force is the squadron (18–25 aircraft, depending on the types).

The Navy has over 100 vessels of different types, provided by the US and British fleets, and includes nine destroyers and ten submarines. The total number of officers and men in the Navy is approximately 37,000.

The highest organizational unit of the Navy is the flotilla, which incorporates groups of destroyers, ASW vessels, submarines, minesweepers, mine-laying and net-laying vessels, as well as detachments of auxiliary vessels.

The principal naval bases are: Izmir, Gelcuk, Iskenderun, Mersin, and Trabzon.

THE IMPERIALIST AGGRESSIVE MILITARY BLOCS

THE NORTH ATLANTIC BLOC

The North Atlantic Alliance (NATO) is the largest aggressive military-political bloc among all the military blocs created by the imperialist powers after World War II. This bloc was established on the initiative of the USA. The objectives of the USA in forming this bloc were, firstly, to unite the countries of Western Europe into a military-political alliance for the preparation and unleashing of an aggressive war against the Soviet Union and other

countries which had embarked on the socialist path of development; secondly, to prevent the survival of the independent grouping of capitalist states in Western Europe, in the form of the West European Alliance, (Great Britain, France, Belgium, the Netherlands, and Luxemburg), which had been created by that time and was capable of competing with the USA; to strengthen its influence on the solution of European problems; and, by means of the NATO bloc, to exploit the human and material resources of capitalist Europe in its aggressive aims.

The North Atlantic Pact was signed on 4 April 1949 by the representatives of twelve countries: the USA, Great Britain, France, Belgium, the Netherlands, Luxembourg, Canada, Norway, Denmark, Iceland, Italy and Portugal. In February 1952 Greece and Turkey were brought into NATO and, in May 1955, West Germany.

Thus, NATO combined 15 of the most developed capitalist countries of Western Europe and North America, with a territorial area of approximately 22,000,000 square kilometers and a population of over 510,000,000, possessing enormous military-economic potential.

Special features of the North Atlantic bloc are its permanently functioning combined political and military bodies, whose sphere of activities embraces both the political and the military, and military-economic fields, and the existence of large-scale combined armed forces with their respective organs of control and theaters of operations, prepared in an operational sense according to a common plan.

The numerical strength of the combined armed forces of the NATO bloc exceeds 6,500,000 men: in 1967 the direct military expenditures alone of these countries amounted to approximately 100 billion dollars, exceeding by several times the corresponding expenditures for the early 1950's.

The highest political body of the North Atlantic bloc is the *NATO Council*. It meets twice a year (in April-May and in December) at the foreign ministers or heads of government level, with the participation of the ministers of Defense, Economics, Finance, etc., depending on the nature of the questions under discussion. Questions usually debated at NATO Council meetings are those relating to the international situation, the political activities of the bloc; reports of working bodies on the military-political problems of the bloc are also read at these meetings. In the period between NATO Council sessions, permanent representatives with ambassador's rank hold periodic meetings. This is called the Permanent Council.

The working body of the Council is the International Staff Secretariat, headed by the Secretary General and located in Brussels, Belgium.

Following France's withdrawal from the military organization of the bloc and non-participation in the discussion of military problems in the NATO Council, the NATO leadership established the so-called Military Planning Committee, which, in fact, is the same NATO Council without the participation of French representatives. The Military Committee and the Nuclear Defense Committee are subordinate to it.

The Military Committee is the chief executive military body of the NATO

Council and the highest body of the strategic leadership of the bloc's armed forces. Plenary meetings are usually held twice a year (ahead of the NATO Council sessions) and are attended by the chiefs of general staffs.

The Permanent Military Committee (subordinate to the Military Committee), within the limits of the authority granted to it, exercises leadership of the bloc's military activities in the period between sessions of the Military Committee. It consists of representatives of the general staffs of member countries (except France) and is located in Brussels.

The Permanent Military Committee, as the highest working military body of NATO, is responsible for the strategic leadership of the combined armed forces through the Supreme and Chief Commands of the respective zones.

The Nuclear Defense Committee, formed in 1966, is made up of the defense ministers of twelve countries (France, Iceland, and Luxembourg refused to participate in this organization). The working body of the Committee is the Nuclear Planning Group, consisting of the four permanent members (the USA, Great Britain, the FRG, and Italy) and three non-permanent members elected in turn from among the other member countries of the Committee for a term of 18 months. The Nuclear Defense Committee and the Nuclear Planning Group are occupied with all aspects of nuclear policy and the use of nuclear weapons by NATO.

The area covered by the North Atlantic Treaty takes in the territory of the member countries and the Atlantic Ocean north of the Northern Tropics. Militarily it is subdivided into four zones: the zones of the two Supreme Commands (Europe and the Atlantic), the Channel Command, and the US-Canadian Regional Strategic Group.

The Zone of the NATO Supreme Command in Europe embraces the territory of the European member states (except Portugal and France, the latter occupying a special position) and the Mediterranean Sea. The position of Supreme Commander of the NATO Combined Forces is occupied by an American general. In peacetime the Supreme Commander is responsible for the organization, equipment, and training of the forces subordinate to him, he elaborates operational plans for the utilization of the armed forces, submits recommendations to higher authorities, and supervises measures for the operational organization of the territories and the logistic support of the forces; in wartime he directs the combat operations of the forces in accordance with approved plans. The commanders-in-chief in the North European, Central European, and South European theaters of operations and NATO mobile forces are subordinate to the Supreme Commander.

The North European theater of operations includes the territories of Norway, Denmark, the West German State of Schleswig-Holstein, and the Baltic coastal waters and straits zone.

The Central European theater of operations includes the territory and coastal waters of the FRG (except the State of Schleswig-Holstein), Belgium, the Netherlands, and Luxemburg, and is most important in terms of its military-strategic position, the composition of the armed forces deployed within it, and the operational equipment of the territory. Two army groups

and two combined tactical air commands, consisting of 23 divisions and approximately 2,500 combat aircraft, respectively, are deployed in this theater.

The Northern Army Group consists of four army corps: West German (four divisions), British (three divisions and a Canadian brigade), Dutch (two divisions), and Belgium (two divisions).

The Central Army Group includes the 5th and 7th US Army Corps (five divisions and reinforcement units) and two West German army corps (seven divisions). The 1st French Field Army, consisting of two divisions and support units, is stationed in the Army Group Zone.

The 2nd Combined Tactical Air Command, which cooperates with the Northern Army Group, includes formations and units of the British, West German, Belgium and Dutch air forces totalling approximately 1,000 aircraft.

The 4th Combined Tactical Air Command, which cooperates with the Central Army Group, includes major field forces and formations of the US, Canadian and West German air forces, totalling over 1,500 combat aircraft.

There are no combined naval forces in the theater.

The South European theater of operations embraces the territories of Italy, Greece, and Turkey, and the Mediterranean Sea. The characteristic features of the theater are its great extent (from the Resia Pass on the northern frontier of Italy, through Greece to the eastern frontier of Turkey—a distance of over 3,000km); the isolation of its land areas by the Adriatic, Ionian, and Aegean seas and the Sea of Marmora, the Bosphorus Straits and Dardanelles, which hinders the operational cooperation of the ground forces and obliges the NATO Command to plan and conduct operations in independent regions of the theater—Italy, Greece, and Western and Eastern Turkey.

Deployed within the theater are two combined army commands (in the south, on Italian territory, and in the southeast, on Greek and Turkish territory), combined air forces consisting of two Combined Tactical Air Commands (5 CTAC on Italian territory, including Italian and American air force units, and 6 CTAC on Greek and Turkish territory, including Greek, Turkish, and American Turkish-based air force units).

The Combined Navy in this theater of operations consists of the US 6th Fleet (the naval striking force in the theater) and British, Italian, Greek, and Turkish naval ships.

The Zone of the NATO Atlantic Supreme Command takes in the Atlantic Ocean and adjacent seas from the Northern Tropics to the Arctic and from the coastal waters of Europe and Northwest Africa to the coast of the North American continent and the territory of Portugal. The Supreme Commander, an American admiral, and his headquarters are based in Norfolk (USA). The NATO Atlantic forces are based on naval elements, which come under the control of the respective NATO commanders only for the duration of exercises and maneuvers, and in the event of war.

The following are subordinate to the Supreme Commander in the Atlantic Zone: the chief command in the Eastern Atlantic with its headquarters in

Northwood (Great Britain), in the Western Atlantic with its headquarters in Norfolk (USA), in the Iberian sector of the Atlantic with its headquarters at San Pedro de Penaferrim (Portugal), as well as the NATO Atlantic Strike Fleet Command with its shore-based headquarters in New York.

The Zone of NATO's Channel High Command is the responsibility of a committee of British, Belgian, and Dutch representatives. The Commander-in-Chief of the Combined Armed Forces, with headquarters in Portsmouth (Great Britain) is subordinate to it. The main task of this command is to ensure the safety of the shipping lanes in the English Channel with the forces allocated by the member countries of the Committee.

The US-Canadian Regional Strategic Group is concerned with the elaboration of plans for joint operations of US and Canadian armed forces on the territories of these countries.

THE CENTRAL TREATY ORGANIZATION—CENTO

This military bloc was established in 1955 as the result of a conspiracy of the Western imperialist states. (Until 1959, i.e., until Iraq's withdrawal, it was called the Bagdad Pact.) Member countries are Great Britain, Turkey, Pakistan, and Iran. Although not legally a member of CENTO, the USA, in fact, directs its activities. In March 1959 the USA concluded bilateral military agreements with Turkey, Iran and Pakistan, under the terms of which the Americans acquired the right to introduce their own troops into these territories under the pretext of "guaranteeing their security," but, in fact, to suppress anti-imperialist and democratic movements.

In creating CENTO, the USA and Great Britain were governed mainly by their strategic and military-economic interests in the Near and Middle East. They took into consideration the proximity of the bloc's eastern member countries to the frontiers of the Soviet Union—an advantageous springboard for preparing and unleashing a war against the USSR—the presence of enormous oil reserves and the large-scale extraction of oil, needed to satisfy the requirements of the NATO member countries, and the important human resources of the eastern countries of CENTO. Finally, they set themselves the goal of using the CENTO bloc as an instrument to counter the growing national liberation movement of the peoples in this region.

The highest executive body of this bloc is the **CENTO Council**, which meets once a year (usually in April) at the foreign ministers and sometimes heads of government level, with the participation of other officials concerned with the questions discussed by the Council.

Leadership of the bloc between sessions of the Council is exercised by the Council of Representatives of the member countries. The representatives carry ambassadorial rank. The Council usually meets twice a month under the chairmanship of the Secretary General of CENTO.

The following are subordinate to the Council: the Military Committee, the Committee on Combating (so-called) Subversive Activities, the Economic Committee, the Liaison Committee, the Budgetary and Administrative Com-

mittee, the Economic Control Group, several subcommittees, and the General Secretariat—the working body of the CENTO Council.

The Military Committee is the highest military body of the bloc. It elaborates and submits to the Council recommendations and suggestions relating to the development, training, and plans for the utilization of the armed forces; it determines the themes and programs of joint exercises and maneuvers, directs the activities of subordinate bodies in charge of strategic planning, and organizes cooperation with the NATO bloc on military matters. The Committee members are the chiefs of general staffs or supreme commanders of the armed forces of the CENTO countries, as well as a representative of the US Department of Defense.

Between sessions of the Committee the Permanent Group of Representatives, which is subordinate to the Committee, is responsible for military matters. The Group is composed of representatives of the military departments of the USA, Great Britain, Turkey, Iran, and Pakistan. The working body of this Group is the Combined Military Planning Staff. Since 1960 this Staff has been headed by an American general.

The Committee on "Combating Subversive Activities" organizes and carries out, within the framework of CENTO, anticommunist activities and directs the subversive activities of imperialist agents in Near and Middle Eastern countries.

The Economic Committee is concerned with matters relating to the militarization of the economics of the eastern countries of CENTO and is responsible for the elaboration and implementation of plans for the construction of airfields, roads, naval bases and ports, communication links, and other items of military significance.

The Numerical Strength and Combat Composition of the Armed Forces of the Eastern Countries of CENTO

	Turkey	Iran	Pakistan	Total
Total numerical strength of the regular armed forces, thousands of men, including:	480	180	280	940
Army	400	161	250	814
Air Force	43	10	20	73
Navy	37	6	10	53
Numerical strength of irregular forces	20	26	45	90
Combat composition				
Divisions	17	8	10	35
Independent brigades (groups)	11	1	—	12
Squadrons of combat aircraft, including:	23	7	12	42
light bombers	—	—	3	3
tactical fighters	12	—	6	18
fighter-interceptors	8	6	2	16
reconnaissance aircraft	3	1	1	5
Total number of combat aircraft	312	166	200	678
Fighting ships, including:	82	37	21	140
light cruisers	—	—	1	1
destroyers	8	—	5	13
submarines	10	—	1	11
other vessels	64	37	14	115
Auxiliary vessels	26	2	6	34

The CENTO bloc does not have a unified command and combined armed forces. However, the training of national armed forces and the elaboration of plans for their utilization in war are in the hands of the bloc's controlling bodies, the leading role in which is shared by the US and British representatives.

THE SOUTHEAST TREATY ORGANIZATION (SEATO)

This military bloc was formed in 1954. Its member countries are the USA, Great Britain, France, Australia, New Zealand, Thailand, the Philippines and Pakistan. The bloc was created for the purpose of combating national liberation movements in the countries of Southeast Asia and preparing for war against the socialist countries. The area covered by the Treaty is the southwestern part of the Pacific Ocean south of latitude 21°30' N. Its headquarters is in Bangkok (Thailand).

The highest controlling body of SEATO is the Council, consisting of the ministers of Foreign Affairs and War, and representatives of other ministries. The Council meets once a year. The Committee of Military Advisers and the Council of Representatives are subordinate to the SEATO Council.

The Committee of Military Advisers consists of military leaders of the bloc member countries. The Military Planning Directorate—a permanent body which represents the embryo of the future unified command of the bloc's armed forces—has been formed under the Committee. The work of the military advisers is directed by American generals and admirals.

Permanent machinery for conducting the current work of SEATO has been set up, with the Secretary General at its head.

There is no central military command and the armed forces are under national leadership. Support for the bloc members is provided by the US 7th Fleet based in Taiwan and the Philippines, and elements of the US Air Force based on the islands of Guam and Okinawa and in South Vietnam and Thailand.

The Numerical Strength of the Armed Forces of the Asiatic Member Countries of SEATO

Country	Population (in millions)	Army (in thous.)	Navy (in thous.)	Air Force (in thous.)	Total numerical strength of armed forces (in thous.)
Australia	12.0	43.4	16.1	20.5	80
New Zealand	2.7	5.6	2.9	4.3	12.8
Philippines	32.5	1.7	5.5	8	30
Thailand	32.8	85	21.5	20	126.3

The air forces of the SEATO countries are equipped mainly with fighters, bombers, and transports. The largest of these air forces is the Australian, which includes four fighter squadrons equipped with Australian Sabres (F-86), two squadrons of Canberra bombers, two squadrons of Neptune sea

reconnaissance aircraft, two transport squadrons, two squadrons of Iroquois helicopters, one squadron of Bloodhound Mk1 surface-to-air missiles—a total of 220 combat aircraft.

The New Zealand Air Force has 37 combat aircraft, the Philippine Air Force 64, and the Thai Air Force 125.

The Navies of the Asiatic Member Countries of SEATO

Country	Light aircraft carriers	Destroyers	Frigates	Mine-sweepers	Mine-layers	Other vessels
Australia	1	6	—	6	—	22
New Zealand	—	—	4	4	—	12
Philippines ^a	—	—	—	2	—	36
Thailand ^a	—	—	5	5	—	26

^a The Philippine Navy has 12 escort patrol vessels, six assault vessels, six submarine hunters, and 18 patrol boats.

^a The Thai Navy has nine submarine hunters, 18 patrol boats and eight assault vessels.

THE MAIN DESIGN SPECIFICATIONS OF WEAPONS AND COMBAT MATERIEL

The Main Design Specifications of Surface-to-Surface Missiles

Missile	Range, km	Launch weight, tons	Length, m	Max. body diameter, m.	Warhead yield, millions of tons	Type of control system	Remarks
Strategic missiles							
Minuteman 1A	10,130	31	16.9	1.8	1.5	Self-contained inertial	Three-stage solid-fuel missile launched from underground silo. Minuteman 1 was brought into operational use in 1962, Minuteman 2 in 1966.
Minuteman 2	11,265	33	18.2	1.8	2.0	"	
Titan 2	over 11,000	149.6	31.4	3.05	10-18	"	Two-stage missile with liquid-fuel engines, launched from underground silo. In operational use since 1963.
Polaris A2	2,800	14.5	9.4	1.37	0.5	"	Two-stage solid-fuel missile carried by atomic submarines (16 per vessel); launched from underwater position. Accepted for operational use by the Navy: Polaris A2 in 1962, Polaris A3 in 1964.
Polaris A3	4,630	15.8	9.5	1.37	1.0	"	
Tactical missiles							
Pershing	185-740	4.5	10.5	1.0	up to 0.5	Self-contained inertial	Two-stage solid-fuel missile, launched from mobile launchers. Supplied to the US Army (from 1964) and the West German Air Force. Launch-ready time 30 min.
Sergeant	50-140	4.5	10.5	0.8	.	Self-contained inertial	One-stage solid-fuel missile for use with mobile launcher. Operational in the US Army (since 1962) and the West German Army.
ace GGM-138	2,100	8.2	13.4	1.4	.	"	A cruise missile with jet propulsion cruise engine and solid-fuel launching booster. Maximum flight velocity 1,000 km/hr, flight altitude 0.3-12km. Launched from mobile launcher or underground shelter. Warhead: nuclear or conventional. Introduced into the US Air Force in 1959.

THE MAIN DESIGN SPECIFICATIONS OF WEAPONS AND COMBAT MATERIEL—Continued
The Main Design Specifications of Surface-to-Surface Missiles

Missile	Range, km	Launch weight, tons	Length, m	Max body diameter, m	Warhead yield, millions of tons	Type of control system	Remarks
Honest John 1B	3-40	2.1	7.9	0.76	.	"	Solid-fuel missile for use with mobile launcher, mounted on the chassis of a 5-ton truck. Warhead: nuclear or conventional. Operational in the armies of the USA and other NATO countries.
Lance	70	1.5	6.1	0.56	.	-	Proposed as a replacement for the existing Honest John and Little John ballistic missiles.

The Main Design Specifications of Aircraft

Aircraft designation and name (country)	Flight characteristics					Main armament		
	No. in crew	Take-off wt., tons	Max. speed, km/hr	Service ceiling, m	Range, km	Rocket (no., type, caliber, mm)	Machine-gun and cannon (no., caliber, mm)	Maximum bomb load, kg
Strategic bombers								
B-52G,H. Strato-fortress (USA)	6	200-230	1,000-1,050	17,000	16,000-19,000	2 Hound Dog guided missiles	4 x 20mm cannon 4 x 12.7mm machine guns	10,000
B-58A Hustler (USA)	3	80	2,000-2,200	20,000	7,000		1 x 20mm cannon	Nuclear weapon in pod
B-47 Stratojet (USA)	3	100	960	14,000	10,000	1 Rascal guided missile	1 x 20mm cannon	10,000
FB-111 (USA, undergoing tests)	2	31	M2.5	Approx. 18,000	Over 6,100		7 x SRAMs	17,000 (nuclear or conventional)
Vulcan B.2 (Britain)	5	90	1,100-1,200	18,000	Over 9,000	1 Blue Steel guided missile		9,600
Victor B.2 (Britain)	5	80-100	1,100-1,200	Over 18,000	11,000	1 Blue Steel guided missile		16,000
Mirage IVA (France)	2	30	2,000-2,400		4,000	1 AS-30 guided missile		Nuclear bomb 60,000 tons*
Tactical fighters and bombers								
F-100 Super Sabre (USA)	1	17-18	1,300-1,400	17,000	3,300	24 x 127mm unguided missiles 4 x Sidewinder or 2 x Bullpup guided missiles	4 x 20mm	Over 3,000
F-101 A and C Voodoo (USA)	1	22	1,900-2,000	18,000-20,000	4,500	Unguided missiles and Falcon guided missiles	4 x 20mm	Nuclear and conventional bombs
F-104C Starfighter (USA)	1	10-12	2,250	20,000	3,000	2 x Sidewinder or Bullpup guided missiles†	1 x 20mm	1,350
F-105 Thunderchief (USA)	1	20	2,000-2,200	15,000	4,000	190 x 70mm unguided missiles or 4 x Sidewinder or 2 x Bullpup guided missiles	1 x 20mm	Over 4,600
F-4C Phantom 2 (USA)	2	23-25	2,500	24,000	4,500	8 x Sidewinder and Sparrow or 2 x Bullpup guided missiles		5,500
F-5A (USA)	1	21	1,600	15,250	Over 3,000	4 x guided missiles	2 x 20mm	
F-111A (USA)	2	35-37	M2.5	24,000	5,000	Several SRAMs		Up to 9,000
Mirage IIIE (France)	1		1,900	25,000	2,500		2 x 30mm cannon	
Vautour IIB	2		1,100	15,000	4,000	4 x guided missiles, or 208 x 68mm unguided missiles	2 x 30mm cannon	Tactical bomber

The Main Design Specifications of Aircraft—Continued

Aircraft designation and name (country)	Flight characteristics					Main armament		
	No. in crew	Take-off wt., tons	Max. speed, km/hr	Service ceiling, m	Range, km	Rocket (no., type, caliber, mm)	Machine-gun and cannon (no., caliber, mm)	Maximum bomb load, kg
Canberra (Britain)	2-3	20-22	940-1,000	18,000	4,500-4,800	Nord AS.30 guided missile	4×20mm	3,600
Hunter (Britain)	1	10.7	1,160	16,000	3,000	74×50.8mm unguided missiles	4×30mm	900
Strategic and tactical reconnaissance aircraft								
RB-57F (USA)	1-2	21,000	1,300	30,000	8,000	Strategic reconnaissance aircraft; designed for high-altitude photo, radiation, and electronic reconnaissance and weather reconnaissance.		
SR-71 (USA)	2		3,200	30,000	8,000	Strategic reconnaissance aircraft		
U-2 (USA)	1	8,000	800	24,000	8,000	Strategic reconnaissance aircraft		
Canberra PR.9 (Britain)	2	20,000	1,025	Approx. 20,000	6,400-7,200	Tactical reconnaissance aircraft		
Hunter FR.10 (Britain)	1	10,700	1,160	16,000	3,000	Tactical reconnaissance aircraft		
Victor B.2 (Britain)	5	9,300	1,100-1,200	16,700	Approx. 10,000	Strategic reconnaissance aircraft		
Mirage IIIr (France)	1		1,900-	15,000	2,500	Tactical reconnaissance aircraft		
Interceptor fighters								
F-101B Voodoo (USA)	2	22	1,900	18,000	4,500	All-weather interceptor fighter; 6×Falcon guided missiles or 2×Genie unguided missiles with nuclear charges.		
F-102A Delta Dagger (USA)	1	11.3	1,500	15,000	1,000	All-weather interceptor fighter; 6×Falcon guided missiles and 24×70mm unguided missiles.		
F-106A,B Delta Dart (USA)	1	16	2,250	Up to 20,000	Up to 3,000	All-weather interceptor fighter, 4×Super Falcon guided missiles and 1×Genie unguided missile with a nuclear charge.		
Javelin (Britain)	2	15	1,100	17,000	2,500	4×Firestreak guided missiles (or 148×50.8mm unguided missiles) and 2×30mm cannons		
Lightning F.2 (Britain)	1	16	2,400	20,000	-	2×Firestreak guided missiles and 2×30mm cannons.		
Mystere IVA (France)	1		1,120	16,500	2,300	Day fighter; 2×guided missiles and 55×68mm unguided missiles, 900kg of bombs.		
Super Mystere IVB (France)	1		1,190	17,000	1,800	Day fighter; 2×guided missiles or 32×unguided 68mm unguided missiles, 900kg of bombs		
Military transport aircraft								
C-141A Starlifter (USA)	5	144	920	15,000	10,000	Load: 154 soldiers with personal weapons, or 129 parachutists, or 10 loaded shock-absorbing platforms each weighing 3,600kg, or 2 light tanks, or a Minuteman ICBM in a container. Maximum payload 42,000kg		
C-5A Galaxy (USA)	5	350	920	10,700	Up to 10,000	Load: 350 soldiers with weapons or up to 120 tons of freight.		
C-130 Hercules (USA)	4	62	580	10,000-12,000	5,000	Load: 92 persons or 21,000kg.		
C-133 Cargomaster (USA)	4-8	130	650	9,000	8,000	Load: 288 persons or 52,000kg.		
C-135 Stratolifter (USA)	6	125	1,000	15,000	7,500	Load: 150 persons or 40,000kg.		
Tanker aircraft								
KC-135A Stratotanker (USA)		125	1,000	15,000	10,000	Fuel reserve transferred to aircraft in flight, up to 40 tons.		
Victor B.K1	5	80-100	1,100-1,200	18,000	11,000	Fuel reserve transferred to aircraft in flight, 24 tons.		

* Possibly "a nuclear bomb with a warhead yield of 60,000 tons" [U.S. Ed.].

† Could be read as "2 Sidewinder guided missiles or a Bullpup guided missile" [U.S. Ed.].

Main Design Specifications of Air-to-Ground Guided Missiles

Name and designation of missile (country)	Dimensions, m			Launch weight, kg	Range, km	Type of control system	Remarks
	Length	Wing-span	Max. diameter				
Hound Dog (USA)	Approx. 13	0.72	3.7	4,500	1,100	Inertial	Carried by B-52G, H strategic bombers (2 per aircraft); max. speed Mach 2; nuclear warhead.
Bullpup (USA)	3.35-4.14	0.3-0.45	0.8-1.2	260-810	9-11	Radio command	Carried by tactical fighters and naval aircraft. Conventional warhead; modification "D" nuclear warhead.
Blue Steel (Britain)	Approx. 10.7	1.28	Approx. 4	Approx. 7,000	320	Inertial	Carried by Vulcan B.2 and Victor B.2 strategic bombers (one per aircraft). Flight velocity Mach 1.6; nuclear warhead.
Quail (USA)	3.9	Height 1.0	1.6	500	Up to 400	Self-contained, programmed	An electronic countermeasures missile carried by B-52G, H strategic bombers.
AS-30 (France)	3.9	0.34	1.0	510	Up to 11	Radio command	Carried by Mirage III, Canberra and Etendard aircraft. Conventional warhead.

Main Design Specifications of Surface-to-Air Missiles

Name and designation of missile (country)	Max. range, km	Launch weight, kg	Length, m	Max. body diameter, m	Max. velocity, Mach No.	Type of control system	Remarks
Nike-Hercules (USA)	130	4,700	12.7	0.8 (2nd stage)	M > 3	Radio command with radar tracking of target and missile	Two-stage solid-fuel missile for use against supersonic targets flying at altitudes of up to 30km. Nuclear warhead. Introduced in 1958.
Nike-Ajax (USA)	40	1,100	10.3	0.3 (2nd stage)	M 2.3	ditto	Two-stage missile; second stage powered by liquid propellant engine. Fragmentation-high explosive warhead. Operational in the Army since 1963. Launch complexes: fixed and mobile.
Hawk (USA)	35	590	5	0.36	M 2.5	Semi-active radar homing	Single-stage solid-fuel missile for use against supersonic targets at low and medium altitudes (up to 15km). Launched from a mobile triple ramp launcher. Conventional warhead. Operational in the Army since 1959.
Bomarc (USA)	700	7,280	13.7	0.9	M 2.8	Combined (radio and active homing head)	Missile with two ramjet engines and a solid-propellant booster. Intended for use against supersonic aerial targets at altitudes of up to 30km. Nuclear warhead.
Thunderbird (Britain)	46	1,900	6.4	0.53	•	Semi-active radar homing	Designed for use against supersonic aerial targets at altitudes of up to 20km. Operational in the Army since 1960. Mobile launcher. Fragmentation-high explosive warhead.
Masurca (France)	40	1,850	8.6	0.4	M 2.5	Combination	Two-stage solid-fuel missile for use against aerial targets at altitudes of up to 25km. Conventional warhead.

Main Design Specifications of Armored Equipment

Name (country)	No. in crew	Combat weight, tons	Thickness of armor, mm	Max. speed, km/hr	Fuel distance, km	Engine capacity, hp	Armament (number, caliber, mm)	Remarks
Walker Bulldog M41A3 light tank (USA)	4	23	38/32	65	240	525	1×76.2mm gun 1×7.62mm machine gun 1×12.7mm anti-aircraft machine gun	Army equipped with this tank since 1953; improved in 1958.
Patton M48 medium tank (USA)	4	46	178/100	45	310	850	1×90mm gun 1×7.62mm machine gun 1×12.7mm anti-aircraft machine gun	Introduced in 1953; modified model introduced in 1956.
Sheridan light tank (USA)	4	16	Bullet- proof armor	65	480	350	1×155mm gun 1×7.62mm machine gun 1×12.7mm anti-aircraft gun Shillelagh missile	Designed for reconnaissance, combat outpost, tank destruction. Amphibious tank— speed in water 6.2 km/hr. The missile, weighing 20kg, has an infrared or radar guidance system.
M60A1 medium tank (USA)	4	46.3	178/100	48	400	750	1×105mm gun 1×7.62mm machine gun 1×12.7mm anti-aircraft machine gun	Main combat tank of the US Army. Has a vertical and horizontal stabilization system. Modernized model introduced in 1962.
M103 heavy tank (USA)	5	54.4	130/127	34	160	810	1×120mm gun 1×12.7mm anti-aircraft machine gun 1×7.62mm machine gun	
Centurion Mk1X and MkX medium tank (Britain)	4	50	150/75	34	190-200	640-650	1×105mm gun 1×7.62mm machine gun	Introduced 1958-1960. Has a gun stabilization system in two planes. It can ford water obstacles or navigate afloat (with special equipment).
Chieftain tank (Britain)	4	46	•	35	320	700	1×120mm gun 2×7.62mm machine gun 1×12.7mm anti-aircraft machine gun	Introduced in 1963. Has a gun stabilization system in two planes. A frame type flotation device is used for negotiating water obstacles.
Leopard medium tank (FRG)	4	39	•	70	560	820	1×105mm gun 1×7.62mm machine gun 1×12.7mm anti-aircraft machine gun	Introduced in 1963. With special equipment can ford water obstacles up to 4m deep
Turenne AMX-51 light tank (France)	3	14.5	up to 40	65	400	270	1×75mm gun 1×7.5mm machine gun	Introduced in 1951. Reequipped with a 105mm gun. Has equipment for launching the SS-11 anti-tank guided missile (4 missiles)
AMX-63 medium tank (France)	4	32.5	—	65	480	720	1×105mm gun 1×7.62mm machine gun 1×12.7mm anti-aircraft machine gun	Introduced in 1963. With special equipment can ford water obstacles up to 4m deep

Main Design Specifications of Armored Personnel Carriers and Armored Cars

Name	Combat weight, tons	Seating (incl. crew)	Max. speed, km/hr	Fuel distance, km	Armament (number, caliber, mm)	Remarks
Armored personnel carriers						
M113 amphibious vehicle (USA)	10	13	64	320	1×12.7mm machine gun	A reconnaissance vehicle, a self-propelled flamethrower, a mobile advanced HQ, and a transporter for the Pershing guided missile and the Mauler anti-aircraft guided missile, etc. have been developed from the M113.
M114 amphibious vehicle (USA)	6	4	64	400	1×12.7mm machine gun	Used as a reconnaissance and a staff vehicle.

Main Design Specifications of Armored Personnel Carriers and Armored Cars—Continued

Name	Combat weight, tons	Seating (incl. crew)	Max. speed, km/hr	Fuel distance, km	Armament (number, caliber, mm)	Remarks
FV432 (Britain)	14	14	48	450	1 × 7.62mm machine gun 1 × 7.62mm machine gun	Can be fitted out to navigate water barriers. Amphibious.
Saracen wheeled vehicle (Britain)	10	12	70		2 × 7.62mm machine guns	Different types of vehicles have been developed on the chassis of the armored personnel carrier.
AMX VTT-56 (France)	14	14	65	340	1 × 12.7mm machine gun	
VTT-PC (France)	13.5	7	60	350	1 × 7.5mm machine gun	It is planned to equip mechanized and tank regiments with these armored personnel carriers
SPW (FRG)	14.6	8	51	270	1 × 20mm gun 1 × 7.62mm machine gun	Motorized infantry squads are equipped with these.
SPIA (FRG)	8.2	5	58	350	1 × 20mm gun	Reconnaissance sub-units are equipped with these.

Main Design Specifications of Armored Personnel Carriers and Armored Cars

Name	Combat weight, tons	(incl. crew)	Max. speed, km/hr	Fuel distance, km	Armament (number, caliber, mm)	Remarks
Armored cars						
Ferret Mk 2 (Britain)	4.3	2	72	300	1 × 7.62mm machine gun	Armed with Vigilant anti-tank guided missile.
AML 245 (France)	4.5	3	100	600	1 × 60mm mortar 2 × 7.5mm machine guns	Introduced into the forces in 1961

Main Design Specifications of Self-Propelled Artillery

Name (country)	No. in crew	Combat weight tons	Max. firing range, km	Max. speed, km/hr	Fuel km	Eng. hp	Angle of fire Vert. horiz.	Remarks
M108 105mm howitzer (USA)	5	17.2	14	65	240	340	−10° +75°	360° Introduced in 1962. Rotating turret.
M109 155mm howitzer (USA)	5	18.7	18.4	50	400	420	−5° +75°	360° Introduced in 1963. Can fire atomic shells weighing less than 1kg.
M107 175mm gun (USA)	5	27.9	32	55	700	420	65°	60° Introduced in 1962. Corps artillery of the USA, the FRG and other countries is equipped with this gun.
M55 203.2mm howitzer (USA)	6	43	17	48	250	810	−5° +65°	60° Introduced in 1954.
M110 203.2mm howitzer (USA)	5	26.1	17	55	720	420	65°	60° Introduced in 1962.
Abbot 105mm gun (Britain)	4	13.5	18.5	47	450	220	Rotating turret	Introduced in 1963, adapted for navigating water barriers afloat
105mm howitzer (France)	5	16	14	60	400	270	−5° +69°	40° Introduced in 1952; mounted on the chassis of the AMX-51 tank.
155mm howitzer (France)	7	17	20–25	60	400	270	0° +67°	50°
Jagdpanzer 90mm anti-tank gun (FRG)	4	23	1.5	80	580	500	−7° +15°	Hull hermetically sealed and fitted with a filtration unit. Effective range when firing at tanks 1,500m.

Design Specifications of Guided Anti-tank Missiles

Name (country)	Range, m	Total weight of weapon, incl. launchers, kg	Launch weight, kg	Weight of missile head, kg	Length, m	Body diameter, mm	Flight velocity, m/sec	Armor penetrating capability, mm
Moskito (Switzerland)	360-2400	28	11.5	4	1.1	120	100	600
Kobra (FRG)	400-1600	10	10	2.7	0.95	100	85	500
Entac (France)	400-2000	17	12	3.9	0.83	140	85	450
SS-11 (France)	500-3000	30	28.5	8.1	1.2	160	140	600
Vigilant (Britain)	230-1600	20	12	3.5	1.06	110	150	600
Malkara (Britain)	600-3200	97	97	27	2.0	200	150	500
Milan (FRG-France)	25-2000	11	11	•	0.75	103	180	•
Hot (FRG-France)	75-4000	25	25	•	1.24	136	280	•
Shillelagh (USA)	500-2000	•	20	6.2	1.09	152	150	500
Swingfire (Britain)	2000	•	•	7	0.9	127	190	500
MAW (USA)	1000	•	•	6.7	0.72	120	•	•
TOW (USA)	3000	72	72	3.8	1.14	140	300	•

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Chapter 9. SCIENCE AND MILITARY AFFAIRS

Science is the most important element of intellectual culture, the highest form of human knowledge. A system of developing knowledge, science is based on facts of reality; it provides an explanation of their origin and development, the means of gaining an insight into objective laws of the real world, and methods of making conscious and purposeful use of them.

The main function of science is to serve the interests of mankind, to achieve happiness and justice on earth, to save us from all that is harmful in the elemental forces of nature and society. Thanks to science, we have been able to eliminate certain diseases in man, others we have learned to combat successfully; our living conditions have been improved. Science has enabled us to harness natural forces; this has considerably lightened man's work, and made it possible for a smaller number of people to carry out a much greater volume of work. It has made us stronger and wiser.

The natural sciences have always been associated with the development of the productive resources of society; they have served the interests of developing production and moved it forward.

The social sciences have been used by various social forces to change social relationships, and superstructural phenomena;* they have contributed to the practical activities of the class struggle.

In our own times science has penetrated deeply into the life of society: into the material output, social attitudes, and spiritual lives of people. It promotes progress and, in the final analysis, emerges as its powerful accelerator.

A comprehensive analysis of the role of science in the present age is given in the Program of the CPSU, resolutions of the XXII and XXIII Party Congresses, and in subsequent documents of the Central Committee. Emphasizing the world historical role of science, the Party reveals the fundamental roles of science in the capitalist and socialist systems and gives special attention to the elucidation of the increasing role of science in the building of the communist society.

As a result of the constant concern of the Communist Party, science has advanced at an unprecedented rate in our country. Confirmation of this is provided by the numerous discoveries of Soviet scientists in many branches

* *Nadstroyechnyye yavleniya*, 'superstructure' in Marxist philosophy refers to the political, legal, religious, artistic, and philosophic views of society and the political, legal and other institutions corresponding to them [U.S. Ed.].

of human knowledge, including the social sciences, mathematics, physics, the space sciences, radioelectronics, technology, etc. There are over 900,000 scientists in the USSR: one quarter of all the scientists in the world.

In our country science is becoming more and more a direct productive force. It participates actively in the process of material production and in social life. Science has achieved significant new results in the past five-year plan. In conformity with the XXIII Party Congress Directives, both basic theoretical research and applied science have been developed. Special attention has been given to the elaboration of theoretical problems in power engineering, the development of new structural, building, and other materials, and production automation and control.

The role of the social sciences is becoming increasingly important. Taking this into consideration, the CPSU CC in August 1967 adopted a special resolution "On measures for the further development of the social sciences and increasing their role in the building of communism." In this resolution the Central Committee clearly defined the tasks of scientific research in all the most important branches of the social sciences, and emphasized the need to devote special attention to Marxist-Leninist methodology, a class-Party and specifically historical approach to social phenomena.

A characteristic feature of modern science is its growing influence on military affairs. This does not, of course, mean that military affairs are any less dependent on economic conditions, politics, and other aspects of social life. On the contrary, the qualitatively new role of science in relation to military affairs strengthens this dependency and lends it special importance. The special role of science in relation to military affairs is expressed in the most concentrated form in those revolutionary changes which took place in it after World War II, and which continue to develop at a more profound level. The military power wielded by states today and, particularly, tomorrow will be determined mainly by the level of scientific development and the extent to which it penetrates the field of military affairs.

Scientific-technical progress in the imperialist countries is being utilized increasingly for military purposes. The US Department of Defense has seized the predominant role in American science. Three quarters of the engineers and scientists in the USA are working on military and space projects. Eighty per cent of all federal funds allocated for scientific research is absorbed by the Pentagon's military and space programs, i.e., about 15 billion dollars per year.

The main reason why science and military science are so closely interrelated in the imperialist countries is the antagonistic nature of capitalism, which is based on private ownership. The imperialist states strive to use their economic and political strength and the achievements of science as instruments to exploit and oppress their own people and those of other countries, particularly backward countries. It is precisely because of this that military expenditures are continually increasing and scientific potential is being squandered to the detriment of historical progress. If the money spent by the NATO countries in one month on military requirements were to be diverted to peaceful purposes, it would be possible to irrigate the whole of the Sahara Desert.

Humanity suffers greatly on account of the imperialists' policy of aggression and wars. Each year the world spends approximately 120 billion dollars for military purposes, which is roughly equal to the total annual income of all the poorly developed countries of the world, which have

a total population of 1.5 billion people. The efforts of almost 90% of today's scientists are concentrated on problems connected in one way or another with military affairs.

In the socialist countries, science serves constructive purposes, but the imperialist policy of continuing the arms race and building up tension throughout the world forces the socialist countries, who are not interested in war, to utilize the achievements of science to consolidate their own defensive capacity and increase the fighting power of their armed forces.

Being associated with military problems, science predetermines the development of the military affairs in a variety of ways. The greatest scientific discoveries are, in a way, turning points in the development of military affairs. This has already been demonstrated by World War II, a time of important scientific discoveries and inventions in which new fields of research were opened up. During this war, Soviet scientists and designers developed many new models of tanks, aircraft, nuclear weapons, and other means of armed combat, which outperformed those of the German Fascist forces.

The 20th century is the century of the great scientific and technical revolution. Scientific potential, together with economic, moral-political and strictly military potential, constitutes the basis of a country's military power. A high degree of development in science and technology is the main prerequisite for military technical supremacy and the achievement of victory over the enemy.

In the age of missiles and the atom, to lag behind in the utilization of scientific and technical achievements in the interests of military science could lead to irretrievable consequences.

The influence of science on military affairs is manifested primarily in the field of military equipment and weapons. A change in the standard and quantity of military equipment is accompanied by a change in the structure of the armed forces, the ratio of the Services and the branches of the Services, the nature of armed combat, the methods and forms of waging war, troop control, and the training and education of personnel.

One of the main indications of the penetration of the military field by science is the continuous and spasmodic growth of the *power available per man* in the armed forces, the saturation of the armed forces with increasingly sophisticated means of communication, control, and automation. This has considerably increased the combat potential of formations, units, and ships.

The following figures will give an indication of the increase of the power available per man in the Soviet Armed Forces. Whereas in 1939 the power-weight ratio of an infantry division was 3 hp per man, the corresponding figure for a motorized infantry division today exceeds 30 hp per man.

The power available per man in the Navy has increased even more strikingly. A modern submarine has almost 100 times more power available per man than a prewar submarine.

The development of military affairs on the basis of scientific and technological achievements in all the countries of significant military potential is characterized by an enormous increase in the efficiency of weapons, and their effective range, in very short intervals of time, and the capacity to move troops and all their equipment with much greater speed. In other words,

science has provided the means of substantially increasing all the components of the armed forces' fighting power.

The most important role in the radical transformations which have taken place in military affairs have been played by modern industries based on science and technology, such as *power engineering, metallurgy, electronics, machine-building and instrument making, the chemical industry, etc.* The achievements of *mathematics, physics, chemistry and cybernetics* form the military-technical basis of modern military affairs. These sciences have provided the theoretical foundations for the production and utilization of the latest weapons and their delivery. Nuclear charges of different yields are the progeny of modern science and technology. They can be delivered in minutes to any point on the globe for the destruction of a wide variety of targets.

Modern science has also brought about changes in conventional weapons and in all the equipment of the Services and branches of the Services. As a consequence the mobility of the troops and their capacity to cover great distances, concentrate and disperse, etc., has increased enormously. The motorization of the forces has increased their speed of movement almost tenfold. The development of aviation and the use of helicopters make it possible to airlift entire formations and their equipment over great distances in the shortest possible time. Troops are now equipped with up-to-date communications and control facilities, night viewers, and can rapidly switch from one type of action to another, etc.

The Navy and the Air Force are equipped with the most up-to-date and sophisticated equipment. Aircraft and ships are equipped with most modern radar systems. According to American scientists, radar equipment accounts for 20% and 30%, respectively, of the cost of modern submarines and aircraft. The submarines of today's navies are a synthesis of the data of many sciences—astronavigation and nuclear physics, metallurgy and electronics, hydraulics and aerodynamics, radio engineering and chemistry.

Information published in the foreign press points to the conclusion that future research work associated with military science is being channeled into attempts *to discover new materials, sources of energy, and means of automation.*

Now, as never before, there is a need for super-strong materials. And science is providing the answers to this extremely difficult problem. Titanium alloys which possess a high degree of strength and heat resistance have recently been produced. They are widely used in missile engineering and astronautics. But the principal method of obtaining super-strong materials, as foreign scientists emphasize, is to produce materials of monocrystalline structure, in which all the molecules of the metal are combined into one crystal, whereby the strength of the metal is increased many hundreds of times. The development of mass production technology makes it possible to produce combat equipment of greater strength and lightness—aircraft, missiles of all types, surface vessels and submarines, etc.

At the same time, work is being carried out in the field of metal ceramics and intermetallic compounds. Metal ceramics, which are alloys of different materials (ceramic powder and metal or metal alloys) possess great tensile strength at high temperatures. Chemical compounds of metals, known as intermetallic compounds (titanium borides and nitrides, etc.) do not require alloying, have a high fusing temperature, and are very resistant to chemical action.

Space vehicle flights have shown that construction materials must meet new and higher standards. Besides being strong and light-weight, they must possess heat stability—withstand the heat of the sun and the cold of interstellar space, shield the crew from radiation and cosmic rays.

The achievement of supersonic speeds in aviation was accompanied by dangerous overheating of the airframe and engine structures in the head-on flow of air masses. The aircraft surface is subject to heating measured in hundreds of degrees centigrade. The elimination of temperature barriers (at $M \geq 2.7$) has become a problem. At speeds in the region of $M = 2.7$, the mechanical properties of titanium alloys and stainless steel deteriorate critically and the reliability of the structural members cannot be fully guaranteed. The achievement of greater speeds in the atmosphere (close to the earth) and in space flights depends on chemical research on macromolecular compounds of great strength and lightness. The strength of polymers is provided by the gigantic size of their molecules, which are millions of times larger than those observed in nature. The first representatives of such materials (organic plastics) have been produced; these can withstand temperatures of several thousand degrees. They are exceptionally resistant to mechanical action and heavy pressures. In the future, such materials will be widely used in all military equipment.

Semiconductors, AC rectifiers, detectors, amplifiers, radio-frequency oscillators, thermoelectric generators, thermoelements for measuring circuits, current and voltage stabilizers, etc., occupy an important place in military technology. The use of semiconductors greatly reduces the size and weight of radioelectronic equipment, but increases its strength and reliability.

Nuclear energy continues to be utilized intensively both in the form of munitions with different yields and for different purposes, and in the form of fundamentally new engines and sources of electrical power. Surface vessels and submarines which utilize the thermal energy of nuclear reaction have now been built.

The use of thermonuclear energy will be even more advantageous in the construction and operation of very high power propulsion plants which will run for a long time without fuel replenishment. Since thermonuclear reaction involves the utilization of the hydrogen isotope deuterium, which occurs in heavy water, the solution of the problem of isolating heavy water from light water and obtaining deuterium will provide man with vast, practically inexhaustible reserves of raw material for nuclear reaction and the production of cheap electrical power. In addition to this, thermonuclear reactors are practically harmless and, therefore, do not require heavy lead and concrete shields. If it should prove possible to produce compact electric generators, they can be used to power missiles, aircraft, ships and other military and non-military equipment.

Promising sources of energy are thermopile-junctions of different elements heated by bombardment with beta rays. Radioactive isotopes may be used as sources of electron flow. In this way it is possible to produce compact sources with a very high capacity, which would operate for long periods without any kind of recharging or replenishment with isotopes. Some day

thermopiles will make it possible to run transport facilities on electric motors. This would greatly simplify the design of transport equipment.

In the opinion of foreign scientists, the development of science may produce many fundamentally new means of delivery, such as ion rockets. The operating principle of this rocket will obviously involve a proton accelerator, which will eject protons through a nozzle at a very high velocity, thus creating a jet thrust. Similar in principle to the ion rocket is the plasma rocket. Many possible new types of engines are already known to science and the problem of constructing them will undoubtedly be resolved.

The most important area in which science influences military affairs is the management and control of troops by means of *automation*. Here science also expresses itself in a decisive fashion. After revolutionizing weapons and the means of their delivery, it also transformed the means of their control and made it possible to automate them.

Many of the procedures of controlling modern military equipment take infinitesimally small intervals of time, during which it would be impossible for a human to make a decision and carry out different operations at the required speed. Automation of control makes it possible to remove the limitations imposed by human capabilities.

The use of nuclear weapons and other modern technology, and the increased maneuverability of the forces, may change a situation rapidly and suddenly, and thus increase the volume of information. The main deficiency of earlier control systems was the low productivity of staffs when receiving, processing, and transmitting information. Automation of control eliminates the disparity which had formed between combat potential and the means and methods of control.

A very important contribution to the solution of this complex problem was made by *cybernetics*--the science of controlling complex dynamic systems and processes. It is concerned with developing processes from the point of view of control principles, and makes wide use of the methods of the exact sciences.

The most common principle of cybernetics is that control as a process always occurs in a closed circuit in which there are controlled and controlling elements linked together by direct and feedback coupling. Control is effected by means of control signals, and verification of the actions of the object in response to the control signals is accomplished by the transmission of feedback signals. This principle applies to all the processes of controlling mechanisms in equipment, weapons in combat, and troops in operations.

Electronic computers are used for the reception, storage, and processing of information. They carry out these operations in accordance with a program, which is worked out specially for each control process. The basis of the program is the algorithm, a systematic mathematical procedure for the solution of a problem. Each complex process can be represented in the form of elementary operations, which are carried out in a specific sequence in accordance with strictly defined rules. Even the most complex processes can be converted into a sequence of elementary operations and rules leading to

the required solution with the specific current parameters of the situation.

An important role in the development of military affairs is played by the *special military technical disciplines: the artillery, military engineering, military aviation and naval sciences*. These sciences are concerned with the study, design, production, testing, combat application, and comprehensive evaluation of military equipment. Their task is to make a detailed study of the requirements of military art and the quality of military equipment.

A discipline which has been pushed to the forefront by the military-technical revolution is operations research, which makes it possible for a commander to obtain a quantitative basis for the creation and utilization of forces and resources in a battle or an operation in order to reach a decision. The methods of this science, which are based on the theory of probability, mathematical statistics, queuing theory, the theory of games, linear and dynamic programming, and statistical test methods, make it possible to determine quantitatively: whether utilization of the available resources to achieve a given objective will ensure the maximum effect; which dominant factors influence the achievement of the desired results with the minimum expenditure of time and effort; and how a change in the situation will affect the achievement of the most economical and rapid solution of the overall task. All this makes it possible to determine the best methods of conducting combat operations, and means of developing and acquiring greater mastery of equipment.

In its turn, the theory of probability, the mathematical science concerned with the study of regularities in mass random phenomena, affords the means of obtaining a quantitative basis for estimating the objective possibilities that a given event will occur. By using a numerical measure of the degree of probability that an event will occur it is possible to arrive at a more precise solution, or to foresee the possible outcome of events which recur on a large scale. Probability theory forms the basis of all the other mathematical methods used in military affairs.

Linear programming is a mathematical theory which makes it possible to reduce the solution of planning problems and troop and equipment control to a sequence of automatically executed operations in accordance with incoming information. This theory provides the solution of arbitrary extremal problems in which the quality index is linearly related to the control parameters, and the limits are linear equations or inequalities.

In the field of military affairs every situation which arises in the course of combat operations is one of conflict. The interests and activities of the warring sides are diametrically opposite; their interaction is accompanied by a vast number of related factors which complicate any analysis of an evolving situation. Situations of conflict, in which the interests of two or more sides are involved, are studied by methods used in game theory, the mathematical theory of conflict situations.

Queuing theory is widely used for evaluating the carrying capacity and quality of different control systems and facilities, for example, the effectiveness of air defense as a whole, and the firepower of individual types of weapons.

In complex cases, when a given event is accompanied by numerous constantly varying factors, the most convenient method of calculation is the statistical test method. For example, it would be extremely difficult to use analytical methods to study the repulse of a massive enemy air attack. In this case, foreign specialists set up a model of the operational-tactical formation of the enemy aircraft in the air and the disposition of air defense forces repelling this attack. Successively, at set intervals of time, the dynamics of the action are played through and

calculations are made for each game episode (the episode is played through). The complex process is broken down into individual episodes. The position of the opposing sides is determined for each episode and studied. As a result, it is possible to establish a picture of the course of combat actions and their possible results.

In addition to these theories, modeling is also used extensively. Of course, it has been used before. For example, during World War II, far away from the front, before an attack, a model of the enemy's defenses was constructed and methods of breaching them were worked out. Nowadays modeling plays a much more important role as a result of changes in combat operations and troop control methods. Modeling is now quite different in many respects.

In addition to training, games, and exercises, military science now makes use of *mathematical modeling*. It is useful for determining the effectiveness of models of weapons, in training and improving the qualifications of personnel, and working out the best methods of conducting military operations.

Thus, having constructed a model of a battle, using mathematical methods where necessary and possible, the development and outcome of impending operations can be gauged. The more battles are modeled, and the more accurately and objectively qualitative and quantitative factors are evaluated, the more clearly apparent become ways of achieving success, or the defects in its preparation and organization. The ultimate result of modeling is the determination of the optimum conditions which would afford the highest probability of success.

An important factor in combat organization is the *situation forecast*. This is based on foresight. Forecasting provides the answers to questions concerning the forces and resources needed to achieve a desired result at given stages of combat operations, how certain processes (events) will develop under specified conditions. The results of target damage (destruction), the place (region) of the location of moving targets based on previously received data, radiation and meteorological conditions, etc., are forecast.

As a typical example of a forecasting task, we could take the compilation of a forecast of the radiation conditions in a combat area where a nuclear weapon has been used. All commanders should be able to prepare such a forecast, since subunits and units frequently have to operate at great distances from each other, and their higher headquarters cannot always ensure that they have a forecast of the radiation situation. A well thought out and substantiated forecast makes it possible to determine the optimum route and direction of approach, and the probable contamination level.

The most important channel through which science influences military affairs is *the military-technical training of servicemen*. This training requires mastering of weapons and equipment, increasing the fighting efficiency of the troops, and ensuring their constant combat readiness.

Science calls for a new attitude towards the *fighting spirit of the troops, their morale and fighting qualities, and their psychological training*. Here it is not permissible to underestimate the fighting equipment and overestimate the morale and fighting qualities of servicemen, or vice versa.

Military-technical qualifications and high morale and fighting qualities do not evolve by themselves, but develop in the process of training and education based on profound ideological conviction, an understanding of the nature of

modern armed combat, a knowledge of the enemy's equipment and military art, and methods of using new weapons.

Only physically fit servicemen, prepared for the trials of dynamically developing actions can act quickly, decisively and boldly in modern combat. Here an exceptionally important role is played by *biology and medicine*, and by specialists in these fields.

The training of servicemen is accomplished by various methods in everyday service routine, in combat exercises, marches, flying, in the classroom and on the firing range, in other words their entire service life. Commanders are required to be skilled in the organization of service life, the training and education process, and troop control, in the light of the knowledge afforded by all the sciences.

In its most general form, *scientific military management* can be described as the techniques involved in achieving, in the best possible way, the most effective use of combat, technical, moral, and political potential of the troops to ensure the successful fulfillment of tasks assigned to them. To achieve this it is essential that every officer should possess thorough knowledge and have a solid military training. Knowledge and ability are the principal conditions for success in troop control. Whereas knowledge is expressed in a profound understanding of military matters and the objective laws to which they are subordinate, ability means the effective utilization of this knowledge and the correct placement of personnel, having regard to their level of training, knowledge, and skills. By ability is meant an officer's capacity in a combat situation to take into account a multitude of facts and data, make calculations, analyze the sum total of this information, and select the optimum solution of the given combat mission.

In modern war it is always essential for an officer to know his assignment and understand the plan of his superior officer, to be able to appreciate the situation from every angle, to calculate and correlate facts and data, and to plan the objectives, the forces and resources, the methods of operation, and the missions of his subordinates. A commander has the right to use his initiative and to take risks. These will always be justified if they are based on scientific calculation and foresight.

The philosophical training of officer personnel is of prime importance in acquiring scientific methods of controlling subordinates. Familiarity with Marxist-Leninist philosophy not only broadens the general outlook, but helps officers to recognize trends in the development of military affairs, and facilitates the successful solution of practical problems of enhancing the combat readiness of the forces.

THE CONTRIBUTIONS OF SCIENTISTS (the most important facts)

The material-technical basis of military affairs has been decisively influenced by many of the most important discoveries in the fields of physics, aerodynamics and rocket dynamics, electronics, cybernetics, chemistry, biology, and other sciences. Below are given the most important facts about scientific discoveries.

The formulation of Einstein's theory of relativity (partial in 1905 and general in 1916) and, on the basis of this, the derivation of the mass-energy equation ($E = mc^2$).

The origin (1924–1926) and development of quantum mechanics, which led to the discovery of the internal energy of a body—nuclear energy. The founders of this science were Max Planck (Germany) and E. Rutherford (Britain), its creators Louis de Broglie (France), Niels Bohr (Denmark), W. Heisenberg (Germany), and others. The most important contribution to the future development of problems in this science were the husband and wife team Joliot-Curie (France), the Soviet scientists A. Ioffe, P. Kapitsa, L. Landau and others.

In 1939 the German scientists Hahn and Strassman discovered the phenomenon of the splitting of the uranium atom.

In 1940 the Soviet scientist V. A. Fabrikant expressed the idea of the possibility of amplifying light and radio waves. In the 1950s, the Soviet Nobel Prize recipients P. G. Basov and A. M. Prokhorov and the Americans C. Towns and A. Shavlov created quantum generators and amplifiers (lasers).

In 1956 the Soviet Academician, I. V. Kurchatov published a paper on the theory of thermonuclear reaction.

In recent years, Soviet and foreign scientists have provided a theoretical solution for fundamentally new physical methods for the direct conversion of thermal energy into electrical energy in static systems, which do not have any moving parts (thermoelectric, thermoelectronic, and ferroelectric systems).

* * *

The discoveries of the Russian scientists S. A. Chaplygin and N. Ye. Zhukovskiy were of great importance in the field of aerodynamics and rocket dynamics. In 1902 Academician S. A. Chaplygin established fundamental relationships for the movement of gases at high subsonic and supersonic speeds, and the "father of Russian aviation," Professor N. Ye. Zhukovskiy, elaborated the principles of aircraft dynamics.

Between 1897 and 1904 the Russian scientist I. V. Meshcherskiy elaborated the mathematical theory of the movement of a point of variable mass. Meshcherskiy's works formed the basis of jet technology.

At the end of the 19th century and the beginning of the 20th century, the great Russian scientist K. E. Tsiolkovskiy developed the rocket system and the basic formulas of rocket dynamics.

In the 1920s and the years immediately following, theoretical and practical work in the field of rocket engineering was carried on under the leadership of the Soviet scientists, Engineer F. A. Tsander and Academician S. P. Korolev.

The work of the Soviet Academician B. S. Stechkin, *The Theory of the Air-Breathing Jet Engine*,* was published in 1929. Abroad German scientists, including G. Obert, were working on the theory of jet engines.

* *Teoriya vozdušnogo reaktivnogo dvigatelya* [U.S. Ed.].

During World War II (1941–1945) Academician S. A. Khristianovich elaborated a theoretical solution of the objective laws that govern variations in the aerodynamic characteristics of an aircraft wing during transition to high speed flight. Academician N. Ye. Kochin worked out a practical solution to problems of the “round wing theory.” Corresponding Member of the Academy of Sciences of the USSR N. G. Chetayev proposed a method of calculating the stability of an aircraft in motion on the ground.

A group of scientists, headed by Academician M. V. Keldysh, worked out the mathematical theory of flutter.

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During the 19th century Russian and foreign scientists elaborated the principles of the theory of the electromagnetic field and the laws of radio wave propagation (M. Faraday, J. Maxwell, H. Hertz, A. S. Popov, K. Bjerknes and G. Marconi).

In 1895 the Russian scientist A. S. Popov invented the radio. In 1897 Popov became the first man to accomplish wireless communication at a distance.

In the 1930's Soviet and foreign scientists elaborated the theoretical principles of radar, which is used extensively in military affairs.

The theoretical works of Soviet Academicians L. I. Mandel'shtam, N. D. Papaleksi, V. A. Fok, B. A. Vvedenskiy and other scientists were used in the development of various radiotechnical instruments used by the armed forces.

* * *

During World War II N. Wiener (USA) founded the science of cybernetics. In the postwar years great contributions have been made to the development of this science by the foreign scientists K. Shannon and J. Newman, Soviet Academicians A. N. Kolmogorov and A. I. Berg, and others.

Technical cybernetics and the theory and application of electronic machines have been developed further in recent years.

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In the field of chemistry an important place is occupied by the theory of chain reactions, elaborated in the 1930s by the Soviet Nobel Prize recipient N. N. Semenov.

Research work carried out under the direction of I. I. Kitaygorodskiy resulted in the creation in 1942–1943 of armored glass (“BS”),* which is 25 times stronger than normal glass.

Later discoveries by Soviet and foreign scientists in the field of macromolecular compounds led to the creation of new substances of exceptional purity, new materials able to withstand the effects of extreme temperatures, new corrosion-resisting and insulating materials, coatings, special alloys and a variety of structural plastic materials. New materials have been produced

* Russian abbreviation for *bronesteklo* ‘armored glass’ [U.S. Ed.].

with predetermined properties not possessed by natural substances—glass-fiber reinforced plastics, synthetic mica, asbestos, resins, ceramics, etc.

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Theoretical research in the field of biology, primarily the study of viruses and bacteria, and the discovery by Soviet and foreign scientists of antibiotics contribute to the protection of the population and the armed forces from epidemic diseases, and minimize the number of unfavorable after-effects of serious wounds.

Biology provides theoretical answers to problems connected with the development of means of protection against weapons of mass destruction.

What to Read on This Section

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Chapter 10. WEAPONS AND MILITARY TECHNOLOGY

The scientific-technical revolution has had an enormous influence on the development of war material. What are the characteristic features of weapons and military technology at the present time?

Nuclear weapons. By nuclear weapons we ordinarily mean special explosive devices (charges), based on the use of intranuclear energy released during the chain reaction of the fission of heavy nuclei or the thermonuclear reaction of the synthesis of light nuclei (thermonuclear weapons).

There are three types of nuclear weapons:

a) Weapons commonly called nuclear. The energy released by the explosion of a nuclear weapon is caused by the chain reaction of the fission of nuclei of uranium-235, plutonium-239 or uranium-233. The charge, made of nuclear explosive (fissile) material, usually consists of several parts, the mass of each of which is less than the critical mass. The combination of the parts of the charge, i.e., the achievement of a super-critical¹ mass is effected by a special device and the detonation of a conventional explosive. To increase the output coefficient of the fissile material, the charge is surrounded by neutron reflectors.

b) Weapons commonly known as thermonuclear. The energy released by the explosion of a thermonuclear weapon is mainly (up to 80–90%) the result of thermonuclear reaction. The principal components of a weapon of this type are the nuclear and thermonuclear charges. The fuel elements in a thermonuclear charge may be a mixture of deuterium and tritium or deuterium and lithium. The release of energy during the explosion of such weapons occurs as the result of two successive reactions: the explosion of the nuclear charge (the reaction of the fission of heavy nuclei) and the subsequent helium fusion reaction.

c) Thermonuclear weapons. In such weapons the explosion occurs as the result of three nuclear reactions: the detonation of the nuclear charge, which serves as a primer; the development of thermonuclear reactions of the fusion of light elements; the fission of nuclei of heavy elements, usually uranium-238, in the form of a shell covering the entire charge. Most of the energy is released as a result of the fission of uranium-238 nuclei by neutrons released during thermonuclear fusion reaction.

¹ The critical mass is the minimum amount of uranium-235 or plutonium-239 required to sustain a chain reaction.

Nuclear weapons were first used by the United States of America in the final phase of World War II in August 1945 for the destruction of the cities of Hiroshima and Nagasaki. On each of these cities the Americans dropped one quite primitive nuclear aerial bomb. The cities were destroyed and the total number of killed and wounded exceeded half a million.

After the war, the most industrially developed countries rapidly perfected nuclear weapons, which became the principal means of striking an enemy. They have been introduced into all services of the armed forces and are used as warheads in strategic, operational-tactical, and tactical rockets, as well as aerial bombs, artillery shells and mines, ground-to-air guided missiles and anti-missile missiles, airborne missiles, naval torpedoes, depth charges and special mines.

Nuclear ammunition may be exploded in the atmosphere, in water, in the ground, and in outer space. Hence, nuclear explosions are classified as aerial, surface, underground, above-water and under-water. An extremely high temperature of several million degrees is created at the site of a nuclear explosion. A blinding flash changes into a fire-ball; the explosion produces a powerful shock wave and an enormous quantity of thermal energy (luminous radiation) is radiated into the environment. A nuclear explosion is accompanied by a stream of gamma rays and neutrons, which possess great penetrating force. Thus, the damage factors of a nuclear explosion are the following: the shock wave, the flash, penetrating radiation, and ground contamination.

The yield of nuclear charges depends on their design, the quantity, and quality of the given nuclear fuel, and is expressed as its TNT equivalent, i.e., the quantity of TNT that would be required to produce an explosion equal in released energy to the yield of the given nuclear charge.

The diversity of potential targets and the specifications of the nuclear delivery systems made it essential to have charges of different yields, from several tons to several tens of millions of tons of TNT. Low-yield nuclear charges are intended mainly for destroying various targets in battle. Their delivery systems may be tactical guided and unguided missiles, artillery shells and mines, ground-to-air guided missiles, and naval torpedoes; they can also be used as depth charges. Medium yield nuclear charges of the order of several tens of thousands of tons (tens of kilotons) are designed to hit strategically important and distant targets. They can be delivered by operational-tactical rockets, aircraft, and naval torpedoes and can be used as mines. High yield nuclear charges of several millions of tons (megatons) are generally intended for the destruction of important strategic targets deep in the enemy's rear, and can be delivered by strategic missiles, aircraft, and other means.

Missile* technology. The development of missile technology has led to its widespread application in military affairs.

In terms of launching location and target characteristics missiles are customarily classified as follows: "ground-to-ground," when the launcher and

* In Russian, "raketa" is both rocket and missile. In US terminology, a missile is guided, a rocket is not [U.S. Ed.].

the target are on the ground; "ground-to-air," when the launcher is on the ground and the target is in the air; "air-to-air," when launched from any aircraft at targets in the air; "air-to-ground," when launched from aircraft at targets on the ground; "surface-to-surface" (for the Navy).

Missile technology is directly concerned with missiles and launchers. Missiles consist of rocket engines, on-board control systems and a warhead or telemetry equipment. The launching installation may include a launcher, transporter-erector and launcher vehicles and assemblies, fueling, monitoring and measurement systems, guidance and control instruments.

The power of modern rocket engines makes it possible to deliver payloads of enormous destructive force to any point on the globe.

A part of the armament of the services and branches of the Services, missiles have already at the present stage of development become one of the principal means of waging war.

According to their design features, types of fuel and trajectories, missiles are customarily classified as single-stage, multi-stage, ballistic and cruise, liquid- and solid-fueled, guided and unguided.

In terms of the aim and nature of the mission to be completed, missiles are classified as strategic, operational-tactical, tactical, anti-aircraft, naval, and airborne.

As a rule, strategic missiles are guided and multi-stage. They can have liquid- or solid-fuel engines capable of sustaining flight for several thousand kilometers and delivering nuclear payloads to selected targets. Medium-range strategic missiles can be one- or two-stage. Strategic missiles have warheads with yields of from several hundreds of kilotons to several tens of megatons.

The range of a missile is the principal factor that determines the targets against which it is used.

Strategic missiles are capable of spanning vast distances; their range is practically unlimited. Strategic missiles (MRBMs and ICBMs) can be launched from mobile or fixed launch installations.

Operational-tactical missiles are guided ballistic missiles with ranges of several tens to many hundreds of kilometers.

The engine of a ballistic missile is usually powered by a bi-propellant fuel (combustible and oxidizer). The oxidizer makes it possible for the engine to operate outside the dense layers of the earth's atmosphere, where there is little or no oxygen to maintain combustion and create sufficient thrust.

Most "ground-to-ground" guided missiles are launched vertically. On leaving the launcher, the control system in the rocket begins to function and the missile is guided onto its combat course. During this stage, the engine continues to operate and the missile goes into the ascending arm of its trajectory. When it reaches a predetermined speed, the engine automatically shuts off, and the missile completes its flight as a conventional artillery shell on a ballistic trajectory.

The cruise missile, which has an aerodynamic configuration similar to that

of an airplane, is often called a flying bomb. It is usually powered by an air-breathing jet engine.

Operational-tactical ballistic missiles have mobile launchers and can be used against the enemy's nuclear attack facilities: missile installations on airfields, nuclear weapon stockpiles, command posts, groupings of forces, etc.

Tactical missiles, with ranges of several tens of kilometers, are designed to provide direct support for ground forces on the battlefield. They can be used for strikes against nuclear attack facilities in the combat formations of the enemy forces; the destruction of artillery, missile, and mortar batteries, personnel and firing positions in strong points and in assembly areas; reserves and command posts; disruption of the operation of the enemy's rear units, and the repulse of enemy counterattacks during an offensive. There are both guided and unguided tactical missiles. In order to increase their accuracy, missiles of this type are equipped with on-board control systems. Tactical missiles are launched from mobile launchers, which can move with the troops.

Anti-tank guided missiles are also classified as tactical missiles. Their main purpose is the destruction of tanks and other armored targets.

Air defense missiles are the most effective means of air defense. Remote control systems or combined remote control (first stage) and homing (last stage of flight) systems are used to guide the missiles to their targets. Air defense missiles are capable of hitting targets at any altitudes in any meteorological conditions, day or night; with nuclear warheads they can destroy entire groups of aircraft flying in formation.

Airborne missiles are carried by certain types of aircraft for attacking surface (sea) or airborne targets. Bombers are usually armed with guided cruise missiles, the range of which, after being launched from an aircraft, can be reckoned in hundreds of kilometers. This permits aircraft to attack targets from long distances, without entering the enemy's air defense zones. Short-range, low dispersion air-launched missiles are carried by aircraft for attacking small targets, such as ships, bridges, launch sites, etc.

Small guided and unguided airborne missiles are carried by fighter aircraft for attacking airborne targets: aircraft, helicopters, balloons, and dirigibles.

Tanks. These are tracked fighting machines with armored protection and fire power; their mobility, turning, and cross-country capabilities give them a high degree of maneuverability. The first experimental tank was built in Russia in May 1915, but tanks were originally developed in Britain and France. Now they are standard equipment for the armored (tank) forces of many of the world's armies.

According to a universally accepted system of classification, tanks are usually subdivided into three categories: light, medium, and heavy. Light tanks (weighing up to 20 tons) are designed for reconnaissance work and, in some cases, for example, in fording water obstacles, they are used in direct support of infantry (motorized infantry) subunits. Medium tanks (up to 40 tons) are generally used as elements of units and formations for the solution of independent tasks. Sometimes medium tanks may be attached to infantry

(motorized infantry) units and subunits for direct support in an attack, or for reinforcement in a defensive action. They are designed to destroy the enemy's weapons, his tanks, self-propelled artillery and personnel. Heavy tanks (weighing over 40 tons) are generally used as elements of units for accomplishing independent tasks, mainly engaging enemy tanks and anti-tank weapons. In individual cases, they can be used to destroy or neutralize his defensive structures.

The development of anti-tank weapons during World War II, and particularly since the war, has necessitated an increase in the thickness of the armored protection and improvements in the shape of the tank body. Tanks can travel across country and negotiate various obstacles. Most types of tanks are equipped with guns having calibers that range from 75 to 120mm. The armor-piercing shells fired by these guns have a high degree of penetration ability. In addition, tanks are armed with different types of machine guns, including air defense machine guns for use against low-flying aircraft and other airborne targets.

Effective firepower is ensured by the traversing turrets, guns, electric drives, and sophisticated sighting devices, including infra-red equipment, which are incorporated in modern tank designs.

In addition to the main types of tanks, some armies are equipped with reconnaissance, amphibious, and airborne assault tanks.

Because of their design characteristics, tanks, more than any other fighting vehicles, are suitable for action in nuclear warfare, a fact which determines their future development.

Artillery. Artillery includes different types of weapons and equipment: guns, howitzers, mortars, trench mortars, combat rocket launchers, artillery ammunition, and artillery reconnaissance, observation and fire control systems.

The design and specifications of artillery systems depend upon the purpose for which they are intended and the tasks to be completed.

As a rule, guns are rifled and, compared to howitzers and mortars, have longer barrels (usually 30–60 calibers), a much greater muzzle velocity (500 m/sec or more), range, and armor penetrating capability. The trajectory of a gun shell is flatter than that of howitzer and mortar shells. Gun bores vary from 20mm to over 400mm. Guns are standard equipment for artillery subunits, troop artillery, coastal artillery, anti-tank, and air defense units, tanks, self-propelled artillery, and naval ships, as well as aircraft.

Howitzers, like guns, are rifled. They are used both by units and formations of organic field artillery and the artillery of the Supreme High Command Reserve. Howitzer calibers start at 100mm. The distinguishing characteristics of this type of weapon are that it has a much shorter barrel than the cannon (15–30 calibers), a lower muzzle velocity (300–500 m/sec), a shorter firing range and, therefore, an inferior armor-piercing capability. The howitzer is better adapted than the gun for firing at greater angles of elevation (up to 63°), i.e., it has a steep trajectory, which is essential for destroying

targets protected by shelters, or situated on the far side of steep ridges, in forests and built-up areas, etc.

Mortars are the least widely used of all artillery ordnance. They have short rifled barrels (barrel lengths do not exceed 16 calibers and muzzle velocities vary between 150 and 300 m/sec). They are designed to deliver high angle fire at hidden targets.

Trench mortars are smooth bore artillery pieces without a recoil system. They have been in widespread use in many of the world's armies since the eve of, and particularly during, World War II. Trench mortars are designed for striking enemy personnel and weapons located both in the open and in dug-outs, trenches, and various kinds of shelters.

Trench mortars have a number of advantages over rifled guns, in particular: simplicity of design and maintenance, lightness and, therefore, greater battlefield maneuverability; their high trajectory and greater angles of fall of the shells are essential for the destruction of targets protected by cover. Drawbacks of the trench mortar are its inability to fire projectiles on flat trajectories, its comparatively short range, and the impossibility of delivering direct fire against tanks.

Rocket launchers are, as a rule, multi-loading, mounted on the chassis of cross-country trucks, tracked cross-country vehicles, or tanks, and are designed for launching unguided missiles. A rocket launcher usually consists of moving parts, guide rails, aiming mechanisms (elevation and traverse), and electrical equipment. The number of guide rails determines the weight of a rocket salvo fired by the launcher. In World War II, the range of rocket artillery varied between 4 and 10km. A high density of fire, and thus increased effectiveness, is achieved by subunits employing salvo fire.

Possible targets against which rocket launchers may be used include artillery and mortar batteries, enemy nuclear attack resources, and personnel, both in the open and under cover, etc.

Artillery ammunition is the aggregate of elements necessary to fire artillery (mortar) rounds (to deliver fire). Artillery (mortar) rounds are stored and issued to units as complete rounds. A complete round consists of a shell and a charge; the shell consists of the body, the explosive and the fuse; the charge consists of the cartridge, the propellant charge, and the primer.

The diversity of targets on the battlefield necessitates a vast array of different types of shells. One type of gun may fire the following shells, which differ in their purpose and effect: fragmentation, high-explosive-fragmentation, high-explosive, armor-piercing, concrete-piercing, shrapnel, incendiary, illuminating, smoke, propaganda, etc.

The effect of shells on a target depends on the fuse setting, which provides for either instantaneous or delayed detonation. Shells designed for use against armored and concrete targets have base fuses, i.e., the fuses are located in the bottom part of the shell body; other types of shells have nose fuses.

Powder charges, depending on the caliber of the gun, are either fixed or variable. Fixed powder charges are usually used in ammunition for guns of up to 100mm caliber. In this case, all the elements of the artillery round are

grouped together; the charge is located in the shell-case. Taken together, these are usually referred to as a fixed round (fixed ammunition). Variable charges are, as a rule, used in guns of calibers in excess of 100mm which have separate loading. Variable charges consist of several pre-prepared and accurately weighed charge increments. This permits the size of the charge to be varied so as to influence the muzzle velocity of the shell, the nature of its trajectory and range.

The accounting and supply unit used when issuing ammunition and planning artillery fire mission is the unit of fire. The number of artillery (mortar) rounds in a unit of fire depends on the caliber of the gun (mortar). A unit of fire for each type and caliber of gun contains shells for different purposes in a certain proportion.

A mortar round consists of a shell, the main propellant charge and charge increments; the shell consists of the body and stabilizer housing, the bursting charge, and fuse. A mortar round for certain breech-loading mortars consists of a shell case, into which the powder charge is placed; the charge is ignited by a screwed-in primer.

Rocket shells (unguided missiles) used in field rocket artillery fall into a special category of artillery ammunition. The distinguishing feature of this type of shell is that it has a motor which, as a rule, burns solid fuel. The motor has a combustion chamber and a jet nozzle through which gases are ejected, thus creating the thrust which propels the missile. The rocket fuel is usually ignited by means of a squib, set off by the electrical power supply system of the launcher.

Artillery power is firepower, while firepower lies in artillery ammunition. Shell bodies are designed to cause damage to targets and usually incorporate an explosive, the amount of which determines the explosive force.

Observation and fire control instruments. Binoculars, battery commander's telescopes, directors, reconnaissance theodolites, range finders, all kinds of acoustic and radar equipment, computers, and automatic power generators for laying are used for battlefield observation, target reconnaissance, the preparation of firing data, and fire control.

The principal artillery fire control devices are the mechanized artillery board and coordinator, the azimuth scale and range rule; in air defense gunnery, the air defense fire director; in naval and coastal artillery, fire directors with computers and electrically powered drives for automatic gun laying, similar to those used in the air defense fire director.

Small arms. Pistols; machine pistols (submachine guns); rifles; carbines; light, heavy, and large-caliber machine guns. The main purpose of small arms is to kill enemy personnel in close combat. Small arms calibers range from 6 to 20mm.

Their rapidity of fire, adequate effective range, reliability of operation, maneuverability, convenience and simplicity of operation, their relatively straightforward design, which permits large-scale manufacture, have made it possible to introduce them into all the Services and branches of the Services.

Depending on their weight, design and purpose, a distinction is made

between individual and team small-arm weapons. Individual weapons (officers' and soldiers' personal weapons) include: pistols, submachine guns, rifles, and carbines. Team weapons—various types of machine guns—are usually operated by several men.

According to the degree of automation of the operations connected with reloading and firing, small arms are divided into non-automatic (single-shot and magazine), and semi-automatic, and automatic.

Individual (personal) weapons are used as a means of killing enemy personnel at distances up to 600m. Light machine guns are used against groups and important single targets up to 800m away. Heavy machine guns are used to deliver massive fire for the suppression and destruction of group targets and weapons at ranges up to and in excess of 1,000m. Large-caliber machine guns are usually used against exposed and lightly armored ground targets at ranges of up to 3,000m, and airborne targets at altitudes of up to 2,000m.

Tanks and aircraft are equipped with special tank and aircraft machine guns.

The development of small arms has followed a long and difficult path—from smooth-bore, round-shot, muzzle loaded flintlocks to powerful modern automatic weapons.

Aviation. The technical basis of modern military aviation consists of aircraft and helicopters, plus ground equipment at airfields, command posts and repair depots, and electronic aids.

The aircraft resources of the present-day air forces of the developed nations consist, as a rule, of reconnaissance aircraft, fighter bombers, bombers, fighters, and transports.

Reconnaissance aircraft are designed to carry out tactical, operational, and strategic reconnaissance missions. Each of these categories of reconnaissance is carried out by aircraft of a specific type with different specifications and equipment. Aerial cameras, radio communications, and radio navigation aids are standard equipment for reconnaissance aircraft.

Fighter bombers are supersonic jet aircraft, the armament of which consists of cannons, unguided and guided missiles, and bombs in various combinations. They carry either conventional or nuclear weapons and can be used for the destruction of aerial targets.

Depending on their role and design, bombers are classified as tactical or long-range (strategic). They carry conventional and nuclear missiles and bombs for attacking ground targets.

The modern bomber is an all-metal cantilever monoplane powered by two or more jet engines. Navigational and operational accuracy are ensured by means of radio navigation systems, optical and radar sights, and computers.

Fighters are designed for the destruction of aerodynamic flying targets—enemy aircraft, cruise missiles, and helicopters. Fighters are the fastest type of aircraft, capable of operating at all altitudes and in the stratosphere. Modern fighters are usually armed with air-to-air guided missiles and carry a crew of one or two.

Military transport aircraft are specially equipped for airborne assault land-

ings, and ferrying troops and supplies (ammunition, arms, provisions, etc.). They are usually long range aircraft with a high load carrying capacity.

Helicopters are machines which fly by means of rotors. They take off and land vertically, without runways, and are able to hover at a given altitude over a given precise point on land or water. They are designed for assault landings and freight transportation and can also be used for artillery reconnaissance and spotting. In Vietnam, the US Army Command uses helicopters to engage ground targets.

Engineer equipment is used in all the Services and principal branches of the Services. The increased power of modern weapons of destruction and the introduction of diverse fighting equipment have resulted in increased demands for large volumes of military engineering work and its accomplishment within the shortest possible time in support of troop combat operations. This is made possible only by the extensive use of a mass of high-performance machinery and every conceivable form of mechanization.

Engineer equipment includes: mines; engineer reconnaissance, mine, and obstacle clearance resources; ferrying facilities, and special engineer vehicles.

Mines consist of anti-tank and anti-personnel mines with contact and proximity fuses. The armed forces of countries which possess nuclear weapons can also use nuclear land mines. Minefields can be laid by hand or special minelaying vehicles.

Engineer reconnaissance and mine and obstacle clearance equipment includes mine detectors and probes, detonating cables and jet engines for uncovering them, bangalore torpedoes, and special armored mineclearing vehicles.

Ferrying equipment consists of assault and reconnaissance boats, footbridges, ferries, pontoon and bridging packs, sectional bridges, bridge-building vehicles and assemblies, self-propelled landing craft, and other equipment.

Bulldozers, graders, skimmers, trench diggers, loaders, and other engineering equipment are used for preparing attack areas for an offensive, supporting troop maneuvers, creating static deployment areas, including static areas for the Rocket Forces, and equipping airfields and sites for the Air Defense Forces, as well as naval bases.

Transport facilities. Armed forces are supported by all the modern forms of transportation: rail, motor vehicle, air, river, and marine, as well as pipelines.

Transport has always played an important role in military affairs. Nowadays, armed forces could not exist without it.

Motor vehicle and air transport have now become especially important.

Air defense and anti-missile defense resources. A sophisticated complex of various means of detecting, identifying, tracking, and destroying enemy aircraft and missiles protects the population, industrial centers, groupings of forces, and other objectives.

The principal means of detection, identification, and tracking is radar. In order to detect an object (for example, an aircraft or a missile) in space, a

radar station must generate electromagnetic energy, direct it at the target, and then receive and record the signal reflected from it.

The most important characteristics of a radar station, upon which its detection range depends, are pulse power, receiver sensitivity, and directivity of the antenna. The greater the value of each of these characteristics, the greater the detection range.

The increased speed of the means of delivering an aerial attack has led to the need to increase the distance at which they can be detected. Thus, during recent years, the pulse power of radar stations has constantly increased. Whereas that of the first radar stations did not exceed 100–200kw, the outputs of modern long range stations is sometimes higher than 1,000–2,000kw.

Radar and other electronic equipment now in use can detect aerospace targets at any time of the year, day or night, at great distances, identify them and determine their exact position, thus providing target indications for the air defense missile complexes and fighter aircraft.

Special radar stations, capable of detecting small-sized objects at great distances are required to counter ballistic missiles. For example, the Americans have already built radar stations capable of detecting approaching missiles at distances of several thousand kilometers. The use of complex electronic computers in the radar system makes it possible, not only to detect a flying object, but to determine its coordinates and calculate its flight trajectory instantaneously. The USA is developing radar equipment with even greater detection ranges.

Modern fighter interceptors can attain very high speeds in both vertical and level flight, have long range operational capabilities, and are equipped with powerful cannons and rockets, electronic navigation equipment, and automated guidance systems, which make it possible to detect and destroy aerial targets beyond visual range, day or night, and in difficult meteorological conditions. They are a reliable means of combating all types of aircraft, cruise missiles, and other targets at any altitude in the earth's atmosphere, whether flying at subsonic or supersonic speeds. The most important advantages of fighter interceptors are their maneuverability, the fact that they can be rapidly relocated at bases where they are most needed, and the fact that they can be used repeatedly.

Air defense artillery is still an effective means of air defense, especially against low-level aerial attack. The development of aviation and the associated development of air defense artillery led to a need for guns of different calibers, and air defense fire directors.

The most important combat qualities of air defense artillery are that it can open fire rapidly and maintain a prolonged delivery of fire, destroy targets at different altitudes in any weather conditions, and at any time of the year, day or night, and fire at visually unobserved and untracked targets (barrage fire). The use of radar permits more effective use to be made of air defense artillery, especially in poor visibility.

Air defense artillery is a maneuverable air defense weapon, which can be used for the protection of both military and non-military targets.

Depending on their purpose and design specifications, air defense guns are classified as follows: 20–60mm—small caliber; 60–100mm—medium caliber; and above 100mm—large caliber.

To increase their rate of fire, small caliber air defense guns are generally designed for use with fixed ammunition and automatic loading and firing systems, while medium and large caliber guns have semi-automatic loading systems. To increase the effectiveness of fire, some armies use two-, three-, and four-barreled guns on a single mounting (gun carriage).

The basic air defense artillery subunit is the battery, consisting of four to eight guns.

Depending on the combat conditions and the nature of the target, air defense artillery employs one of two principal methods of firing: with and without air defense artillery fire detectors. The former is the chief method of aerial target firing, and involves the use of data provided by gun-laying radar, gun-laying radar and range finder, or, in some cases, range finder alone. Firing without an air defense artillery director is used for barrage firing at aircraft or other aerial targets and for visual firing at aerial and ground targets. It can also be used for firing at ground targets from covered firing positions.

Ground-to-air guided missiles are the most reliable means of air defense. They are capable of destroying any modern aircraft or other airborne target, whether flying at subsonic or supersonic speed, at any altitude.

The main features of ground-to-air guided missiles are their great ceilings, accuracy and strike reliability. According to foreign sources, the probability of a target (modern aircraft) being hit by one missile is reckoned to be more than 65%. Different types of ground-to-air guided missiles are used against airborne targets at different altitudes and at different distances from the defended objects.

The use of ground-to-air guided missiles in combination with air defense artillery and fighter aircraft ensures a reliable air defense system.

Military radioelectronics. This is the name given to a whole complex of independent branches of science and technology, which have developed during recent years in all the armies of the world on the basis of radio engineering and electronics. These include all forms of electrical communication, radar, radio navigation, radio-telecontrol, radiometeorology, television and photogrammetry, hydroacoustics, infrared, electronic computer, vacuum tube, semiconductor, and other branches of technology.

Radioelectronics is now of decisive importance in military affairs. It is difficult to imagine the possibility of conducting modern military operations and combat actions without the extensive use of radio-electronic equipment. The application of radioelectronics in military affairs has led to a major change in troop control methods, improvements to the combat qualities of existing types of arms and fighting equipment, and the creation of new types of arms with combat qualities that have brought about a revolution in mili-

tary affairs. Radioelectronics made it possible to develop guided missiles for various purposes. And finally, the ultra-powerful weapons of our modern world, based on utilizing the energy of the atomic nucleus, would never have developed without the resources and methods of radioelectronics.

Radioelectronics has been applied in military affairs mainly in the development of communications, intelligence, and troop and weapon control facilities.

It is true to say that an army's "nervous system" is its communications network. In modern warfare, in which combat operations may spread over vast areas and involve highly mobile troops and equipment, radio communications have become especially important. Radio is now the main form of communication in the armed forces. Every combat airplane, tank, rocket launcher, ground forces, subunit, and warship must have radio communications equipment.

If an army's communications represent its nervous system, reconnaissance can be considered as its eyes and ears. The timely detection of an enemy plays a decisive role in the outcome of combat operations and armed conflict as a whole. Military reconnaissance involves the use of a variety of technical facilities, widely differing in design, potential, and methods of application. These include radioelectronic resources: radar stations, radio interception and direction finding, television, hydroacoustic apparatus, infrared viewers, radiation monitoring instruments, etc.

Radar observation and reconnaissance facilities are used to detect various military objects. The operating principles of this type of equipment, which is used on a very large scale in air defense and aviation, have already been referred to.

Hydroacoustic apparatus is widely used in the Navy to detect submarines and accomplish a number of other combat tasks. It can be included under the heading of radioelectronics, although it utilizes sound waves, not radio waves. The devices for generating, receiving, amplifying and transforming sound waves are similar to those used in radio, and are based on electronic circuits.

There are active and passive hydroacoustic systems. Active systems (sonar) operate on the same principle as radar, but use sound waves and their reflection for illuminating objects in the water. Passive systems (hydrophones) operate on the principle of the conversion of mechanical vibrations of water particles into sound vibrations. Such vibrations are produced by a ship's propellers, hull, etc.

Radio reconnaissance has been used by all the armies of the world almost from the moment they first acquired radio. Intelligence is picked up by listening in to (intercepting) the enemy's radio communications and radio direction finding signals, i.e., by determining the direction from which the radio waves of enemy transmissions originate. Like any other form of radio reconnaissance, this is extremely effective and can be carried out in absolute secrecy, since it involves only the reception of enemy radio transmissions.

Military television is used in foreign armies, air forces, and navies for

intelligence purposes and also for monitoring and observation in various forms of controlled fire. It permits observation of areas (objects, installations, assemblies, equipment) where direct contact is not possible, for example, on account of a high level of radiation, total destruction, landslides, floods, fires and so on. This also applies to areas in enemy territory. The effectiveness and clarity of the resulting intelligence information is one of the most significant aspects of television.

Infrared night vision devices are used for visual reconnaissance, observation and identification in darkness. These take the form of night sights on various types of weapons, and night driving equipment. These devices are based on the principle of converting invisible infrared radiation, used for "illumination," into a visible image.

Special radioelectronic equipment, which functions fully automatically, without interference in its operation and without human intervention, occupies an important place in military affairs. This category of equipment includes various radiation monitoring and measuring devices, which form the basis of sensors of every possible type of information; for example, sensors for the determination and transmission of data on levels of ground radiation and chemical contamination, the state of the weather, etc.

In modern warfare, seconds make the difference between success and failure. This is where mechanization and automation come to man's aid. The wide use of mechanization and automation in different military fields has been made possible solely as a result of the rapid progress in radioelectronics. Among the sophisticated automatic devices available today an important place is occupied by the electronic computer. It is used for the automation of different calculations, weapon control, and can "think out" solutions to operational-tactical problems, etc.

According to the foreign press, electronic computers are used in the guidance systems of anti-missile and air defense weapons, in missile and artillery systems on naval vessels, and in ground and airborne aviation systems. These can compute every conceivable kind of calculation to assist a commander in reaching the optimal decision.

The extensive use of radioelectronic equipment by modern armies posed a new problem—that of paralyzing the enemy's radioelectronic equipment, thereby depriving him of stability, flexibility, and uninterrupted control of his forces and weapons.

The aggregate of measures employed to accomplish these objectives is often referred to in the foreign press as the war in the ether, or radio warfare; and the elements of radio warfare are considered to be radio reconnaissance, electronic counter-measures (ECM), and electronic counter-counter-measures (ECCM) or ECM defense.

Means of communication. Military communications are designed for the transmission of signals, commands, orders, instructions, reports, and various situation data required for troop control in the process of preparing for and carrying out combat operations.

Radio is the most effective and reliable means of communication in modern

warfare. Its chief virtue is that it permits communication with mobile objects (ships, aircraft, tanks, etc.). The first models of radio stations were constructed by our compatriot, A. S. Popov, at the end of the last century.

Radio facilities have different electromagnetic radiation frequency ranges (wavelengths). The radio wave spectrum is divided into four bands.

Band	Wave length, m	Wave band, mhz	Use
Long-wave	30,000-3,000	0.01-0.1	Radio communication
Medium-wave	3,000-200	0.1-1.5	" "
Short-wave	20'-10	1.5-30	" "
Ultrashort-wave:			
meter	10-1	30-300	Radio communication and radio
decimeters	1-0.1	300-3,000	relay links,
centimeters	0.1-0.01	3,000-30,000	television

Radio communications equipment is designated long-, medium-, short-, or ultrashort-wave in accordance with the above table.

Long-wave radio stations are effective over long distances, their range being little affected by seasonal variations, or the time of the day, phases of solar activity, or ionospheric disturbances. However, much of the energy of electromagnetic waves in the long-wave band is absorbed during reflection from the ionosphere, and for this reason it is necessary to use high-power transmitters and very large antennas. The band width of long-wave radio stations is very small, and thus they are used mainly for telegraphy. Long waves are of smaller amplitude than waves in the other bands; they are absorbed by sea water and can penetrate to a great depth. In the foreign press, it is noted that this property is utilized in the Navy for communication with submarines.

The operating range of medium-wave radio stations is shorter, and depends largely on the time of the day (the range of the most powerful transmitters reaches 4,000-5,000km at night time and is far less during daylight hours). Their range is affected little by ionospheric disturbances and for this reason they are the principal means of communication in high latitudes. The number of operating frequencies in this band is also limited. Stations operating on medium-wave frequencies use both speech and telegraphy.

The remarkable fact that radio waves in the short-wave band are reflected from the upper layers of the ionosphere without appreciable loss of energy makes it possible to use them for communication over very great distances. However, the communication range of the surface (ground) wave generated by short-wave radio stations is limited to several dozen kilometers.

Short-wave radio is used on practically all command links and in all branches of the Services. It is used for telephone, telegraph, phototelegraph and data link communications. Simultaneous working on two or three channels is possible.

Ground forces ultrashort-wave (USW) radio stations operate on frequen-

cies in the metric band. Aircraft USW communications are carried on frequencies in part of the decimetric band. This is explained by the fact that metric waves possess, in some degree, the property of diffraction (i.e., the property of bending around irregularities in the earth's surface) and their propagation range is somewhat greater than line-of-sight range. Decimetric and centimetric waves do not have this property. Owing to the fact that ultrashort waves are not reflected from the ionosphere, but penetrate right through it, USW radio stations operate on the surface wave only. Their range of operation, which varies from several kilometers to several tens of kilometers, is virtually unaffected by seasonal factors or the time of the day. The large band width of the USW band makes it possible for a radio link to include apparatuses for the transmission of all kinds of information, including television, as well as the capacity for simultaneous operation on several channels.

According to foreign sources, radio stations of this type are widely used for control in the lower tactical elements of the ground forces and fighter aviation. They are carried by motor vehicles, armored personnel carriers, and aircraft. Some sets are portable and weigh only a few kilograms.

The modern radio communications equipment of a tactical element is characterized by a high degree of operational reliability, simplicity of maintenance, and rapidity of netting. The frequency stability of radio emissions makes it unnecessary to adjust such equipment during operation.

Radio relay was first used as a means of troop control during World War II. The operating principles and design of radio relay facilities incorporate a number of the positive features of both radio and line communications. If we say that radio communication has been established between two points, we imply that there is a radio station at both of these points through which information is exchanged and that the range of operation is determined by the type of radio equipment employed. If, on the other hand, we are talking about radio relay, we have in mind a whole chain of stations, two of which are located at control points (terminal stations), and one or several between them (intermediate stations). The operating range of such a radio relay system depends mainly upon the number of intermediate stations.

Each terminal station has a radio transmitter and a receiver. Transmission and reception are on different frequencies, thus ensuring that the transmitter does not interfere with the receiver. Each intermediate station has a similar set-up, which makes it possible for signals received from neighboring stations to be retransmitted in either direction. A similar retransmission scheme is used in line telegraphy by means of a relay. Hence the term radio relay link for a complex of terminal and intermediate radio stations.

Radio relay stations operate in the metric, decimetric and centimetric segments of the ultrashort-wave band. This permits the use of very small antennas, capable of transmitting electromagnetic energy in a narrow beam, thus eliminating the wasteful expenditure of energy and requiring hundreds of times less radiating power for a given operating range than is necessary with non-directional antennas. Therefore, the output of transmitters of radio

relay stations is comparatively low (from several watts to several dozen watts). The range of communication between neighboring stations of a radio relay link is 40–50km, depending on the terrain and the height of the antennas.

By using multiplexing equipment, several telephone and telegraph channels can be received on a radio relay system (as in line communications). The more channels a radio relay system has, the more complex its equipment. Radio relay stations are either low-capacity or multichannel. The former are capable of receiving no more than four channels; the latter have the capacity for a large number of channels. There are both mobile and fixed radio relay stations.

Under present-day conditions, radio relay, together with radio communications, is the most important means of troop control.

In recent years, it has been found possible to increase considerably the range of USW communication without intermediate stations.

Apart from their many advantages, radio and radio relay communications have one serious disadvantage: they can be intercepted by the enemy. Therefore, in utilizing these forms of communication, it is essential to ensure the absolute security of the messages and transmissions.

Under present-day conditions, line communications have lost their former importance and have been replaced by more mobile forms of communication. However, because of the known merits of this form of communication it will still be used under various conditions in a combat situation.

Line communications have made great strides since World War II. Overhead lines have been replaced by cables. Field cable lines, depending on their purpose and the type of cable used, are divided into two main categories: light and heavy.

Light cable lines are used in tactical elements. They can be single- or two-core cables and can carry telephonic and telegraphic communications over distances of several dozen kilometers. Simultaneous telephone and telegraph operation is also possible. Mechanized laying of light cable lines has considerably speeded up the establishment of communication by this means. Motor vehicles, helicopters, etc., are used for this purpose.

Heavy field cable lines are used for communications on major links. These consist of four-core cables, each core being covered by rubber insulation, all enclosed in a single jacket of semiconducting rubber, which, in addition to providing mechanical protection, acts as a screen. The laying of this type of cable, either on the surface or at a specific depth below the surface, has also been mechanized. Heavy cable lines can carry several telephone conversations and telegraphic transmissions. Modern amplifying equipment ensures communications over distances of several hundred kilometers.

All the forms of communication enumerated above are combined into a single system through communication centers, which are established at control points.

The terminal elements of these systems may be telephone, telegraph, teleprinter, and phototelegraph equipment, different signaling devices, as well as

units for recording data link information where electronic computers are used at control points.

Mobile means of communication, which play a very important role in troop control in modern warfare, include cross-country vehicles, armored personnel carriers, helicopters and aircraft, and in some cases, fighting vehicles as well. The principal advantage of these is that they can deliver not only actual graphic and textual documents, but different types of small-sized secret equipment as well.

Communications facilities permit the rapid exchange of various kinds of information between command elements. However, in order to increase the operational efficiency of troop control it is essential that this information be processed and converted very quickly into a form that will facilitate a rapid and accurate appreciation of the situation and the adoption of a well-founded solution. To this end, headquarters and other command elements are provided with technical facilities, such as equipment for information documentation and presentation, duplication of textual and graphic documents, and various types of calculators, etc.

Naval materiel. Navy materiel is extremely diverse. It includes the entire fleet—different classes of surface vessels and submarines, plus naval aircraft.

Until the advent of nuclear weapons, naval fighting power was based on surface vessels. Now it is based on atomic submarines armed with nuclear ballistic missiles, and naval aviation. According to the foreign press, the endurance of American atomic-powered missile-carrying submarines is practically unlimited. They can carry up to 16 ballistic missiles with ranges of 2,000–4,000km. In the opinion of foreign experts, the nuclear missiles carried by these vessels can be used against large-scale military-industrial and administrative and political centers, strategic missile launch sites, air and naval bases, large groups of forces, and other important strategic targets. The displacement of American atomic-powered missile-carrying submarines is upwards of 3,000 tons, their submerged speed, 25–30 knots.

Naval missile-carrying aircraft can also inflict powerful strikes on enemy naval and coastal targets.

Naval aircraft can be based either at coastal airfields or on aircraft carriers. An aircraft carrier is essentially a floating aerodrome, which has all that is necessary for the landing, accommodation, repair, and servicing of combat aircraft. Aircraft carriers are the largest in size and displacement of all naval surface vessels. According to the foreign press, their tonnage varies between 42 and 76 thousand tons. Their speed is between 33 and 35 knots and they have comparatively powerful defensive armaments, usually consisting of twelve to fourteen dual-purpose 120–127mm guns, thirty to fifty 20–40mm antiaircraft guns, or several surface-to-air guided missile launchers. The main combat component on an aircraft carrier is its complement of aircraft, the purpose of which is to attack shipping and coastal targets. The number of aircraft on a carrier, depending on the vessel's displacement and the types of aircraft (bombers, fighters), may be as high as 140.

Foreign navies (mainly the US Navy) have, in recent years, developed in two clearly defined directions: naval strike forces (submarines, aircraft and

aircraft carriers) and anti submarine warfare (ASW) forces. Therefore, in addition to heavy (strike) carriers, there are light and special ASW carriers. They are of smaller displacements and somewhat different weapons complements, dictated by their purpose: surveillance of the enemy and the anti-submarine defense of fighting ships and convoys on the shipping lanes.

Submarines armed with conventional or nuclear torpedoes may be used as ASW weapons. Submarines can inflict strikes on enemy shipping and reconnoiter his naval forces.

Despite the rapid development of the submarine fleet, surface warships have not lost their importance.

Surface vessels used in World War II included: battleships, cruisers, destroyers, escort vessels, minesweepers, torpedo boats, landing craft, depot ships, and several others. Different classes (types) of ships are described in terms of their dimensions, displacement, armor protection, speed, cruising range, and armament.

Battleships were used to shell enemy ships and destroy them at sea. They were also used to demolish large coastal installations. The displacement of these vessels was as high as 60 thousand tons, their speed 30–35 knots, and cruising range 10–15 thousand miles. They were equipped with six to twelve powerful guns of 356–406mm, in two-, three-, or four-gun armored turrets.

In addition, the battleships were equipped with dual-purpose 127–152mm guns mounted in self-contained turrets for defense against aircraft and small craft; battleships also have numerous small-caliber air defense guns.

Heavy cruisers, like battleships, are designed to destroy surface vessels at sea and bombard coastal targets. According to foreign sources, the displacement of heavy cruisers varies between 18 and 34 thousand tons and their armament consists of six to nine 203–305mm guns, eight to twelve dual-purpose guns up to 127mm in caliber, and several dozen small-caliber air defense guns.

Since the war, battleships and heavy cruisers of some countries have been equipped with surface-to-air guided missile launchers and helicopters.

The displacement of light cruisers varies between six and eighteen thousand tons. These warships are armed with nine to twelve 152mm guns, eight to twelve 102–127mm dual-purpose guns, 35–50 small-caliber air defense guns, several surface-to-air guided missile launchers, four to six torpedo tubes, and carry one to three helicopters. Their speeds vary between 32 and 38 knots. The main purpose of light cruisers is the destruction of the enemy's light naval forces and the disruption of sea communications.

Battleships are no longer being built by any nation and the number of ships of this class in service is decreasing all the time. Other, more up-to-date, forms of naval technology are being developed.

Special ships for the air defense of formations of vessels and convoys at sea began to make their appearance in the navies of the world in the post-war period. The displacement of these ships varies between five and eight thousand tons, their armament consists of eight to twelve 127–130mm dual-purpose guns, small-caliber (20–40mm) air defense guns and surface-to-air missiles; their speeds vary from 30–34 knots.

Radar patrol vessels are designed for long-range aircraft detection, have a displacement of two to three and a half thousand tons, are armed with four to six 120–127mm dual-purpose guns, eight to twelve 40mm guns and depth charges, they can reach 30–35 knots.

Destroyers are designed to carry out torpedo attacks on enemy ships, to protect naval squadrons and convoys of merchant ships from aircraft, submarine, and torpedo-boat attacks. The displacement of this class of warship varies between one and a half and three and a half thousand tons; their armament usually consists of four to six 120–127mm dual-purpose guns, eight to ten 40mm air defense guns, surface-to-air guided missiles, five to ten 533mm torpedo tubes, and depth charges.

Escort vessels fulfill the same functions as destroyers. Their displacement is less (one to three thousand tons) and they carry correspondingly fewer weapons.

ASW vessels, even small ones, are designed to detect and destroy enemy submarines and carry out patrols. These vessels have displacements of up to 2,700 tons; their armament consists of two to six dual-purpose guns, the calibers of which vary from 76 to 127mm, four to twelve small-caliber air defense guns, torpedo tubes and depth charges, and their speeds range from 14–35 knots.

Minelayers have similar specifications. Their purpose is to lay mines in the paths of enemy naval forces.

The smallest naval surface ships, both in size and displacement, are torpedo boats, the role of which is to carry out torpedo attacks on enemy ships. The distinctive feature of torpedo boats is their speed (up to 42 knots); their main armament consists of torpedoes.

Naval technology has developed rapidly in recent years, and naval fire power has increased considerably. The technically highly developed maritime nations are forging ahead with the re-equipment of all classes of surface vessels. Increasingly, ships are being equipped with various types of missiles instead of the classical rifled guns. There is a tendency amongst a number of the most aggressive imperialist countries (members of NATO) to equip certain merchant ships with Polaris nuclear missiles and include them in their navies as “chameleon” ships to carry out nuclear strikes in the event of war.

What to Read on This Section

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Chapter 11. THE ESSENTIALS OF SANITATION AND HYGIENE

The Communist Party and the Soviet Government, in their constant concern for the well-being of the Armed Forces, do everything possible to ensure that Soviet servicemen are strong, healthy and hardy—which is perfectly understandable, since the fighting efficiency and combat readiness of the Forces depend largely on the state of health and physical fitness of the officers and men. Under present-day conditions, at a time when the development of military technology has reached an unprecedented level, ever-increasing demands are being imposed on the human body. This is why questions concerning the protection of servicemen's health have a direct bearing on the official duties of all command personnel of the Soviet Armed Forces.

The Internal Service Regulations of the Armed Forces of the USSR oblige all officers to concern themselves with the protection of the health of their subordinates. In order to carry out their obligations in this respect, all officers must be familiar with disease prevention measures, the rules governing hygiene, daily life and service, nutrition and rest, and the physiology and hygiene of military work.

As we know, the duties of a subunit commander include the arrangement of training for personnel on individual topics of the military medical training program. Therefore, they should also know how to organize first aid on the battlefield, and the rules and scope of self and mutual assistance in case of combat injury and accidents.

* * *

The physical condition of servicemen is recorded and assessed on the basis of data obtained from a number of checks, including: daily medical inspections of personnel; physical and medical examination of conscripted servicemen; medical examination of soldiers, sailors, noncommissioned and petty officers. All these measures are undertaken in close contact with subunit commanders and representatives of the medical service.

Internal Service Regulations emphasize that it is very important for subunit commanders to be present at medical examinations made for the purpose of investigating the physical condition of personnel. These officers provide the medical officer with information based on observations of the physical

capabilities of their subordinates, and the medical officer informs them of the measures which need to be taken to improve the physical condition of soldiers, sailors, noncommissioned and petty officers.

The medical inspection plan is approved by the unit commander and the examination results are reported to him. The number of servicemen examined is given, together with detailed information about their condition. Reports on personnel who require regular medical examinations, therapy, preventive treatment, special combat and physical training, work, rest, or food routines are submitted separately. The report should also include the results of therapeutic and preventive measures taken by the medical service in connection with examination data, and additional measures which require the commander's approval.

The outpatient clinic. If a serviceman becomes ill he must report the fact to his immediate superior at once and, with his permission, go for assistance to the regimental medical aid station, which is the center for all therapeutic and preventive work in the forces. The unit medical aid station consists of an outpatient clinic, an infirmary and a pharmacy. The medical assistance provided by the outpatient clinic of a medical aid station is limited to the treatment of diseases which do not require the attention of a doctor, complex investigations or special equipment. Vaccinations and medical inspections can also be carried out in outpatient clinics. Outpatients must be seen by a medical officer. The time of attendance at the clinic is set out in unit orders. Soldiers and noncommissioned officers proceed to the medical aid station in the charge of a senior with the medical inspection and sick book. After personnel on sick call have been examined and attended to, and the appropriate entries recorded in the medical books, they return to the company. It is the duty of the subunit commander to organize the appropriate health improvement measures for soldiers and noncommissioned officers for whom the unit medical officer has given instructions for treatment.

The commander of a unit or subunit should be aware of the number of servicemen on the sick list and the nature of their illnesses. He authorizes individual servicemen to be excused from duty owing to sickness on the recommendation of the medical officer. A medical officer may recommend that a serviceman be partially or fully excused from training or duty for a period not exceeding three days. If necessary, a further period of relief from duties may be granted.

Medical treatment in quarters. An officer living in a garrison, or temporarily quartered there during leave or on temporary duty assignment, receives medical treatment in his quarters from the unit medical aid station, the garrison hospital or a hospital polyclinic department (polyclinic). He is treated in quarters in an emergency, in the event that he is unable to visit a medical aid center, or has to remain in bed in his quarters and hospital treatment is not essential.

Officers of a unit which has no medical officer receive medical treatment in their quarters from the medical station of the unit to which the garrison commander has assigned this responsibility. Authorization for treatment in

quarters is given by the medical officer of the unit (polyclinic) on the basis of a medical examination, taking into account the relevant conditions of the officer's quarters. If an officer being treated in his quarters happens to be on leave or temporary duty, the unit medical officer reports this to the garrison medical officer, who in turn informs the town military commandant.

Patients receive medication and dressings from the unit medical aid station (hospital).

Hospital treatment. If a patient cannot be treated as an outpatient, he is hospitalized, i.e., he is put into an infirmary for hospital treatment. Patients who require hospital treatment for a period not in excess of five to seven days, do not need nursing, special diet, or complex tests, are accommodated in the sick bay of the unit's medical aid station.

A serviceman may be sent for hospital treatment outside his unit by order of the commander, on the recommendation of the medical officer. In urgent cases, he can be sent to a civilian hospital, if specialized treatment is indicated and such treatment cannot be given at the nearest military hospital.

The procedure for this and the list of documents which a serviceman requires in units are laid down in Internal Service Regulations.

Servicemen who become ill on leave, while on temporary duty or traveling, are sent to a hospital or other medical institute by military commandants or commissariats. In this case, they present their travel or leave orders, as well as their identification document.

In sending a serviceman to the hospital on account of a functional disorder of the nervous system (neurasthenia, hysteria, etc.), the commander of a subunit should submit a formal description, indicating the peculiarities of the patient's behavior. This should be accompanied by his medical record; and in the case of epileptics and persons suffering from enuresis, documents signed by the senior medical officer of the unit and the subunit commander describing the observed symptoms.

Sanatorium-health resort treatment and organized rest. The hospital and health facilities available to servicemen include sanatorium-health resort treatment and organized rest. The therapeutic and preventive treatment given in sanatoria include: physiotherapy, remedial physical culture, dieting, sanatorium treatment, terrain cure (controlled walking). Depending on the available therapeutic factors, sanatoria are classified as climatic, balneological, fangotherapeutic, etc., and, according to field of specialization, as nervous disorders, somatic, gastrointestinal, cardiological, tubercular, osteotubercular, etc.

Sanatorium-health resort treatment for officers and members of their families is covered by Order No. 20 of the Minister of War of the USSR dated 1952, and by "Indications and Counterindications for Admission to Sanatoria and Rest Homes of the Ministry of Defense of the USSR."

Patients are selected for admission to sanatoria by sanatorium selection commissions attached to military units, formations, institutions and garrisons, on the basis of clinical examination data and the established indications and counterindications for admission to sanatoria. In addition to medical

officers, these commissions include headquarters and Party organization representatives.

The following are eligible for sanatorium treatment and organized rest in sanatoria and rest homes of the Ministry of Defense of the USSR:

- officers of the Soviet Armed Forces and members of their families;
- officers seconded in the prescribed order for work in civilian ministries and departments while remaining regular officers of the Soviet Armed Forces, members of their families (also extended to officers assigned to civilian ministries and departments for the military training of students of higher educational establishments);
- extended service and conscripted soldiers, sailors and noncommissioned and petty officers; conscripted personnel are admitted as exceptions, where there are special medical indications (considered separately in each individual case), to central sanatoria with the permission of the Head of the Military Medical Directorate of the Ministry of Defense, at the request of the Head of the Military Medical Department of a military district, and to military district sanatoria with the latter's permission.

The right to sanatorium treatment for the members of an officer's family is limited to his wife and the children whose names are entered on his service record as dependents. Children from 5 to 13 years of age inclusive are sent to children's sanatoria only, and children from 14 years of age and older are sent to sanatoria and rest homes for adults. The members of families of extended service noncommissioned and petty officers receive sanatorium treatment only if there are special medical indications and with the permission of the Head of the Central Military Medical Directorate in each individual case.

Payment for treatment and organized rest in sanatoria and rest homes run by the Ministry of Defense of the USSR is made in accordance with the existing regulations. Thus, on arrival at the sanatorium, officers pay 25% of the cost of their travel warrant, accommodation and treatment; members of their families pay 50%, and Ministry of Defense employees, 30%. Conscripted soldiers, noncommissioned and petty officers use the services of sanatoria and rest homes free of charge, but they are required to present a food certificate.

A completed sanatorium form (orders), together with medical documents (medical book) can be issued to an officer and members of his family by the head of the medical service of the unit or establishment, on the recommendation of the Sanatorium Selection Commission, only with the permission of the unit commander.

Not all officers are in need of sanatorium treatment. Personnel whose health is almost normal may spend their leave for recuperative purposes in other health improvement establishments run by the Ministry of Defense. Some of the military district sanatoria have guest houses where a warrant entitles an officer to accommodation in a room for two to four persons and three meals a day (without treatment, therapeutic procedures, etc.). The maximum length of a stay in such guest houses is 24 days.

Physically fit officers may be granted active recreational leave in tourist camps under military district and central administration. Tourist camps are located on the Black Sea coast of the Caucasus, on the south coast of the Crimea, in the Carpathians, the Baltic, near Leningrad, and other places. They provide accommodation in buildings or tents and are set up for a 20-day vacation. During the summer, officers may obtain warrants for the Ministry of Defense swimming camp with a 21-day boat excursion along the Volga River from Moscow to Astrakhan and back.

On the prevention of certain illnesses. Gastrointestinal, respiratory, and circulatory complaints, hypertension and arteriosclerosis, neuropsychic disorder, are included among the most common diseases. Prophylactic measures aimed at their prevention are of great importance in the maintenance of the serviceman's health.

Gastrointestinal complaints (acute and chronic gastritis, chronic colitis, ulcers) occur mainly as a result of nutritional defects, especially the consumption of inferior food, which occurs most frequently during the summer. The consumption of excessive amounts of alcohol also contributes to illnesses.

The aggravation of chronic gastrointestinal complaints is usually caused by irregular eating habits, overeating, eating too quickly, living cold, dry food for a prolonged period, insufficient mastication of food on account of dental defects, the consumption of very hot or very cold food, spicy dishes, etc.

Preventive measures against these illnesses include the maintenance of exemplary sanitary conditions in the area occupied by the unit, the procurement and proper storage of good quality food products, and proper food preparation. Of great importance for medical personnel are the early diagnosis of these diseases, particularly among new recruits, continuing observation of servicemen found to be suffering from any of these disorders, strict adherence to the daily work schedule and feeding regimen, and timely hospitalization of patients who cannot be treated in the unit.

Of the respiratory diseases, the most dangerous is pulmonary tuberculosis. Tuberculosis may be brought into the army by young recruits. For this reason, special requirements are imposed on medical selection commissions in connection with the examination of recruits.

Early recognition of tuberculosis is ensured by regular medical and X-ray examinations of the servicemen.

Of great importance in the prevention of tuberculosis are: toughening exercises, physical training and sports, health instruction given by officers of the Medical Service; strict observance of the regulations on barrack-room hygiene and attention to personal hygiene.

Commanders at all levels should pay particular attention to the recommendations of representatives of the Medical Service concerning the need for a careful check on the health of servicemen working under unfavorable conditions, in the presence of sharp temperature fluctuations, dust, inadequate ventilation, toxic substances; as well as on servicemen who, having contracted tuberculosis, may become a hazard to those around them (kitchen, dining hall and warehouse staff, etc.).

There may be servicemen who, while not suffering from tuberculosis, may be predisposed to it. These are people who are physically weak, with pronounced anemia and a weakly developed rib cage, people who have suffered with exudative pleurisy, chronic catarrh of the upper respiratory tract, prolonged elevation of temperature up to 37.2-37.8°, and individuals who progressively lose weight. It is expedient for subunit commanders to establish a strictly individual physical load for such people on the advice of the unit medical officer.

Servicemen suffering from active pulmonary tuberculosis are treated in specialized hospitals and subsequently undergo a period of convalescence in specialized sanatoria. The treatment of such patients in sanatoria is free under Soviet law.

In the prevention of cardiovascular ailments, particular attention is paid to prophylactic measures against the occurrence of rheumatism, hypertension and atherosclerosis.

Rheumatism begins most frequently in childhood or adolescence: in 75% of the cases before the age of 15, in 15% between the ages of 15 and 25, and in 10% after the age of 25. Rheumatism develops very often after angina (within 10-15 days) or acute inflammation of the epipharynx and upper respiratory tracts. Of critical importance in the genesis of the disease is the condition of the body and its susceptibility to streptococci. Cooling of the body (cold, dampness) also has a great influence on the development of the disease. The greatest incidence occurs during the fall and winter (from October through April).

Prophylaxis of rheumatism includes the active treatment of acute and chronic affections of the throat, upper respiratory tract, nasal accessory sinus, and teeth. In order to reduce the incidence of these disorders it is essential to subject personnel to systematic toughening exercises.

The main symptom of hypertensive disease is elevated arterial blood pressure; the chief causes are deep disturbances of the regulation of the vascular tone brought about by changes in the nervous system, endocrine glands, and kidneys. Hypertensive disease is a neurogenic disorder attributable to traumatism and stress of the higher nervous activity.

The all-round physical training of servicemen is very important in the prevention of hypertensive disease. An inactive way of life predisposes a person to it. Other reasons for its development are: nervous overstrain, mental trauma; situations associated with prolonged or frequently recurring alarm, fear, lack of self-confidence; excessive consumption of meat and fat.

The earlier hypertension is detected, the easier it is to treat. People suffering from it should be aware of the great harm that can be caused by smoking, overindulgence in alcoholic drinks, insufficient rest, negative emotions, and physical overexertion.

The most common blood disorder is anemia. It can arise from different causes. Early detection makes it possible to begin timely and effective treatment. This is why yearly medical checkups are so important. In a number of disorders anemia develops as a result of defective blood formation, a sharp

reduction in the number of white corpuscles. It is essential that personnel who come in contact with radioactive elements and ionizing radiation generators should be given special check-ups. Additional causes of anemia may be concealed or recurring hemorrhage, certain types of chronic poisoning, stomach and duodenal ulcers, malignant growths, bleeding from piles, intestinal worms, etc.

Neuropsychic disorder may be manifested in servicemen in the form of neuroses (neurasthenia, hysteria and compulsion neurosis) and psychasthenia. Each of these disorders is frequently accompanied by the following: irascibility, erratic moods, compulsive fears, lack of self-confidence, disturbed sleep, as well as impaired functions of different organs, which cause palpitation of the heart, constipation, loss of weight, and variation of arterial pressure.

The causes of functional neuropsychic disorders are prolonged stressful experiences, overstrain in performing tasks which are beyond the normal range of a person's capabilities (particularly if they result in failure and disappointment), insufficient and irregular rest and sleep, prolonged inner conflict, the need to hide anger, grief, etc. The development of neuroses is promoted by acute and chronic diseases of the internal organs, infections, poisoning, head injuries, and irregular nutrition.

As a rule, these diseases are curable, although not always within a short period of time. In order to prevent them, it is important that neuropsychic insufficiency be detected in good time, especially among the rank and file during the first year of service. Commanders and political officers of all levels can be of great assistance to the medical officer by keeping a check on individuals who make a habit of submitting complaints of a neurotic character, and those who exhibit strange traits of behavior. Subunit commanders should bear in mind that new recruits may include persons with neuropsychic abnormalities caused by improper upbringing or bad environmental influences. The transition from civilian to army life is a slow process for such people. They tend to be unstable, to overreact and to lack self-control.

Commanders and political officers should be extremely careful in dealing with emotionally disturbed individuals who easily become involved in conflicts, frequently commit disciplinary offenses, find it very difficult to endure separation from their families, constantly isolate themselves, lag behind in training activities, etc. Such individuals should be kept under supervision. They should be given more time for rest and sports activities. Individuals who manifest pronounced emotional disturbance should be sent for special psychoneurological investigation and treatment.

The incidence of skin diseases in the Armed Forces can be high in peacetime, as well as in wartime. Most of these come under the heading of boils, carbuncles, abscesses, and phlegmons. Individual skin complaints are more widespread in some branches of the Services than others, for example, blisters in the infantry, folliculitis in tank units, fungus diseases in aviation units.

To minimize skin complaints it is essential to adhere strictly to the rules and regulations of personal hygiene concerning regular bathing (at least once

a week) with hot water and soap and a change of underwear, the requirement for daily hot showers for personnel employed in the kitchen, dining hall, MT depots, and workshops. In order to prevent infection, first aid kits should always be kept in workshops for the treatment of minor cuts and abrasions sustained by servicemen working on the repair of weapons and equipment.

Proper care of the feet and footwear, dealing with perspiration problems, and keeping the feet clean are essential prerequisites for the prevention of skin complaints. Excessive perspiration may cause blistering of the feet. If daily washing of the feet is not effective, medical assistance should be sought. Blistering may also be caused by badly fitting footwear.

Particular attention should be paid to the prophylaxis of venereal diseases: syphilis, gonorrhea, chancroid, and the so-called fourth venereal disease (lymphogranuloma venereum). Venereal diseases are usually contracted through sexual intercourse, although the possibility of transmission by other means is not excluded.

The incidence of venereal disease in the Armed Forces of the USSR is minimal compared with the armies of the capitalist countries, thanks to a whole series of preventive measures and the maintenance of good order and discipline in units and on ships.

On the basis of current handbooks and regulations, officers of the Medical Service organize their work on the prophylaxis of venereal diseases in close collaboration with the civil health authorities. Thus, all personnel undergo regular medical inspections, sources of infection are ascertained and steps taken to localize them; efficient treatment is made available (both hospital and outpatient) at the earliest possible moment.

Officers should be aware of the prophylactic facilities provided by the medical service and ensure that they are made use of.

The prevention of injury. Injuries occur in the Soviet Armed Forces under certain conditions and are attributable to causes, the consideration of which makes it possible to take preventive measures.

There are combat and non-combat injuries. The former are received in action; the latter, closed or open, are not received in action and do not involve the use of weapons. Most cases of injury (from 30 to 53%) occur during training (drill, physical training, sports, etc.).

A Short List of Conditions and Causes of Non-Combat Injuries

Conditions under which non-combat injuries and accidents occur	Causes of non-combat injury
Maintenance work, repair and loading work, loading and unloading, vehicle repair and use of motor transport	Violation of the safety regulations, the absence of guard rails and protective devices on machines; faulty ladders, gangways, side rail stanchions; lack of protective clothing, mittens, protective goggles; badly lit or cold work rooms; failure to observe the rules for handling flammable materials, steam boilers, electrical equipment; violation of the safety regulations when working over the ship's side, on masts and funnels and in the bilge.
Combat training	Faulty weapons, equipment, permitting insufficiently trained soldiers and sailors (especially during their first year of service) to handle complex fighting equipment, ship's mechanisms and machinery, etc.; insufficient care in the fitting of clothes and footwear, the use of foot cloths, insufficient care of the feet; individual carelessness on the part of servicemen in handling weapons and combat equipment during training exercises.

A Short List of Conditions and Causes of Non-Combat Injuries—Continued

Physical training and sports (during training exercises and large-scale sporting events)	Badly lit sports arenas, poorly prepared sites, unsatisfactory condition of the sports equipment, grounds, floors, swimming pool bottom; the lack of safety precautions during gymnastic exercises; the absence of lifesaving equipment at bathing pools and beaches; permitting insufficiently trained soldiers and sailors (especially during their first year of service) to attempt difficult exercises.
In daily life, both off base and on base (unconnected with the performance of military duties)	Breaches of established regulations and discipline by individuals.

A well thought out, systematic means of recording and analyzing all cases of injuries is of great importance in the prevention of their occurrence. For this purpose a standard chart for recording injuries (Form No. 7) is maintained in units.

Commanders and political officers collaborate with medical officers in studying the causes of injuries and devising measures to reduce them. In systematically investigating individual injuries which give the impression of being accidents, as well as frequently recurring injuries, they consider both external and internal factors. External factors pertain to unfavorable working conditions from the point of view of sanitation and hygiene, the immediate causes of injuries attributable to breaches of the safety regulations and improper labor organization. Internal factors are the state of health of the injured person and fatigue.

Participation of officers in the medical supervision of physical training. Physical training forms part of the combat training of the Soviet Armed Forces and is aimed at the all-round development and improvement of the psychophysical qualities of servicemen, which are essential for carrying out routine military duties and participating in combat activity.

In military units, physical training is organized (provided for) by the unit commander and subunit commanders. The physical training activities are directly conducted by officers and noncommissioned officers, who must know: the level of physical training achieved by their subordinates, their state of health and the results of their medical examinations, the effects of physical exercises on the body, indications of fatigue and how to regulate physical stress, the importance of observing sanitation and hygiene requirements and injury prevention measures, and the basic rules of body hardening.

In accordance with the Instructions for Physical Training of the Armed Forces of the USSR, medical personnel keep a check on the methods and proper conduct of the exercises, the observance of safety precautions, the assistance given in the performance of gymnastic exercises, the condition of the sports equipment, and the preparation of the sites. They absolutely must participate in the elaboration and planning of physical training measures for the purpose of ensuring compliance with sanitation and hygiene requirements in the organization of physical training activities and in order to ensure the most expedient distribution of these activities in the daily routine. Here medical supervision is pointless without close contact between the medical officer and the commander, and the results of such collaboration should be systematically discussed with the officers of the unit.

Facilities for servicemen's children. The Ministry of Defense operates two types of children's institutions: nursery schools and pioneer camps.

Nursery schools are intended to provide for the all-round development of children of pre-school age (from three to seven years old); pioneer camps are for the summer holidays of schoolchildren between the ages of seven and fifteen. Nursery schools and pioneer camps are organized directly by military units, establishments, and training institutions with the authorization of the commander of the military district or fleet, and in military units and establishments under central command, with the authorization of the Central Military Medical Directorate.

The provision of dentures. Personnel in military units are registered with the appropriate dental prosthetic establishments for the purpose of obtaining dentures. According to the Regulations on Dental Prosthetic Facilities in the Soviet Armed Forces (Ministry of Defense Order No. 106 of 24 June 1955), dental prosthetic facilities are available to servicemen in the following:

- the dental prosthetic department of a military district, fleet (flotilla), or garrison stomatologic polyclinic;
- the stomatologic department of a military district, base, or garrison hospital;
- the stomatologic department of the Central Sanatorium of the Ministry of Defense;
- the stomatologic department of a sanatorium of a military district, fleet (flotilla), or military academy;
- an unestablished (self-supporting) dental prosthetic department in any other treatment center of the Soviet Armed Forces.

Dental prosthetic facilities may also be provided by Ministry of Health hospitals and clinics (in remote garrisons). In such cases, servicemen who have the right to free dentures may avail themselves of the service of these institutions within the limits of the funds allocated by special grant for the use of the Military Medical Service.

Individuals with the requisite medical indications are eligible for dentures.

The following are eligible for free dentures:

- conscripted soldiers, sailors and petty officers of all branches of the Services, students in military schools, pupils of Suvorov and Nakhimov schools;
- all servicemen, including officers who lose their teeth as a result of injuries received in the performance of their official duties;
- all servicemen who receive supporting, replacement, or corrective prosthetics after complex surgery on the jaws in connection with malignant neoplasms and other diseases entailing the loss of a large piece of bone or acute disturbance of its function.

The following are required to pay for their dentures:

- officers and extended service personnel serving in the forces, as well as individual categories of reserve officers, in the absence of indications that they are eligible for free prosthetics.
- the members of servicemen's families and employees of the Soviet Armed Forces.

Gold dentures are made only at the expense of the individuals requiring them.

The role of sanitation and hygiene measures in health protection. In Internal Service Regulations it is stated that each serviceman must strictly observe the rules of personal and public hygiene and perform daily toughening exercises. These rules, based on the science of health and military hygiene, are aimed at maintaining and reinforcing the health and fighting efficiency of servicemen.

The subdivisions of military hygiene are:

- personal hygiene;
- the influence of climatic factors on health;
- food hygiene for the troops;
- water supply hygiene for the troops;
- quartering hygiene for the troops.

Personal hygiene embraces complexes of rules and methods aimed at strengthening the serviceman's health, physical development and endurance. Each serviceman must be clear about its importance to himself and to the community, and strictly adhere to the established rules. First and foremost, he must be aware of the importance of regular care of the skin in maintaining health and hardening the body, regulation washing and bathing requirements, the role and effect on the skin of solar radiation and bathing. It is also essential to know how to care for the hands and to be aware of the danger of infection from dirty hands (with intestinal worms, for example). Dental and oral hygiene is also very important for health. It is essential to clean the teeth regularly, rinse the mouth out after eating, and have periodic dental check-ups. The rules of hygiene also extend to the care of the hair, haircutting, and shaving; the fitting, timely cleaning and care of uniforms and footwear; the care of the feet and the prevention of perspiration of the feet.

The influence of climatic factors on health. In this section of military hygiene it is essential to know the regulation requirements for the prevention of overcooling and frostbite in winter, and overheating of the body, sunburn, and heatstroke in summer.

A low temperature combined with a high degree of humidity and a strong wind have an unfavorable effect on untrained and unconditioned persons by creating conditions leading to overcooling of the body as a whole, or parts of it. Overcooling may result in coldtype illnesses (acute catarrh of the upper respiratory tract), disorders of the muscles (myositis) and peripheral nerves (radiculitis). Cooling predisposes to influenza and angina.

Frostbite occurs when individual parts of the body become chilled. There are four stages of frostbite: in the first stage the skin turns white, loses its sensitivity, the frostbitten parts become swollen, the victim experiences pain and irritation; in the second stage the same effects are observed, but after a while blisters filled with a light colored liquid appear; in the third stage necrosis of the skin sets in and the blisters are filled with bloody liquid; in the fourth stage necrosis of all the soft tissues occurs.

To prevent overcooling and frostbite, officers must ensure that personnel are provided with warm clothing and serviceable, properly fitting footwear

and equipment. In collaboration with representatives of the Medical Service, they see that soldiers, sailors, noncommissioned and petty officers observe the rules governing personal hygiene, and the wearing of clothing and footwear.

It is important to be thoroughly conversant with the rules for rendering first aid to frostbite victims. In the case of first degree frostbite, the affected parts are rubbed with the hand or a handkerchief until the skin becomes warm and begins to turn pink; they are then rubbed with cotton wool soaked in alcohol or cologne. Victims suffering from second, third, and fourth degree frostbite must be sent to a medical aid station, sterile dressings having been first applied to the affected parts.

Heavy muscular work in hot, humid weather with little or no wind may result in overheating of the body—heatstroke. Its symptoms are: headache, dizziness, a feeling of fatigue, and unsteady gait. The victim's face turns red, the pulse and respiratory rates increase; the body temperature increases to 38.5°-39.5°. Prolonged exposure in the sun may cause sunstroke.

To prevent overheating, personnel should be provided with freshly laundered underwear and clean uniforms. Clothing should be loose-fitting and not hamper movements. Dirty, greasy clothing blocks the passage of air and upsets the heat exchange between the body and the surrounding air.

First aid in case of heatstroke is as follows: the victim is placed in the shade and his equipment removed; he is stripped to the waist, his face and chest moistened with cold water, and he is given a drink. If all these measures are fruitless, the assistance of a medical officer should be sought.

Climatic factors have less effect on personnel who perform daily toughening exercises. Toughening measures are provided for in the daily routine of a unit. Exceptionally favorable conditions for this occur in the summer when sunbathing, air baths and water procedures serve to toughen the body.

Food hygiene. Commanders and political officers must be constantly concerned to ensure that their subordinates are properly fed, and that the quality and quantity of the food are up to standard. Rational feeding ensures the maintenance of a high level of working efficiency.

Foodstuffs contain nutrients—protein, fat, carbohydrate, vitamins, and mineral salts. The minimum daily requirements for the basic nutrients are as follows:

Protein—approximately 100g per day (not less than 30% of animal origin)

Fats—50–60g per day

Carbohydrates—500g per day

Vitamin A—1.5mg or 3mg of carotene

Vitamin B₁ (thiamine)—2–3mg

Vitamin B₂ (riboflavin)—1.5–2mg

Vitamin PP (nicotinic acid)—15mg

Vitamin C (ascorbic acid)—50mg

Calcium—800mg

Phosphorus—1,200mg

Iron—12mg

In order to satisfy fully these requirements of the body, it is essential to

know the daily amount of energy expended by the body. The average amount of energy expended by a serviceman per day is between 3,000 and 3,500 large calories. The soldier's basic ration, set out in the relevant order of the Minister of the Armed Forces of the USSR, is fully commensurate with these expenditures.

Indices of the food value of the basic ration and several other rations are given in the table on the next page.

A full-value diet must be combined with a proper meal routine. In barracks and camps there are three meals a day: breakfast, dinner, and supper. The interval between meals should not exceed 7 hours. This ensures regularity of meals and avoids overloading the digestive organs. Strict supervision is essential to ensure that the established routine is carried out. Half an hour should elapse after dinner before lessons or work are resumed.

The meal routine may be changed during exercises and maneuvers and arranged so that the soldiers' stomachs are not burdened with food at times of maximum stress, since physical work interferes with the digestive process, thus reducing efficiency and staying power. It is recommended that, if the situation permits, meals should be served one to two hours before activities involving increased stress.

Failure to observe the rules of sanitation and the absence of sanitary supervision in the procurement, shipment, and storage of foodstuffs and the preparation of meals may lead to an outbreak of bacterial or non-bacterial food poisoning. The latter is encountered where chemical toxins (salts of heavy metals) are used, poisonous fungi, or toxic products of animal origin. Diseases of microbic origin, such as intestinal, dysenteric, and staphylococcal infections can be transmitted in food.

In the prevention of infections from food contamination, great importance is attached to the heat processing of foodstuffs and compliance with the regulations on the sanitary supervision of the kitchen staff.

In a combat situation it should be borne in mind that there is a possibility that foodstuffs will be contaminated through the enemy's use weapons of mass destruction. Foodstuffs contaminated with radioactive material may cause the dangerous illness known as radiation sickness. Therefore, they must not be used in meals, and must be destroyed. Some types of provisions—canned foods, vegetables, and fruit—must be subjected to special processing and used after the appropriate check has been carried out.

Barrack-room, camp, and field hygiene. Internal Service Regulations oblige the respective officers, from the regimental commander to the company commander, to keep a check on the maintenance and proper utilization of all living quarters and other premises, and the cleanliness of the site occupied by the unit or subunit. This applies to military camps and field quarters, as well as barracks.

In order to satisfy the regulation requirements fully, it is essential to know: the personnel accommodation scheme, the layout of the barracks, barrack cleanliness measures, the method of cleaning the premises, the rules for drinking water storage, and the rules governing the sanitation of communal

Food Value of Basic and Other Rations

Ration	Assimilable substances				Vitamins in mg					Mineral substances		
	Protein	Fats	Carbohydrates	Calorie content	A	B ₁	B ₂	C	PP	Calcium	Phosphorus	Iron
Soldier's basic ration												
a) for winter	112.9	62.9	609.4	3547	3.8	2.5	1.4	44	21	670	2525	28
b) for summer	107.3	62.3	570.1	3357	3.8	2.4	1.3	44	20	640	2375	26
Sailor's basic ration												
a) for winter	121.3	72.8	640.4	3800	4.6	2.0	1.4	44	25	675	2285	27
b) for summer	115.8	72.6	601.1	3610	4.6	1.8	1.3	44	24	645	2135	25
Summer ration (for aircraft crews)	167.5	124.4	694.8	4692	7.7	2.4	2.2	51	35	1300	3115	32
Dry ration	83.5	88.4	494.0	3190	0.1	2.0	1.1		16	380	1875	19

places. The hygiene requirements with respect to lighting, heating, and ventilation must also be observed.

In camps or under field conditions, it is essential for commanders to maintain contact with medical personnel on matters relating to special measures for the prevention of infection.

The hygiene of mental work. The official duties of an officer entail considerable mental strain. It predominates over physical stress. Mental work in the case of staff officers forms the basis of their activities.

Badly organized mental work combined with unsystematic work and insufficient and improper rest can result in weakening or exhaustion of the nervous system and sometimes the development of nervous diseases. Conversely, well organized labor and observance of the rules of hygiene strengthen the nervous system and promote good health.

The productivity of mental work depends on the alternation of labor and active rest, and the hygienic condition of the office. Observance of these conditions prevents fatigue.

I. P. Pavlov and other physiologists established that the fatigability of the organism associated with muscular and mental work is attributable to a disturbance of the interrelation between the excitation and inhibition processes in the cerebral cortex and normal reflex activity. These disturbances are manifested in deterioration of attention, memory, etc.

Work productivity is usually lower at the beginning of the day. This is due to the known difficulty in concentrating attention on any one thing. To get down to work rapidly it is very important to suppress all extraneous stimuli acting on our sense organs. Observance of the rules of personal hygiene, familiar comfortable conditions, a well-lit working position, and the habit of starting work at the same time every day, etc. facilitate rapid "entry" into one's work, all of which makes it possible to exhibit such qualities as concentration, discipline, and attention, which are essential in brain work. A systematic start to work has a salutary effect on the stimulation processes of the cerebral cortex.

Fatigue is prevented by taking short breaks. The more strain the mental work causes, the more frequent the breaks should be. In some cases five to ten minute breaks should be taken every 45 minutes, in others every 60-90 minutes. Longer and more frequent breaks should not be taken, since they

do not increase, but decrease the work productivity. During these breaks it is recommended that special hygiene exercises be carried out and the office ventilated. Fresh air has a beneficial effect on the organism of a person occupied with mental work. After sitting for a long period breathing becomes shallow, metabolism slows down and hemostasis occurs in the lower parts of the lungs, the organs of the abdominal cavity, and the lower extremities. This reduces the working capacity of the body and primarily the brain.

The organization of officers' rest periods. Medical officers who carry out medical examinations consistently note indications of good health in servicemen who participate regularly in physical culture and sports. These must form part of the daily routine of each officer. In addition to gymnastic exercises indoors, it is very beneficial to participate in various sports activities in the open air. Skiing, skating, swimming, rowing, cycling, and walking are highly recommended. Two or three one- or two-hour periods should be devoted to these forms of sport each week.

Days off and public holidays should be spent in active recreation. The program of activities for spreading education among the masses in military units should always include trips into the countryside, one-day walking tours (with a night stopover in the forest), mushroom gathering, hunting, fishing, etc.

Epidemic protection of the troops. This is the name given to the system of anti-epidemic, sanitation, hygiene, and organizational measures for the protection of personnel against epidemic diseases. Officers must know the requirements of these measures and see that they are carried out.

Epidemic protection measures are usually subdivided into the following groups:

1. General prophylactic (the rules of sanitation and hygiene, personal hygiene, food hygiene, etc.) and other measures directed at increasing the resistance of Armed Forces personnel to individual infectious diseases. Thus, it is compulsory for all personnel to be vaccinated annually against highly infectious intestinal and other diseases.
2. Measures to prevent the introduction into the Forces of infectious diseases from outside. Such diseases could be brought into a unit by new recruits or personnel returning from temporary duty or leave. In this case, the prophylactic measures include medical examinations, vaccinations, and temporary isolation of suspected cases of infectious diseases.
3. Prophylactic measures are applied both to patients and to disease carriers within a unit. The Medical Service takes into consideration persons who in the past have suffered from dysentery, typhoid fever, and cholera. They are subjected to a systematic examination. If suspected of infection, they are isolated and evacuated to the infectious diseases department of a hospital.

Servicemen who work on food serving stations and are found to be suffering from sore throat, influenza, stomach disorders, and other epidemic illnesses should be promptly removed from their work.

Early detection and isolation are very important. Commanders and politi-

cal officers of subunits have a very responsible part to play in this: they are obliged to pay careful attention to initial complaints of indisposition from subordinates.

Infectious cases are promptly evacuated to a hospital for infectious diseases.

Servicemen found to be suffering from especially dangerous diseases (bubonic plague, etc.) are not evacuated. They are hospitalized on the spot, the resources being provided by a special department of an infectious diseases hospital.

Officers of the Quartermaster Service are obliged to assist medical personnel in the disinfection of a patient's personal belongings, bed, bedding, rooms frequented by him, the toilet, and other articles used by him. Other measures include disinfection of the nidus (destruction of the microbes at the seat of the diseases), disinfestation (destruction of infection-carrying insects), rodent control (destruction of infection-carrying rodents).

A careful check is carried out to ascertain which persons came into contact with the patient. These can be put into strict isolation (if cholera or bubonic plague is suspected), subjected to sanitary measures, preventive treatment, and inoculation. If the disease becomes widespread, it may be necessary to quarantine the entire unit. During the quarantine period, officers are required to maintain the strictest military order, since the localization of an infectious disease and the prevention of its further spread depend upon this.

It is most important to investigate the infection sources and transmission routes. The initial cases are investigated with particular care. Commanders and political officers of subunits can render great assistance to medical officers in this connection by giving them details about servicemen's movements outside the unit, the people they may have come in contact with, etc.

Infectious diseases. Infectious diseases may be transmitted to humans by rodents. Mice, rats, beavers and other rodents are sources of numerous diseases, including the most dangerous ones. They are carriers of such diseases as bubonic plague, tularemia, encephalitis, and others. Preventive measures against the spread of these diseases include continuing checks on the presence of rodents, their destruction, and inoculation of the population in threatened regions. If bubonic plague does occur among the troops, especially strict quarantine must be enforced.

Zoonoses are infectious diseases which are transmitted from domestic animals to man. This category of diseases includes anthrax, rabies, glanders, and undulant fever. Anthrax bacilli may be transmitted in the process of cutting up carcasses of bovine animals and sheep and during the handling of animal skins. The disease may also be contracted by eating contaminated meat, inhaling infected dust, etc. Rabies occurs as the result of a bite from an infected animal or as the result of its saliva getting into a scratch. Zoonoses may be used by an enemy as bacteriological weapons.

The prophylaxis of these diseases consists of mass inoculation of domestic animals. Animals infected by zoonoses are isolated, the sanitary condition of

slaughterhouses should be carefully watched, and the carcasses of animals that die from zoonotic diseases should be burnt.

Persons infected by zoonotic diseases are isolated and hospitalized; everyone who may have come into contact with them is kept under observation for eight days. Rooms which had been frequented by the patients are disinfected.

Typhus and relapsing fever are transmitted by body lice, which become infected five to seven days after sucking the blood of a typhus patient. The most effective preventive treatment of this disease is to subject personnel to sanitation measures: close-cropping of the hair, a tub bath and change of underwear and bed linen, disinfestation of the uniforms and bedding accessories. These measures are carried out in bath-houses and in decontamination stations with disinfestation rooms. In case typhus or relapsing fever is diagnosed, subunit commanders under the supervision of medical personnel carry out a body lice inspection. Those found to have body lice are subjected to sanitation processing. In case of a major outbreak of typhus in a unit or garrison, a 14-day quarantine period is declared by order of headquarters. During this period no one is allowed out of the unit, transfers from one subunit to another are forbidden, long leave is cancelled, and discharge of personnel into the reserve and induction of new recruits are discontinued.

The causative agents of tick-borne spring and summer encephalitis, relapsing and typhus fevers are filterable viruses found in the blood of animals (moles, hedgehogs, chipmunks), while the carriers are the ticks. Preventive measures against these diseases take the form of individual protection: tucking the tunic into the trousers, buttoning up the tunic cuffs and collar. Personnel are inspected at least two to three times per day for the presence of ticks and, before going to bed, soldiers must inspect each other to see whether they have any ticks on them. If a tick is found attached to the skin, its body should be carefully manipulated from side to side, taking care not to separate it from the proboscis. The wound which remains after the removal of the tick is cleansed with alcohol. The ticks should be collected together and burned; the hands should then be thoroughly washed with soap and water and rubbed with a solution of chloride of lime. Gauze or triangular bandages soaked for 24 hours in a mixture of water, turpentine and lysol are used as repellents.

Malaria and Japanese encephalitis are transmitted by mosquitoes. As a result of the unremitting fight against mosquitoes (anopheles) and the draining of swamps, malaria has become an extremely rare disease in the Soviet Union. Japanese encephalitis is encountered in isolated regions of the Far East and is distinguished by its seasonal nature; it starts at the end of August and finishes in October. Specific inoculations are given as a means of protection against this disease; Pavlov mosquito nets impregnated with dimethylphthalate are used to provide protection from mosquito bites.

Mosquito fever and leishmaniosis are transmitted by mosquitoes. The insects are destroyed by soap emulsions, DDT, etc. The development of the

larval stages of the mosquito is prevented by carefully treating the surrounding terrain and premises.

Typhoid fever and dysentery are infectious gastrointestinal diseases. Their causative agents enter the body through the mouth, affecting the body generally and the intestines in particular. Excreted from the body of a patient or a bacterial agent, they contaminate the surrounding soil and water and promote the spread of infection.

One of the main symptoms of dysentery is the frequent passage of watery stools (diarrhea) with an admixture of blood and mucus. All this occurs against a background of general malaise, head pains and elevated body temperature.

Typhoid fever symptoms develop slowly in the form of headaches, malaise, sometimes diarrhea, and a slow elevation of temperature. A serious condition is frequently accompanied by loss of consciousness and delirium. The illness continues for about three weeks and then, if there are no complications, the patient begins to make a slow recovery.

The prophylaxis of these diseases amounts to the prompt evacuation of diagnosed cases to the infectious diseases department of a hospital. The personnel in the victim's subunit are given specific treatment (bacteriophage in the case of dysentery). All those who came into direct contact with the patient are kept under observation for 10 days. Of great importance are the strict observance of sanitation rules and requirements for the maintenance of hygienic conditions of living quarters, toilets, grounds, food utensils and sources of water. Strict personal hygiene is also extremely important.

The damaging effect of attacks involving bacterial weapons and troop protection measures. Bacterial weapons include bubonic plague, cholera, smallpox, anthrax and typhus agents. Bubonic plague, cholera, and smallpox are extremely dangerous diseases. Transmitted directly from victims to healthy persons, they spread rapidly and can cause large-scale outbreaks.

The characteristic features of bacterial agents are persistence and the capacity of being retained in the environment for long periods. Their effect is not immediately apparent, but only after a certain interval (the incubation period). The diseases are difficult to diagnose.

Bacterial agents may be spread by an enemy by means of aircraft, artillery, special ground equipment for air and ground contamination, and by saboteurs carrying portable equipment and vials for the contamination of various objects.

On detonation, bacteria bombs, shells and mines (bacterial ammunition) form bacterial clouds of minute suspended droplets of liquid or solid particles. These clouds are dispersed by the wind and contaminate the air. People in such an environment are contaminated by inhaling microbial particles or toxins.

Protection against the effects of bacterial agents is afforded by use of available individual and collective chemical defense equipment. For example, gas masks give full protection against penetration of the organism by bacterial agents and protection of the facial skin, scalp and hair. Protective suits or capes, stockings and gloves prevent contamination of the exposed parts of

the body, uniforms and equipment. Collective defense is afforded by specially equipped dugouts and shelters.

Another means of defense against bacterial agents is to increase the resistance and immunity of the organism to infectious diseases. Measures to this end include the strict observance of the rules of personal hygiene, regular participation in sports and physical culture, consistent body toughening exercises, as well as means of increasing immunity—vaccines, serums, bacteriophages.

During lessons in sanitary procedures, it is essential to try to ensure that subordinates carefully study measures directed at eliminating the effects of a bacterial attack. In addition to this, it is necessary to know the system and rules of carrying out partial sanitation processing, disinfection of weapons, equipment, and defense structures. It is also necessary to know where and how full sanitary processing is carried out, the rules of behavior at a nidus of infection, and methods of self and mutual assistance.

Self and mutual assistance in case of combat injuries and accidents. In future wars, new types of injuries may occur as a result of penetrating radiation, radioactive and fast-acting toxic agents. It would be very difficult for the Medical Service alone to render first aid to large numbers of victims. Thus, it is most important for servicemen to receive timely instruction for the purpose of acquiring practical skills in self and mutual assistance.

The Medical Service, in organizing sanitation training and health education measures, gives special consideration to consolidation of theoretical and practical knowledge of the rules of self and mutual assistance. Medical officers make the maximum use of the summer training period to carry out systematic exercises and improve practical skills during field training and firing exercises.

An important element of this work is the health education of officers, who are expected to have a full knowledge of the health education program for privates and NCO's. Ratings awarded in this aspect of training during inspection checks may be included in the overall rating of the unit.

Here we have confined ourselves to basic information concerning the health of Soviet Armed Forces personnel, which is important for every officer to know. In practice he may be confronted with questions which are not dealt with in this book, in which case he should seek the advice of a medical officer and consult the appropriate medical literature.

What to Read on This Section

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Uchebnik dlya sanitarnykh instruktorov [Handbook for Medical Instructors]. Voenizdat, 1964.

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Chapter 12. GENERAL REFERENCE DATA

Basic Information about the Countries of the World

Country	Area (thous.sq.km)	Population, millions. (Date of info. given in brackets).	Capital (adm. center)	Form of government
Australia	7,704	12.3 (1969)	Canberra	Independent state. Member of the British Commonwealth
Austria	83.85	7.361 (1968)	Vienna	Federal republic
Albania (People's Republic of Albania)	28.7	2.0 (1968)	Tiranë	People's republic
Algeria	2,381	12,102 (1968)	Algiers	People's democratic republic
Angola	1,247	5.3 (1967)	Luanda	Portuguese colony
Andorra	465 sq.km	approx. 16,000 people (1968)	Andorra	Republic
Argentina	2,777*	24 (1967)	Buenos Aires	Federal republic
Afghanistan	655	15.5 (1968)	Kabul	Constitutional monarchy
Barbados	430 sq.km	246,000 people (1966)	Bridgetown	Independent state
Basutoland (Lesoto)	30.3	approx. 1.0 (1967)	Maseru	Constitutional monarchy
Bahrein Islands (Banrein)	598 sq.km	193,000 people (1966)	Manama	Sheikdom
Belgium	30.5	9.631910 (1968)	Brussels	Constitutional monarchy
Ivory Coast	322.4	approx. 4.0 (1968)	Abidjan	Republic
Burma	678	27.0 (1969)	Rangoon	Federal republic
Bulgaria (People's Republic of Bulgaria)	111	8.472 (1970)	Sofia	Socialist republic
Bolivia	1,098	4.45 (1968)	Sucre (<i>de facto</i> La Paz)	Republic
Botswana	712	611,000 people (1968)	Gaborone	Republic
Brazil	8,513	89.8 (1968)	Brasilia	Federal republic
Brunei	5.8	27,000 people (1968)	Brunei	British protectorate
Burundi	27.8	3.3 (1967)	Bujumbura	Republic
Butan	56	800,000 people	Thimphu	Principality
Vatican	0.44 sq.km	1,000 people (1969)	Located in Rome	Absolute theocratic monarchy
Great Britain (United Kingdom of Great Britain and Northern Ireland)	244.1	54.7 (1967)	London	Constitutional monarchy
Hungary (Hungarian People's Republic)	93	10.316 (1970)	Budapest	Socialist republic
Venezuela	912	9.686 (1967)	Caracas	Federal republic
Upper Volta	274	5.155 (1967)	Ouagadougou	Republic
Vietnam (Democratic Republic of Vietnam)	158	19.5 (1967)	Hanoi	Socialist republic
Gabon	267	473,000 people (1967)	Libreville	Republic
Haiti	27.8	4.7 (1968)	Port-au-Prince	Republic
Guyana (Guinea)	215	700,000 people (1966)	Georgetown	Independent state. Member of the British Commonwealth
Gambia	10.5	360,000 people (1968)	Bathurst	Independent state. Member of the British Commonwealth
Ghana	237.8	8.158 (1969)	Accra	Republic
Guadeloupe	1.78	300,000 people (1966)	Basse-Terre	French possession
Guatemala	108.9	4.717 (1967)	Guatemala	Republic
Dutch Guiana (Surinam)	142.8	355,000 people (1965)	Paramaribo	Dutch colony

Basic Information about the Countries of the World—Continued

Country	Area (thous. sq. km)	Population, millions. (Date of info. given in brackets).	Capital (adm. center)	Form of government
French Guiana	91	35,000 people (1963)	Cayenne	French possession
Guinea	246	3.7 (1967)	Conakry	Republic
Guinea (Portuguese)	36	527,000 people (1966)	Bissau	Portuguese colony
German Democratic Republic	108.3	17,090 (1967)	Berlin	Socialist republic
Honduras	112.1	2,445 (1967)	Tegucigalpa	Republic
British Honduras	23	115,000 people (1967)	Belize	British colony
Hong Kong (Hsiang-chiang)	1,012	3,790 (1967)	Hong Kong	British colony
Greece	131.9	8.6 (1966)	Athens	Constitutional monarchy
Dahomey	112	2.6 (1969)	Porto Novo	Republic
Denmark	43	4.87 (1969)	Copenhagen	Constitutional monarchy
Dominican Republic	48.7	4.17 (1966)	Santo Domingo	Republic
Zambia	752	4.14 (1968)	Lusaka	Republic. Member of the British Commonwealth
Cape Verde Islands	4.0	231,500 people (1966)	Praia	Portuguese colony
Israel	14.0 (1947)	2.6 (1966)	Tel Aviv	Republic
India	3,281.1	532.7 (1969)	Delhi	Republic
Indonesia	1,904	115 (1968)	Djakarta	Republic
Jordan	96.6	2.5 (1968)	Amman	Constitutional monarchy
Iraq	444.4	8.6 (1968)	Baghdad	Republic
Iran	1,648	26.7 (1968)	Teheran	Constitutional monarchy
Ireland	70	2,881 (1966)	Dublin	Republic
Iceland	103	202,000 people (1968)	Reykjavik	Republic
Spain	503.5	33.3 (1969)	Madrid	Monarchy. At present, fascist dictatorship
Italy	301.2	54.0 (1969)	Rome	Republic
Ifni	1.5	60,000 people (1968)	Sidi Ifni	Spanish colony
Yemen (Yemeni Arab Republic)	195	5 (1967)	Sana	Republic
Cambodia	181	6.32 (1967)	Phnom-Penh	Constitutional monarchy
Cameroon	475	5.47 (1967)	Yaoundé	Federal republic
Canada	9,974	20,940 (1969)	Ottawa	Member of the British Commonwealth
Qatar	22	80,000 people (1968)	Doha	Sheikdom. British protectorate
Kenya	582.6	10,890 (1969)	Nairobi	Republic. Member of the British Commonwealth
Cyprus	9.3	614,000 people (1968)	Nicosia	Republic
China (Chinese People's Republic)	9,597	733.1 (1967)	Peking	Socialist state
Colombia	1,138.4	20.7 (1968)	Bogota	Republic
Comoro Islands	2,171	240,000 people (1967)	Moroni	French possession
Congo	2,345.5	16.0 (1966)	Kinshasa	Democratic republic
Congo	342	approx. 1.0 (1967)	Brazzaville	Republic
Korean People's Democratic Republic	127.2	12.7 (1967)	Pyongyang	Republic
Costa Rica	50.9	1,488 (1966)	San Jose	Republic
Cuba	110,992	8,236 (1970)	Havana	Socialist Republic
Kuwait	22.7	516,000 people (1967)	El Kuwait	Constitutional monarchy
Laos	237	2.7 (1967)	Vientiane	Constitutional monarchy
Liberia	111.4	1,090 (1966)	Monrovia	Republic
Lebanon	10.4	2.46 (1967)	Beirut	Republic
Libya	1,760	1.8 (1968)	Tripoli, Benghazi Beida	Republic
Liechtenstein	157 sq. km	20,600 people (1967)	Vaduz	Constitutional monarchy (principality). In customs union with Switzerland
Luxembourg	2.6	336,000 people (1966)	Luxembourg	Constitutional monarchy
Mauritius	2.1	775,000 people	Port Louis	Republic
Mauritania	1,086	1.5 (1966)	Nouakchott	Republic
Malawi	119.3	4,130 (1967)	Zomba	Republic. Member of the British Commonwealth
Malagasy Republic (Madagascar)	596	6,777 (1967)	Tananarive	Republic
Malaysia	332.6	10.1 (1967)	Kuala Lumpur	Federal state. Member of the British Commonwealth
Mali	1,204	4,740 (1967)	Bamako	Republic

Basic Information about the Countries of the World—Continued

Country	Area (thous.sq.km)	Population, millions. (Date of info. given in brackets).	Capital (adm. center)	Form of government
Maldives Islands	300 sq.km	104,000 people (1967)	Male	Independent state
Malta	316 sq.km	314,000 people (1967)	Valetta	Independent state. Member of the British Commonwealth
Morocco	445	approx. 15.0 (1969)	Rabat	Constitutional monarchy
Martinique	1.1	327,000 people (1968)	Fort-de-France	French possession
Mexico	1,972.5	45.671 (1967)	Mexico City	Federal republic
Mozambique	763	7.3 (1969)	Lourenço Marques	Portuguese colony
Monaco	1.5 sq.km	22,700 people (1968)	Monaco	Constitutional monarchy (principality)
Mongolian People's Republic	1,565	1.2 (1967)	Ulan Bator	Socialist republic
People's Republic of Southern Yemen	202	approx. 1.0 (1967)	Esh Shaab	Republic
Nepal	140.8	10.3 (1967)	Katmandu	Constitutional monarchy
Niger	1,189	3.43 (1966)	Niamey	Republic
Nigeria	924	61 (1968)	Lagos	Federal republic. Member of the British Commonwealth
Netherlands	32.5	12.8 (1/1/1968)	Amsterdam (<i>de facto</i> The Hague)	Constitutional monarchy
Nicaragua	148	1.7 (1966)	Managua	Republic
New Zealand	268.7	2.750 (1968)	Wellington	Member of the British Commonwealth
New Caledonia	18.7	86,500 people (1963)	Nouméa	French possession
Norway	324.2	3.835 (1969)	Oslo	Constitutional monarchy
United Arab Republic (UAR)	approx. 1,000	32.0 (1968)	Cairo	Republic
United Republic of Tanzania	941.6	12.23 (1967)	Dar es Salaam	Republic
Oman	212.4	750,000 people (1964)	Muscatt	British colony
Trucial Oman	86.3	approx. 110,000 people	Dubai	British protectorate
Pakistan	947.7	121.7 (1968)	Rawalpindi	Republic
Panama	75,474	1.287 (1966)	Panama	Republic
Paraguay	407	2.1 (1966)	Asunción	Republic
Peru	1,285	12 (1966)	Lima	Republic
Polish People's Republic	312.5	32.7 (1969)	Warsaw	Socialist republic
Portugal	92	9.52 (1967)	Lisbon	Republic. At present, a fascist dictatorship
Puerto Rico	8,896	2.746 (1968)	San Juan	US possession
Réunion	2.5	418,000 people (1968)	Saint-Denis	French possession
Rwanda	26.4	3.380 (1968)	Kigali	Republic
Romania (Socialist Republic of Romania)	237.5	20.0 (1969)	Bucharest	Socialist republic
El Salvador	24.1	3.3 (1968)	San Salvador	Republic
Western Samoa	2.9	0.135 (1968)	Apia	Republic. External links with New Zealand
San Marino	61 sq.km	18,000 people (1966)	San Marino	Republic
Saudi Arabia	1,600-2,500	approx. 8.0 (1967)	Riyadh	Monarchy
Spanish Sahara	266	48,000 people (1967)	El Aiun	Spanish possession
Swaziland	17.4	395,000 people (1966)	Mbabane	Constitutional monarchy
Seychelles Islands	405 sq.km	48,700 people (1967)	Victoria	British possession
Senegal	197.2	3.78 (1968)	Dakar	Republic
Sri Lanka	7.3	200,000 people	Gangtok	Principality
Singapore (Republic of Singapore)	581.5 sq.km	2.0 (1968)	Singapore	Republic. Member of the British Commonwealth
Syrian Arab Republic	184	6.0 (1967)	Damascus	Republic
United States of America	9,363	202 (1969)	Washington	Federal republic
Somali	637	2.8 (1968)	Mogadiscio	Republic
French Somaliland	23	125,000 people (1968)	Jibuti	French possession
Union of Soviet Socialist Republics	22,402.2	237.0	Moscow	Union of Soviet Socialist Republics
Sudan	2,506	14.5 (1969)	Khartoum	Republic
Sierra Leone	72.3	2.5 (1968)	Freetown	Independent state. Member of the British Commonwealth
Thailand	514	33.75 (1968)	Bangkok	Constitutional monarchy
Timor	18.9	570,000 people	Dili	Portuguese colony

Basic Information about the Countries of the World—Continued

Country	Area (thous.sq.km)	Population, millions. (Date of info. given in brackets).	Capital (adm. center)	Form of government
Togo	56.6	1.76 (1968)	Lomé	Republic
Tonga	697	73,200 people	Nuku'alofa	Kingdom. British protectorate
Trinidad and Tobago	5.1	Approx. 1.0 (1966)	Port of Spain	Independent state. Member of the British Commonwealth
Tunisia	164.1	4.6 (1967)	Tunis	Republic
Turkey	767.1	33.5 (1968)	Ankara	Republic
Uganda	243	8.13 (1968)	Kampala	Unitary republic. Member of the British Commonwealth
Uruguay (Eastern Republic of Uruguay)	186.0	2.745 (1967)	Montevideo	Republic
Federal Republic of Germany	248	60.46 (1968)	Bonn	Federal republic
Philippines	299.7	34.7 (1967)	Quezon City (<i>de facto</i> Manila)	Republic
Fiji	18.3	478,000 people (1966)	Suva	British colony
Finland	337	4.71 (1969)	Helsinki	Republic
France	552	50.105 (1969)	Paris	Republic
Ceylon	65.6	11.74 (1967)	Colombo	Member of the British Commonwealth
Central African Republic	617	2.5568 (1969)	Bangui	Republic
Chad	1,284	3.5 (1967)	Fort Lamy	Republic
Czechoslovakian Socialist Republic	127.9	14.389 (1968)	Prague	Socialist federal republic
Chile	741.8	9.4 (1968)	Santiago	Republic
Switzerland	41.3	6.1 (1969)	Bern(e)	Republic (confederation)
Sweden	450	7.942 (1969)	Stockholm	Constitutional monarchy
Ecuador	270.7	5.8 (1967)	Quito	Republic
Equatorial Guinea	28.2	282,000 people (1968)	Santa Isabel	Independent state
Ethiopia	1,200	23.67 (1968)	Addis Ababa	Constitutional monarchy
Southwest Africa (Namibia)	824	594,000 people (1967)	Windhoek	Illegally included in the Union of South Africa by the racist government of that state
Yugoslavia (Socialist Federal Republic of Yugoslavia)	255.8	22.057 (1968)	Belgrade	Socialist federal republic
South Korea	99.6	29.8 (1967)	Seoul (adm. center)	Republic. Puppet regime under the control of the USA
Southern Rhodesia	384.4	5.0 (1968)	Salisbury	Self-governing British colony
Republic of South Africa	1,223	19.618 (1969)	Pretoria	Republic
South Vietnam	171.7	16.5 (1967)	Saigon	Republic. Puppet regime under the control of the USA
Jamaica	11.5	1.843 (1967)	Kingston	Independent state. Member of the British Commonwealth
Japan	372.15	101.510 (1968)	Tokyo	Constitutional monarchy

* Given in the Russian text as 2,777 sq km [U.S. Ed.].

† Appears in the Russian text as Maksat Nizva [U.S. Ed.].

‡ Given as "Western Sahara" in the Russian text [U.S. Ed.].

§ Appears in Russian text as 2556 [U.S. Ed.].

PRINCIPAL INTERNATIONAL ORGANIZATIONS AND ASSOCIATIONS

The United Nations Organization (UN)

The United Nations Organization was created in the summer of 1945, in San Francisco, at a conference of the states which participated in the war against Hitlerite Germany and imperialist Japan. The Charter, adopted at the conference, came into force on 24 October 1945.

According to the Charter, the United Nations Organization is an international organization created by a free association of sovereign states for the purpose of maintaining peace, security and the development of peaceful cooperation between states in the economic, social, cultural, and other fields. The UN is founded on the principle of the sovereign equality of all the members, who have accepted the obligation to resolve all international problems by peaceful means, and in international affairs to refrain from the threat or use of force against the territorial integrity or political independence of any state.

The United Nations Headquarters is located in New York City (USA).

The permanent organs of the UN are the General Assembly, the Security Council, the Economic and Social Council, the Trusteeship Council, the International Court of Justice, and the Secretariat.

Membership of, and expulsion from, the UN are effected by a General Assembly resolution on the recommendation of the Security Council. In November 1968 there were 126 member states of the UN.

The General Assembly consists of all the member states of the UN. It can debate all questions within the scope of the Charter relating to the authority and functions of any organ, except questions on the agenda of the Security Council. The Assembly meets in regular session once a year. The delegation of each nation, which consists of a maximum of 5 persons, has the right to one vote. Decisions on important questions, listed in the Charter, require the support of a majority of two thirds of those present, and on other questions, a simple majority.

The General Assembly has six committees, which deal with matters concerning: 1) politics and disarmament, 2) economy and finance, 3) social, humanitarian and cultural questions, 4) trusteeship, 5) administration and budgeting, and 6) legal questions. In addition to these, there are two procedural committees: a general committee, which is occupied with organizational matters, agenda and work regime, and a committee for checking plenary powers.

The Security Council, which is the most important permanently acting organ of the UN, bears the responsibility for maintaining international peace and security. All its members take it in turns to preside for a period of one month at a time. Its decisions are binding on all UN members. The Security Council consists of 15 members, of which 5 are permanent (the USSR, the

USA, the UK, France, and China) and 10 non-permanent members, which are selected by the General Assembly for a period of 2 years. The most important principle of the UN is the principle of the unanimity of the five great powers in the Security Council. All resolutions (except procedural questions) are considered adopted if the votes of the five permanent members are included in 9 votes of a simple majority. The Chinese People's Republic is not yet represented on the Security Council. Its place is illegally occupied by a representative of Chiang Kai-shek's government.

The Economic and Social Council (ECOSOC) studies international economic, social and cultural problems, and presents reports and recommendations to the General Assembly and individual UN members, and provides information and assistance required by the Security Council. The Economic and Social Council is a 27-member body elected by the General Assembly for a term of 3 years.

The Council has a number of subsidiary bodies (the Economic Commission for Europe (ECE), the Economic Commission for Asia and the Far East (ECAFE), etc.).

The Trusteeship Council was established to manage the territories under UN trusteeship and to examine questions concerning all other non-self-governing territories. The Council acts under the control of the General Assembly.

The International Court of Justice is the principal judicial organ of the UN. Located at The Hague (Netherlands), it consists of 15 judges elected by the General Assembly and the Security Council for a term of 9 years. Recourse to the Court is not mandatory for UN members involved in a dispute, but if they do put a case before the Court, its rulings are binding on all disputing countries. The Court makes its advisory conclusions available at the request of the General Assembly or other UN organs.

The Secretariat consists of the Secretary General, who is elected for a term of 5 years by the General Assembly on the recommendation of the Security Council, and his staff (consisting of approximately 4,500 people).

The UN has 11 specialized institutions or organizations: the International Labor Organization, the UN Educational, Scientific and Cultural Organization (UNESCO), the World Health Organization (WHO), the Food and Agricultural Organization (FAO), and others.

The World Federation of UN Aid Associations, which has been in existence since August 1946, is a non-government organization, the purpose of which is to organize support for the UN, to encourage feelings of solidarity and international cooperation throughout the world, and to assist in solving problems of peace and international order.

A UN Aid Association was established in the USSR in March 1956.

The Interparliamentary Union

Founded in 1889, this is an international organization consisting of members of parliaments of different countries who participate on a voluntary basis and are combined into national parliamentary groups. The Charter now in force was adopted in 1922 at a conference in Vienna.

The Interparliamentary Union encourages personal contacts between the members of all parliaments and coordinates them for activities aimed at strengthening peace between peoples and cooperation between governments. The Interparliamentary Union states its opinions on all international problems, the solution of which can be expedited by parliamentary means, and puts forward suggestions for improving the effectiveness of parliaments and increasing their authority.

The Interparliamentary Union meets for annual conferences. The representative body of the Union between conferences is the Interparliamentary Council, which consists of two members of each national parliamentary group. The administrative body of the Union is the Executive Committee, which is elected for a three-year term. The Interparliamentary Bureau, headed by the General Secretary, implements the decisions adopted by the Conference or the Council.

A Soviet parliamentary group was formed at the end of June 1955.

The World Council of Peace

This is an international social organization which stands at the head of a world movement for peace and security, and against the preparation of a new world war. It was founded at the second World Congress of Peace Supporters held in Warsaw in 1950. Its predecessor was the Permanent Committee of the World Congress of Peace Supporters, which was formed in 1949 at the first World Congress (Paris and Prague, 1949).

The World Council of Peace includes representatives of the most diverse strata of society, people of different political convictions and parties and different religious beliefs from practically every country in the world. The operative work between Council meetings is carried out by a bureau and a secretariat.

The Peace Supporters movement in the USSR is represented by the Soviet Committee for the Protection of Peace (set up in August 1949 at the first All-Union Conference of Peace Supporters).

The World Federation of Trade Unions

The World Federation of Trade Unions (WFTU) was founded at the first World Congress of Trade Unions held in Paris in October 1945. The principal task of the WFTU is to strengthen the unity of workers in the fight for peace and the improvement of the living and working conditions of the peoples of all countries.

The governing bodies of the WFTU are the World Congress of Trade Unions, the General Council, the Executive Committee, the Executive Bureau, and the Secretariat.

The WFTU is officially recognized by the UN and actively participates in the work of the UN Economic and Social Council.

Eleven Trade Union Internationals (industrial divisions of the WFTU organized on the branch principle) are associated with the WFTU. These include independent branch trade unions of countries (the USA, Canada, Australia, Belgium, etc.) whose labor federations are not members of the WFTU. The aim of the Trade Union Internationals is to coordinate the struggle of the trade union organizations to achieve satisfaction of the political, economic and social demands of the workers.

Soviet trade unions are members of the WFTU.

The Women's International Democratic Federation

The Women's International Democratic Federation was founded at the I International Women's Congress held in Paris in November and December 1945. It is a world-wide popular democratic organization, the purpose of which is to ensure the active participation of women in the fight to achieve stable world peace, full equal rights for women, better living conditions for children, and democratic education. The WIDF unites women, regardless of their political or religious convictions, nationality or social position.

The senior body of the WIDF is the International Women's Congress, which is held once every three years. It elects a Council, an Executive Committee and Executive Bureau. The day-to-day work of the organization is conducted by the Secretariat of the Executive Committee.

Soviet women are represented in the WIDF by the Committee of Soviet Women, which was established in 1941.

The Permanent Committee for Asian Solidarity

This committee was established at a conference of politically active workers of 15 Asian countries for easing international tension (Delhi, 1955). The aim of the Permanent Committee is to achieve further expansion of fruitful collaboration among the peoples of Asia in the interests of their economic and cultural progress, relaxation of international tension, and the development of peaceful relationships between all peoples.

A Soviet Committee for Asian solidarity was established in May 1956, by socially active workers' organizations of the USSR, and the Kazakh, Tadjik, Turkmen, Uzbek, Kirghiz, Armenian, Georgian, and Azerbaydzhan SSRs.

The International Organization of Journalists

This organization was established at the International Congress of Journalists held in Copenhagen in June 1946. The purpose of the International Organization of Journalists is to strive for the preservation of peace and the strengthening of international friendship and cooperation of peoples by the free, truthful, and honest informing of public opinion. It thus combats the dissemination of national and racial hatred and all kinds of falsehood and calumny aimed at the creation of international tension.

The Union of Soviet Journalists (formed in 1956) participates in the work of the International Organization of Journalists.

The International Association of Democratic Lawyers

Originating in 1946, this is an association of progressive lawyers of different countries. Its aims are to strive for peace and the observance and development of democratic principles in international relations, the protection and development of the democratic freedoms and rights of man, and the protection of colonial peoples from oppression and tyranny.

The Association includes lawyers from most of the countries of the world. Soviet lawyers play an active part in its activities.

The World Federation of Democratic Youth

The World Federation of Democratic Youth is an international association of national and international youth and student organizations, drawn from all races, colors, and creeds. It was founded at the World Youth Conference (I World Congress, held in London in November 1945). The aims and tasks of the WFDY are expressed in the slogan: "Young people, unite! Forward to a stable peace, democracy, the national independence of peoples, and a better future for youth!"

Soviet young men and women participate in the work of the WFDY and the International Union of Students (IUS) through the Committee of Soviet Youth organizations, set up in 1956 (its predecessor, since 1941, was the Antifascist Committee of Soviet Youth). It maintains connections with more than 200 youth and student organizations in 70 countries.

The International Union of Students

The International Union of Students (IUS) is an international association of student organizations, formed at the World Congress of Students in Prague in August 1946. According to the Charter of the IUS, its aims are "to protect the rights and interests of students, to promote their well-being and level of education, and to prepare them to carry out the tasks ahead of them as democratic citizens."

The governing body of the IUS is its Congress, which is held once every

two years; its executive body is the IUS Executive Committee. The Secretariat of the IUS is permanently located in Prague.

The IUS promotes the development of friendship and cooperation among students throughout the world, assists student organizations in their fight to ensure that all young people have the right to an education, supports students' efforts aimed at the achievement of world peace, and actively supports students of colonial and dependent countries which are struggling against the colonial system.

Soviet students have been members of the IUS ever since it was formed and take an active part in its work.

ASTRONOMICAL AND GEOGRAPHICAL INFORMATION

BASIC INFORMATION ABOUT THE SUN

(approximate figures)

Apparent diameter of the Sun, degrees	0.5	
Mean distance of the Sun from the Earth, km	149,500,000	
Speed of motion (together with the solar system), km/sec	20	
The Sun's mass, tons	$1,985 \times 10^{27}$	
The Sun's mass is greater than the Earth's mass by a factor of	332,400	
The Sun's radius, km	693,000	
The Sun's surface, sq km	6,080,109	
The Sun's volume, cu km		
(almost 12,000* times greater than the volume of the Earth)	14,101,015	
Surface temperature, degrees	6,000	
The force of gravity on the Sun is 28 times greater than on Earth		
Meridian altitude of the Sun with respect to Earth observations:		
	Maximum	Minimum
at the equator	90°	66.5°
in the tropics	90°	43°
in Moscow	57.5°	10.5°
in Leningrad	53.5°	6.5°
in Murmansk	44.5°	0°
at the North Pole	23.5°	0°
number of stars visible to the naked eye on the celestial sphere	approx. 6,000	
temperature of stars	30,000°	3,000°

* An obvious error for 1,200,000 [U.S. Ed.].

BASIC INFORMATION ABOUT THE EARTH

Earth as a planet

Earth is the third planet from the Sun	
The Earth's mass	$5.975 \times 10^{21} \text{t}$
Mean density	5.52 g/cu cm
Maximum distance from the Earth to the Sun (aphelion, 5 July)	152,000,000 km
Minimum distance from the Earth to the Sun (perihelion, 3 January)	147,000,000 km
Mean distance from the Earth to the Sun	149,500,000 km
Period of rotation	23h 56m 4.09s
Period of revolution about the Sun (year)	365.2564 mean solar days
Length of the Earth's orbit	939,120,000 km
The Earth's mean speed of motion in its orbit	29.76 km/sec
Inclination of ecliptic (plane of orbit) to the Equator (1958)	23°26'41".09

Dimensions of the Earth's ellipsoid (according to Krasovskiy)

Major semiaxis (equatorial radius)	6,378,245 m
Minor semiaxis (polar radius)	6,356,863 m
Mean radius of the Earth, taken as a globe	6,371,117.7 m
Length of meridian	40,008,548 m
Length of equator	40,075,704 m
Earth's surface	510,083,000 sq km
Area of land (29.2%)	148,628,000 sq km
Area of water (70.8%)	361,455,000 sq km
Earth's volume	1,083,320,000,000 cu km

BASIC INFORMATION ABOUT THE MOON

Apparent diameter of the Moon	0.5°
Mass (approximately 81 times less than that of the Earth)	$70 \times 10^{16} \text{t}$
Mean density (assuming the density of water as unity)	3.3g/cu cm
The force of gravity on the Moon (attractive force on the surface) is approximately 6.5 times less than it is on Earth	

The average distance from the Earth to the Moon (the minimum distance is 357,000 and the maximum distance 407,000 km)	384,404 km
Diameter of the Moon	3,473 km
Surface of the Moon (one fourteenth of the Earth's surface)	approx. 40,000,000 sq km
Volume of the Moon (approximately 50 times less than the volume of the Earth)	over 21,109 cu km
Sidereal month, one revolution round the Earth	27d 7h 43m 11.5s
(During this time the Moon completes one revolution around its own axis)	
Synodic month (the period of time required by the moon to complete all its phases)	29d 12h 44m 2.78s
Average speed at which the Moon travels round the Earth—a little over 1 km/sec	
Velocity required by a body to escape the Moon's gravitational field—critical velocity	2.38 km/sec

The Planetary System
Dimensions. Mass. Density. Satellites.

Name of planet	Mean diameter			Volume (Earth = 1)	Mass (Earth = 1)	Density		No. of satellites
	apparent in seconds	true in km	Earth = 1			Earth = 1	Water = 1	
Mercury	13-4.7	4,800	0.38	0.055	0.037	0.68	3.86	—
Venus	64-10	12,200	0.96	0.876	0.826	0.94	4.86	—
Earth	—	12,757	1	1	1	1	5.52	1
Mars	25-3.5	6,770	0.53	0.15	0.108	0.71	3.84	2
Jupiter	50-30.5	142,700	11.2	1312	318.4	0.24	1.30	11
Saturn	20.5-15	120,800	9.5	763	95.2	0.12	0.69	9
Uranus	4.2-3.4	49,700	3.9	59	14.6	0.21	1.10	5
Neptune	2.4-2.2	53,000	4.2	72	17.3	0.29	1.62	1
Pluto	0.2?	?	?	?	1?	?	?	?

The Planetary System
Distance. Revolution. Rotation. Gravity

Name of planet	In millions of km		Time taken to revolve around the Sun in Earth years	Mean orbiting velocity in km/sec	Rotation time	Inclination of equator to plane of Earth's orbit	Force of gravity (Earth = 1)
	from the Earth (max/min)	from the Sun (mean)					
Mercury	217/82	57.8	0.24	47.8	88 days	?	0.26
Venus	359/40	108.1	0.62	35	30 days	?	0.90
Earth	—/—	149.5	1	29.76	23h 56m	23°27'	1
Mars	400/56	227.7	1.88	24	24h 37m	23°30'	0.20
Jupiter	965/591	777.6	11.86	13	9h 55m	3°7'	2.64
Saturn	1653/1199	1425.6	29.46	9.6	10h 14m	26°45'	1.13
Uranus	3158/2586	2868.1	84.02	6.8	10h 45m	98°	0.96
Neptune	4682/4309	4494.1	164.8	5.4	15h 48m	29°36'	1.00
Pluto	—	5896.9	248.4	4.8	?	?	?

General Information About the Parts of the World

Part of the world	Area (incl. islands) in thous sq km	Coordinates of extreme points of continents	Max. absolute altitude in m	Min. absolute altitude in m	Population in millions (1956)
Asia	43,883	N—C. Chelyuskin S—Tanjong Piai* W—C. Baba E—C. Dezhnev	77°44' N 104°18' E 1 17 N 103 30 E 39 27 N 26 03 E 66 05 N 169 40 W	8,848 Mt. Chomolungma (Everest)	1,535
Africa	30,284	N—Cap(e) Blanc S—C. Agulhas W—C. Verde E—Ras Hafun	37°20' N 9°50' E 34 51 S 20 02 E 14 45 N 17 33 W 10 27 N 51 24 E	5,895 Mt. Kilimanjaro	224
North America	24,228	N—C. Murchison S—Punta Mariato W—C. Prince of Wales E—C. Charles	71°59' N 94°26' W 7 12 N 80 53 W 65 37 N 168 05 W 52 13 N 55 39 W	6,194 Mt. McKinley	244
South America	17,850	N—Punta Gallinas S—C. Froward W—Pariñas Point E—Cabo Branco	12°28' N 71°40' W 53 54 S 71 18 W 4 41 S 81 20 W 7 09 S 34 46 W	7,035 Mt. Aconcagua	127
Europe	10,498	N—C. Nordkyn S—Pt. Marroquit W—C. Roca E—Polyarnyy Ural	71°11' N 27°40' E 36 00 N 5 36 W 38 47 N 9 31 W 67 15 N 67 20 E	5,633 Mt. Elbrus	569
Australia and Oceania	9,557	N—C. York S—Southeast Cape W—Steep Point E—C. Byron	10°41' S 142°31' E 39 08 S 146 25 E 26 10 S 113 09 E 28 38 S 153 39 E	2,234 Mt. Kosciuszko	15
Antarctica	13,328†	N—Northern tip of Trinity Peninsula (Graham Land)	63°07' S 57°10' W	6,100 unnamed (Marie Byrd Land)	—
TOTAL	148,528				2,714

* Also known as Tanjong Bulus [U.S. Ed.].

† Also known as Tanifa Point [U.S. Ed.].

‡ Omitted from Russian text; inserted by translator [U.S. Ed.].

Geographical Data

The largest continent	Eurasia—54.4 million sq km
The largest ocean	The Pacific Ocean—179.7 million sq km
The largest sea	The Coral Sea—4.8 million sq km
The largest lake	The Caspian Sea—371.8 thousand sq km
The largest island	Greenland—2.2 million sq km
The longest river in the world	The Nile and Kagera—6,450 km
The longest river in the USSR	The Ob' and Irtysh—5,570 km
The highest waterfall in the world	Angel Fall (Venezuela) 979 m
The highest peak in the world	Mt. Chomolungma (Everest)—8,848 m
The highest peak in the USSR	Communism Peak—7,495 m
The lowest point on earth	The Dead Sea Depression (—392m)
The lowest point in the USSR	The Karagiye Depression, east coast of the Caspian Sea (—132m)
The greatest depth of the world's oceans	11,084 m
The deepest lake	Baykal—1,741 m
The largest desert in the world	The Sahara (Africa)—approximately 7 million sq km
The largest desert in the USSR	Karakum (Turkmen SSR)—300 thousand sq km
The region with the greatest number of active volcanoes in the world	The Sunda Islands—95 volcanoes
The region with the greatest number of active volcanoes in the USSR	The Kurile Islands—39 volcanoes
The largest continental glacier in the world	Antarctica—13 million sq km
The largest mountain glacier in the world	Nabesna (Alaska)—length 90 km
The largest mountain glacier in the USSR	Fedchenko (Pamirs)—length 72 km
The northernmost point of land in the world	Cape Morris Jesup (Greenland)—83°39'N 34°15'E
The northernmost point of land in the USSR	Cape Fligel' (Rudolf Island, Franz Josef Land)—81°50'N 59°00'E
The Earth's magnetic poles	Prince of Wales Island (Canadian Arctic)—74°00'N 99°30'E
north	
south	King George V Land (Antarctica)—68°50'S 145°30'E
The highest temperature in the world	58° (in the shade)—El Azizia region (Libya)
The highest temperature in the USSR	50° (in the shade)—Termez region (Uzb SSR)

Geographical Data—Continued

The lowest temperature in the world ("cold pole")	—73°—in July in Antarctica 72°08'S 96°35'E (Southern Hemisphere); —71° in February in the Oymyakon region, Yakut ASSR (Northern Hemisphere)
The highest mean annual temperature in the world	30.2°—region of Massawa (Ethiopia)
The highest mean annual temperature in the USSR	18°—region of Termez (Uzb SSR)
The lowest mean annual temperature in the world	—30.2°—central Greenland
The lowest mean annual temperature in the USSR	—17.4°—region of Delyankyr (Khabarovsk Krai)
The highest annual temperature range in the world	102°—region of Oymyakon (USSR) (from —71° in winter to 31° in summer)
The lowest annual temperature range in the world	0.4°—the Marshall Islands (Pacific Ocean) and in the region of Quito (Ecuador)
The lowest annual temperature range in the USSR	15.9°—region of Batumi
The highest mean annual precipitation in the world	12,665 mm—region of Cherrapunja (India, State of Assam)
The highest mean annual precipitation in the USSR	2,700 mm—region of Batumi
The lowest mean annual precipitation in the world	1 mm in 3 years—region of Wadi Halfa (Sudan)
The lowest mean annual precipitation in the USSR	27 mm—hollow of Lake Kara-Kul' (Tadzh. SSR)
The highest sea water temperature in the world (in the upper layer)	35.6°—Persian Gulf
The lowest sea water temperature in the world (in the upper layer)	—2.8° (in winter)—the seas of the Arctic Ocean
The highest ocean tides in the world	15–18 m—Fundy Bay and Frobisher Bay (Atlantic coast of Canada)
The highest tides on the coasts of the USSR	13 m—Penzhinskaya Guba (Sea of Okhotsk)

Oceans and Most Important Seas

Ocean/Sea	Area, thous. sq km	Depth, m		Salinity, ‰	Prevailing height of tides, m	Surface temperature, deg.	Brief description
		prevailing	max.				
PACIFIC OCEAN	179,679	3,500–6,000	10,863	34–36	2.0–3.5		Main currents: Trade Wind and Kuro Shiwo currents, speed 0.5 to 1.5 m/sec. Highest tides 10–13m (Penzhinskaya Guba, Sea of Okhotsk; Cook Bay on the south coast of Alaska). In the northern part (as far as a line connecting Hokkaido Island and the Aleutian Islands) drift-ice is encountered during most of the year; bays freeze over from January to March. In the southern hemisphere drift-ice and icebergs are encountered as far as latitude 57°S.
Coral Sea	4,781	2,300–4,800	9,140	34–35	2.1–5.4	26–28 throughout the year	Washes the northeast coast of Australia. Abounds in coral islands and reefs. The highest tide (7.2m) occurs in Broad Sound. The stormy season extends from January to June.
South China Sea	3,447	500–3,000	5,420	31–33	1.1–5.0	26–29 throughout the year	Numerous reefs, dangerous to shipping. Tides in the Gulf of Tonkin reach a height of 5.9m. Typhoons occur from April through September.
Bering Sea	2,304	100–3,300	4,773	20–33	0.9–3.7	Winter 1.5 summer 7–10	Northeastern part shallow (depths down to 100m); southwestern part deep. From October through July the northern part freezes over; the southern part is ice-free the year round.
Sea of Okhotsk	1,590	200–1,200	3,657	30–33	0.9–4.2	Winter 1.8 Summer 8–12	Highest tides 13m (Penzhinskaya Guba). Northern part freezes over from November through June, the southern part from December through March.
Sea of Japan	978	3,100–3,700	4,036	32–34	0.2–0.6	Winter 2–9 Summer 14–25	Highest tides 3m (in southern part). The northern part freezes along the coasts from December to March. Storms occur frequently in winter, dense fogs in spring. Typhoons occur from April to September.
East China Sea	752	150–200	2,717	32–34	3.0–4.5	Winter 8–15 Summer 25–27	Many shallows (5–10m) and rocks dangerous to shipping. Highest tides 10m (Bay of Kang-hwa-man). From May through September typhoons occur (3–4).
Java Sea	480	20–65	89	30–32	1.0–2.9	26–28 throughout the year	Situated between the islands of Borneo and Java. Numerous reefs, dangerous to shipping.

Oceans and Most Important Seas—Continued

Ocean/Sea	Area, thous. sq km	Depth, prevailing	m max	Salin- ity, ‰	Prevail- ing height of tides, m	Surface temperature, deg.	Brief description
ATLANTIC OCEAN	93,363	3,400-5,300	9,218	35-37	1.5-8.0		In the central part of the ocean there is a submarine ridge, the depth above which varies from 900 to 2,700m. Main currents: Trade Wind and Gulf Stream, speed 0.2-0.75 m/sec. Highest tides 11-18m (east coast of Canada, Fundy Bay and Frobisher Bay). Icebergs occur above latitude 42° north and below latitude 40° south.
Caribbean Sea	2,754	3,200-4,500	7,238	34-36	0.5-1.3	27-29 throughout the year	Has a steady east-to-west current, speed 0.6-1 m/sec. Hurricanes occur from June through October.
Mediterranean Sea	2,505	2,400-3,600	4,594	36-39	0.1-1.8	Winter 12-16 Summer 25-27	Steady currents flow from the Atlantic and the Sea of Marmora. Storms occur in the fall and are particularly heavy along the west coast of Italy.
North Sea	544	35-140	433	31-35	0.6-6.3	Winter 3-7 Summer 13-15	Numerous shallows (5 to 15m). Tides in Firth of Forth up to 10m. Water level increases by as much as 3m in high winds. Freezes over along coasts (December-March); ice does not interfere with shipping.
Black Sea	423	1,000-2,000	2,245	17-18	0.1	Winter 7-9 Summer 22-27	35-100m deep in northwestern part. Water level rises by 2-2.5m in high winds. It has a steady anticlockwise circular current. At depths of over 200m the water is contaminated with hydrogen sulfide. Freezes over along northwest coastline from December to March.
Baltic Sea	386	60-150	459	6-8	0.1-0.6	Winter down to -1, Summer 13-17	Many sectors with depths of 2-20m, as well as rocks and islands which are a hazard to shipping along the coasts of Sweden and Finland. In high winds the water level rises by 3-4m. Freezes over in northern part as far south as Liepaya; the ice, which persists from November through May, is 5-20cm thick.
Sea of Azov	38	7-11	13	10-12	0.1	Winter down to -1, Summer 25-28	The salinity of the water near river mouths is as low as 3‰. In high winds the water level rises by 2m. The sea freezes over along the coastline from December to April, thickness of the ice up to 10cm. In severe winters the sea freezes over completely, the thickness of the ice reaching 60cm; ice hummocks are encountered.
INDIAN OCEAN	74,917	2,000-4,500	7,450	34-36	1.0-2.5		In the western and southern parts there are many sectors where the depth does not exceed 500m. Main currents: equatorial and monsoon; speed 0.5-2.5 m/sec. Highest tides 10-12m (on the west coasts of Hindustan and Australia). Icebergs are frequently encountered up to the latitude of the southern tip of New Zealand.
Arabian Sea	3,683	1,900-3,400	5,203	35-38	0.1-1.2	22-26 throughout the year	Hurricanes lasting 15-20 days occur from April to November.
Red Sea	450	600-1,500	2,604	37-41	0.6-1.6	Winter 21-26, Summer 28-35	In coastal areas there are many sectors where the depth is less than 30m. Mirages occur during the summer.
ARCTIC OCEAN	13,100	1,000-4,000	5,220	29-35	0.1-0.5		At distances of 200-1,000m from the coast the depth of the water varies between 50 and 200m. The Lomonosov submarine ridge extends from the Novosibirsk Islands to Greenland. Depths above the ridge vary between 950 and 2,000m. Another lesser elevation is situated parallel to the Lomonosov Ridge. The main current flows from the coast of North America through the region of the Pole along the east coast of Greenland. The highest tides (7-9m) occur in the White Sea. The central part of the ocean is covered with thick drift-ice.

Oceans and Most Important Seas—Continued

Ocean/Sea	Area, thous. sq km	Depth, prevailing	m max.	Salinity, ‰	Prevailing height of tides, m	Surface temperature, deg.	Brief description
Barents Sea	1,405	100-350	600	32-35	2.5-4.7	Winter -1 Summer 5-7	throughout the year (hummock ice can be up to 5m thick). The warm (4-12°) North Cape current flows along the north coast of Norway. The highest tides (6.7m) occur in Svyatonskiy Bay. The southwestern part of the sea (in the zone 400-500km from the coast of the Kola Peninsula) does not freeze over: the remainder of the sea is covered with thick ice from November through April.
Greenland Sea	1,205	600-1,000	4,846	32-35	1.3-4.4	Winter -0.8 Summer 6	In the eastern part of the sea the warm Spitzbergen current flows to the north, in the western part the cold Greenland current flows south. Throughout the entire year pack ice is encountered in the western part of the sea, and elsewhere icebergs.
East Siberian Sea	901	40-92	155	16-30	0.2-1.3	Winter -1.8 Summer 5	Under the action of the wind the water level rises 2.5-3m. The sea freezes over from October to July.
Kara Sea	883	30-100	620	30-34	0.3-1.2	Winter -1 Summer 6	The southern part is shallow. Covered with drift-ice for almost the entire year.
Laptev Sea	650	30-80	2,980	25-30	0.3	Winter -1.5 Summer 5-7	Deep in the extreme north. The water level increases by 2-3m under the action of winds. Covered with thick ice from October through July.
Chukchee Sea	582	35-60	160	24-32	0.1-0.9	Winter -1.8 Summer 3-6	Freezes over from October to July. Hummock ice up to 2m thick.
Beaufort Sea	746	600-2,000	4,683	25-32	0.2-0.6	Winter -1.8 Summer 5	Washes the north coast of Alaska and Canada. Covered with pack ice, 2-5m thick, from September through July.
White Sea	90	50-150	330	14-30	1.4-3.5	Winter -1 Summer 10-12	Highest tides reach 10m (Mezenskaya Guba). Pack ice from November through May; solid ice in bays.

Most Important Straits

Name	Basins connected by the strait	Length, km	Width, km	Depth, m	Salinity, ‰	Height of tides, m	Hydrologic cycle
Bab-el-Mandeb	Red Sea and Indian Ocean	50	17-26	182-323	36-38	0.6	Southeasterly current, speed 0.2 m/sec.
Bering Strait	Bering and Chukchee Seas	60	35-86	42-70	32	0.2-0.8	Northerly current, speed 0.3 m/sec. Pack ice from October through July.
Great Belt	Baltic and North Seas	115	15-25	12-58	16	0.2	Westerly current, speed 1.5 m/sec. Under wind action the water level rises by up to 3m. Pack ice from December through March.
Bosphorus	Black Sea and Sea of Marmora	29.6	0.6-3.7	33-121	17	0.4	Southerly current, speed 0.1 m/sec.
Vil'kitskiy Strait	Laptev Sea and Kara Sea	Approx. 130	56	92-210	30	0.3	Pack ice the year round.
Gibraltar	Mediterranean Sea and Atlantic Ocean	90	14-21	300-1,181	36	1.3-3.8	Easterly current, speed 0.3 m/sec.
Hudson Strait	Hudson Bay and Atlantic Ocean	Approx. 800	100-200	233-704	32	5.4-8.9	Southeasterly current, speed 0.2 m/sec. Pack ice from October through August.
Dardanelles	Sea of Marmora and Aegean Sea	63	1.3-7.5	53-106	29	0.4	Southerly current, speed 1.2 m/sec.
Denmark Strait	Greenland Sea and Arctic Ocean	approx. 520	260	220-1,600	33	3.6-4.0	Southwesterly current, speed 0.5 m/sec. Pack ice from October through August.

Most Important Straits—Continued

Name	Basins connected by the strait	Length, km	Width, km	Depth, m	Salinity, ‰	Height of tides, m	Hydrologic cycle
Drake Strait	Pacific and Atlantic oceans	approx. 900	900-950	2,800-5,248	34	2.0-3.6	Easterly current, speed 0.5 m/sec. Violent storms in summer. Pack ice throughout the year.
Sunda Strait	Java Sea and Indian Ocean	120.3	30-105	50-1,080	34	0.6-1.0	Frequent submarine eruptions.
Kara Straits	Barents and Kara seas	approx. 45	approx. 50	100-200	31	1.2	Pack ice from October through August.
Kattegat	Baltic and North seas	approx. 200	60-122	26-124	18	0.5	Westerly current, speed 0.2 m/sec. Pack ice from December through March.
Kerch Strait	Black Sea and Sea of Azov	approx. 41	4-15	5-15	17	0.1	Freezes over only during very severe winters.
Korea Strait	East China Sea and Sea of Japan	390	180-220	115-230	34	1.2-3.0	Northeasterly current, speed 0.5 m/sec. Typhoons in July and September.
Cook Strait	Tasmanian Sea and Pacific Ocean	205	25-150	100-325	35	1.5-4.2	Southeasterly current, speed 0.1-0.2 m/sec. Hurricanes occur in June.
English Channel	North Sea and Atlantic Ocean	850	32-180	35-172	34	7.2-12.0	Southeasterly current, speed 0.2 m/sec. Fogs are frequent in the fall.
La Perouse Strait	Sea of Okhotsk and Sea of Japan	101	42	50-118	34	1.4	Easterly current. Ice-covered from December through April. Typhoons occur in September.
Strait of Magellan	Atlantic and Pacific oceans	550	4-33	34-1,170	32	2.0	Tides from 8 to 12m in the eastern part.
Strait of Malacca	Andaman and South China Seas	800	min. 40	25-151	31	2.5-5.0	Many shallows and reefs hazardous to shipping.
Little Belt	Baltic and North seas	approx. 125	min. 0.6	13-80	17	0.2	Westerly current, speed up to 1.5 m/sec. Pack ice from December to March. Freezes in severe winters.
Strait of Messina	Ionian and Tyrrhenian seas	approx. 40	3.5-22	115-1,240	38	0.5	North and south tidal currents (speed 0.2-0.5 m/sec), whirlpools. Adjoins region of submarine eruptions to the north.
Mozambique Channel	Madagascar and African mainland	1,670	400-1,200	2,100-3,520	35	4.6-5.2	Southerly current, speed 1 m/sec. Hurricane season December-March.
Strait of Hormuz	Persian Gulf and Gulf of Oman	85	56-125	70-219	37	3.5-4.4	Flows into the Persian Gulf, speed 0.2 m/sec.
Strait of Otranto	Ionian and Adriatic Seas	120	Min. 75	548-1,247	38	0.4	Currents: northwest along the Albanian coast, south along the Italian coast; speed 0.2-1 m/sec.
Strait of Dover	North Sea and Atlantic Ocean	56	Min. 33	27-64	34	5.5-12.0	Easterly current, speed 0.3-1 m/sec. Fog occurs frequently in the fall.
Palk Strait	Bay of Bengal and Indian Ocean	approx. 150	Up to 60	6-11	34	0.6-0.9	Hurricanes occur in January.
Singapore Strait	South China Sea and Indian Ocean	approx. 110	4-16	22-157	32	3.0-3.5	Strong tidal currents, speed 0.2-0.7 m/sec.
Skagerrak	Baltic and North seas	300	110-130	100-809	22-25	0.5	Pack ice in the strait from December through March.
Taiwan Strait	East China Sea and South China Sea	380	130	60-1,680	34	2.0-7.5	Northeasterly current, speed 0.5 m/sec. Typhoons occur in September.
Tatarsk Strait	Sea of Okhotsk and Sea of Japan	633	40-342	30-230	32	0.2-2.7	Ice-covered from November through April.
Straits of Florida	Gulf of Mexico and Atlantic Ocean	300	80-180	200-2,084	32	0.8-1.3	Northeasterly current, speed 0.5 m/sec. Height of tide 1.3m. Hurricanes occur from April through October.
Tsugaru Strait (Sangarskiy Proliv)	Sea of Japan and Pacific Ocean	110	18-75	130-521	34	0.5-1.8	Easterly current, speed 1-2 m/sec. Typhoons occur in August and September.
Tsushima Strait	East China Sea and Sea of Japan	approx. 160	46-60	100-120	34	2.0-3.5	Northeasterly current, speed 0.2 m/sec. Typhoons occur in August and September.
Oresund (The Sound)	Baltic and North Sea	110	3-4	8-38	10	0.5	Pack ice from December through March. Freezes over in severe winters.

Most Important Straits—Continued

Name	Basins connected by the strait	Length, km	Width, km	Depth, m	Salinity, ‰	Height of tides, m	Hydrologic cycle
Yugorskiy Shar	Barents and Kara Seas	46	approx. 3	10-66	33	0.9	Ice-covered from October through March. Pack ice in the strait all through the summer.

Table of Rail Distances Between Some Cities in the USSR/(in km)

	Moscow	Leningrad	Kiev	Khar'kov	Sverdlovsk	Tashkent	Irkutsk	Riga	Chita	Sochi	Mineral'nyye Vody	Vladivostok	Odessa	Rostov	Baku
Moscow															
Leningrad	650														
Kiev	856	1506													
Khar'kov	779	1429	474												
Sverdlovsk	1754	2404	2610	2533											
Tashkent	3367	4017	4223	4146	1613										
Irkutsk	5183	5833	6039	5962	3335	8550									
Riga	918	528	1774	1697	2672	4285	6101								
Chita	6240	6890	7096	7019	4517	9607	1142	7158							
Sochi	1887	2703	1522	1048	3807	5420	7236	2971	8293						
Mineral'nyye Vody	1927	2577	1310	836	3681	5294	7110	2845	8167	449					
Vladivostok	9330	9980	10 186	10 109	7409	12 697	4074	10 248	2932	11 383	11 257				
Odessa	1515	2065	709	730	3269	4382	6698	2433	7755	1778	1566	10 845			
Rostov	1241	1891	901	427	2995	4608	6414	2159	7481	621	409	10 571	1157		
Baku	2556	3206	2216	1742	4240	5923	7729	3474	8796	1322	906	11 886	2472	1315	
Tbilisi	2411	3861	2810	2330	4965	6567	8394	4118	9451	539	1561	12 541	3066	1909	549

The measurement of time

Zone time is the time equal to the local civil time of a given time zone's central meridian.

The earth's circumference is divided into 24 time zones of 15° (1 hour) each, the zero (Greenwich) meridian being in the center of the zero time zone.

In the USSR the time is advanced one hour and is called **decreed time**. For example, Moscow is in the second time zone, but clocks and watches are set for the third time zone.

A table of zone time corrections is used to determine the zone time from the known time of another time zone.

Using this table to determine the zone time of a given place from the known Moscow time, first consult the chart to find the number of the zone in which the place is located, then find the corresponding correction and add it algebraically to Moscow time.

If the time zone number of a place in a foreign country falls within the range 2 to 12, the correction for it should be reduced by one. For example, Tokyo is in zone 9, which means that the appropriate correction would be +6.

In some Western and Central European countries, as well as in the USA,

Distances Between the Most Important Points by Air
(in km on a great circle route)

Name of city	Berlin	Washington	Honolulu	Cairo	Calcutta	London	Manila	Moscow	Novosibirsk	New York
Berlin	x	6709	11 750	2900	7030	932	9869	1616	4382	6381
Washington	6709	x	11 760	9350	13 010	5895	13 779	7818	9391	330
Honolulu	11 750	11 760	x	14 210	11 340	11 600	8540	11 310	9760	7960
Cairo	2900	9350	14 210	x	5700	3500	9200	2900	4900	9050
Calcutta	7030	13 010	11 340	5700	x	7961	3545	5345	3644	12 743
London	932	5895	11 600	3500	7961	x	10 738	2503	5200	5565
Manila	9869	13 779	8540	9200	3545	10 738	x	8258	5562	13 676
Moscow	1616	7818	11 310	2900	5345	2503	8258	x	2808	7508
Novosibirsk	4382	9391	9760	4900	3644	5200	5562	2808	x	9138
New York	6381	330	7960	9050	12 743	5565	13 676	7508	9138	x
Panama	9400	3350	8440	11 460	16 250	8480	16 560	10 800	12 710	3570
Paris	877	6162	11 950	3250	7858	343	10 746	2485	5248	5832
Peking	7350	11 100	8160	7550	3300	8150	2850	5800	3000	10 950
Rio de Janeiro	10 010	7718	13 340	9900	15 091	9177	18 120	11 547	14 352	7752
San Francisco	9111	3930	3840	12 000	12 575	8621	11 212	9448	9415	4138
Sydney	16 103	15 704	8130	14 400	9150	17 001	6347	14 503	11 830	15 986
Singapore	9925	15 541	10 830	8250	2898	10 855	2393	8430	6273	15 337
Istanbul	1735	8393	13 040	1250	5855	2498	9115	1756	4181	8007
Stockholm	811	6635	11 010	3400	6751	1432	9329	1226	3777	6315
Tokyo	8916	10 899	6210	9550	5140	9560	3003	7479	4767	10 847
Fairbanks	6900	5250	4900	9500	9200	6800	8600	6600	6000	5250
Khabarovsk	7509	9667	6590	8450	5005	8111	3879	6140	3512	9695
Shanghai	8398	11 986	7970	8350	3407	9197	1851	6816	4015	11 863

clocks are advanced one hour by government order during the summer (approximately from April through September). This is called **summer time** and should be taken into account by adding one hour to the time zone correction for the country in question.

Zone No.	Name of zone time	Correction in hours for Moscow time.
0	Greenwich (West European, London, Universal)	-3
1	Central European	-2
2	Moscow	0
3	Volga	+1
4	Ural (Sverdlovsk)	+2
5	West Siberian (Omsk)	+3
6	Yenisey (Krasnoyarsk)	+4
7	Irkutsk	+5
8	Amur (Chita)	+6
9	Maritime (Khabarovsk)	+7
10	Okhotsk (Magadan)	+8
11	Kamchatka	+9
12	Chukotka (Anadyr)	+10
13	13th zone	-14
14	Fairbanks	-13
15	Yukon	-12
16	Pacific	-11
17	Mountain	-10
18	Central	-9
19	Eastern (Washington)	-8
20	Atlantic	-7
21	21st zone	-6
22	22nd zone	-5
23	Icelandic	-4

	Panama	Paris	Peking	Rio de Janeiro	San Francisco	Sydney	Singapore	Istanbul	Stockholm	Tokyo	Fairbanks	Khabarovsk	Shanghai
Berlin	9400	877	7350	10 010	9111	16 103	9925	1735	811	8916	6900	7509	8398
Washington	3350	6162	11 100	7718	3930	15 704	15 541	8393	5635	10 899	5250	9667	11 986
Honolulu	8440	11 950	8160	13 340	3840	8130	10 830	13 040	11 010	6210	4900	6590	7970
Cairo	11 460	3250	7550	9900	12 000	14 400	8250	1250	3400	9550	9500	8450	8350
Calcutta	16 250	7858	3300	15 091	12 575	9150	2898	5855	6751	5140	9200	5005	3407
London	8480	343	8150	9177	8621	17 001	10 855	2498	1432	9560	6800	8111	9197
Manila	16 560	10 746	2850	18 120	11 212	6347	2393	9115	9329	3003	8600	3879	1851
Moscow	10 800	2485	5800	11 547	9448	14 503	8430	1756	1226	7479	6600	6140	6816
Novosibirsk	12 710	5248	3000	14 352	9415	11 830	6273	4181	3777	4767	6000	3512	4015
New York	3570	5832	10 950	7752	4138	15 986	15 337	8007	6315	10 847	5250	9695	11 863
Panama	x	8670	14 350	5300	5350	14 150	18 810	10 850	9570	13 580	8070	12 800	15 030
Paris	8670	x	8250	9172	8945	16 969	10 736	2253	1542	9711	7150	8278	9260
Peking	14 350	8250	x	17 300	9500	8950	4500	7050	6750	2100	6300	1750	1100
Rio de Janeiro	5300	9172	17 300	x	10 656	13 367	15 730	10 282	10 704	18 561	13 000	17 167	18 244
San Francisco	5350	8945	9500	10 656	x	11 935	13 583	10 787	8628	8264	3400	7762	9881
Sydney	14 150	16 969	8950	13 367	11 935	x	6309	14 957	15 604	7831	12 150	9318	7884
Singapore	18 810	10 736	4500	15 730	13 583	6309	x	8650	9645	5322	10 750	6037	3806
Istanbul	10 860	2253	7050	10 282	10 787	14 957	8650	x	2169	8948	8250	7712	7986
Stockholm	9570	1542	6750	10 704	8628	15 604	9645	2169	x	8129	6200	6721	7765
Tokyo	13 580	9711	2100	18 561	8264	7831	5322	8948	8129	x	5650	1469	1765
Fairbanks	8070	7150	6300	13 000	3400	12 150	10 750	8250	6200	5650	x	4700	6950
Khabarovsk	12 300	8278	1750	17 167	7762	9318	6037	7712	6721	1469	4700	x	2237
Shanghai	15 030	9260	1100	18 244	9881	7884	3806	7986	7765	1765	6950	2237	x

Coordinates, Time Zone, Altitude and Distance from Moscow of Certain Points

Point	Latitude	Longitude	Zone	Alt., m	Approx. distance from Moscow, km
Addis Ababa	9°01' N	38°46' E	3	2,640	5,180
Aktubinsk	50 17 N	57 14 E	4	225	1,400
Alma-Ata	43 16 N	76 56 E	5	840	3,100
Amderma	69 46 N	61 38 E	4	—	1,950
Anadyr'	64 44 N	177 28 E	12	17	6,150
Ankara	39 57 N	32 51 E	2	850	1,800
Antwerp	51 13 N	04 25 E	0	10	2,150
Archangel	64 33 N	40 32 E	3	6	1,000
Astrakhan	46 21 N	48 02 E	3	-26	1,250
Atlantic City	39 23 N	74 25 E	19	15	7,700
Athens	37 59 N	23 44 E	2	240	2,250
Ashkhabad	37 57 N	58 24 E	4	218	2,500
Raghdad	33 21 N	44 24 E	3	34	2,550
Baku	40 23 N	49 52 E	3	-10	1,920
Baltimore	30 18 N	76 37 E	19	120	7,800
Bangkok	13 45 N	100 30 E	7	50	7,070
Barentsburg	78 05 N	14 13 E	1	—	2,650
Barcelona	41 24 N	02 10 E	0	5	3,000
Basra	30 30 N	47 49 E	3	20	2,900
Batavia	06 10 S	106 50 E	3	50	9,300
Batumi	41 30 N	41 39 E	3	3	1,520
Belgrade	44 49 N	20 28 E	1	80	1,650
Beirut	33 54 N	35 30 E	2	60	2,450
Berlin (Tempelhof)	52 29 N	13 24 E	1	50	1,600
Bermuda	32 18 N	64 45 E	20	—	7,800
Bizerta	37 17 N	09 52 E	1	10	2,900
Birmingham	52 29 N	01 54 E	0	175	2,550
Bombay	18 55 N	72 45 E	6	—	5,050
Bordeaux	44 50 N	00 53 E	0	50	2,930
Boston	42 21 N	71 03 E	19	—	7,200
Bremen	53 05 N	08 50 E	1	5	1,800
Brussels	50 51 N	04 21 E	0	35	2,150
Bucharest	44 26 N	26 07 E	2	80	1,450
Bukhta Provideniya	64 30 N	173 10 E	12	—	6,360
Bukhta Tiksi	71 34 N	129 03 E	8	10	4,300
Bukhta Tikhaya	80 19 N	52 48 E	4	—	2,850
Buenos Aires	34 37 S	58 27 E	20	—	13,500
Warsaw	52 13 N	21 10 E	1	100	1,150
Vienna	48 13 N	16 23 E	1	155	1,700
Washington	38 53 N	77 00 E	19	85	7,800
Vil'nyus	54 41 N	25 18 E	2	180	800
Vladivostok	43 07 N	131 54 E	9	130	6,400
The Hague	52 05 N	04 18 E	0	5	2,150

Coordinates, Time Zone, Altitude and Distance from Moscow of Certain Points—Continued

Point	Latitude	Longitude	Zone	Alt., m	Approx. distance from Moscow, km
Hamburg	53 33 N	10 01 E	1	10	1,750
Gibraltar	36 08 N	05 20 E	0	150	3,850
Hong Kong	22 12 N	114 30 E	8	—	7,150
Honolulu	02 19 N	157 52 E	14	—	11,350
Delhi	28 40 N	77 13 E	5	—	4,350
Cape of Good Hope	34 21 S	18 30 E	2	—	10,150
Dresden	51 03 N	13 46 E	1	150	1,650
Dover	51 08 N	01 19 E	0	—	2,300
Geneva	46 12 N	06 08 E	1	420	2,420
Jerusalem	31 45 N	35 14 E	2	820	2,600
Johannesburg	26 12 S	28 02 E	2	—	9,100
Kazan'	55 47 N	49 08 E	3	120	700
Cairo	30 03 N	31 15 E	2	205	2,900
Calcutta	22 35 N	88 22 E	6	2	5,550
Kansas	39 08 N	94 38 W	18	275	8,550
Canton	40 47 N	81 24 E	19	345	7,000
Karachi	24 52 N	67 02 E	5	—	4,200
Capetown	33 55 S	18 27 E	2	—	10,100
Cologne	50 57 N	06 56 E	1	50	2,080
Kiev	50 27 N	30 30 E	2	185	740
Kiel	54 20 N	10 08 E	1	30	1,750
Colombo	06 56 N	79 51 E	5	80	6,550
Kuybyshev	53 12 N	50 06 E	3	60	850
Leipzig	51 20 N	12 24 E	1	130	1,700
Leningrad	59 56 N	30 20 E	2	5	630
London (Croydon)	51 21 N	00 07 W	0	75	2,480
Los Angeles	34 03 N	118 17 W	16	150	9,750
Luxembourg	49 37 N	06 08 E	0	—	2,150
Madras	13 07 N	80 18 E	5	25	6,000
Malta	35 54 N	14 26 E	1	—	2,830
Melbourne	37 50 S	144 58 E	10	70	14,450
Mexico City	19 26 N	99 08 W	18	—	10,700
Minsk	53 54 N	27 33 E	2	210	660
Montevideo	34 53 S	56 11 W	8	—	13,400
Moscow	55 45 N	37 37 E	2	160	0
Murmansk	68 58 N	33 05 E	2	20	1,480
Nagasaki	32 45 N	129 53 E	9	135	7,120
Nanking	32 03 N	118 48 E	8	—	6,600
New York	40 40 N	73 53 W	19	—	7,500
Odessa	46 28 N	30 44 E	2	5	1,140
Omsk	55 00 N	73 23 E	5	120	2,260
Ottawa	45 25 N	75 43 W	19	100	7,160
Paris (Le Bourget)	48 57 N	02 26 E	0	45	2,460
Peking	39 54 N	116 28 E	8	—	5,700
Petropavlovsk-Kamchatka	53 00 N	158 40 E	11	7	6,800
Prague	50 05 N	14 25 E	1	280	1,670
Reykjavik	64 09 N	21 57 W	23	50	3,300
Riga	56 59 N	24 09 E	2	6	850
Rio de Janeiro	22 55 S	43 12 W	21	90	11,550
Rostov-on-Don	47 14 N	39 42 E	3	6	950
Saigon	10 50 N	106 40 E	7	30	7,720
San Francisco	37 45 N	122 26 W	16	250	9,500
Sverdlovsk	56 50 N	60 36 E	4	235	1,400
Sevastopol'	44 37 N	33 32 E	2	8	1,300
Seoul	37 36 N	126 58 E	9	80	6,650
Simferopol'	44 58 N	34 07 E	2	250	1,200
Singapore	01 18 N	103 51 E	7	50	8,400
Sofia	42 42 N	23 19 E	2	560	1,780
Stockholm	59 20 N	18 04 E	1	45	1,240
Tananarive	18 55 S	47 31 E	3	—	8,340
Tashkent	41 19 N	69 20 E	5	480	2,800
Tbilisi	41 43 N	44 49 E	3	430	1,650
Teheran	35 40 N	51 26 E	3	1,155	2,500
Tokyo	35 42 N	139 46 E	9	6	7,500
Trieste	45 30 N	13 47 E	1	15	2,000
Tien-tsin	39 08 N	117 10 E	8	—	5,900
Ulan-Bator	47 55 N	106 54 E	7	—	4,650
Ulan-Ude	51 49 N	107 36 E	7	530	4,400
Fairbanks	64 50 N	147 43 W	14	165	6,600
Khabarovsk	48 28 N	135 05 E	9	90	6,140
Helsinki	60 10 N	24 58 E	2	7	920
Cape Chelyuskin	77 43 N	104 15 E	7	5	3,420
Chicago	41 50 N	87 40 W	18	185	8,000
Chita	52 03 N	113 30 E	8	675	4,750
Shanghai	31 10 N	121 27 E	8	—	6,850
Cape Shmidt	68 52 N	179 30 W	12	7	5,900
Yakutsk	62 03 N	129 43 E	8	110	4,900

International Standard Atmosphere

Altitude H, m	Pressure at altitude PH, mm Hg	Temperature at altitude H, C°	Air density by weight, kg/m³
0	760.0	+15.0	1.2255
100	751.0	+14.4	1.2137
500	716.0	+11.8	1.1677
1000	674.0	+8.5	1.1120
2000	596.1	+2.0	1.0067
3000	525.7	-4.5	0.9093
4000	462.2	-11.0	0.8192
5000	404.8	-17.5	0.7361
6000	353.7	-24.0	0.6596
7000	307.8	-30.5	0.5894
8000	266.8	-37.0	0.5250
9000	230.4	-43.5	0.4662
10000	198.1	-50.0	0.4125
15000	90.2	-56.0	0.1935
20000	40.9	-56.5	0.0880

CORRELATION BETWEEN CENTIGRADE (C°), REAUMUR (R°) AND FAHRENHEIT (F°) TEMPERATURE SCALES

$$1^{\circ}\text{C} = 4/5 \text{ R} = 9/5 \text{ F}$$

$$1^{\circ}\text{R} = 5/4 \text{ C} = 9/4 \text{ F}$$

$$1^{\circ}\text{F} = 5/9 \text{ C} = 4/9 \text{ R}$$

To convert to degrees Fahrenheit multiply degrees Centigrade by 9/5 and degrees Reaumur by 9/4.

For Centigrade and Reaumur readings above 0°, add 32° to product, for Centigrade and Reaumur readings below zero, subtract the product from 32°.

Examples:

1. $15^{\circ}\text{C} = 15^{\circ} \cdot 9/5 + 32^{\circ} = 59^{\circ}\text{F}$.
2. $-40^{\circ}\text{R} = 32^{\circ} - 40^{\circ} \cdot 9/4 = -58^{\circ}\text{F}$.
3. $104^{\circ}\text{F} = (104^{\circ} - 32^{\circ}) \cdot 5/9 = 40^{\circ}\text{C}$.
4. $-40^{\circ}\text{F} = -(32^{\circ} + 40^{\circ}) \cdot 5/9 = -40^{\circ}\text{C}$.

Comparative Table of Degrees Centigrade Reaumur and Fahrenheit

C	R	F	C	R	F
-60	-48.0	-76.0	+12	+9.6	+53.6
-55	-44.0	-67.0	+14	+11.2	+57.6
-50	-40.0	-58.0	+16	+12.8	+60.8
-45	-36.0	-49.0	+18	+14.4	+64.4
-40	-32.0	-40.0	+20	+16.0	+68.0
-35	-28.0	-31.0	+22	+17.6	+71.6
-30	-24.0	-22.0	+24	+19.2	+75.2
-28	-22.0	-18.4	+26	+20.8	+78.8
-26	-20.8	-14.0	+28	+22.4	+82.4
-24	-19.2	-11.2	+30	+24.8	+86.0
-22	-17.6	-7.6	+32	+25.6	+89.6
-20	-16.0	-4.0	+34	+27.2	+93.0
-18	-14.4	-0.4	+35	+28.0	+99.5
-16	-12.8	+3.2	+40	+32.0	+104.2
-14	-11.2	+6.8	+45	+36.0	+113.0
-12	-9.6	+10.4	+50	+40.0	+122.0
+10	-8.0	+14.0	+55	+44.0	+131.0
-8	-6.4	+17.5	+60	+48.0	+140.0
-6	-4.8	+21.2	+65	+52.0	+149.0
-4	-3.2	+24.8	+70	+56.0	+158.0
-2	-1.6	+28.4	+75	+60.0	+167.0
0	0.0	+32.0	+80	+64.0	+176.0
+2	+1.6	+35.6	+85	+68.0	+185.0
+4	+3.2	+39.2	+90	+72.0	+194.0
+6	+4.8	+42.8	+95	+76.0	+203.0
+8	+6.4	+46.4	+100	+80.0	+212.0
+10	+8.0	+50.0			

Visibility Range of Certain Objects

	Approx.	
Factory chimneys	•	6 km
Church or castle (in winter)	•	15 km
Sails of a windmill	•	11 km
Large tree standing on its own	•	2 km
Ordinary (2-3 storey) house	•	4 km
Wagons, vehicles, horses	•	1,500 m
Signpost, frontier post	•	1,200 m
Leg movements of people proceeding in formation	•	850 m
Horses' legs, shape of a man	•	700 m
Man's head	•	400 m
Window sash,* shape of man's face	•	300 m
Facial features	•	200 m
Set of a person's eyes	•	150 m
A person's eyes	•	70 m
Individual shingles or boards on the roofs of buildings	•	50 m
Uncamouflaged steel helmet (against a background of snow)	•	1,500 m
Helmet covered with white fabric	•	200 m
A moving or standing soldier in service uniform on a clear winter's day	•	2,000 m
Uncamouflaged soldier, lying (in the snow)	•	1,000 m

Note: Distances seem **short**: on a uniform surface (water, meadowland, sand, etc.), where there are deep depressions in the terrain, and against a light background.

Distances appear to be **greater**: in hilly terrain, in terrain covered with vegetation, against a dark background, on long narrow sectors (of roads or valleys), in the glare of the sun, at sunset, and in fog.

* The most likely meaning of *pereplety ram* [U.S.Ed.].

Visibility Range of Different Objects From the Air in Daylight, Depending on the Flying Altitude

Landmarks	visibility range, km		
	low altitudes	medium altitudes	high altitudes
Large built-up areas	30-40	70-80	90-120
Medium-sized and small built-up areas	10-15	40-50	70-80*
Large rivers	15-20	40-50	70-100
Medium-sized and small rivers	7-10	30-35	40-50
Railways	8-15	20-25	30-40
Highways	10-20	30-40	50-70
Dirt roads	5-10	15-20	up to 20
Lakes	10-20	40-50	70-100
Forests	10-15	30-40	50-70

* Appears in the Russian text as 80-70 [U.S. Ed.].

Visibility Range of the Horizon at Sea (calculated)

Eye level, m	Visibility range in nautical miles, (km)	Eye level m	Visibility range in nautical miles, (km)
0.00	0.0	32	11.8 (21.8)
0.25	1.0 (1.85)	35	12.3 (22.8)
0.50	1.5 (2.8)	40	13.2 (24.4)
0.75	1.8 (3.3)	45	14.0 (25.9)
1.0	2.1 (3.9)	50	14.7 (27.2)
1.5	2.6 (4.8)	60	16.1 (29.8)
2.0	2.9 (5.2)	70	17.4 (32.2)
2.5	3.3 (6.1)	80	18.6 (34.4)
3.0	3.6 (6.7)	90	19.7 (36.5)
3.5	3.9 (7.2)	100	20.8 (38.9)
4.0	4.2 (7.8)	150	25.5 (47.2)
4.5	4.4 (8.1)	200	29.4 (54.5)
5.0	4.7 (8.7)	250	32.9 (60.9)
6.0	5.1 (9.4)	300	36.0 (66.7)
7.0	5.5 (10.2)	400	41.6 (77.0)
8.0	5.9 (10.9)	500	46.5 (86.1)
10.0	6.6 (12.2)	600	51.0 (94.9)
12.0	7.2 (13.3)	700	55.0 (101.9)
14.0	7.8 (14.4)	800	58.9 (108.9)
16.0	8.3 (15.4)	900	62.4 (115.6)
18.0	8.8 (16.3)	1000	65.8 (121.9)
20.0	9.3 (17.2)	1500	80.6 (149.2)
22.0	9.8 (18.1)	2000	93.0 (172.2)

**Visibility Range of the Horizon at Sea—Continued
(calculated)**

Eye level, m	Visibility range in nautical miles, (km)	Eye level m	Visibility range in nautical miles, (km)
24.0	10.2 (18.9)	3000	113.9 (211.0)
26.0	10.6 (19.6)	3900	129.9 (240.0)
28.0	11.0 (20.4)	4500	139.5 (257.7)
30.0	11.4 (21.1)		

Weather forecasting from instrument readings

When the absolute humidity increases by more than 2 mm for 6–8 hours, heavy rain can be expected the following day.

A continuous drop in pressure during the course of the day heralds the approach of a cyclone and, consequently, precipitation and wind.

A rapid fall in pressure in middle and low latitudes is a sign of an approaching storm.

A slow continuous increase in pressure over a period of several days is a sign of a prolonged spell of clear weather.

If the pressure is falling and the barometer reading curves up in a convex curve, heavy winds and a deterioration of the weather can be expected. If on the other hand the pressure is falling and the barometer reading curves downwards, a change for the better can be expected.

If a rise in pressure is accompanied by an upward curve of the barometer reading, abatement of the wind and calm weather can be expected, a downward curve is an indication that the force of the wind will increase.

An undulating barometer curve signifies the approach of the next cyclone (the normal period between cyclones being 2–3 days).

A slow drop in pressure starting in the morning, accompanied by a rise in temperature and absolute humidity, is a sign of possible rain or snow and, in the summer, storms.

A drop in the relative humidity in the morning and a rise towards evening is a sign of clear weather.

Weather forecasting by observations at sea

Signs of deterioration in the weather

The absence of breezes in areas where they usually occur.

Small amounts of low cloud in the morning.

The higher clouds move in a counterclockwise direction in relation to the lower clouds.

In the winter cumulonimbus clouds bring extremely heavy brief snowstorms with large snowflakes. In spring these clouds bring violent hailstorms,

sometimes accompanied by snow or rain, in the summer they bring showers or heavy downpours of rain.

Towards evening and at night a squally wind moderates, or wind ceases altogether.

At sunset the sky is frequently pallid or yellowish (gold) with a pale rose-colored high patch. If there are stratocumulus or storm clouds on the horizon, the lower side of the clouds and the part of the sky under them may be tinged with red. This coloration rapidly disappears and does not extend to the part of the sky above the clouds.

If the wind drops there is a possibility of night fog.

Electrical discharges are fairly heavy, especially during the day.

Signs of the approach of bad weather

A red afterglow at sunset.

The appearance of fast-moving cirrus clouds in increasing amounts. If the shapes of the cirrus clouds approaching from the west are consistent, precipitation can be expected within 10–12 hours. If the cirrus formations are slowly replaced by lower clouds and there are sharp variations at the initial point of the horizon,* precipitation may occur within 1–3 days.

Clouds moving in opposite directions are indicative of the approach of rain or snow.

A rising wind towards evening is a sign of prolonged precipitation and the approach of a storm.

If the wind does not abate towards evening and turns with the sun, this is a sign of an approaching cyclone and bad weather.

A temperature rise in winter and a temperature drop in summer.

The appearance of small halos around the sun or moon.

The wind abates and slowly turns against the sun. If the wind blows from the opposite direction, the rain can be expected to abate.

If cumulus clouds do not disperse by the evening, a deterioration in the weather, or rain can be expected.

Very clear air is a sign of approaching rain.

Clear audibility of distant sounds is a sign of impending rain or snow.

Brightly twinkling stars towards morning also herald the approach of rain or snow.

A sharp change in the direction of the wind after blowing for several days from another quarter indicates a change in the weather and precipitation.

After one cyclone high and fast moving cirrus clouds appearing above fractocumulus clouds signify the approach of a new cyclone, even though there is no fall in pressure. The wind can be expected to change from the northwest to the southeast.

* *V nachal'noy punkte gorizonta* [U.S. Ed.].

PHYSICOMATHEMATICAL DATA
Table of Squares, Cubes, Square and Cube Roots

n	n^2	n^3	$\sqrt{n}$	$\sqrt[3]{n}$
1	1	1	1.00	1.00
2	4	8	1.41	1.26
3	9	27	1.73	1.44
4	16	64	2.00	1.59
5	25	125	2.24	1.71
6	36	216	2.45	1.82
7	49	343	2.65	1.91
8	64	512	2.83	2.00
9	81	729	3.00	2.08
10	100	1000	3.16	2.15
11	121	1331	3.32	2.22
12	144	1728	3.46	2.29
13	169	2197	3.61	2.35
14	196	2744	3.74	2.41
15	225	3375	3.87	2.47
16	256	4096	4.00	2.52
17	289	4913	4.12	2.57
18	324	5832	4.24	2.62
19	361	6859	4.36	2.67
20	400	8000	4.47	2.71
21	441	9261	4.58	2.76
22	484	10648	4.69	2.80
23	529	12167	4.80	2.84
24	576	13824	4.90	2.88
25	625	15625	5.00	2.92
26	676	17576	5.10	2.96
27	729	19683	5.20	3.00
28	784	21952	5.29	3.04
29	841	24389	5.39	3.07
30	900	27000	5.48	3.11
31	961	29791	5.57	3.14
32	1024	32768	5.66	3.17
33	1089	35937	5.74	3.21
34	1156	39304	5.83	3.24
35	1225	42875	5.92	3.27
36	1296	46656	6.00	3.30
37	1369	50653	6.08	3.33
38	1444	54872	6.16	3.36
39	1521	59319	6.24	3.39
40	1600	64000	6.32	3.42
41	1681	68921	6.40	3.45
42	1764	74088	6.48	3.48
43	1849	79507	6.56	3.50
44	1936	85184	6.63	3.53
45	2025	91125	6.71	3.56
46	2116	97336	6.78	3.58
47	2209	103823	6.86	3.61
48	2304	110592	6.93	3.63
49	2401	117649	7.00	3.66
50	2500	125000	7.07	3.68
51	2601	132651	7.14	3.71
52	2704	140608	7.21	3.73
53	2809	148877	7.28	3.76
54	2916	157464	7.35	3.78
55	3025	166375	7.42	3.80
56	3136	175616	7.48	3.83
57	3249	185193	7.55	3.85
58	3364	195112	7.62	3.87
59	3481	205379	7.68	3.89
60	3600	216000	7.75	3.91
61	3721	226981	7.81	3.94
62	3844	238328	7.87	3.96
63	3969	250047	7.94	3.98
64	4096	262144	8.00	4.00
65	4225	274625	8.06	4.02
66	4356	287496	8.12	4.04
67	4489	300763	8.19	4.06
68	4624	314432	8.25	4.08
69	4761	328509	8.31	4.10
70	4900	343000	8.37	4.12
71	5041	357911	8.43	4.14
72	5184	373248	8.49	4.16
73	5329	389017	8.54	4.18
74	5476	405224	8.60	4.20
75	5625	421875	8.66	4.22
76	5776	438976	8.72	4.24
77	5929	456533	8.77	4.25
78	6084	474552	8.83	4.27
79	6241	493039	8.89	4.29
80	6400	512000	8.94	4.31
81	6561	531441	9.00	4.33
82	6724	551368	9.06	4.34
83	6889	571787	9.11	4.36
84	7056	592704	9.17	4.38

PHYSICOMATHEMATICAL DATA—Continued
Table of Squares, Cubes, Square and Cube Roots

n	n^2	n^3	$\sqrt{n}$	$\sqrt[3]{n}$
85	7225	614 125	9.22	4.40
86	7396	636 056	9.27	4.41
87	7569	658 503	9.33	4.43
88	7744	681 472	9.38	4.45
89	7921	704 969	9.43	4.46
90	8100	729 000	9.49	4.48
91	8281	753 571	9.54	4.50
92	8464	778 688	9.59	4.51
93	8649	804 357	9.64	4.53
94	8836	830 584	9.70	4.55
95	9025	857 375	9.75	4.56
96	9216	884 736	9.80	4.58
97	9409	912 673	9.85	4.59
98	9604	941 192	9.90	4.61
99	9801	970 299	9.95	4.63
100	10 000	1 000 000	10.00	4.64

AREAS OF PLANE FIGURES

SQUARE. a - side; d - diagonal: $S = a^2 = \frac{d^2}{2}$.

RECTANGLE. a, b - sides: $S = ab$.

RHOMBUS. a - side; d_1, d_2 - diagonals; α - one of the angles (acute or obtuse):

$$S = \frac{d_1 d_2}{2} = a^2 \sin \alpha.$$

PARALLELOGRAM. a, b - sides; α - one of the angles (acute or obtuse); h - altitude:

$$S = ah = ab \sin \alpha.$$

TRAPEZOID. a, b - base; h - altitude; c - median: $S = \frac{a+b}{2} h = ch$.

ANY QUADRANGLE. d_1, d_2 - diagonals; α - angle between them:

$$S = \frac{1}{2} d_1 d_2 \sin \alpha.$$

A quadrangle, which can be inscribed in a circle. a, b, c, d are its sides:

$$p = \frac{a+b+c+d}{2},$$

$$S = \sqrt{(p-a)(p-b)(p-c)(p-d)}.$$

RIGHT-ANGLE TRIANGLE. a, b are the legs of the triangle: $S = \frac{1}{2} ab$.

ISOSCELES TRIANGLE. a is the base; b one of its sides:

$$S = \frac{1}{2} a \sqrt{b^2 - \frac{a^2}{4}}.$$

EQUILATERAL TRIANGLE. a - side:

$$S = \frac{1}{4}a^2\sqrt{3}.$$

ANY TRIANGLE. a, b, c are its sides; a the base; h the altitude; A, B, C the angles opposite to sides a, b, c :

$$p = \frac{a + b + c}{2}.$$

$$S = \frac{1}{2}ah = \frac{1}{2}ab\sin C = \frac{a^2\sin B\sin C}{2\sin A} = \frac{h^2\sin A}{2\sin B\sin C} = \sqrt{p(p-a)(p-b)(p-c)}.$$

To find the area of a POLYGON, divide it into triangles (for example, by diagonals). It is convenient to divide a polygon inscribed about a circle by straight lines drawn from the center of the circle to the apexes of the polygon. From this we obtain: $S = rp$, where r is the radius of the circle, and p the semiperimeter.

REGULAR HEXAGON. a is one side: $S = \frac{3}{2}\sqrt{3} \cdot a^2$.

CIRCLE. d is the diameter; r the radius; C the length of the circumference:

$$S = \frac{1}{2}Cr = \pi r^2 (\approx 3,142r^2) = \pi \frac{d^2}{4} (\approx 0,785d^2).$$

SECTOR. r is the radius; n the central angle in degrees; p_n the length of the arc:

$$S = \frac{1}{2}rp_n = \frac{\pi r^2 n}{360}.$$

RING. R, r are the external and internal radii; D, d the external and internal diameters; k the width of the ring:

$$S = \pi(R^2 - r^2) = \frac{\pi}{4}(D^2 - d^2) = 2\pi rk.$$

SEGMENT. The area of a segment is found as the difference between the areas of a sector of a circle, constructed with a segment, and a triangle, two sides of which are radii of the circle, the third side forming the segment chord.

VOLUMES AND SURFACES OF BODIES

Symbols: V - volume; S - area of base; S_{lat} - lateral surface; P - total surface; h - altitude; a, b, c - dimensions of a rectangular solid; A - apothem of a regular pyramid and a regular truncated pyramid; l - generatrix of a cone; p - perimeter or circumference of base; r - radius of base; d - diameter of base; R - radius of sphere; D - diameter of sphere.

PRISM, rectangular and oblique; parallelepiped: $V = Sh$.

Regular prism: $S_{lat} = ph$.

Rectangular solid: $V = abc$; $P = 2(ab + bc + ac)$.

Cube: $V = a^3$, $P = 6a^2$.

PYRAMID, regular and irregular: $V = \frac{1}{3}Sh$.

Regular pyramid: $S_{lat} = \frac{1}{2}pA$.

Truncated pyramid, regular and irregular: $V = \frac{1}{3}(S_1 + \sqrt{S_1 S_2} + S_2)h$.

Truncated regular pyramid: $S_{lat} = \frac{1}{2}(p_1 + p_2)A$.

CYLINDER, circular (right and oblique): $V = Sh = \pi r^2 H = \frac{1}{4}\pi d^2 h$.

Round cylinder: $S_{lat} = 2\pi rh = \pi dh$.

CONE, circular (round and oblique): $V = \frac{1}{3}Sh = \frac{1}{3}\pi r^2 h = \frac{1}{12}\pi d^2 h$.

Round cone: $S_{lat} = \frac{1}{2}pl = \pi rl = \frac{1}{2}\pi dl$.

Truncated circular cone (round and oblique):

$$V = \frac{1}{3}\pi h(r_1^2 + r_1 r_2 + r_2^2) = \frac{1}{12}\pi h(d_1^2 + d_1 d_2 + d_2^2).$$

Truncated round cone: $S_{lat} = \pi(r_1 + r_2)l = \frac{1}{2}\pi(d_1 + d_2)l$.

SPHERE: $V = \frac{4}{3}\pi R^3 = \frac{1}{6}\pi D^3$, $P = 4\pi R^2 = \pi D^2$.

HEMISPHERE: $V = \frac{2}{3}\pi R^3 = \frac{1}{12}\pi D^3$, $S = \pi R^2 = \frac{1}{4}\pi D^2$
 $S_{lat} = 2\pi R^2 = \frac{1}{2}\pi D^2$, $P = 3\pi R^2 = \frac{3}{4}\pi D^2$.

SPHERICAL SEGMENT: $V = \pi h^2(R - \frac{1}{3}h) = \frac{\pi h}{6}(h^2 + 3r^2)$,

$$S_{lat} = 2\pi Rh = \pi(r^2 + h^2), P = \pi(2r^2 + h^2).$$

SPHERICAL SEGMENT OF TWO BASES:

$$V = \frac{1}{6}\pi h^3 + \frac{1}{2}\pi(r_1^2 + r_2^2)h, S_{lat} = 2\pi Rh.$$

SPHERICAL SECTOR: $V = \frac{2}{3}\pi R^2 h'$

(h' is the altitude of the segment contained in the sector)

$$\text{HOLLOW SPHERE: } V = \frac{4}{3}\pi(R_1^3 - R_2^3) = \frac{\pi}{6}(D_1^3 - D_2^3);$$

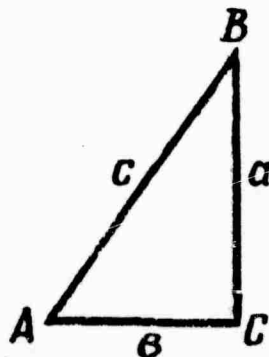
$$P = 4\pi(R_1^2 + R_2^2) = \pi(D_1^2 + D_2^2).$$

(R_1 and R_2 are the radii of the exterior and interior spherical surfaces).

TRIGONOMETRIC FUNCTIONS OF ACUTE ANGLES

In the final analysis, the solution of all triangles is reduced to the solution of right-angled triangles. In a right-angled triangle ABC the ratio of two of its sides, for example side a and hypotenuse c , depends entirely on the magnitude of one of the acute angles, A , for example. The ratios of different pairs of sides of a right-angled triangle are called the trigonometric functions of its acute angle. Depending on angle A , these functions are given the following names and symbols:

- 1) Sine: $\sin A = \frac{a}{c}$ ($\frac{\text{opposite side}}{\text{hypotenuse}}$)
- 2) Cosine: $\cos A = \frac{b}{c}$ ($\frac{\text{adjacent side}}{\text{hypotenuse}}$)
- 3) Tangent: $\text{tg } A = \frac{a}{b}$ ($\frac{\text{opposite side}}{\text{adjacent side}}$)
- 4) Cotangent: $\text{ctg } A = \frac{b}{a}$ ($\frac{\text{adjacent side}}{\text{opposite side}}$)
- 5) Secant: $\text{sc } A = \frac{c}{b}$ ($\frac{\text{hypotenuse}}{\text{adjacent side}}$)
- 6) Cosecant: $\text{csc } A = \frac{c}{a}$ ($\frac{\text{hypotenuse}}{\text{opposite side}}$)



For angle B (the "complement" of angle A) the designations change respectively:

$$\begin{aligned} \sin B &= \frac{b}{c}; \cos B = \frac{a}{c}; \text{tg } B = \frac{b}{a}; \\ \text{ctg } B &= \frac{a}{b}; \text{sc } B = \frac{c}{a}; \text{csc } B = \frac{c}{b}; \end{aligned}$$

The exact expressions of trigonometrical values for certain angles are given in the following table:

A	sin A	cos A	tg A	ctg A	sc A	csc A
0°	0	1	0	∞	1	∞
30°	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}}$	$\sqrt{3}$	$\frac{2}{\sqrt{3}}$	2
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1	1	$\sqrt{2}$	$\sqrt{2}$
60°	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$	$\frac{1}{\sqrt{3}}$	2	$\frac{2}{\sqrt{3}}$
90°	1	0	∞	0	∞	1

Specific Gravity of Certain Substances

Substance	Specific gravity	Substance	specific gravity
Sheet asbestos	1.2-2.5	Soil	1.3-2.0
Alabaster	2.3-2.8	Gold	19.25
Diamond	3.52	Lime	2.5
Aluminum, alloys	2.6-2.75	Rock salt	2.3
Asphalt	1.1-1.5	Coal (pieces)	1.2-1.5
Apatite	3.2	Potatoes	1.0-1.1
Babbitt	7.5-10.5	Kerosene	0.8
Concrete	1.8-2.45	Brick	1.8-2.0
Gasoline	0.7	Cobalt	8.6
Boric acid	2.9-3.0	Leather	0.86-1.02
Coal bricks	1.3	Ice	0.88-0.92
Bronze	7.4-8.9	Manganese	7.15-7.39
Paper	0.7-1.2	Linseed oil	0.9
Fresh water (at 0°)	1.0	Copper wire	8.8-9.0
Salt water	1.02-1.03	Chalk	1.8-2.6
Wolfram	13.9-14.9	Marble	2.7
Gypsum	2.3	Bulk flour	0.4-0.5
Dry gravel	1.8-2.0	Compressed flour	0.7-0.8
Granite	2.5-2.7	Oil (crude)	0.8
Wood	0.5-0.7	Nickel	8.75-9.2
Duralumin	2.8	Tin	7.3
Iron, Steel	7.2-7.8	Paraffin	0.85-0.92
Fat	0.9	Resin	1.0-1.1
Sand, rock	2.2	Steel	7.8
Plastic	1.45-1.55	Glass	2.45-2.7
Powder, free-flowing	0.9	Talc	2.7
Powder, compressed	1.7	Uranium	18.7
Cork	0.25	Plywood	0.54-0.8
Bulk wheat	0.7-0.8	Porcelain	1.8-2.4
Rubber articles	1.3-2.0	Cotton	0.35
Mercury (at 0°)	13.6	Zinc	6.9-7.13
Sugar	1.6	Cement	2.5-3.2
Lead	11.34	White iron	7.2-7.4
Sulfur	1.9-2.1	Wool	1.32
Sulfuric acid	1.8	Bulk barley	0.69
Silver	10.4		
Mica	2.8-3.2		

SYSTEMS OF ELECTRICAL AND ELECTROMAGNETIC UNITS

International electrical units

1. The unit of electrical resistance, the international ohm (Ω) is the resistance of a mercury column (at a steady current and a temperature of 0°) 103.6cm long, with a uniform cross-section along its entire length, and a mass of 14.4521g.

2. The unit of electric current, the international ampere (A, amp) is the unvarying electric current that will deposit 0.000118g of silver per second when passing through a solution of silver nitrate.

3. The unit of electric tension and electromotive force (emf), the international volt (V) is the electric tension or emf, which in a conductor having a resistance of 1 ohm produces a current of 1 amp.

4. The electrical unit of quantity, the international coulomb (C) or ampere-second, is the quantity of electricity flowing through a cross-section of a conductor in one second at a current of 1 amp.

5. The unit of electrical power, the international watt (W), is the power of an unvarying current of 1 amp under a voltage of 1V.

6. The unit of work of an electric current, the international watt-second (Ws) or international joule (J), is the work accomplished by an electric current in one second at a power of 1W.

7. The unit of electrical capacitance, the international farad (F), is the capacity of a condenser, charged to a potential of 1V with 1C of electricity.

8. The unit of inductance and mutual inductance is the international henry (H).

Inductance is the property of an electric circuit by virtue of which an emf of 1V is induced in the same circuit by a uniform change of current of 1 amp per sec.

Mutual inductance is the property of two electrical circuits, by virtue of which an emf of 1V is induced in one circuit by a uniform change of current of 1 amp per sec in the other circuit.

9. The unit of conductance, $\frac{1}{\text{ohm}}$ or siemens (S), is the conductance of a conductor having a resistance of 1Ω .

Absolute magnetic units of the electromagnetic system of units

1. The unit of magnetic flux is the maxwell (Mx)

2. The unit of magnetic induction is the gauss (Gs)

3. The unit of magnetomotive force is the gilbert (Gb)

4. The unit of magnetizing force is the oersted (Oe)

Measures of the work of an electric current

The work accomplished by a source of energy with an output of 1W in one hour is called a watt-hour (Wh)

1 watt-hour = 3,600 joules

1 hectowatt-hour = 100 watt-hours

1 kilowatt-hour = 1,000 watt-hours

Measures of electrical capacity

1 farad (F) = 10^6 microfarads (μF) = 9×10^{11} centimeters (cm) = 10^{-9} absolute electromagnetic units.

1 microfarad (μF) = 10^{-6}F = 9×10^5 cm.

1 picofarad (ρF) = $10^{-6} \mu\text{F}$ = 0.9 cm

SOME FACTS ABOUT THE PHYSICS OF THE ATOM

Basic units and definitions

1. The unit of mass is taken as 1/16th of the mass of an atom of the oxygen isotope O^{16} , the mass of which in the scale of atomic masses is equal to exactly 16 units.

One atomic mass unit is equal to $1.66 \times 10^{-24}\text{g}$.

2. The unit of charge is taken as being equal to the electron charge.

One elementary charge is equal to 1.6×10^{-19} coulombs.

3. The unit of energy is taken as one electron-volt (1 ev), which is equal to the energy acquired by an electron when passing through a potential rise of 1 volt.

One electron-volt is equal to 1.6×10^{-12} ergs.

4. The mass number (A) is the integer which is rounded nearest to the atomic mass of the nucleus of an atom.

5. The nuclear charge, expressed in elementary charges, is equal to the number of protons in the nucleus, or the number of electrons in the electron shells of the atom. This number is equal to the serial number of the element in Mendeleyev's periodic table of the elements.

6. Nuclear forces are short-range forces which hold the particles in the nucleus. Nuclear forces are effective at distances no greater than 10^{-13} cm. These forces are not of an electromagnetic nature.

7. The mass defect of a nucleus Δm is a measure of the quantity of energy released in forming a given nucleus from elementary particles. The mass of a nucleus is less than the mass of the particles which form it by

$$\Delta m = \frac{\Delta E}{c^2}.$$

8. Radioactive nuclei are unstable nuclei undergoing spontaneous disintegration. Radioactive nuclei emit either alpha-particles (alpha decay), or electrons or positrons (beta decay).

The half-life (T) is the time during which the number of radioactive nuclei is reduced to half the original number.

There are three radioactive families:

1. **The uranium₉₂U²³⁸ family.** The half-life (T) of this element is 4.51×10^9 years. This family includes **radium** with a half-life of 1,590 years and **radon** with a half-life of 3.825 days.

The second parent of this family is **curium₉₆ Cm²⁴²** with a half-life of 150 days. Uranium, radium, radon, and curium emit alpha-particles. Certain members of this family emit beta-particles. The end product of all the radioactive transformations, lead, is non-radioactive.

2. **The actinium family.** The parent of this family is plutonium₉₄Pu²³⁹ with a half-life of 2.41×10^4 years. The second member is **actinouranium AcU²³⁵** with a half-life of 8.52×10^8 years. Actinium AcA has the shortest half-life in this family: 1.83×10^{-3} seconds. The decay end product is lead.

3. **The thorium₉₀Th²³² family.** Half-life: 1.39×10^{10} years; decay end product: lead.

Potassium, rubidium, samarium, cassiopeium (or lutetium) and rhenium are also naturally radioactive. However, these elements do not belong to any one of the three families.

In addition to the indicated families, there is also a family of artificially radioactive elements. Its parent is plutonium₉₄Pu²⁴¹, which emits beta-particles and has a very long half-life.

The displacement laws. If a radioactive nucleus emits an alpha-particle, it loses 4 units of mass and 2 units of charge, i.e., a new element occurs in Mendeleyev's periodic table two cells ahead of the one in question.

If a radioactive nucleus emits a beta-particle, the mass of the nucleus is virtually unchanged, while the charge is increased by one, i.e., a new element occurs in Mendeleyev's periodic table one cell after the one in question.

If a positron is emitted there is a shift of one cell to the left.

Brief data on elementary particles

The electron is a light particle. The rest mass of an electron $m = 9.1 \times 10^{-28}$ g. The electron has an elementary negative charge q of 1.6×10^{-19} coulombs. Electrons emitted by atoms during radioactive disintegration are called beta-particles.

The proton (hydrogen atomic nucleus) is a heavy particle. Its mass (M) of 1.67×10^{-24} g is 1,836.5 times greater than that of the electron. The proton carries a positive charge, equal in magnitude to that of the electron.

The positron is a light particle. The mass of this particle is equal to that of the electron, and the positive charge is equal in magnitude to that of the electron.

It is emitted by the nuclei of some atoms during artificial* radioactivity.

The neutron is a heavy particle without a charge. The mass of the neutron is slightly greater than that of the proton and 1,839 times greater than that

* Or induced [U.S. Ed.].

of the electron. A free neutron is radioactive; it is transformed into a proton, an electron, and a neutrino.*

The neutrino is a particle without a charge, the mass of which is considerably less than that of the electron. Neutrinos accompany beta-decay. To all intents and purposes they do not interact with matter.

Mesons are particles whose mass is over 200 times greater than that of the electron. These particles carry one positive or negative elementary charge. There are also neutral mesons, which are called neutrettos.† Mesons are very short-lived. They decay into electrons, positrons, neutrinos and gamma photons. There are also heavy mesons, the mass of which is almost 1,000 times greater than that of the electron.

The deuteron is the nucleus of a "heavy" atom of hydrogen—deuterium ${}_1\text{D}^2$ or ${}_1\text{H}^2$. It consists of two particles—a neutron and a proton, firmly bonded together. Disintegration of the deuteron occurs under the action of gamma rays of sufficiently high frequency.

Tritium ${}_1\text{T}^3$ or ${}_1\text{H}^3$ is "superheavy" hydrogen, the nucleus of which consists of two neutrons and one proton. The charge of this nucleus is equal to one and its mass number 3.

An alpha-particle is the nucleus of an atom of helium ${}_2\text{H}^4$, consisting of two neutrons and two protons. The charge is equal to two and its mass number 4.

Gamma rays are electromagnetic waves, emitted during alpha- and beta-decay. Gamma-ray wavelengths fall within the range 10^{-9} to 10^{-11} cm. The nuclei of all atoms consist only of neutrons and protons.

Radioactivity and X-ray units

1. The unit of activity of radon is called a curie (Cu). This is the radiation intensity of radon in a state of equilibrium with one gram of radium.

One gram of radium emits 3.7×10^{10} alpha-particles per second, i.e., this quantity of radium atoms decays in one second.

One curie of alpha-radioactive matter is that quantity of a substance which emits the same number of alpha-particles per second as 1g of radium, i.e., 3.7×10^{10} .

2. The unit of measurement of the activity of alpha- or beta-emitters is the rutherford. One rutherford is one million disintegrations per second.

3. The X-ray physical dose unit is the roentgen (r). This is the physical dose of X-rays at which, as a result of full ionizing action in air at 0°C and normal atmospheric pressure, charges are generated, each of one electrostatic unit per 1 cm^3 of illuminated space.

The unit of X-ray energy is the roentgen per cubic centimeter (r per cm^3). This is the amount of X-radiation which, being absorbed in 1 cm^3 , creates in any element of this volume a physical dose equal to one roentgen.

* The *anti*-neutrino is emitted with negative electrons (e.g., in neutron decay) [U.S. Ed.].

† *Neytretto*. Perhaps K-mesons [U.S. Ed.].

4. Alpha-particles emitted by heavy radioactive nuclei have a velocity of the order of $1-2 \times 10^9$ cm/sec; the number of ions produced by an alpha-particle throughout its entire life is of the order of 10^5 .

5. Beta-particles are emitted in varying intensities, beginning from a certain upper limit, and they have a very long life in air. Their initial velocity may reach 99% of the velocity of light.

The International System of Measures The International System of Measures of Length and Area

Measure	Abbreviations		Definition	Ratio to basic unit
	Russian	Latin		
Units of length				
Meter	m	m	The fundamental unit of length is the meter. The standard meter in the USSR is a copy of the international meter made of platinum-iridium alloy, bearing the mark No.28, which is kept in the All-Union Institute of Metrology	
Kilometer	km	km	One thousand meters	10 ³
Decimeter	dm	dm	One tenth of a meter	10 ⁻¹
Centimeter	sm	cm	One hundredth of a meter	10 ⁻²
Millimeter	mm	mm	One thousandth of a meter	10 ⁻³
Micron	—	μ	One millionth of a meter	10 ⁻⁶
Millimicron	—	mμ	One billionth of a meter	10 ⁻⁹
Units of area				
Square meter	kv. m or m ²	m ²	A square meter is the area of a square, each side of which has a length equal to one meter	1
Square kilometer	kv. km or km ²	km ²	One million square meters	10 ⁶
Hectare	га	ha	Ten thousand square meters	10 ⁴
Are	a	a	One hundred square meters	10 ²
Square decimeter	kv. dn or dm ²	dm ²	One hundredth of a square meter	10 ⁻²
Square centimeter	kv. sm or sm ²	cm ²	One ten thousandth of a square meter	10 ⁻⁴
Square millimeter	kv. mm or mm ²	mm ²	One millionth of a square meter	10 ⁻⁶

International Units of Weight and Volume

Measure	Abbreviations		Definition	Ratio to basic unit
	Russian	Latin		
Units of mass (weight)				
Kilogram	kg	kg	The unit of mass (weight). The standard kilogram in the USSR is a copy of the international kilogram made of platinum-iridium alloy, bearing the mark No.12, which is kept in the All-Union Institute of Metrology.	1
Ton	t	t	One thousand kilograms	10^3
Centner	ts	q	One hundred kilograms	10^2
Decagram	dkg	dag	One hundredth of a kilogram	10^{-2}
Gram	g	g	One thousandth of a kilogram	10^{-3}
Decigram	gd	dg	One ten thousandth of a kilogram	10^{-4}
Centigram	sg	cg	One hundred thousandth of a kilogram	10^{-5}
Milligram	mg	mg	One millionth of a kilogram	10^{-6}
Units of volume				
Cubic meter	kub. m or m ³	m ³	A cubic meter is the volume of a cube, each edge of which has a length equal to one meter.	1
Cubic kilometer	kub. km or km ³	km ³	One billion cubic meters	10^9
Cubic decimeter	kub. dm or dm ³	dm ³	One thousandth of a cubic meter	10^{-3}
Cubic centimeter	kub. sm or sm ³	cm ³	One millionth of a cubic meter	10^{-6}
Cubic millimeter	kub. mm or mm ³	mm ³	One billionth of a cubic meter	10^{-9}

International Units of Weight and Volume—Continued

Measure	Abbreviations		Definition	Ratio to basic unit
	Russian	Latin		
Units of capacity				
Liter	l	l	A liter is a volume of one kilogram of water at its maximum density and at normal atmospheric pressure (760mm). A liter is taken to be equal to 1dm ³ .	1
Kiloliter	kl	kl	One thousand liters	10 ³
Hectoliter	gl	hl	One hundred liters	10 ²
Decaliter	dkl	dkl	Ten liters	10
Deciliter	dl	dl	One tenth of a liter	10 ⁻¹
Centiliter	sl	cl	One hundredth of a liter	10 ⁻²
Milliliter	ml	ml	One thousandth of a liter	10 ⁻³

Note: For measurements accurate to within 0.01 %, a liter is assumed to be equal to a cubic decimeter, a kiloliter a cubic meter, and a milliliter a cubic centimeter.

SOME NON-METRIC UNITS OF LENGTH AND AREA (OBSOLETE)

In some countries, in addition to the official metric units, old national measures are used in commerce, industry, and everyday practice.

Russian measures in use before the introduction of the metric system		Value in metric units
Units of length (or linear measures)		
Mile	= 7 <i>versts</i>	7.4676 km
<i>Verst</i>	= 500 <i>sazhens</i>	1.0668 km
<i>Sazhen</i>	= 3 <i>arshins</i> = 7 feet	2.1336 m
<i>Arshin</i>	= 16 <i>vershki</i> = 28 inches	0.7112 m
Foot	= 12 inches	0.3048 m
<i>Vershok</i>	= 1.75 inches	44.45 mm
Inch	= 10 lines	25.4 mm
Line	= 20 points	2.54 mm
Point		254 microns
Units of area (or square measures)		
Square <i>verst</i>	= 250,000 square <i>sazhens</i>	1.1381 sq km
<i>Desyatina</i>	= 2,400 square <i>sazhens</i>	1.0925 ha
Square <i>sazhen</i>	= 9 square <i>arshins</i> = 49 square feet	4.5522 sq m
English measures in use before the introduction of the metric system into Britain and the USA		Value in the metric system
Units of length		
Nautical mile		1.853 km
Statute mile		1.609 km
Yard		91.44 cm
Foot		30.48 cm
Inch		2.54 cm
English measures in use before the introduction of the metric system into Britain and the USA		Value in metric system
Units of area		
Square mile		259 ha
Acre		0.4047 ha
Square yard		0.836 sq m

National Units of Length and Area of Certain Countries

Country, year of introduction of metric system	National units 1. of length 2. of area	Conversion into metric units	Relationship of metric to national unit
Bulgaria (1888)	1. <i>Lok't'</i> (ell) 2. <i>Dyulyum</i> (uvrat)	65 cm 0.09 ha	1 m = 1.53 <i>lok'tya</i> 1 ha = 11.11 <i>dyulyuma</i>
Britain, Australia, Canada, New Zealand, Union of South Africa, USA (1897)	1. Nautical mile Statute mile Yard = 3 feet Foot = 12 inches Inch 2. Sq mile = 640 acres Acre Sq yard = 9 sq feet Sq foot = 144 sq inches Sq inch	1.852 km 1.609 km 0.914 m 30.479 cm 2.539 cm 2.59 sq km 0.404 ha 0.836 sq m 0.093 sq m 6.451 sq cm	1 km = 0.54 mile 1 km = 0.621 mile 1 m = 1.094 yards 1 m = 3.281 feet 1 cm = 0.394 inches 1 sq km = 0.386 sq mile 1 ha = 2.471 acres 1 sq m = 1.196 sq yards 1 sq m = 10.764 sq feet 1 sq cm = 0.155 sq inches
Hungary (1874)	1. <i>Mertfol'd</i> (<i>marfol'd</i> , mile) 2. Cadastral <i>khol'd</i> small <i>khol'd</i>	8.35 km 0.58 ha 0.43 ha	1 km = 0.12 <i>mertfol'd</i> 1 ha = 1.72 cadastral <i>khol'd</i> 1 ha = 2.33 cadastral <i>khol'd</i>
Germany (1871)	1. Mile (geographical) <i>Faden</i> (fathom) 2. <i>Morgen</i> <i>quadrat</i>	7.42 km 1.83 m 0.26 ha 14.18 sq m	1 km = 0.13 mile 1 m = 0.55 <i>faden</i> 1 ha = 3.91 <i>morgen</i> 1 sq m = 0.07 <i>quadrat</i>
Egypt (1951)	1. <i>Farsakh</i> <i>Kassabah</i> 2. <i>Feddân</i>	1.74 km 3.55 m 0.42 ha	1 km = 0.58 <i>farsakh</i> 1 m = 0.28 <i>kassabah</i> 1 ha = 2.38 <i>feddân</i>
India (1956)	1. <i>Coss</i> (<i>kos</i>) <i>Gu</i> .* 2. <i>Cawnie</i> <i>Bigat</i>	1.83 km 0.69 m 0.54 ha 0.13 ha	1 km = 0.55 <i>coss</i> 1 m = 1.45 <i>guz</i> 1 ha = 1.85 <i>cawnie</i> 1 ha = 7.47 <i>biga</i>
Indonesia (1938)	1. <i>Pal</i> 2. <i>Bahoe</i> (<i>bau</i>)	1.85 km 0.71 ha	1 km = 0.54 <i>pal</i> 1 ha = 1.41 <i>bahoe</i>
Iran (1935)	1. <i>Farsang</i> (<i>Parasang</i>) 2. <i>Jerib</i>	6.24 km 0.11 ha	1 km = 0.16 <i>farsang</i> 1 ha = 9.09 <i>jeribs</i>
China	1. <i>Li</i> 2. <i>Tsin</i> = 100 <i>mu</i>	0.50 km 6.67 ha	1 km = 2.0 <i>li</i> 1 ha = 0.15 <i>tsin</i>
Korea (1945)	1. <i>Li</i> 2. <i>Chen</i> = 10 <i>Tanam</i>	3.93 km 0.99 ha	1 km = 0.25 <i>li</i> 1 ha = 1.01 <i>chen</i>
Mongolia (1924)	1. <i>Gotszar</i> 2. <i>Gubiyar</i> = 100 <i>Ure</i>	0.58 km 9.22 ha	1 km = 1.73 <i>gotszar</i> 1 ha = 0.11 <i>gubiyar</i>
Poland (1919)	1. Post mile 2. <i>Vluka</i>	8.35 km 16.80 ha	1 km = 0.12 post mile 1 ha = 0.06 <i>vluka</i>
Romania (1884)	1. Mile 2. <i>Falcha</i>	7.85 km 1.43 ha	1 km = 0.13 mile 1 ha = 0.70 <i>falcha</i>
France (1837)	1. League <i>Toise</i> 2. Hectare	4.44 km 1.95 m	1 km = 0.22 league 1 m = 0.51 <i>toise</i>
Czechoslovakia (1876)	1. Post mile <i>Shag</i> 2. Lan Square <i>shag</i>	7.59 km 1.90 km 17.26 ha 3.60 sq m	1 km = 0.13 post mile 1 km = 0.53 <i>shag</i> 1 ha = 0.06 <i>lan</i> 1 sq m = 0.28 sq <i>shag</i>
Yugoslavia (1883)	1. <i>Khvat</i> <i>Arshin</i> 2. <i>Lanats</i>	1.90 m 71.20 cm 0.72 ha	1 m = 0.53 <i>khvat</i> 1 cm = 0.014 <i>arshin</i> 1 ha = 1.40 <i>lanats</i>
Japan (1952)	1. <i>Ri</i> 2. <i>Tê</i> *	3.93 km 0.99 ha	1 km = 0.26 <i>ri</i> 1 ha = 1.01 <i>tê</i>

* *Guz*: 0.686 m in Bengal; 0.838 m in Bombay; and 1.039 m in Madras. [U.S. Ed.].

† *Biga*: 1,338 m² in Bengal; 3,293 m² in Bombay; and 2,592 m² in NW prov. [U.S. Ed.].

* The English transliteration of this and other underlined non-metric units in this list may differ from those given in other sources. *Te* could be rendered *Tyo*, *Tyaw*, *Cho*, *Tcho*, etc. [U.S. Ed.].

Ratios of Different Units of Length

	Naut. mile	Cable's length	Knot	Meter	Yard	Foot	Inch
Nautical mile	—	10	120	1852	2026.66	6080	72960
English land mile	0.869	8.687	109.98	1609	1760	5280	63346
Kilometer	0.54	5.4	64.8	1000	1093.61	3280.83	39370.08
Cable's length	0.1	—	12	185.2	202.66	608	7296
Knot*	0.00834	0.0834	—	15.43	16.874	50.66	607.92
Fathom (7 feet)	0.00116	0.0116	0.138	2.1336	2.3331	7	84
Fathom (6 feet)	0.00098	0.0098	0.1182	1.8288	2	6	72
Meter	0.00054	0.0054	0.0648	—	1.094	3.28	39.37
Yard	0.000493	0.0049	0.06	0.9144	—	3	36
Foot	0.000164	0.00164	0.0197	0.3048	0.333	—	12
Inch	0.0000137	0.000137	0.00164	0.0254	0.0277	0.0833	—
Centimeter	0.0000054	0.000054	0.000648	0.01	0.01093	0.032808	0.3937
Millimeter	0.00000054	0.0000054	0.0000648	0.001	0.00109	0.00328	0.03937

Note: The British round off the cable's length, taking it as equal to 200 yards (600 feet) or 100 fathoms (1 fathom = 6 feet).

FOREIGN EXCHANGE RATES
November 1970

Currency	Equivalent in rubles
Australian dollars	1.01
Austrian shillings (per 100)	3.49
Albanian leks (per 100)	18.00
Algerian (People's Democratic Republic) dinars (per 100)	18.23
British pounds sterling	2.15
Argentine (new) pesos (per 100)	22.50
Afghan afghanis (per 100)	2.01
Belgian francs (per 100)	1.81
Burmese kyats (per 100)	18.90
Bulgarian levs (per 100)	76.92
Hungarian forints (per 100)	7.67
North Vietnamese dong (per 100)	30.60
Ghanaian cedi	0.88
Guinean francs (per 1,000)	3.65
East German marks (per 100)	40.50
West German marks (per 100)	24.78
Dutch gulden (per 100)	25.02
Greek drachma (per 100)	3.01
Danish kroner (per 100)	12.00
Egyptian pounds	2.07
Indian rupees (per 100)	12.00
Indonesian rupees (per 1,000)	2.38
Iranian rials (per 100)	1.19
Italian lira (per 1,000)	1.4453
Cambodian riels (per 100)	1.62
Canadian dollars	0.8838
Chinese yuans (per 100)	45.00
North Korean won (per 100)	74.93
Cuban pesos	0.90
Lebanese pounds (per 100)	27.76
Mali francs (per 1,000)	1.62
Moroccan dirhams (per 100)	17.78
Mexican pesos (per 100)	7.21
Mongolian tugriks (per 100)	22.50
Norwegian kroner (per 100)	12.60
Pakistani rupees (per 100)	18.78
Polish zlotys (per 100)	22.50
Romanian lei (per 100)	15.00
Syrian pounds (per 100)	23.68
US dollars	0.90
Sudanese pounds	2.59
Turkish lira (per 100)	6.00
Uruguayan pesos (per 100)	0.36
Finnish marks (per 100)	21.43
French francs (per 100)	16.29
Czechoslovakian crowns (per 100)	12.50
Swedish crowns (per 100)	17.37
Swiss francs (per 100)	20.80
Yugoslav (new) dinars (per 100)	7.20
Japanese yen (per 1,000)	2.52

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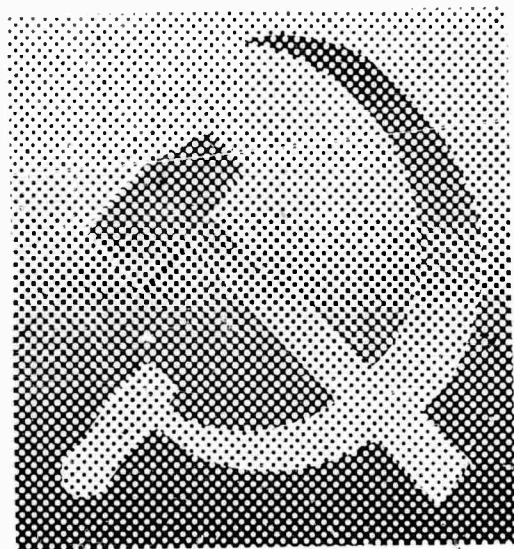
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