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THE VOROSHILOV LECTURES

MATERIALS
FROM THE
SOVIET
GENERAL STAFF
ACADEMY

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VOLUME II
ISSUES OF SOVIET
MILITARY STRATEGY

COMPILED BY
GHULAM DASTAGIR WARDAK
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WITH AN INTRODUCTION BY
RAYMOND L. GARTHOFF

THE VOROSHILOV LECTURES

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GENERAL STAFF ACADEMY

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Issues of Soviet Military Strategy

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Foreword

As the democratic nations of the world witness the rush of events involving the Soviet Union, they are finding much to applaud. In Soviet domestic affairs, for example, there are unmistakable signs of increased freedom of expression; in international affairs there are signs everywhere of a thaw in the Cold War.

Because changes in Soviet military strategy, on the other hand, are less apparent in this period of transition, it remains important to understand basic Soviet strategic thought. This volume of *The Voroshilov Lectures* provides the second installment of official lectures delivered at the Soviet Military Academy of the General Staff in 1973-75. (Volume I was published by NDU Press in 1989.) The lectures reflect Soviet strategy as taught to the current generation of high-ranking Soviet, Warsaw Pact, and client-state military officers.

As tensions between the United States and the Soviet Union continue to wane, these texts illuminate the thinking of the Soviets and their allies, whose willingness to sustain progress is essential to a safer, more stable world.



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THE VOROSHILOV LECTURES



Introduction: U.S. Considerations of Soviet Military Thinking

THIS IS THE SECOND VOLUME of secret lectures delivered at the Voroshilov General Staff Academy in the two-year course during 1973-75. It is a translation based on notes and transcriptions made by an Afghan officer attending the course, Colonel Ghulam Dastagir Wardak. As a continuation of the basic overview lectures presented in the first volume, it rounds out those lectures on strategy in a theater of military action. While not a homogenous series, this volume presents valuable data in three areas: two chapters dealing with the basic arms and services and the High Command of the Soviet Armed Forces; two chapters on particular types of combat support operations in strategic theater operations—air defense, and offensive air assault landings; and three general kinds of basic homeland support for theater operations—military uses of space, civil defense, and economic support of the Armed Forces. This volume completes the coverage of general strategic and strategic support activities (omitting only naval operations, for which the Afghan colonel did not transcribe the lecture, and a lecture on Marxism-Leninism and Soviet military affairs). Future volumes will cover the full range of *front* (Army Group) and army-level operations in detail.

Some changes have, of course, occurred in the 15 years since these lectures, and these can be taken into account by the reader. One is the creation of peacetime Theaters of Strategic Military Action (or Theaters of Military Operations: *teatr voennykh deistvii* or TVD) in 1978 in the Far East and in 1984 for Western Europe, the Mediterranean Basin, and the Middle East. Another is a series of changes in the Air Forces and Air Defense Forces, combining Soviet homeland and army air defenses into one organization, and combining long-range and tactical air forces. But these and other changes do not affect most of the discussion, and certainly do not vitiate—as this is written—the overall doctrine or concept of operations.

In the mid- to late-1980s some changes were underway that may come to affect the underlying military concepts of strategic and operational doctrine. This authoritative material from the mid-1970s remains, however, in any case the baseline from which current and future changes may be made. And for that very reason it is important to understand in order to weigh the impact of any changes.

One basic conception that may be under review, although it has the weight of all history behind it, is the traditional military objective of victory. At the time of these lectures it was certainly taken for granted. In time of war, “All military, material and psychological forces of the nation must be mobilized to achieve victory in war” (p. 29). Moreover, as outlined more fully in lectures presented in the first volume, the strategic concept was predicated on achieving victory in a theater through offensive combined-arms operations.

All branches of the Armed Forces are equipped with nuclear weapons (p. 12), but as in the first volume, it is repeatedly noted that the conduct of military operations may include use of nuclear weapons or may be limited to conventional weapons. Thus in discussing the command system it is stressed that preparations must be made “for all types of wars,” of which “the most distinctive, the most complicated, and the most demanding” is general nuclear war (p. 36). Except for the strategic missile forces, all services must face both non-nuclear and nuclear contingencies. These affect the actual role of the arms

and services. "The ground forces," for example, "in a non-nuclear war play the decisive role in the destruction of the enemy, while in a nuclear war they play the decisive role in the completion of the destruction of enemy forces" (p. 14). The ground forces are said to be "acquiring greater capability to conduct combat operations with or without the use of nuclear weapons" (p. 17). And, "the Air Force is capable of accomplishing its mission with or without the use of nuclear weapons" (p. 21).

The lecture on the High Command and the overall control of the Armed Forces noted that in view of the unprecedented demands for waging a contemporary war, including the possibility of enemy initiation of a war with nuclear weapons, even in peacetime a Defense Council has been established "as the highest politico-military organ of the country," although this was not publicly disclosed until later (1976). The lectures discussed the peacetime roles of the Defense Council, the High Military Council (now Collegium) of the Ministry of Defense, and the General Staff, and in wartime the Supreme High Command, the Stavka, and the General Staff. The key control role of the General Staff is evident.

The discussion of command emphasizes its "scientific" character in two different senses. One is a vague but evident reference to technological means of command and control. The other is an ideological reference to forecasting, "the ability of the commander and staff to foresee and forecast, rationally and elaborately, the possible dangers in politico-military and military situations, and to determine accordingly the most appropriate (rational) form of action for the armed forces" (p. 29).

The lectures do not include more than occasional references to intercontinental strategic warfare. This is not a subject on which even the students of the General Staff Academy are given general instruction. (It is possible that a lecture on this subject was given about which the foreign students were not informed, but it could not have been an extended course.) The discussion of national command and control did, however, include the statement that the possibility of a large-scale enemy nuclear attack on "our most important national targets and centers" created a requirement "to establish a capability to detect in a

timely manner and repel the enemy's attacks, and to deliver the initial [Soviet] strategic nuclear strike on the enemy in a timely fashion." As the passage then continues, "Therefore, initiation of combat action by the troops is achieved by alarm signal from a unified center. Quick initiation of combat action . . . particularly launching the initial strategic nuclear strike against the enemy in a coordinated way in accordance with a unified concept" requires centralized command (p. 31). While somewhat vague on the point of Soviet initiation along the chain from pre-emption through launch on warning, under attack or in prompt retaliation, it is clear that the basic situation described is one of enemy initiation of war and of strategic intercontinental strikes.

The Strategic Missile Forces (translated in this volume more literally as Strategic Rocket Forces) are given pride of place among the services, followed by the ground forces. It is noted that this command embraces both intercontinental and theater medium-range strategic ballistic missiles and that some strategic missiles have multiple warheads. The principal mission is destruction of strategic nuclear weapons of the enemy and large enemy military concentrations, as well as command and control, transportation, and energy power installations.

The lecture on the services describes the strategic defense mission and forces in a general but comprehensive review. It is, however, vague and brief in the passing references to ballistic missile defense. There is an exaggerated passing reference to American ballistic missile defense. Soviet antiballistic missile (ABM) complexes and "antispaces" (antisatellite, ASAT) weapons are mentioned, as are ballistic missile defense forces. Development of ballistic missiles and militarization of space is said to have required developing and arming the air defense forces with ABM and ASAT means, and they share in the overall mission of strategic defense of the homeland. But that is all. There is no reference to the extent or limits of such defenses, nor to the ABM Treaty of 1972, although nothing is said that would contravene it. Contemporaneously, the commander in chief of the National Air Defense Forces (PVOS), writing about future prospects in the confidential General Staff organ *Military Thought*, stated, "Within the framework of the agreement limiting ABM defense, such defenses will in all probability change

only qualitatively, and will remain limited in capability, able only to cover the capitals of the countries against prospective means of ballistic missile attack" (Marshal P.F. Batitsky, "Air Defense Forces of the Country," *Voennaya mysl'*, no. 11, November 1973, p. 36).

In the lecture on air defense of a strategic land theater, specifically the Western TVD, NATO forces as of 1973 were given as 2,600 combat aircraft, including 1,700 capable of nuclear delivery, with a stock of 7,500 nuclear weapons. (This was a modest overestimate.) In a nuclear war, the Soviets anticipated two or three massive NATO nuclear strikes, using an estimated 60 percent of the 7,500 weapon stockpile. The first wave of strikes would last three or four hours, with a second wave after some 32-36 hours, and possibly a later third wave. In case of non-nuclear war, it was anticipated that NATO would withhold about one-third of its nuclear-capable aircraft, while using the remainder in conventional air strikes. Overall estimated losses on the Warsaw Pact side are not indicated, but initial losses of air defense personnel and equipment are estimated at 5 to 10 percent when only conventional weapons are used in the attack, and 20 to 35 percent in a nuclear attack (p. 67). There is no need to review the content further here, but it includes a fairly detailed description of anticipated NATO air attack concepts, as well as Soviet and Warsaw Pact air defense plans. Incidentally, it notes that the theater tactical ballistic missile threat would be attrited through destruction of such systems in their launch installations by air, missile, and artillery attack, and attack by special detachments. "Special detachments," *spetznaz* units, would also contribute to tactical reconnaissance of the enemy's air forces.

The lecture on military air transport of an airborne assault landing considers both operational and strategic scale actions. A strategic airborne operation is typified by one airborne division and one motorized rifle division (to be subsequently air-landed), with some *front* air defense and other support elements added, and requiring use of three or four air transport divisions. A strategic airborne operation might be carried out at a distance of some 500-600 km from the front line. An operational-level airborne assault in support of a ground force *front* operation is

assumed to involve one airborne division, under nuclear war to a distance of some 300-400 km beyond the front line, but in a conventional war only some 150-300 km. Similarly, a smaller tactical airborne assault would penetrate 250-300 km under conditions of nuclear war but less in conventional war.

The missions of strategic- and operational-level airborne operations differ. A strategic operation would be mounted above all to seize enemy "political and administrative centers" and to interrupt his government command and control, to seize vital economic areas or terrain features, and in some cases for "support of resistance groups inside enemy territory." The one mission that overlaps with an operational-level action, and indeed is the principal objective of most operational-level actions, is destroying enemy nuclear weapons assets. Other operational-level objectives include cooperating in envelopment and destruction of enemy troops, preventing enemy withdrawal or reinforcement, interrupting military command and control, and attriting rear area assets.

The lecture on "employment of military space means" was intended mainly to provide minimal background awareness of the range of military support activities from space: reconnaissance, meteorological and geodetic information, communications, early warning, navigational guidance, and electronic warfare both in peacetime and in war. (The lecture did not discuss possible weapons in space although the student states that the instructor said he personally foresaw possible future nuclear strike systems, and also command and control posts, deployed in space.)

The lecture on civil defense deals mainly with the organization and administration of civil defense, and does not estimate effectiveness in meeting its mission. One point of interest is that the chief of each military district is responsible for civil defense in his area, even though the military civil defense chain goes to Moscow and, as is noted, the major part of civil defense resources is civilian, engaged in a wide variety of normal peacetime activities under a wide range of different institutions and agencies. While civil defense remains a military command function and no doubt continues to warrant a lecture in the two-year

course, the subject has been downgraded in Soviet military thinking (as exemplified in the fact that the last article on the subject in the General Staff organ *Military Thought* dates from the time of these lectures, 1974).

The final of the general support lectures, on the role of economics in war, is unexpectedly interesting. It addresses implications of different types of war from the perspective of national strategy, rather than the land theater strategic and operational perspective of the basic Academy curriculum. The lecture characterizes the types of wars, possibly short or long, as (1) general nuclear war; (2) non-nuclear war between "several" Socialist and capitalist states, of course with (as it is put) "the possibility of passing over to the limited use of nuclear weapons"; and (3) non-nuclear local wars between Socialist and capitalist states (pp. 144-45).

The lecture notes the shift in the twentieth century from earlier stress on prior economic preparations *for* war, to economic support *during* a war, as exemplified in both world wars. Now, however, in the nuclear age there is a swing back toward a greater importance of military arsenals in being before a war, inasmuch as a nuclear war would destroy much of the infrastructure for wartime production. Yet this would not apply to a protracted non-nuclear war. In all, the discussion does not resolve the dilemma.

The Soviet system is said to have a superiority over capitalist systems, as Soviet superiority in wartime production over Germany is said to have shown. (The fact that the Soviet Union was allied with the greatest capitalist and industrial power is unmentioned.) The lecture distinguishes between military-economic *potential* and military-economic *readiness*, including in the latter not only the extent of the arms production sector but ability to shift to a wartime economy. The pivotal factor is said to be readiness to support the initial strategic operations (mainly land campaigns) in seeking to resolve the main missions of a contemporary war. The requirement, in peacetime, to coordinate the trade-off between meeting current and future military economic needs is recognized and noted but not concretely addressed. Reference is made to the practice of providing a wide military

production base by building associated infrastructure, some of which is used for peacetime consumer goods production but is also available as a reserve that can be mobilized for expanded wartime production (or intensified prewar preparation for war). In discussion of nuclear war, the assumptions about survival and economic support for waging a war reflected in the lecture are plainly unrealistic. Incidentally, in one of the relatively few references to the Warsaw Pact alliance, a need for coordinating economic support for a war is noted. In contrast to civil defense, military theoretical and doctrinal discussion of the peacetime and wartime roles of economic potential, readiness, and allocation to support the armed forces remained a live subject in *Military Thought* and other Soviet military writings in the 1980s.

The present volume, in conjunction with the first, provides a useful strategic setting for the core lectures on strategic and operational field operations in land theaters that will follow. These two volumes also contain information on political-military and strategic doctrine of interest and value for many purposes. As authoritative guidance prepared to instruct the rising elite of Soviet military command and staff personnel it is informative in its own content and also helps to "calibrate" and make more useful published Soviet military writings, available confidential Soviet discussions of military doctrine (in particular the General Staff organ *Military Thought*), and other sources of information on Soviet military thought and strategy, including interpretation of observed data on the composition, arming, and exercising of the Soviet Armed Forces.

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CHAPTER ONE

Services of the Armed Forces and Their Strategic Missions

I. Introduction

Historical experience shows that, as a result of the introduction and dissemination of new weapon systems and their further improvements, broad changes occur in the structure and organization of the various Services (*vid*) of the Armed Forces and various arms of troops (*rod voisk*). In the years leading to World War II and during the war, along with improvements and developments in Ground Forces and the Navy, the Air Forces developed very rapidly into a separate Service of the Armed Forces. Meanwhile, new branches of arms of troops were introduced, such as armor and airborne troops. With the development of aviation, air defense forces appeared. These developments brought changes in the organization of large units (*soedinenie*) and formations (*ob'edinenie*). In World War I the composition of the operational formations of Ground Forces basically included infantry, cavalry, and artillery large units. Prior to World War II tank, mechanized, artillery, airborne, and

engineer large units appeared. During World War II, tank and mechanized armies were introduced into the structure of Ground Forces, while *front* air armies were created, and air defense *fronts* were formed in the context of a national air defense system.

The development of new means of destruction after World War II, particularly the introduction of nuclear weapons, various rockets including intercontinental ballistic rockets, supersonic and strategic bomber aviation forces, nuclear submarines, combat ships armed with rockets capable of long-range strikes, radio-electronic warfare means, military use of space means (such as reconnaissance, communication, guidance, etc.), and the motorization and mechanization of the Armed Forces rapidly led to the high mobility and versatility of the troops, with an unprecedented increased range of operation. All these developments introduced fundamental changes in the organization and combat capabilities of the Armed Forces and in the resolution of their assigned missions.

At present, the Armed Forces of the Soviet Union are composed of the following Services: Strategic Rocket Forces; Ground Forces; National Air Defense Forces [PVOS]; Air Forces; and the Navy. All of these Services are equipped with nuclear weapons.

The Services of the Armed Forces are normally composed of arms of troops, which constitute the basis of each Service. Arms of troops are assigned to conduct specified combat missions. To support their combat actions, special troops and services are integrated into their composition. The structure of the various Services of the Armed Forces consists of operational formations and separate large units, which are assigned to accomplish operational and strategic missions. The organization and composition of operational formations is not fixed but is determined by the nature of combat missions, the characteristics of the theater of strategic military action (TSMA), and other factors.

II. Strategic Rocket Forces

The Strategic Rocket Forces constitute an important Service of the Soviet Armed Forces. The Communist Party and the State

have paid particular attention to the development and organization of this Service. In a short time, units (*chast'*), large units, and formations of the Strategic Rocket Forces have been organized, and their personnel trained. Much work has been accomplished on preparing bases, organizing control, and organizing combat duty [on-call] (*boevoe dezhurstvo*) forces. The Strategic Rocket Forces possess enormous qualitative combat capabilities such as:

- great destructive power by virtue of the use of nuclear strikes;
- unlimited range of rockets;
- accuracy of fire;
- higher combat readiness than other Services of the Armed Forces, in order to be prepared to deliver massive strikes in various situations;
- greater maneuverability of massive strikes from one direction to another;
- less vulnerability of rockets to the enemy's air defense means.

Strategic Rocket Forces are composed of troops in constant combat readiness assigned to deliver quick and devastating strikes. They are capable of launching their strikes under all kinds of weather conditions, day or night, and during any season. The principal missions of the Strategic Rocket Forces are as follows:

- inflicting losses on enemy strategic nuclear weapons;
- destruction of groupings of enemy armed forces;
- destruction of enemy nuclear bases, rocket bases, air and naval bases, and military installations;
- destruction of targets in the enemy's control system and transportation and power-energy installations.

The composition of Strategic Rocket Forces includes the following elements:

- formations and large units equipped and armed with strategic rockets;
- intercontinental ballistic rockets assigned to inflict strikes on the enemy in overseas areas;

—other strategic medium-range rockets that principally are aimed at targets located in the Western TSMA.

The preparation of the Strategic Rocket Forces to deliver strikes is conducted in advance during peacetime.

The Strategic Rocket Forces are constantly improved and developed. At present, there are rockets with multiple nuclear warheads, each of which is intended to destroy its assigned target. They are equipped with automatic systems of control. The greatest problem is passage through the antirocket defense system of the enemy. Today the enemy concentrates much effort on preparing and improving his antirocket defense system. The system includes establishment of deceptive targets and creation of radio jamming (*pomekha*) against rockets.

III. Ground Forces

Ground Forces are composed of the following arms of troops: motorized rifle troops; tank troops; airborne troops; rocket troops; artillery troops; and air defense troops. To support the combat action of the Ground Forces, the following special troops are included in their composition: engineer troops; chemical troops; signal troops; radio and radio-technical troops; motor transport troops; highway troops; railroad troops; and others.

The Ground Forces, along with the Strategic Rocket Forces, are assigned to inflict decisive losses on enemy forces in the TSMA. The Ground Forces in a non-nuclear war play a decisive role in the destruction of the enemy, while in a nuclear war they play the decisive role in the completion of the destruction of enemy forces. The Ground Forces are equipped with nuclear weapons, operational and tactical rockets, air defense and anti-tank rockets, modern tanks, and other modern equipment.

The introduction of nuclear weapons into the Ground Forces has greatly increased their firepower and freedom of action in the accomplishment of their assigned missions. Moreover, maneuverability of the Ground Forces has been greatly increased, and their protection against nuclear strikes has been much improved. The degree of protection of personnel

operating in tanks and armored personnel carriers has also been increased against the destructive effects of the enemy's nuclear weapons. In addition, the Airborne Troops have been further upgraded and highly improved. The Ground Forces are prepared to operate in both nuclear and non-nuclear wars.

The principal mission of the Ground Forces, with the interaction (*vzaimodeistvie*) of other Services of the Armed Forces, is to decisively attack, at high speed, and to complete rapidly the destruction of the enemy grouping of forces hit by nuclear strikes delivered by strategic and operational nuclear forces. In a war without the use of nuclear weapons, the principal mission of the Ground Forces is to attack decisively at high speed with the interaction of other Services of the Armed Forces to inflict decisive losses on the enemy and to seize vital areas and important targets in enemy territory.

During peacetime, the Ground Forces are composed of troops in constant combat readiness, as well as troops at reduced strength (*sokrashchennyi sostav*). The troops with reduced strength are upgraded to full strength, when needed, to make them ready for the fulfillment of combat missions.

Rocket Troops of the Ground Forces

Rocket troops are included in the structure of large units and formations of the Ground Forces, and they are the principal means of delivering nuclear weapons. The rocket troops are assigned to inflict losses on nuclear forces, the main groupings of forces, and other targets located in the entire operational depth of the enemy by using nuclear rounds. The rocket troops are organized into operational-tactical and tactical large units and units. The rocket troops not organic to the Ground Forces constitute reserves of the Supreme High Command.

Air Defense Troops of the Ground Forces

The air defense troops organic to the Ground Forces are capable of highly effective long-range fire at various altitudes, and the conduct of broad maneuver. Air defense troops are assigned

to cover large units, formations, and rear service targets of the Ground Forces against enemy air strikes. The air defense troops are organized as air defense rocket and artillery units, air defense machinegun subunits (*podrazdelenie*), radio-technical units, and other special units and subunits.

Air defense rocket units are the principal assets of the air defense system. The air defense troops, with the cooperation of fighter aviation and independently, are capable of destroying enemy aerial targets, conducting radio jamming against the air enemy, conducting reconnaissance, and warning the troops.

Airborne Troops

Airborne Troops are means of the Supreme High Command employed for broad maneuver. Airborne Troops are capable of rapidly attacking in the wake of nuclear strikes and crossing, by air, ground areas that are contaminated with radioactive material. The role of Airborne Troops in the conduct of modern operations continuously becomes more important. Along with the development of the Air Forces, transport aviation means supporting the movement of Airborne Troops continue to improve, and transport aircraft with high capacity will be developed. Airborne Troops are organized into airborne divisions, which are placed under an independent command.

Fronts

For the conduct of combat actions, *fronts* are created within the Ground Forces in whose composition are found combined arms armies, tank armies, and *front* air armies. *Fronts* and armies accomplish their missions by offensive operations in TSMA's with the coordination of other Services of the Armed Forces. In some strategic directions of TSMA's, defensive operations can be conducted with the ultimate aim of inflicting losses on advancing groupings of the enemy and providing favorable conditions for the initiation of offensive operations.

Future development of the Ground Forces is directed toward the following:

- expanding their fire and striking power;
- increasing their mobility;
- increasing their maneuverability;
- expanding their range of fire;
- acquiring greater capability to conduct combat actions with or without the use of nuclear weapons.

The development of nuclear rocket armament and artillery has greatly increased the firepower of large units and formations in quality and quantity. Artillery, in particular rocket artillery (*reaktivnaia artilleriia*) [multiple rocket launcher artillery], is greatly developed. In the future the following must be expected:

- increased range of fire;
- higher destructive power of shells;
- greater rate of fire;
- greater accuracy of fire;
- simplification of the systems;
- upgrading of protection;
- upgrading of artillery maneuver capabilities;
- further conversion to self-propelled artillery.

The antitank weapons, individual infantry arms, recoilless artillery, and particularly antitank guided missiles, rapidly develop. The protection, range of fire, and accuracy of fire for tanks are improving. In the future, antitank guided missiles equipped with automatic ultraviolet and laser-guidance systems will be developed. The automatic characteristics of infantry small arms will develop further, with a decrease in the weight of their ammunition. Very small rockets to be used in infantry weapons and laser weapons are possible.

The development of highly efficient tanks with a greater resistance to nuclear explosions is likely. Such tanks would be equipped with rocket and artillery armament and antitank guided rockets armed with nuclear and conventional warheads. Infantry fighting vehicles (BMPs), with their great maneuverability, can accompany tanks and fight with them. They are widely introduced in the Ground Forces. The BMPs are protected against nuclear weapons and radiation, as well as against conventional weapons, and substantially protect personnel against such weapons. They

have high cross-country capabilities moving on land and in water. BMPs have greatly increased the combat power and speed of motorized rifle large units of the Ground Forces.

The appearance of assault landing means and weapons, especially military transport aircraft and helicopters which can transport heavy equipment and rocket launchers over long distances, not only increases the potential of assault landing troops but also increases the assault landing capabilities of large units of the Ground Forces moving with their heavy equipment.

The development and perfection of high altitude and low altitude radar complexes, their protective ability against radio-electronic jamming, and the development of air defense guided rockets including low altitude rockets and their mobile launching complexes provide great effectiveness in the protection of large units of the Ground Forces against enemy air attacks.

The organizational development of the Ground Forces is directed toward the expansion of their combat potential, their ability to conduct separate maneuver actions, and their capability to be transported by air.

IV. National Air Defense Forces

The National Air Defense Forces were created as a separate Service of the Armed Forces during World War II due to the development of aviation and the need to cover groupings of the Armed Forces and national rear targets against enemy air strikes. Emerging from World War II as a separate Service of the Armed Forces, the National Air Defense Forces continuously developed and strengthened their technical means, further improving and expanding them. When the enemy developed and acquired nuclear rocket means with long-range strike capabilities and enormous destructive power capable of destroying all targets in the depth of the country, the role of National Air Defense Forces rapidly increased. Particularly in the 1950s, with the development of air defense rocket complexes, new types of fighter aircraft, and improved radio-technical means, the rate of development of the National Air Defense Forces was further accelerated.

At present the National Air Defense Forces have advanced systems of air defense rockets and radio-technical means deployed in the entire area of the Soviet Union and Warsaw Pact countries. They are ready for dynamic combat action against the air enemy in difficult conditions, at different altitudes, day or night, under any weather or radio jamming condition. They are capable of destroying all types of aircraft and enemy rockets. Due to continuous development of ballistic rockets, and the militarization of space, the need for developing and arming National Air Defense Forces with antirocket and antispace defense means has arisen.

Because of the likelihood of surprise enemy attack from the air, the National Air Defense Forces must be in constant readiness in order to repel massive and individual attacks by enemy intercontinental rockets, submarine-launched rockets, flights of strategic and tactical aircraft from different directions, and space means under all conditions, particularly during enemy surprise nuclear attacks. The National Air Defense Forces are assigned to provide anti-aircraft, antirocket, and antispace defense of the most important targets to include political, administrative, and economic centers, the groupings of rocket forces, and the formations of ground, air, and naval forces against enemy nuclear strikes.

The National Air Defense Forces are composed of the following elements: antirocket defense troops; air defense rocket troops; radio-technical troops; fighter aviation; special troops such as radio reconnaissance, radio equipment, engineer troops, signal troops, etc.; and rear service units and installations. The structure of National Air Defense Forces includes air defense operational formations, i.e., air defense districts, air defense armies, and their organic large units.

The weapons of the National Air Defense Forces are composed of antirocket complexes; antispace complexes; long- and medium-range air defense rockets; low-altitude rockets with nuclear and conventional warheads; long-range fighter aircraft and conventional fighter aircraft armed with rockets; various radio-technical means and automatic control systems. The National Air Defense Forces must be ready for missions in peacetime.

The future development of the National Air Defense Forces is directed toward the improvement of current weapons and equipment; developing new and effective means of detection and surveillance for antirocket systems, antiaircraft systems, and antispace systems; ensuring constant combat readiness; simplifying air defense organizations and their control systems; reducing the size of the equipment; and reducing the manufacturing costs of control (*upravlenie*) and monitoring (*kontrol'*) instruments.

Further developments and advances will be introduced in radar systems, particularly radars operating at long distance, and also in laser armament. The infrared equipment for observation of targets and for development of automatic self-guiding warheads will improve further. Universal self-guidance systems capable of destruction of various targets, such as aircraft, rockets, and even space means, will be developed. Antirocket complexes which will be capable of countering ballistic rockets at different distances along their flight at long and short ranges may develop.

Antispace defense means will develop in two directions:

- the development and establishment of ground complexes capable of destroying satellites in orbit; and
- the development and establishment of artificial fighter satellites to destroy targets in space.

Air defense rocket complexes must be developed in a direction that will ensure their capability to destroy various aerial targets such as aircraft, pilotless aircraft, and operational and tactical ballistic rockets at all altitudes and at longer distances from the targets covered and defended by such air defense rocket complexes.

The development of fighter aviation will be directed toward enabling aircraft to become less dependent on airfields. This means that long-range fighter aircraft and fighters capable of entering earth orbit will develop. At the same time rocket armament of fighter aircraft will further improve to enable destruction of aerial targets such as aircraft, pilotless aircraft, and surface-to-air and air-to-air rockets. Moreover, radio-electronic warfare devices will be further developed in the air

defense system in order to disrupt the action of rockets and other means operating by radio waves.

Automatic control systems will most likely take over all principal tasks related to the timely destruction of enemy nuclear delivery means in the air and in space. The control means of the National Air Defense Forces require further improvement at all levels.

V. Air Forces

The Air Forces, as a separate Service of the Armed Forces, were created before World War II. During the war, the Air Forces exerted decisive impact on its characteristics and outcome. After the war, with the emergence and introduction of jet engines, the Air Forces rapidly developed and advanced. The role of the Air Forces, with respect to the Armed Forces, continuously expanded, particularly after the introduction of nuclear weapons, between 1947-57. With the introduction of Strategic Rocket Forces, operational and tactical rocket troops, and highly effective air defense means, the role of the Air Forces was changed to some extent.

By the beginning of the 1960s, propeller aircraft had been replaced by sophisticated jet aircraft, including supersonic aircraft and long-range bombers. Guns and machineguns mounted on aircraft were replaced by rockets. Fighter aircraft were equipped with air-to-air rockets, while bombers acquired air-to-surface and air-to-ship rockets. They became capable of using these rockets against targets without entering the range of the enemy's air defense means.

Long-range bombers armed with powerful rockets were introduced. In recent years, further developments in aviation technology introduced supersonic variable-wing combat aircraft, supersonic fighter-interceptor aircraft capable of operation at high and low altitudes, vertical take-off and landing aircraft, and transport aircraft and helicopters capable of carrying artillery pieces and tanks.

The Air Forces are capable of accomplishing their missions with or without the use of nuclear weapons. Development,

improvement, and introduction of automatic control systems in the Air Forces provide for highly effective and expedient troop control. The Air Forces are assigned the following tasks:

- combined action with *fronts* and naval forces to destroy the enemy;
- conduct of reconnaissance;
- support of assault landings;
- support of the maneuver of troops;
- transport of materiel means by air.

Moreover, the Air Forces are capable of conducting separate operations to destroy the enemy's aviation and rocket systems.

The Air Forces are composed of the following elements: *front* aviation; Long-Range Aviation; and Military Transport Aviation. In terms of missions, characteristics of actions, and tasks, the Air Forces are divided into the following arms of troops: fighter aviation; fighter-bomber aviation; bomber (rocket-armed) aviation; reconnaissance aviation; and auxiliary aircraft. The Air Forces conduct their missions by air operation and combat action.

Long-Range Aviation is a means of the Supreme High Command assigned to inflict losses on important enemy targets in a TSMA and to conduct air reconnaissance. Long-Range Aviation accomplishes its missions independently or in cooperation with the Strategic Rocket Forces, the Navy, formations of the Ground Forces, and the National Air Defense Forces. Long-Range Aviation is organized into aviation corps and aviation divisions, including rocket-armed aircraft and bombers.

Front aviation is designated to conduct combined actions with *front* troops and fleets to accomplish assigned missions. *Front* aviation is integrated into the composition of the *fronts* in wartime. The operational formations of *front* aviation constitute air armies, which are composed of fighter, fighter-bomber, and bomber aviation large units, and reconnaissance aviation units.

Front aviation conducts its combat actions within *front* operations. It accomplishes the following missions:

- destruction of enemy operational and tactical nuclear weapons;
- destruction of enemy aviation on airfields;

- destruction of enemy aviation in the air;
- destruction of enemy combat equipment and other enemy targets by nuclear and conventional weapons;
- covering friendly troops and *front* targets against enemy air attacks;
- coordinating combat actions in support of assault landings;
- conducting air reconnaissance;
- in a war without the employment of nuclear weapons, participating in an air operation conducted simultaneously in one or several TSMA's to destroy enemy nuclear delivery means and aviation groupings.

Military Transport Aviation is a means of the Supreme High Command assigned to conduct missions in support of Airborne Troops. Units and large units of Military Transport Aviation can be attached to a *front* to support the maneuver of troops and to supply rockets, nuclear rounds, and other materiel means to the troops. Military Transport Aviation is organized into divisions and separate regiments.

In order to increase the range of flight, speed, and flight altitude of the aircraft, and to change the shape of the wings during flight in favor of acceleration, appropriate measures are taken in designing new aircraft. Special engines operating with nuclear power are anticipated. Efforts continue to develop vertical take-off and landing capabilities. Aircraft with short take-off and landing capabilities are being developed.

Military Transport Aviation is developing in ways that will enable it to transport assault landing troops with heavy equipment and tanks over great distances using unprepared airfields. Aircraft with increased speed are being developed.

Major developments and improvements continue to be made in helicopters. The speed of helicopters continues to increase, while their sustainability and control are being improved. The combat employment of helicopters continues to expand.

VI. Navy

The Navy constitutes a separate Service of the Armed Forces that is undergoing continuous development. The Navy is equipped

with nuclear weapons. Nuclear rocket submarines are means of the Supreme High Command and they constitute the main arm of the Navy. The Navy is assigned the following missions:

- destruction of the enemy operating from the sea and on the sea;
- destruction of enemy naval bases;
- protecting and defending maritime lines of communication such as naval approaches to the national coasts.

The Navy includes the following elements in its composition: submarines armed with ballistic rockets (long-range and medium-range rockets); submarines armed with cruise missiles and torpedoes with nuclear warheads; Naval Aviation aircraft carrying rockets; antiship and reconnaissance aircraft; surface vessels; coastal artillery and rocket troops; Naval Infantry; and special troops such as reconnaissance, chemical, signal, surveillance, hydrography, and rear service units and installations.

VII. Rear Services of the Armed Forces

The rear services are an indispensable component of the country's Armed Forces and include rear service large units, units and installations with materiel reserves found in the composition of troop units and large units; in operational formations of the various Services of the Armed Forces; and immediately subordinate to the central organs of the rear services.

The rear is divided into troop [tactical] rear services, operational rear services, and central [strategic] rear services. The troop rear consists of rear service units and subunits with mobile materiel reserves assigned to provide direct materiel, technical, and medical support under any conditions. They are organic to large units, units, and subunits.

The operational rear consists of rear service large units, units, and installations that are found in the composition of operational formations, and are assigned to provide all-around rear service support to operational formations. The operational rear includes *front*, fleet, and military district rear services; national air defense district rear services; army (rocket, motorized rifle,

tank, air, and air defense) rear services; rear services of the Air Forces; Naval Aviation rear services; and naval base rear services. The composition of the operational rear is not fixed, but depends on the combat composition of operational formations, their missions, and the characteristics of the theaters of strategic military action.

Central rear services consist of rear service large units, units, and installations immediately subordinate to the main and central directorates of the Services of the Armed Forces and the Ministry of Defense.

The supply of all Services of the Armed Forces throughout the country with rocket fuel, POL, food, clothing, medicine, and other materiel means is conducted through a unified service system of military districts and groups of forces in peacetime. In wartime it is conducted through the supply services of *fronts*. For this purpose, permanent rear service units and installations operating in the areas of military districts and local rear service forces and means are employed.



CHAPTER TWO

Control of the Armed Forces

1. General Principles of Control of the Armed Forces

The Central Committee of the Communist Party and the Soviet government conduct control of the Armed Forces (*upravlenie Vooruzhennykh Sil*) in peacetime. The Council of Ministers of the Soviet Union directs the activities of the Ministry of Defense, determines annually the number of draftees to be recruited for the Armed Forces, and specifies the general organization of the Armed Forces. Direct control of the Armed Forces in peacetime is conducted by the Ministry of Defense, while in wartime it is conducted by the Supreme High Command through its main executive organ (*glavnyi organ upravleniia*), i.e., the General Staff.

Practically, control is exercised on the basis of the following principles:

- decisive role of the Party in the control of the Armed Forces;
- unification of political and military control;

- professional and authoritative control from the lowest to the highest levels of command;
- centralized control and unified command.

The principle of the unification of political and military control is applied at all levels of military organization in peacetime and wartime. The political authorities, jointly with high military organs of control, determine the direction of the structure of the Armed Forces in peacetime on the basis of the following factors:

- assessment of the international situation and posture of forces in the international arena;
- total relative military and morale capabilities of the nation and the probable enemy;
- status of the development of military equipment;
- strategic situation of both sides;
- geographic situation in the TSMA;
- direction of structuring of the Armed Forces.

The political control authorities, jointly with the military command, exercise control of all economic, military, and morale forces during war and integrate them into a unified military and political organ of the State. Professional and authoritative control from the highest to the lowest level of control is an important principle of control of the Armed Forces. The main requirement and condition of the application of this principle in practice is the possession of all-around professional knowledge.

Professional and authoritative control means scientific control of the Armed Forces and the use of command cadres at all levels. In practical work, the theory of Marxism-Leninism and the advances of military and other sciences are used. In order to exercise effective troop control in modern war, all control levels should have a thorough professional knowledge of the proper employment of the various arms and services, and of the latest methods of modern control.

In modern times control has become a science. This science must be learned quickly and thoroughly. This requires that all control levels must learn the new science of control as soon as

possible. This includes even those who work at the highest levels of control, who must continue to master the science through constant updating.

Scientific control is the application of foresight (forecasting). This means that control is actually forecasting. Forecasting is based on the methodology of Marxism-Leninism, i.e., deep understanding of actual situations. Forecasting in the control of the Armed Forces is the ability of the commander and staff to foresee and forecast, rationally and elaborately, the possible changes in politico-military and military situations, and to determine accordingly the most appropriate form of action for the Armed Forces.

The basis of control of the Armed Forces is also governed by the principle of centralization and the unification of command. This fact has been fully confirmed by the experience of war. The nature of war requires that the Armed Forces must be like a unified organism, led and guided by a unified organ of control. The principle of unified command must be applied to all levels of command from the highest to the lowest levels, i. e., from the Ministry of Defense to individual subunits. Centralized control does not limit the initiative of the subordinate. In modern war, initiative has important significance. The appropriate combination of centralized and decentralized control, in accordance with the concrete conditions of the situation, is one of the important requirements of astute and effective control of the Armed Forces.

Centralized control forms an unbroken link with unified leadership. Lenin has described unified command as the best form of control, which ensures subordination of the will of thousands of people to the leadership of one person. It also helps practically to make the best use of human resources. The nature of unified command in the Armed Forces is explained by the fact that in a Socialist society a common relationship and common interests and aims unify the commander and his subordinates.

II. Higher State Organs of Control of War

All military, material, and morale forces of the nation must be mobilized to achieve victory in war. The experience of past

wars suggests that the control of the preparation of the nation for war, and control of the conduct of war, must both be unified in a politico-military organ of the State. The concentration of control in such an organ facilitates effective and continuous employment of the Armed Forces and of the economic, morale, and political potential of the nation to achieve victory.

Past war experience suggests that controlling the preparation of the nation for war and controlling the conduct of war must be entrusted to a high, unified politico-military organ of the State. Given the high destructive characteristics of a war with the use of nuclear weapons and the possibility of the initiation of such war by the enemy, a Defense Council has been established as the highest politico-military organ of the country. Without such a combined politico-military organ it would be very difficult to conduct a war successfully in modern times.

In peacetime the Defense Council organizes and determines the following general measures for preparing the nation and the Armed Forces for war:

- investing in the establishment and structure of the Armed Forces in general, and of the various Services of the Armed Forces;
- organizing work for determining the principal directions of the development of the Armed Forces;
- directing technological policy in the area of armament;
- determining the organization and structure of the Armed Forces;
- anticipating plans for the employment of the Armed Forces;
- determining measures for preparation of the population, the territories of the country, and the territory of the TSMA's for war.

The Defense Council will carry out tasks as the State Defense Committee in wartime, which will include the following elements:

- controlling the Armed Forces and the military and economic operation of the country;
- determining the volume, characteristics, time of production, and procurement of war materiel;

- determining the level and number of personnel to be withdrawn from the national economy;
- determining the volume of output of various industries, agriculture, and transport means.

III. Higher Organs of Military Control and Their Missions

The highly destructive means with which modern armies are equipped, the decisive characteristics of political and strategic aims of war between two antagonistic social systems, and the introduction of new forms of conducting war have increased the requirements for the establishment of higher military control organs.

The likelihood of an enemy nuclear attack employing a large number of strategic means on our most important national targets and centers has brought about the need to establish a capability to detect in a timely manner, and repel, enemy attacks, and led to the great importance of delivering the initial nuclear strike by strategic means on the enemy in a timely fashion as well. Therefore, initiation of combat action by these forces is achieved by combat alarm from a unified center.

Such a control structure is possible only through centralized, continuous control of the Armed Forces and the existence, in peacetime, of higher control organs that are capable of assuming the control of the Armed Forces at any time without further organizational measures.

In peacetime the direct control of the Armed Forces is conducted by the Ministry of Defense, the composition of which includes the following elements:

- General Staff of the Armed Forces;
- Main Political Directorate of the Soviet Army and Navy;
- main and central directorates of the Ministry of Defense, and Main Staff of the Rear Services of the Armed Forces;
- commanders-in-chief of the various Services of the Armed Forces;
- Civil Defense organs.

Main Military Council of the Ministry of Defense

The Main Military Council of the Ministry of Defense, headed by the Minister of Defense, is one of the important advisory organs. The Main Military Council discusses and monitors matters related to current issues that include:

- results of military and political training;
- status of discipline;
- support measures of the Armed Forces;
- measures for reducing and preventing major catastrophes and disasters.

The General Staff serves and supports the Minister of Defense in the control of the Armed Forces. In peacetime the direct control of the troops is conducted by the high commands of the various Services of the Armed Forces, commanders of groups of forces, and commanders of the military districts.

Supreme High Command

During wartime the highest organ of control of the Armed Forces is the Supreme High Command. The Supreme High Command will directly control the Strategic Rocket Forces (through the General Staff or commander-in-chief of the Strategic Rocket Forces), and Ground Forces such as *fronts* and separate armies deployed in the main TSMAs.

For the control of forces in individual TSMAs, the establishment of separate commands in the TSMAs, which will operate directly under the Supreme High Command, cannot be excluded.

In matters related to control of formations and large units of National Air Defense Forces, the Navy, and the Air Forces, the Supreme High Command exercises control through organs from the lowest to the highest levels of control. In this case, the Supreme High Command has the authority to assign missions directly to formations and large units without observing the established channels of control. The commanders-in-chief of the affected Services of Armed Forces are informed later about the missions assigned.

The consultative organ of the Supreme High Commander is the staff of the Supreme High Command or "Stavka."

General Staff

The General Staff is an important organ of control of the Armed Forces in peacetime and wartime. In peacetime the General Staff prepares its principal plans for the preparation and conduct of war and works out measures for the establishment of strategic groupings of the Armed Forces in the TSMA's and in the depth of the country. It also prepares measures on strategic deployment of the Armed Forces, primarily on mobilization of the troops, their movement to and deployment in the TSMA.

The most important elements in control of the Armed Forces by the General Staff in peacetime are bringing the Armed Forces to a level of full combat readiness and the organization of all types of support for the control of the Armed Forces.

The General Staff also plans the development of armament and military equipment for the Armed Forces. It controls the preparation and operational training of the staffs of the various Services of the Armed Forces, directs strategic reconnaissance, and guides the study of issues related to military science.

At the beginning of a nuclear war the most important mission of the General Staff is to ensure transmission of the signal for the launch of the initial nuclear strike to the executing elements and to ensure control of its execution. In accordance with the instructions of the Supreme High Command, after the initial nuclear strike the General Staff assigns new missions to the Strategic Rocket Forces which are conducted in the course of the war.

The main activity of the General Staff is the collection and processing of data on the situation after the initial nuclear strikes of both sides, and the restoration of the combat capabilities of the groupings of the Armed Forces in a way to enable them to accomplish their assigned missions, despite losses.

At the beginning of a war with the use of conventional weapons, the General Staff normally focuses on support of the organized commitment to combat of the *fronts* and other

formations of the various Services of the Armed Forces. The General Staff refines their missions in accordance with the specific situation, and refines the conduct of air operations in the TSMA's, to destroy enemy aviation groupings and nuclear rockets.

In the course of a war the General Staff controls the Armed Forces on the basis of the following:

- instructions from the Supreme High Command;
- organizing interaction [coordination] (*vzaimodeistvie*) among the Services of the Armed Forces;
- conveying confirmed or new missions to the executing elements;
- controlling the execution of the missions and combat actions by the various Services of the Armed Forces;
- organizing strategic reconnaissance.

The most important tasks of the General Staff include the preparation and support of the movement of reserves to the TSMA's, and organization of all-around supporting measures for actions conducted by the Armed Forces.

Main Political Directorate

The Main Political Directorate of the Soviet Army and Navy controls political and Party work in the Armed Forces. It also takes actions on different issues on the basis of regulations set by the Central Committee of the Soviet Communist Party.

Commanders-in-Chief and Main Staffs

The commanders-in-chief and the main staffs of the various Services of the Armed Forces bear full responsibility for the following:

- constant combat readiness;
- provision of combat equipment;
- bringing units and large units to prescribed strength in accordance with the mobilization plan;
- combat training of troops.

The commanders-in-chief and main staffs of the Strategic Rocket Forces, National Air Defense Forces, Air Forces, and Navy are responsible for the following:

- timely accomplishment of missions by their subordinate troops;
- organization and support of troop control;
- combat support measures;
- materiel and technical support by their related services.

Civil Defense

The chief and the staff of civil defense, based on the instructions of the Minister of Defense, are responsible for the following:

- conducting continuous control of all forces and means in the composition of the Civil Defense systems;
- maintaining them at a level of constant combat readiness;
- planning necessary measures in peacetime, in a period of threat, and in wartime;
- organizing operational and combat training of Civil Defense staffs, troops, and organizations;
- coordinating the actions of various Civil Defense systems;
- disseminating experience achieved in matters related to the preparation and conduct of civil defense.

IV. Higher Requirements of Control of the Armed Forces in Modern Times

In order to firmly operate a system of control of the Armed Forces capable of coping with actual situations, and to meet the requirements of the concrete conditions of war in a timely manner, the nature and type of war for which the Armed Forces are being prepared must be clearly understood. This is because control requirements emerge from the conditions under which wars are fought, and the characteristics of wars.

Taking the character of future war into account, military science explains that future war can be conducted in the form of general war or local war, with or without the use of nuclear weapons. Therefore, in modern times, the control system of the

Armed Forces must be prepared for all types of war. In this context, the overall direction in preparing for control of the Armed Forces is preparing for a general nuclear war, because such a war is the most destructive, the most complex, and the most demanding type.

The higher requirements of control of the Armed Forces emerge from the contemporary military and political situation, and the enemy's capability to initiate general nuclear war without passing through an intermediate phase of mobilization. This is accomplished by launching massive nuclear strikes, and employing the forces and means deployed during peacetime in the TSMAs.

It must be noted that the probable enemy (the USA) has 1,054 Minuteman and Titan missile launchers, 656 Polaris and Poseidon submarine-launched missiles, and 450 strategic bomber aircraft. The enemy [referring more broadly now to NATO] also maintains strong groupings of ground forces, tactical aircraft with nuclear weapons, and, in Europe, some 55 combat-ready divisions of ground forces, with 7,000 nuclear rounds which are prepared for war.

These facts necessitate a constantly combat-ready system of control of the Armed Forces to effectively cope with the surprise initiation of nuclear war. This requires that the structure and system of control of the Armed Forces be established and organized in peacetime in a way that will require little change at the beginning of war.

A general nuclear war will inevitably be fought on a scale enormously wider than that of World War II. Combat actions will be simultaneously conducted in several TSMAs, on all continents, oceans, air, and in space. Control of the Armed Forces at the strategic level emerges from this as the most important requirement. The control system should provide for and support control of the major strategic groupings of forces, which simultaneously conduct operations in several TSMAs, on the oceans, and in space.

General nuclear war is characterized by the fact that the important and decisive means of its execution is nuclear weapons, and the principal means of its delivery is the Strategic

Rocket Forces. From this, the most important requirements of control of the Armed Forces emerge.

First of all, the importance of centralized control of the Armed Forces, primarily the centralized control of the forces and means assigned to deliver nuclear strikes, has developed further. Since the decision to use nuclear weapons is made only by the politico-military level of control, an astute and effective combination of centralized and decentralized control procedures must be developed. The devastating consequences of the employment of nuclear weapons particularly require quick decisions made expeditiously by various levels of command in response to the actual and concrete situations in the war.

Efficiency of control is extremely important. This efficiency involves promptness, since all levels of control, including the Supreme High Command, will have limited time to assess the situation, to make decisions, and to assign missions to the troops. If in World War II "efficiency" of control was measured and explained in terms of days, in nuclear-rocket warfare "efficiency" is measured in terms of minutes. It is quite obvious that any information about the launching of an enemy's intercontinental rocket will lose its significance after, for example, 20-25 minutes of the actual launch, and for Polaris and Poseidon rockets, after 5-10 minutes.

Needless to say, delays in making a timely decision on the employment of nuclear strikes, and in conveying the missions to executing elements, will have disastrous consequences for the fate of the nation. Only through reliance on the most modern technical means of reconnaissance and control can we make a logical decision, and send the command to the nuclear rocket forces.

The massive use of nuclear weapons in future war, their enormous destructive power, and the heavy casualties they cause, dictate high requirements in terms of viability (*zhivuchest'*) of the control system of the Armed Forces to provide firm control throughout a military action.

The probable enemy anticipates the delivery of nuclear strikes on our command posts, signal centers, communication links, and other elements of signal communication to foil or significantly

interrupt control of the Armed Forces at strategic, operational, and tactical levels. Therefore, during the organization of control, its viability and efficiency under the conditions of the use of nuclear weapons must be anticipated and ensured.

In contemporary times one can see very rapid advances achieved in the technical equipping of control systems. Collection of information about the situation over the enormously extended areas of continents and oceans, and timely transmission of such information to various control posts located thousands of kilometers apart from one another, is nowadays conducted by the use of various types of technical equipment, including space means, and newer signal-technical means. Massive use of various types of radio-electronic and space means supports the continuity of control under the enemy's radio-electronic interference. Special attention is paid to detection of the enemy's radio-electronic warfare systems in order to destroy them.

The requirement for high viability and continuity of the control system also necessitates the widespread use of radio-electronic combat on the modern battlefield in a future general war. The Soviet Armed Forces and Western armies concentrate special attention on the production and supply of radio-electronic countermeasure means. American field manuals consider radio-electronic combat an important ingredient of military action at all levels of war, that is, from tactical to strategic levels.

Finally, it must be noted that the probable enemy will focus particularly on conducting all types of reconnaissance to detect, locate, and disclose our control systems, and will make wide use of a variety of forces and means. It is clear that the probable enemy has about 2,000 ground stations and centers of radio and radio-technical reconnaissance in Europe and Asia, which are deployed along the borders of the Soviet Union and other Socialist countries.

Moreover, the enemy conducts reconnaissance by special aircraft and ships equipped with various types of radio-electronic means. For the last ten years the enemy also has employed space means for reconnaissance purposes.

As assessed by the Americans themselves, they acquire 70-80 percent of all information about our Armed Forces by using radio-electronic means. Therefore, in contemporary times, the importance of secrecy in control of the Armed Forces constitutes one of the vital requirements of control. Nowadays, secrecy of control of the Armed Forces must be ensured well in advance of wartime, because in the absence of a pre-established secret system, control in modern wars becomes meaningless.

In the Armed Forces, the main principles of control must be well defined and applied appropriately. These principles are as follows:

- combination of centralized and decentralized control of the Armed Forces;
- reliability of control;
- continuity of control;
- firmness of control;
- flexibility of control.

The aforementioned principles of control must be developed and perfected in accordance with the conditions of contemporary war.

V. Conclusions

One of the most complex issues in contemporary times is control of the Armed Forces. The reason is related to changes in the character and forms of the conduct of war and operations. The major responsibility is borne by the political authorities, who make the decisions to use nuclear weapons.

Because of the complex military, political, and strategic situation brought about in a short time as a result of the use of weapons of mass destruction, the control system of the Armed Forces is required to be kept at a high level of readiness. The peacetime control system must meet the requirements of war conditions to the utmost, and should operate continuously, reliably, and with a high level of effectiveness. The perfection of control, based on advances achieved in technology, must constantly be made an objective at all levels.



CHAPTER THREE

Air Defense in a Strategic Operation in a Continental Theater of Strategic Military Action

I. Introduction

Contemporary operations in TSMAs are characteristically initiated with massive actions of the Air Forces. This fact has been proven by the experiences of World War II, the wars in the Near East, and the local war in Vietnam.

Large aviation groupings with decisive aims will participate in massive strikes. Missions which Air Forces can fulfill in a TSMA will be varied, and include:

- battle against enemy air forces and suppression of enemy air defenses (establishment of air supremacy);
- direct air support of ground forces;
- isolation of areas of military action;
- conduct of air reconnaissance;
- conduct of air transportation; and

—participation in launching strategic strikes.

Therefore, the presence of a reliable air defense in strategic operations in a TSMA is one of the most necessary conditions for the success of the operation.

II. Composition and Character of Actions of Enemy Air Forces in a Theater of Strategic Military Action

In the composition of enemy air forces in the TSMA there are many aircraft, a number of which are nuclear-capable types. The type of aircraft means those which carry out various missions. [In the Western TSMA] there are 2,600 combat aircraft, including 1,700 with nuclear capabilities and 7,500 nuclear rounds. In the future three types of aircraft will be developed further, one for establishment of air supremacy, one for direct air support of ground forces in the combat area, and the third for isolating areas of military action [interdiction].

The F-15 fighter aircraft is representative of the first category, the A-10 the second, and the F-4 fighter-bomber is to attack deeper targets in order to isolate the battlefield.

The main grouping of the enemy aviation in the Western TSMA includes the Second OTAK [Joint Tactical Air Command], Fourth OTAK, and the national air forces of other nations. In the course of military combat action enemy aviation will be augmented by shifting forces from other areas and assistance from other countries. It will also include the naval aircraft of enemy allies.

The F-14 naval tactical aircraft have great capability to penetrate the TSMA defense system. They destroy and suppress air defense means, conduct wide maneuvers, fly at low altitudes, and use a large collection of radio-electronic warfare means.

The results of NATO research and development show that the basic form of combat employment of air and space forces is air and space operations. Such an air-space operation is the aggregate of coordinated strikes of strategic formations and large units of ballistic rockets, air forces, and submarine-launched

rockets conducted in coordination with tactical air force formations of the ground forces and naval large units deployed in the TSMA.

The aim of the initial air and space operation is to suppress the combat power of the Warsaw Pact, to destroy the economic and military potential of these countries, to disrupt State and military control, and to seize the initiative in war. To support these objectives the enemy air and space formations and large units will conduct the following missions:

- destruction of strategic nuclear-delivery means;
- destruction of military and economic targets which are created on the basis of military and economic potential;
- disruption of control of the states and the armed forces;
- infliction of damage on administrative and political centers;
- infliction of damage on the strongest armed forces' groupings in border areas and preventing the movement of reserves to those areas;
- suppression of the Warsaw Pact countries' air defense systems.

The basic form of combat action of the enemy air and space troops in a nuclear war will be to launch massive strikes and successive actions. Exercise experience shows that the enemy in the course of one to two days can launch one to three massive nuclear strikes. In the first nuclear strike, 60 percent of the nuclear rounds allocated for the offensive in the TSMA will be employed. The formation for operations (*operativnoe postroenie*) of forces and successive action of the echelons and groups can be different. In the first air and space nuclear strike the formation for operations will consist of several multi-echeloned aviation flights and the fire of rockets. The first air echelon can consist of two groups: the support group and the strike group.

In these groups tactical and naval aircraft from the nearest airfields, such as those of the Second, Fourth, and Sixth OTAKs, participate. The mission of the support group is to suppress the air defense groupings of the Warsaw Pact countries. The mission of the strike group is to launch strikes against the following:

- targets in the operational and tactical depth of ground forces;
- political, administrative, and economic centers;
- railroad and motor road complexes; and
- command posts of Warsaw Pact countries.

The second air echelon consists of one strike group, and that is the second echelon of the main forces of tactical and naval aircraft. The mission of the second air echelon is to destroy newly detected targets or targets not previously destroyed and to support the flight of strategic aviation to the depth of the countries.

The third air echelon consists generally of bomber aircraft of type "V," Mirage, and B-52, deployed in the TSMA, which launch their strikes against targets to the depth of the Warsaw Pact countries. Strategic bomber aircraft found in the United States may operate in subsequent echelons.

The number of aircraft in each echelon will vary, depending on the concept of their combat employment and the level of resistance of air defense troops of the Warsaw Pact forces. Passage through the TSMA air defense system by the enemy air forces is conducted by the following methods:

- on a wide front (1,000-1,700 km), to disperse the efforts of the air defense troops in the TSMA;
- in several narrow sectors of the front (100-200 km each), on specified directions, to sufficiently break through a deep and echeloned defense and to support the arrival of the main aviation forces at targets in the depth of the country;
- a combination of a wide front and several narrow sectors.

The duration of the initial massive nuclear strike on strategic air directions of the western and southwestern directions can be three to four hours. On the basis of a time assessment and the characteristics of the preparation of air and space nuclear delivery means, the second nuclear strike will be possible after 32 to 36 hours.

The aim of the second strike is to concentrate the main effort of the tactical air force and operational-tactical rockets in order to support the ground forces, isolate the region of combat

action, and create favorable conditions for offensive operations in the TSMA. Also, part of the forces will destroy targets that were not destroyed initially.

In the interval between the first and second massive strikes of the enemy's air and space forces, actions by first-echelon tactical and naval air forces and part of the strategic air force deployed in forward bases can be initiated. During the strikes against Warsaw Pact national targets which are covered by their national air defense forces, and also during passage through the air defense system of the Warsaw Pact countries, the enemy may use different forms of combat and tactical action.

When they reach the observation range of air defense radar, tactical fighter aviation and naval attack aircraft will deploy in groups, and the aircraft will disperse within the groups. At the same time the aircraft will fly at a very low altitude (150-300 m) and closely follow the contour of the ground, [while they will fly at] 30-50 m above the sea. When they enter the radar observation area, normally active and passive jamming of the radar is initiated. The density of active jamming is as follows:

- in directed jamming: 25-30 volt/megahertz;
- in barrage jamming: 0.3-0.4 volt/megahertz.

The combat formation of tactical and naval aviation consists of two to four or eight to twelve aircraft or more. The basis of the establishment of a combat formation should be created by pairs of aircraft. The combat formation of an aviation flight is two pairs of aircraft, which fly in a wedge, an on-line, a column, or a diamond formation.

Likely distances between the combat formations of tactical and naval aircraft can be as follows: intervals between aircraft across the front of 1-2 km, distance between aircraft in depth is 4-8 km (and in time 15-30 sec); between groups 15-30 km (1-2 min). The difference in distance between the aircraft within the group is 300-600 m. Therefore the tactical density of aircraft in the zones of air defense and over the targets in different combat formations will be two to four aircraft or more in one minute.

The number of enemy air forces in a non-nuclear war in Europe and their operational formations in the air during

launching of massive strikes can vary. It depends on the scope of the war, the enemy's concept of operation, and the degree of resistance of air defense troops. In any case, in the non-nuclear phase of a war against the Warsaw Pact countries, the action of tactical and naval air aviation should be expected.

The main forces of strategic aviation and one-third of the theater-based nuclear-armed aircraft and carrier-based aircraft will be on call for the delivery of nuclear weapons. On the first day of the war the main effort of the enemy air forces will be to concentrate on seizing air supremacy. Their main targets will be enemy airfields, air forces, air defense aviation, positions of air defense rockets, radio-technical troops, command posts, and troop control points. Subsequently, the effort of the air forces will be directed to accomplish combat missions in connection with support of the troops (50 percent of the allocated flights), isolation of the area of combat action (25 percent), and air reconnaissance (25 percent).

Passage through enemy air defense is conducted on a wide front and in narrow areas of the front by large forces which are deployed in echelon, in depth, in altitude, and with massive use of radio-electronic combat means.

Open terrain requires that enemy aviation fly on a wide front to reach their strike targets at the appropriate time by flying at low altitude and from different directions. In mountainous terrain the enemy will use valleys and mountains on a narrow front for concealed flight to the targets of strikes. When the strikes are launched from the sea the aircraft fly at low altitudes and launch their strikes against targets by surprise action on a wide front.

Calculations of the possible missions of enemy aviation groupings against targets in a war using conventional weapons (and the experiences of the use of air forces in Vietnam and the Near East by the US and Israel) show that, because of the limited capability of non-nuclear means, normally many air force groups are needed against each target. However, in recent years the use of rockets and bombs armed with automatic laser and TV guidance warheads has greatly increased the accuracy of hit and bombardment. This has reduced the required number of

aircraft groups needed to destroy a target. Launching of surprise strikes on targets out of the observation range of radars can be achieved through various kinds of maneuver to include—in non-nuclear war—the action of aviation in more compact combat formations, under heavy jamming support, and primarily at low altitudes using terrain contours. Up to 70 percent of tactical aircraft will operate at low altitudes. At the same time the combat formations in echelons will be complex, and the combat formations will include groupings of strike aircraft, groups of covering aircraft against fighter aviation, groups of aircraft to suppress air defense rocket troops, and special groups conducting jamming action.

The combat formation of each group and the method of its action depend on the actual conditions of the combat situation. These conditions include the characteristics of targets and the degrees of their suppression, the resistance of the air defense system, the guidance conditions in the area of combat action, and the level of combat readiness and *experience of the pilots*.

The experiences of the combat employment of tactical and naval aircraft in Vietnam and the Near East require that it should be assumed that for proper combat dispersion of fighter-bomber aviation and naval attack aircraft, the strike can be initiated at a distance of 10-15 km up to 60-70 km.

The strike grouping normally flies to the target in a column of pairs or a flight (*zveno*) [a company-size force] column in which the interval and distance between aircraft and pairs are 100-150 m and between flights are 1,500-2,000 m. In this case the covering groups operate on the flanks of the fighter group at distances of 3,500-5,000 m.

The support group will carry out missions to launch bomber and attack aviation strikes against positions of air defense troops. The group designated to fight against fighter aircraft will conduct its struggle against the fighters and will blockade the enemy airfields. The jamming group will remain out of range of the air defense rocket troops while jamming air defense means by radio-electronic means.

The action of fighter and naval aviation will be conducted firmly and decisively to inflict maximum losses on the assigned

targets. Therefore, the combat action of air defense troops in a TSMA should match the firmness and decisiveness of the enemy by better interaction between elements.

Thus, the analysis of the nature of likely action of enemy air and space attack means shows that interaction amongst air defense troops in a TSMA is one of the most important needs of the war. Practical organization, understanding, and providing for interaction amongst air defense troops in war are among the most important missions of commanders and staffs at all levels.

III. Missions and Composition of Air Defense Troops in the Strategic Operation

Air defense missions in strategic operations in a continental TSMA are derived from the aims and missions of the operation itself. The aim of contemporary strategic operations in a TSMA is the total destruction of the enemy aviation groupings and knocking out from the war all or a number of enemy allies. The aim of contemporary strategic operations in a TSMA is achieved by the accomplishment of the following tasks:

- destruction of the important groupings of the enemy armed forces in the entire TSMA;
- repulse of enemy aviation strikes;
- disruption of enemy military and economic targets that provide materiel and technical support to their forces;
- destruction of state and military control centers and the enemy's alliance system; and
- seizure and retention of important enemy terrain.

The missions of strategic operations are accomplished by the combat actions of the formations of the various Services of the Armed Forces. Air defense missions in a strategic operation are as follows:

- Prior to the beginning of the operation (in the preparation period):
 - providing defense against possible enemy air attacks for rocket deployment areas, munitions depots, and bases of strategic rockets;

- providing air defense from enemy air strikes for important economic, industrial, administrative, and political centers and areas, as well as important rail-heads and lines of communications centers;
- providing air defense cover against enemy air attacks for *front* forces during their deployment and occupation of staging areas;
- providing defense for naval bases, groups of ships on naval routes, coastal areas, and during deployment of the fleets;
- providing air defense cover against enemy air strikes for airfield complexes of Military Transport Aviation, *front* aviation, and Naval Aviation;
- In the course of a strategic operation:
 - providing air defense cover for Strategic Rocket Forces in the areas of their new positions in a TSMA;
 - covering *front* forces against air strikes during the initial and subsequent operations of *fronts*, and also providing air defense for *front* (army) reserves and other large units and formations of the Supreme High Command reserves in their deployment areas, during their movement, and in the course of their combat action;
 - covering naval forces in their bases and in their dispersal areas, and also during the conduct of naval operations and other activities against enemy air strikes;
 - providing air defense cover for Airborne Troops and Military Transport Aviation in their concentration areas, embarkation areas, during their flights, and in the areas of combat action of Airborne Troops;
 - participating in the air operation to destroy enemy aviation grouping;
 - covering the airfields on which Long Range Aviation has established its bases, the rear service targets of *fronts* and fleets, important centers of lines of communications, and other vital targets within the boundaries of the TSMA against enemy air strikes.

The air defense troops of *fronts*, fighter aviation of the *front* air armies, air defense troops [*voiska*, rather than the more usual *sily* (forces)] and means of the fleets, and one or two formations of National Air Defense Forces are assigned to accomplish these air defense missions in a strategic operation in a TSMA.

The number of air defense troops and means assigned for a strategic operation in a TSMA depends on certain factors, the most important of which are the missions to be accomplished by *front* (fleet) forces, the composition and nature of likely actions of enemy aviation, the number and significance of targets to be defended, the physical geographic conditions of the TSMA, and other factors.

The composition of air defense troops and means in various TSMA's will not be standard. For example, the following forces can operate in a TSMA:

- 100-150 air defense missile large units and units;
- 30-40 fighter aviation regiments;
- 50-70 air defense artillery units;
- 30-40 radio-technical large units and units;
- 3-4 radar patrol ships;
- 60-80 air defense artillery ships.

These forces are required to establish an air defense in the most appropriate grouping, with an effective control system and reliable coordination. Full and continuous materiel support is also extended to PVO in order to fight the enemy's air attack forces and means in the most effective way.

The struggle against the enemy's ballistic rockets and his operational and tactical rockets is usually conducted by destroying them in their positions with aircraft, rocket and long-range artillery troops, and diversionary groups and forward detachments.

IV. Organization of Air Defense in Strategic Operations

Organization of air defense is part of preparing for a strategic operation and is conducted on the basis of the decision for the

conduct of combat actions in the TSMA. In organizing air defense in a strategic operation the following issues are included:

- making the decision for air defense;
- assigning missions to air defense troops and means;
- planning air defense in the operation;
- deploying groupings of air defense troops and means belonging to various Services of the Armed Forces;
- organizing interaction;
- organizing troop control;
- organizing all-around support;
- organizing and executing actions that provide for the constant combat readiness of the groupings established from the air defense troops and means of the various Services of the Armed Forces.

Planning for Air Defense in the Strategic Operation

Planning for air defense in a strategic operation is conducted on the basis of the decision made by the strategic control organ for the conduct of military actions in a TSMA.

General staffs of various Services of the Armed Forces, the staffs of military districts, and staffs of *fronts* participate in air defense planning on issues related to them. The principal planning document for the air defense troops is the national air defense operational plan, in which the principles of organization of air defense, control, coordination, and supporting measures are reflected.

The air defense operational plan is signed by the Minister of Defense, the Chief of the General Staff, and the Commander-in-Chief of National Air Defense Forces. It is approved by the representative of the State. The plans of interaction among the troops of the National Air Defense Forces are organized on the basis of this plan. In the interaction plans, all issues of coordination during the execution of missions by joint action are illustrated in a detailed and elaborate form. This includes missions regarding the reinforcement of air defense cover of ground forces, reinforcement of air defense troops of the *fronts*, air

defense cover of airborne forces, and other missions that derive from specific conditions in the TSMA.

The organization of air defense is worked out in anticipation of two contingencies—that nuclear weapons may be used by the enemy or that they will not be used. Air defense is planned to the entire depth of the strategic operation. In this context air defense issues and actions are more elaborately organized to the depth of the initial operations of the *fronts* and fleets and also for operations conducted to destroy the enemy aviation groupings. The interaction plan of the air defense troops and means is organized as a working document.

During the organization of interaction plans of air defense troops and means in the strategic operation in the TSMA the following points are specified:

- assignment of air defense missions to air defense troops and means;
- sequence for establishing the groupings of the air defense system;
- sequence of expanding air defense in a TSMA during the operation;
- sequence for restoring air defense systems disrupted by enemy nuclear strikes;
- organization of control of air defense troops and means;
- sequence of interaction between air defense systems of various operational formations;
- establishment of an echeloned deployment of the basic types of materiel reserves.

The form of organization of air defense and the interaction of air defense troops and means in strategic operations is conveyed to relevant persons by an operational directive of the General Staff to the Commander-in-Chief of the National Air Defense Forces, the commander in chief of naval forces, and commanders of *fronts*.

The Commander-in-Chief of National Air Defense Forces conveys the contents of the General Staff directive by combat instructions to the commanders of operational formations of the National Air Defense Forces. On the basis of the General Staff

directive, in military districts, fleets, and National Air Defense Forces armies, issues related to the organization of air defense and the interaction of air defense troops and means in the strategic operation in a TSMA are reflected in the plans of the first operation of the *fronts* and fleets and in the air defense plan of the National Air Defense Forces operational formations.

***Deployment of a National Air Defense Troops
Grouping in a Strategic Operation***

The deployment of a grouping of the national air defense troops is conducted on the basis of the following factors:

- the need to establish a unified air defense system in a TSMA;
- the importance of the grouping of forces and targets that are to be covered from the air;
- depth of the operational formations of forces in the operation;
- the need to create greater densities of air defense troops and means on the direction of the main strike, and to expand the air defense system during the operation;
- the need for close interaction during the course of the operation.

When planning the deployment for air defense troops and means assigned to participate in the strategic operation in the TSMA, it should be considered whether or not these troops and means in peacetime are in different states of combat readiness and in permanent posts (groupings) located to correspond more or less with the requirements for the establishment of the air defense system in the forthcoming strategic operation.

The National Air Defense Forces and a large part of the air defense troops and means belonging to deployed force groupings are principally grouped in such a status that they will be able to conduct air defense missions in the interest of a strategic operation in a TSMA.

In the unified air system of National Air Defense Forces, a system of radar reconnaissance, as well as a unified signal communication system, is deployed and is constantly in action.

The air defense troops of the military districts in peacetime are in their permanent garrisons. Only the duty (*dezhurnyi*) units and large units of air defense rockets (air defense artillery and radio technical troops) are deployed. For the accomplishment of the air defense missions during the first *front* operation, they should arrive in staging areas simultaneously with the combined arms large units and formations. The fighter aviation troops of an air army are deployed in military district areas and part of their troops conduct combat duty (*boevoe dezhurstvo*) service.

Thus, prior to full deployment of forces for the strategic operation, the basic air defense troops and means ready for action in a TSMA are the air defense troops of the groups of forces and the National Air Defense Forces. They will be in constant combat readiness and will provide air defense cover for the grouping of the ground forces and the fleets in their deployment phase and during their occupation of staging areas. At the same time these air defense forces will accomplish the National Air Defense Forces mission.

By proclaiming higher combat readiness, prior to the beginning of movement, the air defense troops of the military districts fully deploy in position and conduct air defense missions jointly with the National Air Defense Forces in support of military district troops. Air defense troops of the advancing military district troops in this phase conduct direct air defense cover of the troops on the movement axis. The fighter aviation troops of the air army, in order to conduct air defense missions, detach certain elements while they are being moved to new locations.

With the deployment of *front* forces and means and the occupation of staging areas for the initial offensive operation, several echelons (*eshelon*) of air defense troops and means are created in the TSMA. The first air defense echelon in a TSMA is established by air defense troops and means of the *fronts* (the air defense troops of the *front* and fighter aviation troops of the *front* air army). In the area of each *front* one to two large units of national air defense forces [Soviet and non-Soviet Warsaw Pact when applicable] will operate. Naval air defense troops also will operate on naval directions. The depth of this echelon

will be 300-500 km. It is the strongest grouping of air defense troops and means in the TSMA.

The second air defense echelon in a TSMA is established by operational formations of the National Air Defense Forces and the air defense troops and means of reserve *fronts*. The depth of this echelon can be 700-1,000 km. For the accomplishment of air defense missions which develop in the course of a strategic operation (such as air defense cover for the reserve *fronts* during their commitment, air defense cover of seaborne assault operations, air defense cover during seizure of peninsular areas, and air defense cover during airborne operations), the General Staff specifies [the required number of] air defense troops and means. Prior to the execution of the new missions the assigned air defense troops and means continue to conduct the missions previously assigned to them. They normally participate in repelling the enemy's initial massive air strikes. In this way, they serve as active reserve air defense troops for the strategic operation.

Therefore in the period when staging areas are being occupied by *front* forces and fleets for an offensive operation in a TSMA, a deep and echeloned air defense system is established.

In order to maintain the viability of the air defense system and to increase the capabilities for restoration of the air defense system, which is disrupted by the destruction of air defense troops of the National Air Defense Forces and *front* air defense means caused by the enemy nuclear rocket strikes, a large number of measures are taken, to include the preparation of the TSMA in the interests of air defense, operational *maskirovka*, perfection of the control system, establishment of reserves, protection of radio-electronic means, dispersal of materiel reserves, and other measures.

Control of Air Defense Troops and Means in a Strategic Operation in a Theater of Strategic Military Action

Control of air defense troops and means in a strategic operation is considered a complex mission for the following reasons:

- limited information about the air enemy at the beginning of the repulsion of massive enemy strikes;

- active resistance by the enemy against the control system of air defense troops and means;
- very limited time for fulfilling missions of control for air defense troops and means; and
- presence of various systems of troop control for air defense troops and means in the various Services of the Armed Forces.

In addition to these, all air defense troops and means will not always conduct their combat action simultaneously on all directions and all depths of a TSMA. The main forces of enemy aviation will be committed where the main mission in a strategic action is being accomplished.

As regards air defense troops and means, the characteristics of the conditions of the situation preclude the possibility and feasibility of establishing a special control organ for the control of all air defense troops and means in a TSMA because creation of such a specific organ is practically impossible. The coordination of the actions of the air defense troops and means in a strategic operation in a TSMA is conducted by the General Staff. Such coordination is exercised to resolve the following most important missions:

- distribution of air defense troops and means among formations of various Services of the Armed Forces;
- establishment of a unified system of reconnaissance and warning about the air enemy in a TSMA;
- coordination of the combat action of air defense troops and means of the various formations and those of the National Air Defense Forces in the course of the conduct of the strategic operation, particularly in gaps between them during accomplishment of joint missions in one area of combat action.

Control of *front* air defense troops and means in the course of the operation is exercised by the *front* commanders through chiefs of the air defense troops and the air army commanders at the *front* command post. During the repulsion of the first enemy air strikes, the coordination of the action of the air

defense troops in a TSMA is conducted by the Commander-in-Chief of National Air Defense Forces from the central air defense command post and when necessary from the auxiliary air defense command post by him or his deputy. All troop control functions, documents, and means are established and constant combat duty services are conducted in the auxiliary command post. The operational level air defense control organs of the Warsaw Pact countries conduct the following missions:

- assessing the air and space situation;
- bringing the air defense troops to the level of combat readiness of the [supported] troops;
- depending on the situation and the specified level of the combat readiness of troops, specifying the method for keeping enough combat equipment in operational status to support and ensure timely commitment to combat of the required number of air defense troops and means and specifying measures designed to ensure and maintain the combat capability of troops during nuclear rocket strikes;
- specifying the most effective forms of action to be taken by the air defense forces in the situation;
- confirming a previously made decision or making new decisions to repel enemy air strikes and conveying the decision to the executing elements;
- coordinating actions, maintaining close interaction of air defense troops, and coordinating the actions of air defense troops and means of the ground forces (*fronts*) and fleets;
- supporting the troops in combat actions;
- taking measures to eliminate the consequences of the use of nuclear weapons by the enemy and restore disrupted groupings of forces.

The *front* chief of air defense troops directly coordinates the combat action of the *front* air defense troops and means with the action of National Air Defense Forces. The coordinating missions of the *front* air defense chief must include advance coordination of the following elements:

- deployment areas and sequence of combat action of radio and radar reconnaissance means in a unified system;

- sequence of exchange of organized reconnaissance information;
- sequence of control, airfield support, and support for the fighter aviation troops;
- control and support of the combat action of fighters with their full tactical range and their full range for operation in the adjacent areas;
- sequence of exchange of targets to be covered by the air defense means of the ground force formations, with those covered by the formations and large units of allied countries' national air defense forces during the development of combat action;
- sequence of restoration and expansion of the air defense system in the area of the ground force actions in the course of war.

***Organization of Interaction of Air Defense Troops
and Means in a Theater of Strategic Military Action***

Organization of interaction amongst air defense troops and means in the TSMA includes a number of measures directed at coordinating the combat action of the operational formations of various Services of the Armed Forces in terms of aim, location, time, and form of accomplishment of assigned missions.

Interaction of the operation of the air defense troops and means in *front* areas with the action of air defense troops of Warsaw Pact countries is conducted by operational groups. These are detached from formations and large units of the National Air Defense Forces to the air defense command posts of the *fronts* as they deploy, occupy staging areas, and then pass out of the boundaries of the air defense formations during the operation.

Interaction of the operation of the air defense troops and means of the fleets with the action of *front* air defense troops and means and operational formations of the National Air Defense Forces is conducted through naval representatives detached to the *front* air defense command post and air defense army command post.

While organizing interaction between the air defense troops and means of the fronts and National Air Defense Forces [Soviet and non-Soviet Warsaw Pact], efforts are normally focused on those forces and means of the National Air Defense Forces that are assigned to cover *front* troops in staging areas and in advance zones (*polosa nastupleniia*). The sequence of action of these forces and means is coordinated. Moreover, the likely maneuver of these troops in the interest of the *front* is specified, the air defense cover of the troops on crucial lines in the advance zone is organized, and the interception lines of fighter aircraft are determined.

The following questions are closely addressed: which forces and means of the *front*, where, when, and for what missions are they going to deploy in the advance zone? The intermediate airfields are specified for en route stops of *front* fighter aviation during the advance of the troops, and the sequence of interaction between *front* fighter aviation and air defense means and the fighter aviation and air defense missile troops of Warsaw Pact countries and those of adjacent *fronts* is determined. Moreover, a unified system of mutual identification of friendly aircraft is specified.

Special attention is paid to the exact sequence of using the radar systems of the allied nations' air defense forces in the interest of the *fronts*. For this purpose the capabilities and operational range of radars in the troop advance zone, the capability for warning *front* forces and means, and the control of *front* air defense means deployed in the troop advance zone are considered. In addition, organizational considerations concerning air defense cover of *front* communications routes in the movement zone of the troops include the sequence of expanding air defenses in the wake of attacking *front* troops and resolving the composition of air defense operational groups and the sequence of their attachment to interacting headquarters.

In a *front* movement phase, *front* air defense operational groups are posted at a command post of a National Air Defense Forces' formation or at the central air defense command post of the allied nation on whose territory the *front* conducts its march. The interaction of National Air Defense Forces formations and

front air defense troops is conducted through these air defense operational groups.

During the conduct of joint operations (seaborne assault, airborne assault) the representatives of relevant large units of the National Air Defense Forces and naval representatives are attached to the auxiliary command post of the commander conducting the operation to coordinate issues of covering assault landing troops in their concentration areas, during their embarkation, and in the course of their operation.

In contemporary times special attention is paid to the establishment of interaction and close unification of the automatic system of control designated for the air defense forces and means organic to various Services of the Armed Forces. To resolve the problem of unification of various automatic systems requires primarily the resolution of the problem of timely reception and processing of information on the air situation, space situation, nuclear situation, and radio jamming conditions. To accomplish this, conditions are created to receive the information directly from its original source, such as remotely operating radar centers (long-range operating radar centers), radar reconnaissance aviation, radar patrol ships, and earth orbit satellites. By establishing such a system for receiving information, the time for receiving and sending information is reduced.

General control of air defense troops and means assigned to accomplish missions in joint operations is conducted by the commander of the joint operation. He controls air defense troops and means from his command post. The direct control of air defense troops is conducted by the commanders of large units of the National Air Defense Forces (air defense chiefs of combined arms formations, commanders of naval large units).

V. Conduct of Air Defense in a Strategic Operation in a Theater of Strategic Military Action

The conduct of air defense includes the following elements:

—conduct of reconnaissance to detect enemy air and space attack means;

- repulse of enemy aviation strikes on defending troops (targets) and the battle against enemy air reconnaissance;
- maneuver to redistribute air defense troops and means among various Services of the Armed Forces (*fronts*, fleets) during changes in their missions in the course of the operation, and including the commitment of reserves;
- expansion of the air defense system during the operation (for the arrival of reserves in the area between the first and second air defense echelons, and requirements to cover new targets and new groupings of the troops);
- restoration of the air defense system destroyed by the enemy's air strikes.

Reconnaissance of enemy air and space attack means is a constant mission conducted by all available means in support of the operation. Reconnaissance of enemy air and space means at the strategic level is conducted by reserve rocket systems and space control/reconnaissance means, special purpose units of the ground staff (*osnaz*), naval units conducting patrol duty in remote ocean areas, and air reconnaissance.

Information can be acquired from these sources about strategic aviation bases, areas of deployment of nuclear rocket submarines, aircraft carrier task forces and the flight of aircraft from them, the location of enemy space satellites (including reconnaissance, communication, guidance, and other satellites), ballistic rocket bases, and flights of strategic aviation.

Information from these sources is communicated rapidly by direct signal communication channels to the Supreme High Command, the General Staff of the Armed Forces, and the command posts of various Services of the Armed Forces and Civil Defense, as well as to *fronts* and fleets.

Operational reconnaissance is conducted by the aviation and special purpose (*osnaz*) units of the *fronts*, air defense armies, and fleets. Information is received from these means on the relocation of the bases of tactical and naval aircraft and aircraft flights. On individual directions they may also provide information about the enemy's strategic aviation. Information and data are communicated to the command posts of the *fronts*.

fleets, and air defense armies. Information provided by strategic and operational reconnaissance is used primarily to bring the air defense troops and means to the state of full combat readiness in a timely manner and to take measures on *maskirovka* and dispersal.

Tactical reconnaissance is conducted by the means of the following large units and formations:

- radio-technical troops organic to operational formations of the National Air Defense Forces;
- radio-technical units (large units) of *front* air defense troops;
- radar patrol ships and radar stations of naval vessels;
- means of special purpose (*spetsnaz*) units;
- reconnaissance and target definition radar stations organic to air defense rocket (artillery) units and large units;
- reconnaissance and guidance stations of the *front* air army's fighter aviation;
- visual observation posts established in all command posts.

Thus, detection of the aerial enemy during flight is conducted, and his composition, combat formation, and distribution on air directions are determined. Tactical reconnaissance means support the combat employment of active air defense means.

Repulse of Enemy Air Strikes

Repulse of enemy air strikes in a TSMA may be conducted under various conditions. These conditions depend on the following factors:

- form of initiation of war chosen by the enemy;
- situation of friendly forces (whether they have deployed, or are on the march, or are still in their permanent garrisons);
- nature of enemy strikes (initial massive strike or subsequent strikes during the operation);
- where the enemy is facing difficult conditions and where friendly troops launch their main attack.

However, in any form of initiation of war, the enemy will direct his main efforts to gain air supremacy. In a war initiated

with the employment of nuclear weapons, the initial massive strike can be launched in all depths of the TSMA, against important groupings of the troops and vital targets.

Since generally there is no antiballistic rocket defense in a TSMA, prevention of a massive enemy ballistic rocket strike is not possible. Combat actions to repel enemy air strikes are normally conducted under conditions in which enemy nuclear rocket strikes have already been launched. Under these circumstances a complicated radioactive, chemical, and biological situation in vast areas of the TSMA, along with numerous destroyed areas, fires, and flooded areas, will prevail.

During the enemy's initiation of nuclear rocket strikes, maintaining the combat capabilities of the air defense troops and means against enemy aircraft is vitally important. This will ensure organized commitment into combat for the repulse of enemy aviation flights.

When the signal indicating the enemy's launch of his ballistic rockets is received, a number of measures are taken immediately to maintain the combat capabilities of the troops. For example, personnel not engaged in combat tasks are moved to protective shelters, and part of the fighter aviation based on airfields where heavy protective shelters for aircraft are not available take off.

When combat actions are initiated with conventional weapons, the enemy will not normally have sufficient force to launch strikes against all targets and important groupings of the troops at the same time. Therefore, he will launch subsequent strikes. Under these circumstances, major air battles will be initiated on individual air directions at different times. This situation provides the possibility of concentrating the efforts of the air defense troops and means, and particularly the fighter aviation troops, on the most important directions threatened by the enemy. Maneuver of the air defense means and fighter aviation is conducted to cover the areas between the large units of the *fronts*, areas between the *fronts*, and formations of the National Air Defense Forces. The fighter aviation troops are widely used to their maximum range of operation by landing on the airfields of adjacent formations.

The action of the enemy aviation can begin before the *fronts* (fleets) can complete their deployment. Under such conditions the main efforts of the enemy may concentrate on strike aviation, airfields, destruction of bridges, major railheads, and on the advancing troops. Generally, the efforts of the air enemy in such conditions will be directed at establishing air supremacy and at isolating the areas of combat action.

The skillful and effective maneuver of fighter aviation to concentrate its efforts on the destruction of the most threatening enemy aviation grouping will be of major importance. In the course of a strategic operation in a TSMA, massive strikes by enemy aviation will concentrate primarily on the following targets:

- groupings of troops operating on the main direction;
- reserve troops during their commitment into combat;
- troops crossing major rivers;
- troops seizing critical areas of straits; and
- troops conducting assault operations.

In these cases the main efforts of the air defense troops and means are concentrated in relevant areas throughout the maneuver of air defense troops, on the commitment of reserves into combat, and on the distribution of air defense troops and means among operational formations of the various Services of the Armed Forces.

Reconnaissance and fighting the air enemy, conducting his operation in echeloned actions, are conducted independently in the *front* area, in the area of the troops of National Air Defense Forces, and on oceans by air defense troops and means of the fleets.

Expansion of the Air Defense System

Expansion of the air defense system during a strategic operation is one of the important elements of air defense and is conducted on the basis of the Supreme High Command's decision. On the basis of the degree of development of the attack of *front* troops as they move into the depth of the TSMA during the

accomplishment of immediate missions, the movement and relocation of the first echelon of air defense troops and means in the TSMA separates the first air defense echelon from the next belt to the rear, which is created by the border formations of the National Air Defense Forces. If necessary measures are not taken during the accomplishment of a *front* long-range mission, a gap between the first and second air defense echelons will develop. This will destroy the unified air defense system in the TSMA to its depths.

To fill this gap, *front* air defense troops and means are followed by some elements of the formations of the National Air Defense Forces in order that national targets are not destroyed. Some elements of national air defense forces of allied countries may be assigned, when possible.

By the maneuver of fighter aviation regiments to airfields previously occupied by the *front* air army's fighter aircraft or by the enemy air force, necessary conditions are created to avoid the emergence of a gap in fighter aviation cover and for the movement forward of the interception line of fighter aircraft assigned to repel enemy air strikes against targets in the country.

The relocation of some air defense units (large units) from the targets that have lost their significance and from the depth of the country (in this case with the special permission of the General Staff) can be conducted to provide air defense cover for vital *front* rear service targets.

In order to cover important centers on the *front* lines of communication, cover fleet elements in their new areas, reinforce a reserve *front* during its commitment into combat, and cover troops during assault landing operations, the General Staff plans in advance the deployment of special air defense troops and means, or such troops are allocated during the operation by the decision of the Supreme High Command in accordance with the actual conditions of the situation.

During combat actions of air defense troops in the TSMA, radio-electronic combat becomes vitally important. It includes an aggregate of measures for protecting friendly radio-electronic means from enemy electronic suppression, jamming enemy

radio-electronic means, and preventing the detection of friendly radio-electronic means by the reconnaissance of the enemy.

The principal measures directed at ensuring protection of air defense radio-electronic means in the TSMA are taken in advance. The most important measures are the following:

- creating of a radio-electronic zone with capabilities to resist enemy radio jamming by the use of various types of radio-electronic stations in one position;
- establishing a secret radio-electronic zone (reserve);
- establishing air defense rocket troop groupings with a mixed composition of various means;
- retaining certain control means and other equipment in reserve.

Timely and thorough suppression of enemy radio-electronic means supporting the combat action of his aviation is particularly important. This is accomplished by special radio-electronic jamming units. In addition, jamming means of the *fronts and fleets* and formations of the National Air Defense Forces may be used by the decision of the high command of the National Air Defense Forces.

The radio stations of the ministry of communication are brought into combat action. Separate control points ... [text obscured for about one line].

The conduct of air defense in the strategic operation in a TSMA is not an individual action. It is a continuous action throughout the entire course of the operation. In this context air defense preparation for further combat actions is of vital importance. Such preparation is directed primarily to restore the combat capabilities of troops hit by enemy strikes.

Due to some of the enemy's massive air strikes, particularly after nuclear strikes, the air defense system will be destroyed in some directions (in some areas of the TSMA), and will be weakened generally throughout the TSMA. Through exercise experience, and scientific calculations of likely losses, the initial massive strike will cause the following losses in personnel and combat equipment:

- 20 to 35 percent and more when the enemy uses nuclear weapons;
- 5 to 10 percent when the enemy uses conventional weapons only.

These losses can restrict timely detection and destruction of the air enemy in some directions (in individual areas) during subsequent combat actions by the air defense system. The principal measures for restoration of the air defense system are as follows:

- restoration of control and reconnaissance systems;
- restoration of cover by air defense rockets (air defense artillery) and fighter aviation;
- restoration of materiel and equipment reserves up to the required norms.

Restoration of the air defense system in a TSMA is conducted by air defense troops and means of formations and by the commitment of Supreme High Command reserves into action. Restoration of control is achieved by moving troop control elements to alternate command posts, and by attachment and commitment of signal system elements in a concealed and inactive status.

Restoration of destroyed reconnaissance systems designated to detect the air enemy is conducted through the commitment of individual reserve (secret) radar posts into action and also by wide use of means capable of conducting maneuver (aircraft and radar patrol ships).

Restoration of air defense cover by fighter aviation is normally achieved through rapid repair of a part of aviation equipment that has been damaged and knocked out of action and also by the commitment of reserves and maneuver of troops from less-threatened directions. Restoration of air defense cover by air defense rockets is conducted through maneuver of air defense troops and means from areas (targets) that have lost their significance.

Timely materiel support for air defense troops and means in the strategic operation plays an important role in the successful accomplishment of combat missions. Special importance is

given to the timely supply of rockets (air defense and air-to-air rockets) and specialized POL. The most important supply issue is the establishment of necessary materiel reserves and their appropriate stockpiling in echelons, particularly in the air defense means of armies and *fronts*.



CHAPTER FOUR

Employment of Military Transport Aviation to Assault Land and Airborne Division in the Rear of the Enemy*

1. Principles for the Employment of Military Transport Aviation

The Role and Mission of Military Transport Aviation (Vozdushno-Transportnaia Aviatsiia—VTA)

In modern times the role of Military Transport Aviation has expanded widely. The air transport forces are equipped with AN-12 and AN-22 aircraft, that have greatly enhanced air transport capabilities. Military Transport Aviation constitutes an arm of the Air Forces and is considered to be a means of the Supreme High Command.

*For a discussion of Russian terms associated with airborne assault landing issues, and notes on how these have been translated, see the glossary entry for *Vozdushnyi desant*.

ROLE Military Transport Aviation can move rapidly into enemy territory, exploit the impact of nuclear strikes, and cross large rivers. It can move troops rapidly from one area to another, ensuring rapid troop maneuver. Large areas contaminated by the enemy can be crossed easily by Military Transport Aviation.

MISSIONS

- Landing airborne forces in the enemy rear area;
- Supporting the maneuver and transport of troops, combat vehicles, equipment, and materiel, i.e., creation of air bridges;
- Evacuation of sick and wounded.

The most important task of Military Transport Aviation is assault landing an airborne division (*vozdushno-desantnaia diviziia*) with its complete composition from low altitudes, at night, and under various other conditions in the TSMA.

Airborne Assault Landing

This is a combat action by Military Transport Aviation units and large units to deliver airborne assault landing forces to the enemy rear area. The distance an airborne division can penetrate is 500-600 km for strategic missions, and 300-400 km for operational missions [under nuclear conditions]. An airborne assault landing may be conducted under difficult ground and air conditions, with active opposition by the enemy's air defense means. Therefore, transport aircraft must be fully supported and protected, particularly when they are breaking through the enemy air defense systems. Military Transport Aviation is supported and protected by *front* troops and aircraft, PVOS [National Air Defense Forces], Long-Range Aviation, and Naval Aviation.

Conditions of Employment

The conditions under which Military Transport Aviation carries out its missions are as follows:

- continuous action by enemy air defense means against transport aircraft;
- need for continuous coordination with the *fronts*;
- need to neutralize and destroy enemy air defense means;
- likelihood of intensified radioactive contamination of the air;
- need to keep the concept of the airborne assault landing secret.

Forms of Airborne Assault Landings

- Airdropped assault forces: personnel, combat equipment, and supplies are dropped by parachute. The airborne units, trained and equipped as paratroopers, are landed by this method.
- Airlanded assault forces: personnel, combat equipment, and supplies are landed by aircraft on the ground. This landing is conducted on airfields or on prepared landing areas. With sufficient landing areas in the enemy rear, rifle units without parachute training and equipment are landed by Military Transport Aviation.
- Combined airdrop and airlanding of assault forces: when sufficient landing areas in the enemy rear are available, parachute troops are airdropped by parachute, while the division's support arms, such as artillery, etc., which are not parachute-trained, are airlanded on the ground by Military Transport Aviation.

Organization of Units and Large Units of Military Transport Aviation

An air transport division is organized with three to four regiments, each consisting of 32 aircraft. There are three squadrons in each regiment and three flights in each squadron. A flight is composed of three aircraft. A division organized with four regiments [together with command/staff aircraft] has a total of 130 organic aircraft.

An air transport division composed of four regiments can lift one airborne regiment. An airborne regiment is 1,600 strong with a weight of 700-800 tons.

Combat Readiness of Military Transport Aviation

There are three levels of Military Transport Aviation combat readiness [operational readiness]: constant, increased, and full combat readiness.

Constant combat readiness is normal peacetime day-to-day aviation readiness. Aircraft are based on their permanent airfields and continue their combat and operational training. At this level of combat readiness, the aircraft are usually prepared and kept at combat flight readiness level 3, and can fly on combat missions at four hours' notice. [Combat flight readiness levels are types of "technical readiness." Technical readiness, combat (or operational) readiness, and their relationships are addressed in the glossary.]

Increased combat readiness is the level of transport aviation readiness from which the forces can be brought up to the level of full combat readiness in a short period of time. At this level of [operational] readiness, the aircraft are at combat flight readiness level 2 and can fly on combat missions with one hour's notice.

Full combat readiness is the level from which Military Transport Aviation is ready to carry out combat missions. At this level of combat readiness the aircraft are at flight readiness level 1 and can fly with 15 minutes' notice.

The crew of an AN-12 based on the airfield of a staging area can be ready to fly within the following periods of time:

- from flight readiness level 1, in 15 minutes;
- from flight readiness level 2, in 1 hour;
- from flight readiness level 3, in 4 hours.

Basing of Military Transport Aviation

The network of airfields with their required materiel means should support the deployment of transport aircraft in accordance with the Supreme High Command's concept for the employment of Military Transport Aviation at the beginning of the war and its maneuver during the war. In this case, the protection of transport aircraft against enemy nuclear attacks can be achieved through

their dispersed deployment. The protection of aircraft from strikes of tactical aircraft and operational-tactical rockets can be achieved by basing transport aviation at a depth of 1,000 km.

No more than one air transport regiment should be based on a single airfield. The squadrons should be based in separate stations and must be apart from each other at such distances so that two squadrons are not destroyed by the same nuclear bomb. The aircraft should be 200 meters apart and earth berms should be constructed around the aircraft to protect them against bomb fragments. The airfield and its equipment are concealed and camouflaged against aerial observation. In addition to permanent airfields, airfields for aircraft dispersion should also be established.

Since Military Transport Aviation carries out missions in different directions, it should be able to use the airfields of other arms of Air and National Air Defense Forces (fighter, fighter-bomber, bomber forces) and even civilian airfields. For AN-12 transport aircraft in the second category, airfields with runways 1,800-2,400 meters in length and constructed on hard surfaces can be effectively used. Required reserves of materiel are stored on the airfields from which airborne troops are to be airlifted by transport aircraft. If the landing areas of the Airborne Troops are beyond the tactical radius of transport aircraft, intermediate refueling and supply airfields enroute are established and prepared. The air defense of airfields is organized on the basis of the instructions of the Supreme High Command, and is conducted by the air defense troops stationed at the airfields.

II. Preparation of Military Transport Aviation to Assault Land an Airborne Division

Content and Conditions for the Preparation of Military Transport Aviation to Assault Land an Airborne Division

The preparation of Military Transport Aviation is conducted in peacetime or time of war on the basis of instructions given by the Supreme High Command and the commander-in-chief of the Air Forces.

Large operations planned by the General Staff of the Armed Forces comprise airborne operations (*vozdushno-desantnaia operatsiia*) in which a large number of troops are employed (three to four air transport divisions, an airborne division, a motorized rifle division organic to the *front*, Long-Range Aviation, PVOS, naval elements, *front* air army elements, *front* air defense rockets, and air defense artillery troops). Such an airborne assault landing is conducted in coordination with the plan of the *front* commander.

The Missions of Strategic Airborne Operations

- Seizure of the enemy's political and administrative centers and interruption of his governmental control;
- Completion of destruction of enemy nuclear weapons bases and means after their having been hit by nuclear strikes;
- Seizure of vital economic areas, large islands, and peninsulas;
- Support of resistance groups inside enemy territory;
- Other possible missions.

The Missions of an Operational Airborne Assault Landing Conducted in Support of the Front

- Destroying enemy weapons of mass destruction;
- Ensuring the high speed advance of *front* troops in the attack;
- Cooperating in the envelopment and destruction of enemy troop formations;
- Preventing the enemy from withdrawing and retreating, and also preventing the advance of enemy reserves;
- Interrupting enemy control systems and destroying enemy rear services.

An airborne assault landing force is assault landed in a delineated area. The assault landing area of a division can be 30-40 square km.

Composition of Airborne Assault Landing Forces

A strategic airborne assault landing force can be composed of one or a number of airborne divisions. It can land at a distance

of 500-600 km from the front lines. The airborne divisions may be reinforced with motorized rifle troops that are to be airlanded by transport aircraft.

An airborne assault landing employed to accomplish operational missions in support of a *front* offensive operation is conducted by an airborne division. The depth of such an airborne assault landing can be 300-400 km under nuclear conditions. If only conventional weapons are employed, the depth of the assault landing will be less than the above-mentioned figure. In this case, the landing depth for an operational assault landing will be 150-300 km in conventional war. The depth of an operational-tactical assault landing may be 100-150 km in conventional war, and 250-300 km in nuclear war.

In mountainous areas, an airborne assault force may be composed of one airborne regiment. In this case, the landing depth will be 100-150 km in conventional war or 250-300 km in nuclear war.

Initial Data for the Preparation of Military Transport Aviation to Assault Land an Airborne Division

Preparation of Military Transport Aviation to assault land an airborne division is conducted in peacetime or in war on the basis of the following data:

- the Supreme High Command's directive;
- instructions of the commander-in-chief of the Air Forces;
- the *front* commander's decision;
- the number of forces and means participating in the operation;
- cooperating troops.

In assigning missions to Military Transport Aviation to assault land airborne divisions, the following points are specified:

- composition of the airborne assault landing force, the area and time of the airdrop, and the air transport troops designated to carry out the airdrop;
- nuclear strikes planned against enemy targets in the drop zone and along the route of flight of transport aircraft;

- missions of the arms of troops of Armed Forces' large units participating in the airborne operation and the method of coordination between these forces and the transport aircraft;
- staging areas for the airborne assault landing forces, refueling and supply areas for the transport aircraft, method and time of marshaling Military Transport Aviation and airborne assault landing forces in the staging area;
- organization of control of all forces and means participating in the airborne operation;
- organization of rear service support of transport aviation;
- time of readiness of transport aviation to assault land the troops.

Preparation of Military Transport Aviation

Preparation of Military Transport Aviation to enable it to move and assault land the troops includes the following:

- making the decision and planning the assault landing;
- preparing staging areas for the airborne assault landing operation and refueling and supply areas;
- preparing Military Transport Aviation units and large units for the operation;
- organizing coordination;
- organizing troop control;
- organizing support of transport aircraft.

All the aforementioned measures are interconnected with one another and, therefore, organized in detail under the guidance of the commander and the chief of staff of Military Transport Aviation. A calendar plan, including all necessary measures, is established and the actions of the transport aviation headquarters staff are coordinated with the staff of the airborne assault landing force.

According to experience, the time required for the preparation of Military Transport Aviation to assault land an airborne division, when the mission is received after bringing up the units and large units from the level of constant combat readiness to

the level of full combat readiness and placing them on combat alert, is 25-27 hours. This time will include [as recorded, but not equaling the full 25-27 hours]:

- notification by alert (*opoveshchenie po trevoge*) and moving out—2 hours;
- preparation for the control of Military Transport Aviation large units—18 hours;
- boarding of troops in the aircraft and the completion of aircraft preparation—2-3 hours.

When the mission of the assault landing is assigned to transport aviation in advance, and the aircraft are at the levels of 1 or 2 combat alert flight readiness at permanent or operational airfields, then the time required for preparation is decreased to a large extent and may be 5-7 or 5-8 hours. [Soviet instructors often expressed norms in such terms, rather than, for example, a simpler, inclusive 5-8 hours. They insisted that students make this kind of distinction when learning and using the norms.]

Making the Decision and Planning the Airborne Operation

The decision of the Military Transport Aviation commander constitutes the basis for detailed planning of the preparation of units and large units for assault landing operations and for their control in the course of the operation.

The Military Transport Aviation commander personally makes the decision, relying on his staff and chiefs of services for information. The most important role in making a timely decision is played by the Military Transport Aviation staff. It should provide the following:

- rapid collection and analysis of information and a comprehensive assessment of the situation, particularly the enemy air defense situation;
- detailed calculations in support of effective employment of transport aviation and means to assault land the units and subunits of the airborne division.

At this stage the Military Transport Aviation staff conducts coordinated action with the airborne assault force staff. The

decision of the Military Transport Aviation commander includes the following considerations:

- deductions based upon an assessment of the enemy situation;
- concept of the operation (groupings and methods of landing, the formation for operations (*operativnoe postroenie*) of transport aircraft, flight profile, and maneuver in the assault landing area);
- missions of transport aviation units and large units and their composition, the composition of airborne assault forces, and the designation of departure, main, and reserve airfields;
- direction of flight, and the location of refueling airfields;
- subsequent missions;
- troop control enroute;
- reserves and their composition;
- method of guidance to assault landing zones;
- method of support of Military Transport Aviation by the forces and means participating in the operation;
- method of troop control, and the designation of deputy commanders.

The decision is marked on a map and written instructions are prepared. The Military Transport Aviation command, the headquarters of airborne assault landing forces, and liaison officers of operational formations of the various Services of the Armed Forces participating in the airborne operation jointly organize and work out the landing plan, which is an integral part of the plan of the airborne operation. The landing plan consists of the following three elements:

- the decision of the Military Transport Aviation commander, which constitutes the basis for the plan;
- the table plan of the assault landing;
- the calculation of flights, and their allocation in the assault landing operation.

The landing plan is prepared in written form with a map annex or it is marked on the map with written instructions. The

table of the assault landing is worked out by the airborne division's staff together with the Military Transport Aviation headquarters. The most important elements in the landing plan are the calculation to determine the total requirements in transport aircraft, the timing of the assault landing, the requirements in airfields, materiel reserves, etc. Such calculations are made jointly by the headquarters of the airborne assault landing force and Military Transport Aviation troops.

AIRLIFT REQUIREMENTS The following number of military transport aircraft are required to land airborne assault forces:

- airborne division: 455 AN-12 aircraft, including 415 aircraft to airdrop parachute troops and 40 aircraft to airland the landing group;
- airborne regiment: 80 AN-12 aircraft to airdrop the regiment or one air transport division.

DURATION OF THE AIRBORNE OPERATION The duration of an airborne operation includes the time required for:

- take-off of the aircraft;
- establishment of the combat formation in the air;
- flight time of transport aircraft to reach the drop zones, and the airdrop or airlanding time.

The duration of the airborne operation depends on the number of trips, the length of the route, and the method of landing. The duration of the entire operation will be cut to a minimum when the operation is carried out by one air trip without the aircraft stopping to refuel at intermediate airfields. For example, if an airborne division can be transported in a single air trip and landed by the airdrop method in 4 to 5 hours, the same operation will take 20-28 hours if the division is to land by a combined method of airdrop and airlanding.

Organization of Coordination

The coordination of the actions of Military Transport Aviation with operational formations of the various Services of the

Armed Forces participating in airborne assault landing operations is organized to ensure a successful landing. The method of cooperation is determined by the Armed Forces General Staff.

Questions regarding defending the units and large units of Military Transport Aviation at the departure airfields and along the air routes leading to the zones of *front* air defense forces and means, and the method for warning of enemy aircraft, are coordinated with PVOS.

The following matters are coordinated with the *front* in whose area the transport aircraft conduct the movement and landing of the airborne assault force:

- method for neutralizing enemy air defense means in the transport aircraft flight zone;
- directions and altitudes for the transport aircraft columns during their flight and their cover by *front* fighter aircraft;
- rear service support of transport aviation units and large units by *front* troops at refueling airfields or at the staging area for the airborne operations;
- method of transport aviation control;
- method for carrying out air reconnaissance, weather reconnaissance, and radiation air reconnaissance;
- security for transport aviation over the combat formation of first echelon divisions, and over air defense rocket and air defense artillery positions.

The methods for detecting enemy aircraft and neutralizing enemy air defense means and reserves at the landing zones are coordinated with Long-Range Aviation. More detailed coordination is organized between transport aviation and the airborne division. The nature of such coordination is characterized by the establishment of coordination at all levels, from air transport commander down to the individual aircraft crews. The main planning documents, such as the landing plan, landing table, and embarkation plan, are worked out jointly by the headquarters of the airborne division and Military Transport Aviation formations.

Establishment of Control

For the control of Military Transport Aviation units and large units during the preparation and conduct of the operation to assault land an airborne division, a network of command posts is deployed including the main command post, forward command post, auxiliary command post, and air transport division forward and auxiliary command posts.

The main command post of the air transport command is the principal command post where the decisions are made, and the airborne operation is planned. All matters concerning the airborne operation are coordinated with the commander and staff of the airborne troops. Questions on supporting the actions of Military Transport Aviation are resolved and collection of information and analysis of the ground and air situation in the area of operation is carried out. The main command post of the air transport command issues warning orders to transport aviation troops, assigns missions to transport aviation large units, controls their preparation for the airborne operation and their concentration at airfields in the staging areas, and also controls the preparation and conduct of the flight.

The forward command post of the air transport command deploys in the area of the main or forward command post of the *front* in support of which the airborne operation is being conducted. In the forward command post of the transport aviation force, the transport aviation commander with an operations group will be on hand. The most recent information about the enemy and friendly forces is reevaluated and reassessed, the support of the action of transport aviation is taken care of, and the concentration of transport aviation units and large units at departure airfields and their preparation for take-off are controlled. The decision to initiate the flight is made at the forward command post and, during the conduct of an airborne operation, the forward command post, also located in the air, continues to control the operation of transport aviation units and large units in the air, and maintains continuous signal communication with *front* operational formations and large units to ensure timely support of transport aircraft during their breakthrough of the enemy air defense system.

The auxiliary command posts of the transport aviation force are deployed at the staging area and at the refueling area enroute, where the deputy commander with the operations group is assigned. Here, along with the commander of the airborne division, he confirms the planning table of the assault landing and the missions of air transport units and large units received from the air transport force commander. These missions are elaborated and amplified with the commander and staff of the airborne division. Also the embarkation operation, take-off, and return of the aircraft are controlled from that location. The auxiliary command post deployed at refueling airfields controls the preparation of the airfields and reception of aviation large units, and organizes refueling and supply of the aircraft and their flight in accordance with the decision of the transport aviation commander. The forward command posts of the transport aviation large units deploy in the staging areas and in the refueling areas.

Supporting the Actions of Military Transport Aviation

Measures in support of the actions of transport aviation include support of combat actions, rear support, and special support. These then include:

RECONNAISSANCE Reconnaissance is conducted in order to acquire necessary information on the enemy, terrain, and weather required for making the decision to assault land the airborne assault force. Reconnaissance is conducted during the preparatory stage for the airborne operation prior to the initiation of the operation and in the course of the conduct of the airborne operation.

During the peacetime preparation of transport aviation for airborne operations, the basic form of reconnaissance is from space and by clandestine agent reconnaissance, while air reconnaissance can be conducted only within friendly boundaries.

For the preparation of an airborne operation during the conduct of combat operations, the basic form of reconnaissance is air reconnaissance. In this case *front* and Long-Range Aviation

are called upon to conduct air reconnaissance. The principal reconnaissance tasks at this stage are the following:

- detecting the disposition of enemy ground, air, and air defense forces in the area of the transport aircraft flight path and in the assault landing areas;
- identifying the nature of the terrain and the presence and availability of landing areas to airland the part of the troops that cannot be airdropped;
- finding and establishing orientation points to ensure the guidance and arrival of the aircraft at the airdrop and air-landing zones and providing for their visual and radar observation.

Directly prior to the initiation of assault landing operations the following matters are specified:

- verification and elaboration of changes in the disposition of enemy ground, air, and air defense forces;
- assessment of the impact and consequences of nuclear and conventional strikes launched against enemy targets located in the flight zone of transport aircraft and in the assault landing zones;
- reassessment and verification of the radiation and meteorological situation.

In the course of the conduct of an airborne operation, reconnaissance carries out the following missions:

- following the movement of enemy reserves to the assault landing area;
- locating surviving enemy air defense means;
- reassessing and verifying the radiation and meteorological situation.

SUPPORTING THE PENETRATION OF ENEMY AIR DEFENSES
Support of transport aviation penetration through the enemy air defense is organized in compliance with the instructions of the General Staff of the Armed Forces and in accordance with the plan of combat support of transport aviation. Supporting measures in this connection are as follows:

- neutralization of enemy air defense assets deployed in the transport aviation flight zone, as well as enemy radars and fighter aircraft on the airfields;
- establishment of radio-electronic jamming against those enemy radio-electronic means used by the enemy reconnaissance system, as well as against radio-electronic means utilized in guidance, troop control, and fire control of his air defense artillery.

For the execution of missions to destroy and neutralize enemy air defense means, *front* assets, Long-Range Aviation, and Naval Aviation are called upon. To destroy and neutralize enemy forward radars, reconnaissance centers, air defense rockets, and antiaircraft artillery control and guidance centers located in areas 20-50 km from the line in depth, tactical surface-to-surface rockets and artillery are employed.

Fighter-bomber aircraft destroy and neutralize enemy Hawk and Nike Hercules batteries, and also the fighter aircraft on the airfields, and radars and air defense rocket troop control centers located to a depth of up to 200 km from the front line.

Front bomber aircraft, Long-Range Aviation, and operational-tactical surface-to-surface rockets are assigned to destroy and neutralize enemy air defense means, fighter aircraft on airfields, and command posts located to a depth of 500-800 km from the front line.

Cover for transport aircraft in the air against the enemy air force is provided by fighter aircraft organic to PVOS, and those organic to the *front* air army. The cover for transport aircraft and airborne troops in staging areas is provided by PVOS means.

SUPPORT BY RADIO-ELECTRONIC WARFARE Radio-electronic warfare is one of the most important combat support measures taken in support of transport aviation in the course of the conduct of an airborne operation. The aim of radio-electronic warfare in such operations is as follows:

- in the aircraft deployment area and in the staging area, as well as in the refueling area, radio-electronic warfare

is conducted to support the secrecy of aircraft bases and their cover against enemy air attacks. Radio-electronic warfare accomplishes the following missions in this phase:

- suppressing radio-electronic means installed in enemy reconnaissance and rocket/bomb-armed aircraft through radio jamming operations;
- covering the orientation points at aircraft bases through radio jamming actions.

The following mission is accomplished by special purpose radio troops organic to PVOS, and those organic to the *front*:

- in the course of the aircraft flight and during the airdrop and airlanding operations, as well as during the aircraft return trip, radio-electronic warfare is organized and conducted to decrease the losses in transport aircraft due to attack of enemy fighter aircraft and the actions of his ground-to-air and air-to-air rockets and antiaircraft artillery. The tasks of radio-electronic warfare in this phase are the following:
 - jamming and neutralizing the radars at the enemy fighter aircraft centers, as well as the guidance radars of enemy surface-to-air rockets, by use of all types of radio-electronic jamming;
 - jamming radio-electronic devices installed in enemy fighter aircraft, as well as in his ground-to-air and air-to-air rockets;
 - jamming signal communication means incorporated into the enemy air defense warning system and in the guidance system of its fighter aircraft.

These tasks are carried out by Military Transport Aviation and radio-electronic warfare forces and means, in coordination with *front* special purpose radio troops.

Protection of Transport Aviation Against Weapons of Mass Destruction

Protection of transport aviation against enemy weapons of mass destruction includes a number of measures taken at

departure airfields and in refueling areas. These measures include radiation, chemical, and biological reconnaissance, warning the troops, providing the troops with protective equipment, and eliminating the impact of the employment of enemy weapons of mass destruction. Warning transport aircraft is conducted by means of the *front* or military district warning system in the area where Military Transport Aviation is deployed. Radioactive, chemical and bacteriological reconnaissance is conducted by airborne division troops and airfield technical units. The elimination of the impact of enemy weapons of mass destruction is carried out by airfield technical units, airborne division troops, and chemical troops of the *front* or military district in the area where transport aircraft are deployed.

During the conduct of the airborne operation, radiation reconnaissance in the direction of the aircraft flight path and in the assault landing areas is conducted by *front* aviation and transport aircraft flying 30-40 km forward. The information acquired by air reconnaissance about radiation is communicated to the transport aircraft through all radio nets.

MASKIROVKA Operational *maskirovka* is one of the important measures ensuring a surprise airborne assault landing. *Maskirovka* is organized on the basis of instructions issued by the General Staff of the Armed Forces and the Supreme High Command, and is conducted in peacetime and war within the framework of a unified plan. Operational *maskirovka* in support of Military Transport Aviation is established to ensure secret aircraft concentration in the staging area airfields, and to ensure concealed flight of the aircraft columns to enemy rear areas. For this purpose the flight of transport aircraft is planned in such a way so that they fly individually or in small groups in the area of departure airfields at different altitudes, by-passing large populated areas and limiting use of radio-electronic and radar means for controlling aircraft in the air. Meanwhile, at transport aircraft permanent bases, their normal routine of activity is simulated. During the flight of transport aircraft to the assault landing zones, the flight of small groups of aircraft toward false assault landing zones is simulated.

Throughout all phases of the preparation and conduct of assault landing operations, radio *maskirovka* measures are organized and strictly observed. They may include the following measures:

- where necessary, observing complete or partial radio silence;
- conducting deceptive radio transmissions;
- using radios and radio transmissions in areas of deployment from which transport aviation units and large units have departed.

AIR NAVIGATION SUPPORT Air navigation support of transport aviation actions during assault landing operations includes a system of measures to ensure more accurate and more reliable aircraft navigation to achieve the following aims:

- detailed and accurate organization of the flight, concentration, and establishment of battle formations (*boevoi poriadok*) of regiments and divisions in the formation for operations of transport aviation;
- maintenance of a specific course, altitude, and time of flight by the crew of the aircraft;
- accurate and timely arrival of transport aircraft at the assault landing zones.

Air navigation support is organized by the air navigation service, which mobilizes the forces and means of the air transport force, *front* air armies, Long-Range Aviation, PVOS, and Naval Aviation.

Preparation of Staging Areas for Airborne Operations and Refueling Areas

During the preparation of Military Transport Aviation to assault land an airborne division, special importance is given to the organization of materiel and technical support at the airfields of the staging area and at the refueling airfields.

A staging area for assault landing operations is designated for the preparation of airborne divisions for airborne operations and the conduct of combat actions once dropped or landed. The

staging area includes main and reserve airfields for transport aviation and deployment and assembly areas for airborne troops. The dimensions of a staging area can be 300 x 400 km. The preparation of staging areas for airborne operations includes the following measures:

- preparation and establishment of assembly and waiting areas for the airborne division;
- assembly of engineering assets of the Air Forces and the establishment of POL supplies for the aircraft;
- organization of air defense and protection against weapons of mass destruction;
- organization of signal communications;
- conduct of engineer work, i.e., construction of shelters, roads, etc.

The number of airfields required for deployment of transport aviation regiments depends on the composition of transport aviation allocated for the operation and the requirements of dispersing the aircraft. Normally, for one air transport division consisting of three to four regiments, four main airfields and one to two reserve should be allocated. For the deployment of transport aviation regiments allocated for the assault landing of one airborne division, 20 airfields in the staging area are required, including 16 main airfields and 4-6 reserve airfields. The same number of airfields may be required for other types of aircraft, i.e., Long-Range Aviation, *front* aviation, PVOS aviation, and civil aviation.

Each airfield should support the deployment and take-off of one air transport regiment composed of 25-30 AN-12 aircraft, and shelters should be available on the airfield for personnel and equipment. At each airfield, sufficient POL supplies and airfield technical facilities ensuring the refueling and supply of aircraft in a short time should be established in advance.

The required quantity of POL for refueling one AN-12 aircraft can be around 13-15 metric tons (mt). Therefore, at each airfield there must be up to 500 mt of POL, while in all airfields allocated to Military Transport Aviation conducting the assault landing of an airborne division, there must be a total of 10,000-12,000 mt of POL.

To provide technical support at the airfields, in addition to the rear service support troops of transport aviation, rear service units of PVOS aviation, and those of Long-Range Aviation, *front* aviation, Naval Aviation, and civil aviation are called upon as well.

The dispersal area and the waiting areas for units and subunits of airborne divisions are selected in areas where they can prepare themselves for airborne operations, and for combat actions in the enemy rear.

Within the dispersal area, troop unit assembly areas are selected at such a distance from the departure airfield that units of an airborne division can move from assembly to waiting areas in one night. The waiting areas are selected at a distance of 5-10 km from the departure airfield in places that can ensure concealed troop deployment and their covered movement to the airfields, as well as their protection against nuclear weapons. Airborne units and subunits do not remain on the airfields more than 24 hours before their embarkation.

Fueling area locations for transport aircraft are specified at a distance of 200-300 km from the front line. They include airfields which can ensure landing and take-off operations of transport aircraft day and night and under normal and difficult weather conditions, and ensure the refueling of aircraft in the shortest possible time. No less than one airfield is allocated to each air transport regiment.

The landing, refueling, and take-off of one air transport regiment take two to three hours. Preparation of the airfields at the refueling areas includes the same measures as taken to prepare the staging areas for airborne operations.

Rear service support of transport aviation at the airfields of the staging areas, as well as in refueling areas, is centrally organized in accordance with the rear support plan of the airborne operation.

***Assembly of Military Transport Aviation at Departure Airfields,
Embarkation of the Troops for the Airborne Operation***

The process of preparing Military Transport Aviation to lift an airborne division includes the assembly of transport aviation

units and large units at the staging area airfields and the embarkation of the airborne division in the aircraft.

The prolonged presence of transport aircraft and airborne division units at departure airfields is not allowed, since the enemy may detect the aim of the airborne assault force and may launch decisive strikes against the troops, foiling the airborne operation.

The commencement of the airdrop/airlanding (*Ch-chas*—H-hour) is specified by the Supreme Commander-in-Chief or the *front* commander and conveyed in advance to the transport aviation commander-in-chief and the commander of the airborne division. On the basis of the H-hour thus specified, the time anticipated for the movement of transport aircraft into departure airfields, the embarkation of the troops, refueling of the air transport force, and the take-off of the aircraft would total seven to nine hours. The command for take-off of transport aircraft from the staging area airfields is given by the transport aviation commander from his forward command post, located at the *front's* main or forward command post.

The transport aircraft fly to the departure airfields from their permanent bases secretly, at low altitudes, and in strict observation of concealment measures.

The embarkation of troops at the departure airfields is conducted according to prepared plans for each airfield. Such plans are established in advance by representatives of the transport aviation force and those of the airborne unit. The embarkation of airborne units is controlled by the commanders of air transport regiments.

Initially, that combat equipment, including vehicles and cargo, which requires two to three hours loading time, is loaded in the aircraft. This would end 30-50 minutes before take-off. Simultaneously, the aircraft are filled with fuel. Then the air transport regiments are brought to level 2 of combat flight readiness. The embarkation of personnel on the aircraft ends 10-15 minutes before turning on the aircraft engines. The air transport regiments are brought up to level 1 of flight readiness.

III. Assault Landing of an Airborne Division

An airborne operation includes the take-off and establishment of the aerial combat formations of the air transport regiments and divisions, penetration through the enemy air defense, the arrival of units and large units over the assault landing zones, and the dropping (landing) of the assault force.

Take-off and Establishment of the Battle Formations of Air Transport Regiments and Divisions

The aircraft based on the airfields are refueled and, simultaneously, combat equipment, ammunition, and other cargo requiring one hour's loading time are loaded in the aircraft. The equipment and loads on board should be controlled and secured to avoid their movement in flight. Then the troops are embarked in 10-20 minutes, followed by the aircraft crew. The aircraft take off on command. They take off individually at one-minute intervals.

When the regiment is in the air, it forms the appropriate combat formation. [See page 96 for a variant of a regimental combat formation.] Every three aircraft form a wedge formation. This battle formation for an air transport regiment in the daytime can have a flight speed of 500 km/h, with the depth of the regiment's battle formation being 32 km.

At night when the air transport regiment assumes a column-type battle formation with aircraft following one another at 30-second intervals, the depth of a regiment's battle formation will be 110 km. The same type of battle formation will be assumed in clouds. The airdrop time of the regiment in daylight is 4 minutes, while it will be 13 minutes at night.

The battle formation of an air transport division consists of the battle formation of its air transport regiments. The interval between the regiments within the divisional formation is two minutes. The depth of a division's battle formation is 180 km in daylight and its airdrop time will be 25 minutes. At night, the depth of air transport battle formation will reach 900 km and its airdrop time will be 1 hour and 47 minutes. An air transport division normally flies on two axes, but it may also fly on one

axis. The figures mentioned above belong to a division flying on one axis in columns of aircraft.

Arrival of Transport Aviation Units and Large Units at the Assault Landing Zones

The battle formation of an air transport regiment consists of a support [covering] group (*gruppа obespecheniia*) and an assault landing group (*gruppа desantirovaniia*). [Illustrated on page 96.] The support group flies in the lead and consists of reconnaissance, guidance, and radio-electronic jamming aircraft. The assault landing group consists of transport aviation units carrying airborne assault forces.

Initially, the reconnaissance aircraft arrive at assault landing zones and validate the report that the enemy is not present on the ground. The air transport regiment commander receiving such a report instructs that the mission be executed according to the plan. Then the guidance group (*gruppа navedeniia*) leads the way to the assault landing area, followed by the assault landing group.

The guidance group reaches the assault landing zone 20-25 minutes before the arrival of the assault landing group. It consists of aircraft flown by experienced pilots and air navigators. The guidance group drops the commandant's group (*gruppа komendaturny*) or landing support team. Once on the ground, the machine gun crews establish a defense. The signal operators in the team open their radio sets and report to the commander. The radio beacon operators move into action and establish communication with the aircraft. Then the assault landing group starts to jump (land).

Air Transportation of Materiel to the Assault Landing Zone of an Airborne Division

An airborne division carries materiel reserves for two days. This is the amount of POL, ammunition, and food that is carried by divisional means and is landed at the same time as the division's assault landing in specified areas.

The division consumes 250 metric tons (mt) of various kinds of materiel each day. The replenishment of an airborne division with materiel by transport aircraft is begun on the second day of the airborne operation. Transport aviation supplies 250 mt of various materiel items each day to an airborne division in its area of operation. This requires the allocation and employment of 20-25 AN-12 transport aircraft, which constitute one air transport regiment. The airborne operation of the division itself requires the employment of 455 AN-12 transport aircraft, while its daily supply and maintenance in the area of operation will require one transport aviation regiment each day. An airborne division can conduct a mission independently for six to seven days. [This is a potential which, while judged possible to realize, was not as desirable as a shorter link-up period. The optimum link-up time is indicated in the next sentence.] A division should be assault landed at a distance so that the main forces reach it after two to three days. The distance of the main forces to the landing area can be 150-300 km [in the depth of enemy defenses].

Principles of the Combat Employment of Military Transport Aviation for the Materiel and Technical Support of the Ground Forces by Air

Air transport movements are of two types:

- at the level of Supreme High Command they are conducted in accordance with the plan of the Supreme High Command for the purpose of movement from the rear or from the interior of the country to a *front* or between *fronts*;
- air movements within a *front*, which are organized by the *front* commander.

Air movements are more advisable for long distances, since the average speed of movement increases as the movement distance increases. For example, the speed of air movement at a distance of 500 km will be 50 kilometers per hour (km/h), while it will be 215 km/h at a distance of 3,000 km. The average speed of air movement at a distance of 6,000 km is 250 km/h. This is because in each air movement operation there are certain things to be accomplished no matter how short, or how long.

the movement distance to be covered. This can be illustrated as follows [while not listed below as an element of calculation, the above-mentioned figures apparently include time expended for refueling when longer distances are posited]:

- troop movement and cargo transportation for embarkation at the airhead: 2 hours;
- embarkation and loading: 4 hours;
- debarkation and unloading: 3 hours;
- cruising speed: 500 km/h.

These nine hours spent in embarkation and debarkation will be equally required in short- or long-range air movements. This will be added to the air travel time, at 500 km/h, and then the average speed of air movement will be determined. Therefore, the greater the air movement distance, the higher the average speed of the movement.

Military Transport Aviation Requirements for Air Movement

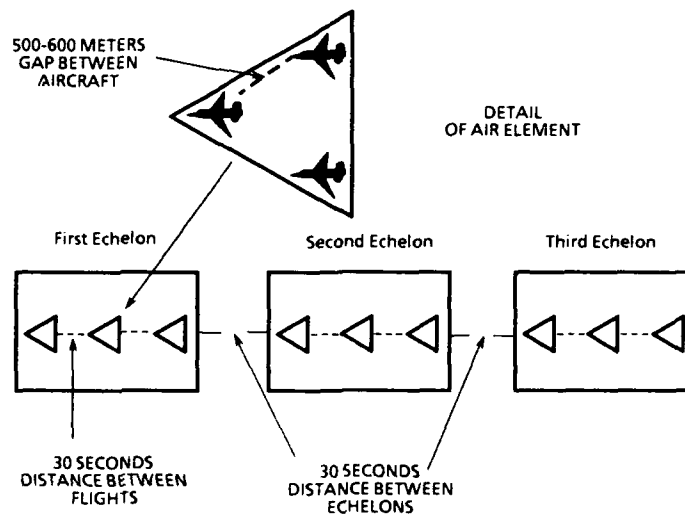
The requirements, in transport aircraft, to move different army units or supplies can be shown in figures as follows:

- for air movement of a motorized rifle division without its heavy vehicles and equipment: AN-12—803 aircraft;
- for air movement of a motorized rifle regiment without its heavy vehicles and heavy equipment: AN-12—138 aircraft;
- for air movement of an artillery regiment: AN-12—122 aircraft;
- for air movement of one unit of fire, one set of equipment (*imushchestvo*) [technical supplies like repair parts], and one refill of POL for one motorized rifle regiment, the employment of one air transport regiment is required;
- for the airdrop of one airborne division, 4 [AN-12 equipped] air transport divisions are required;
- for airdrop of one airborne regiment, one [AN-12 equipped] air transport division is required.

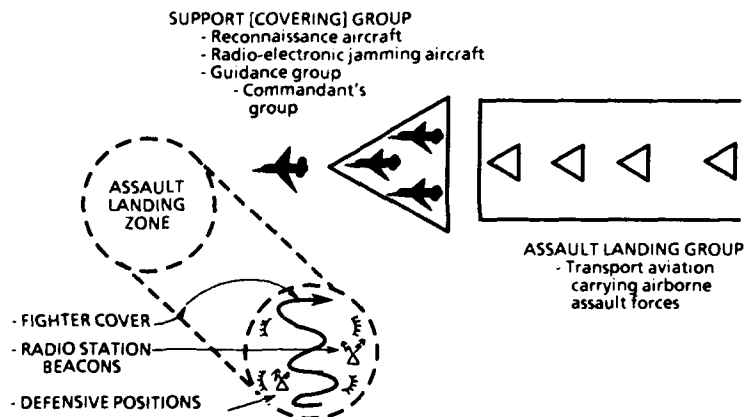
*Basic Tactical and Technical Data
for Military Transport Aviation*

AN-12BK transport aircraft:	
—Crew	7
—Maximum speed (km/h)	683
—Average speed (km/h)	500
—Altitude (ceiling) (m)	12,000
—Weight in flight (tons):	
Maximum	61
Minimum	54
—Range with full fuel tanks (km)	6,450
—Load capacity (maximum) (tons)	20
—Load capacity (normal) (tons)	10.6
—Troop capacity:	
Soldiers	93
Paratroopers	60
Wounded	80
—Tactical radius (km)	900
AN-22 transport aircraft:	
—Crew	7
—Maximum speed (km/h)	710
—Average speed (km/h)	[?]
—Altitude (ceiling) (m)	11,000
—Weight in flight (tons):	
Maximum	225
Minimum	196.5
—Range with full fuel tanks (km)	8,800
—Load capacity (normal) (tons)	50
—Troop capacity:	
Soldiers	235
Paratroopers	152
Wounded	177

COMBAT FORMATION OF A MILITARY TRANSPORT AVIATION REGIMENT: VARIANT WITH THREE ECHELONS



COMPOSITION OF MILITARY TRANSPORT AVIATION COMBAT FORMATION DELIVERING ASSAULT LANDING FORCE





CHAPTER FIVE

The Principles of the Employment of Military Space Means

I. Introduction

On the 4th of October 1957, the first man-made satellite was launched into outer space. Since then, many satellites and space vehicles (*kosmicheskoe sredstvo*) have been launched to the Moon, Venus, and Mars. [The term *kosmicheskoe sredstvo* is translated broadly as "space means," and more narrowly as "space vehicle" or "space device," depending on context and the specificity of usage]. Americans are exploiting space for military purposes and 70-80 percent of their space devices are so designed, including 30-40 percent for military reconnaissance. The Soviet Union is also seriously developing and improving its satellites and other space means which are utilized for strategic and operational purposes.

II. Military Space Means and the Circumstances of Their Employment

The Main Elements of Military Space Means

- Military space vehicles with launchers to place them into space orbits;
- Launch bases for space vehicles;
- Command and data processing complexes;
- Complexes for reception, transmission, and processing special information;
- Search and recovery complexes.

The practical utilization of the elements of military space means is conducted in the context of a space system.

Space System

A space system is the grouping of forces and means located in space and on earth that is required to carry out specific processes and tasks with the assistance of specific types of space equipment.

Therefore, the system is determined first of all by the nature of the missions to be carried out and by the type of space means, regardless of their number, operating in space orbits. Moreover, the system should include all other means, such as launch means, control and communications means, and others, without which the accomplishment of its specific missions would otherwise not be possible.

Depending on the composition of the equipment and weapons integrated into the space devices, the systems can be designated for a single or many different purposes.

So far, single-purpose space systems have realized more development and progress. Some of these are the geodesic, meteorological, communications, and other systems that are under development. However, at present, multi-purpose space systems with instruments mounted on satellites to accomplish several different missions have begun to be developed more widely.

The following can be included in the composition of space systems:

- single-purpose space instruments placed in space in specific orbits. One or a number of such instruments can be included in one space system;
- space vehicles ready to launch with their carriers on launching pads for deploying new space systems, reinforcing active space systems, and correcting the system in case the space instruments fail to operate and for other purposes. Each system usually includes two to three launching systems;
- two to three command and tracking centers, an electronic data processing center, and other command and tracking elements of the complex required for flight control of space vehicles and control of their operation in space;
- three to four reception centers to receive information from space vehicles. Such centers are connected by communications links with information collection and analysis centers;
- search and recovery complexes, which observe and scan space vehicles returning to the earth's surface and provide for their recovery and evacuation;
- system command posts, from which the control of the system's operation is exercised.

It should be noted that elements such as launch systems, command and tracking centers, electronic data processing centers, communications links, and others can generally be the same for a number of different space systems.

Employment Considerations

Employment conditions for space are determined by the aim and nature of the war, the missions of the Armed Forces, and the physical characteristics of space.

'Outer space, in a broad sense, consists of the entire universe. In space science, space is divided into the earth's outer space and the space between the stars. The physical characteristics of space are wide dimensions, deep vacuums, special temperature

conditions, special effects of solar radiation in all spectra, the presence of waves of large particles of energy, and meteors. In the space immediate to the rotating earth, the atmosphere and its radiation belt produce major effects.

When studying space and its effects on combat capability on earth, we should take that part of space into consideration which surrounds the earth, and in which space means are deployed and military actions are taking place.

Regarding its physical nature, level of study, and practical utilization, space is divided into two areas: immediate space and remote space. Immediate space is the space around the earth up to one thousand kilometers. The lowest boundary of such space is sixty to seventy kilometers from the earth's surface depending on technical capabilities of the space vehicle's flight, the initial space speed in the upper zones of the atmosphere, and the national sovereignty of world nations.

In such areas, the equipment and crews of space vehicles are able to fly and accomplish missions without equipment protecting against the effects of cosmic radiation. Practically, at the present time, significant importance in immediate space is given to the areas higher than 120-150 km, where effective employment of different space systems, such as reconnaissance, meteorological, topogeodesic, space communications systems, and also earth orbiting craft, is possible.

This is confirmed and supported by the modern situation in space. For example, in recent years 70-75 percent of military satellites operate in the immediate space around the earth. Remote space is a part of space around the earth located at the outer limits of immediate space. The study and utilization of remote space for military purposes have recently commenced. At the present time, the space in which military space means are operating has a radius of 100,000-110,000 km. In the future, the upper orbits of space will be utilized, and the entire space around the earth may be used for military purposes.

The earth's radiation belt is located in remote space, at an altitude between 1,000 and 40,000 km. Satellites can be placed in permanent orbits at an altitude of about 36,000 km. Such orbits are anticipated in the future for observation and early

warning systems to give warning about enemy nuclear attacks, for intercontinental communications systems operating on a real time basis, and for intercontinental guidance systems.

Space devices operating in remote space should be provided with assured protection around their bodies to shield instruments from the earth's radiation zone.

III. Military Characteristics of Space Means

In comparison with other equipment, military space means have particular combat characteristics as follows:

- continuous movement at a high speed: the employment of military space means assumes that specific space devices in the future will be able to remain in orbit for a long period of time. This provides the possibility for establishing and utilizing multi-purpose space systems capable of operating for a long period of time in space;
- intercontinental nature of the actions of space means: the wide movement of space means requires that they be used to conduct missions on an intercontinental scale. This is supported by the following:
 - their extremely wide observation area and effective range, as well as their enormous range of transmission, which expands as their flying altitude increases;
 - their enormous flight capabilities around the earth at a very high speed in a short time;
 - regular space vehicle overflight in various areas of each TSMA;
 - the ability to keep space vehicles aloft for a prolonged period of time;
- the possibilities for the use of space means to accomplish different tasks: the capabilities of space vehicle flights at different altitudes (from 60-70 km up to hundreds of thousands of kilometers), along with the international nature of space, provide opportunities to employ military space means in both peacetime and war. They are used for conducting reconnaissance missions, different measurements

(data collection and their calculations), and signal communications in extremely wide dimensions and over long distances:

- the capabilities for establishing different groupings of space means: space is an enormous and extraordinarily large region that offers practically unlimited possibilities for the deployment and concentration of different space systems. Therefore, the establishment of space system groupings can provide for different forms and methods in accomplishing various missions;
- the need for early deployment of the groupings of military space means: the deployment of space systems requires much time for establishing launch bases, control complexes, and data and information reception centers, and for placing space devices into orbit. Therefore, the principal elements of the systems should be deployed sufficiently in advance;
- technical difficulties and expense of military space means: construction of space means, their launch and control means, and also maintaining space means in the necessary state of combat readiness require enormous financial and material expenditures. Therefore, it is better that military space means be used only for the most important tasks which cannot be accomplished by other space means effectively.

IV. Missions, Role, and Place of Military Space Means

Military space means are assets of the Supreme High Command and are used centrally. They are designated to carry out independent missions, as well as joint missions with other means to support their employment for the use of all Services of the Armed Forces. In the future, they will be used to accomplish combat missions.

Depending on the characteristics of their missions and the condition of their execution, military space means can be classified into two groups: space means of support and space means of control:

- military space means of support: these include reconnaissance means, ship and aircraft guidance means, meteorological and geodesic support means, and also radio-electronic warfare means. Such means are designated to support the combat actions of different Services of the Armed Forces in various forms of strategic action. In peacetime, as well as in the period of threat (*period ugrozy*) when the threat of war is likely, military space means are also used to support troop actions, and specific preparations of the Armed Forces are conducted in a timely manner. Their wide utilization is based on many factors, principal among which are the requirements of the Supreme High Command and commands of the various Services of the Armed Forces to support planned and ongoing operations;
- military space means of control: these are primarily space communications means and will include, in the future, space command posts. These means are designated to ensure constant control of the Armed Forces and Armed Forces' groupings in peacetime and in the course of war. They are appointed for the conduct of strategic and operational signal communications.

The role and scope of military space means should be determined in accordance with the character of contemporary and future wars, the essence of which constitutes the basis of Soviet strategy. This basis presupposes that the aim of war is achieved through the unified efforts of different Services of the Armed Forces. Therefore, military space means will be utilized in the interests of the Air, Naval, and Ground Forces.

At the present time, more developments are taking place in military space means of support. Therefore, it will be better that initially the role and scope of such means, in compliance with their missions, be determined. One of the important supporting tasks in a military action is reconnaissance of the enemy, for the accomplishment of which forces and means of all Services of the Armed Forces are allocated. Due to the changes in the characteristics and the nature of modern war, as opposed to

former wars, and the expansion of the role of surprise in modern war, the requirements, content, dimensions, and time of acquisition of intelligence about the enemy have profoundly and rapidly developed.

Military space means have great potential to conduct reconnaissance on every continent, in war and in peacetime, without causing international problems and without limitations. Other advantages of space reconnaissance means include the quickness and continuity of reconnaissance, rapid acquisition and transmission of information about the enemy, and the ability to provide information in a short time about overseas targets and targets located in other TSMA's. Space reconnaissance is widely and intensively conducted in peacetime during the preparation and planning of the actions of friendly forces and also in the period of political or military threat, when the employment of other reconnaissance means becomes very limited or practically impossible.

The most important task of space reconnaissance is timely disclosure and early warning about the initiation of an enemy nuclear attack. Successful accomplishment of such a task will provide the Armed Forces with capabilities to repel the attack and will ensure limitation of the casualties likely to be inflicted on Warsaw Pact bloc countries resulting from such attacks. Contemporary land-based air defense radars can detect the flight of intercontinental ballistic rockets within 12 to 15 minutes prior to their arrival on target and can detect low-flying aircraft 3 to 5 minutes before they pass over the international boundaries. Obviously, such times are not sufficient for the organization of countermeasures and the destruction of rockets and aircraft at the required distance from targets under cover.

Land-based, over-the-horizon, backscatter radar stations can detect enemy ballistic rockets in their launch phase at a distance of 10,000-12,000 km, but it should be noted that such radar stations have less power to allow them to accurately and sufficiently determine the location of the launch sites of these ballistic rockets. Practically speaking, with the aid of such stations, only the launch action and the location of the launch can be determined. Moreover, such radar stations are very sensitive

to the ionosphere and cannot detect rockets higher than the ionosphere.

An early space detection observation system is capable of detecting the launch of enemy intercontinental ballistic rockets 20 to 25 minutes before they reach their targets. In this case, when air defense means are kept in a constant high level of combat readiness, the repulsion of the enemy attack can be organized. The space-based early detection system should be established in advance and must operate continuously for a long period of time. This in itself ensures constant observation and detection of the enemy and minimizes the chances of an enemy surprise attack, which, in terms of modern warfare, constitutes the principal and deciding factor in seizing the strategic initiative and achieving the aim of the war.

In the decisive phase of nuclear war, following initial nuclear strikes, it becomes necessary to assess their consequences in order to make a decision to launch subsequent strikes. Space means are considered the only means of conducting reconnaissance in this respect. Depending on the nature and characteristics of assigned missions, space systems can be employed to the maximum to check and assess the consequences of nuclear strikes at the stages of nuclear action.

Despite the expanded role of space reconnaissance, other reconnaissance forces and means should also be utilized. Space systems supplement other reconnaissance forces and means and increase the capabilities of strategic reconnaissance in general.

Because of the intercontinental dimensions of modern war, the need for guidance support of forces and means conducting combat missions in distant continents and remote naval areas becomes very important. This is primarily connected with submarines and surface ships, Long-Range Aviation, and rocket-armed Naval Aviation, which operate great distances away from their bases. As exercises and operations indicate, land-based and aircraft-based guidance systems and instruments, which are complex in construction, possess inadequate protection against jamming, and also have a limited range of action, do not always ensure the accuracy required in destroying assigned targets.

With the aid of space means, intercontinental guidance systems, which will be secured to an extent against radio-electronic jamming and will ensure the cruising of submarines and ships, and the flight of aircraft under all meteorological conditions, day and night and in any part of the globe, can be established to operate continually over many years. Moreover, with the aid of space guidance systems, the capabilities of ensuring the accuracy of landing airborne and seaborne assault formations in the extreme rear areas of the enemy are at hand. The use of space means to guide ships and aircraft totally enhances the combat effectiveness of their actions. Still, space means do not replace other guidance systems, but supplement them and largely increase guidance capabilities as a whole.

To ensure the effective use of strategic nuclear forces, topogeodesic support of their actions is of significant importance. Existing space geodesic systems provide the capabilities to aim at targets and strong points with high accuracy and, accordingly, calculate their exact coordinates. For example, geodesic satellites can determine the distance between points on different continents within an accuracy of 30 meters. Constant knowledge of the meteorological situation and meteorological forecasts are of vital importance in planning and conducting the operations of the various Services of the Armed Forces. During a war, the acquisition of information about the weather in enemy territory with the aid of existing ordinary means is not regularly possible. Space means provide the capabilities to observe, with specific frequency, large areas of the earth's territories and collect information required to forecast the weather, radiation, and temperature situation in each TSMA. Therefore, space means play a major role in assessing the meteorological situation, primarily in support of the Strategic Rocket Forces, Long-Range Aviation, the Navy, and the Ground Forces in the TSMA.

Presently in the Soviet Union the space meteorological system, including "Meteor"-type earth satellites and their land-based installations, is being used. "Meteor"-type earth satellites rotate around the earth in a polar orbit at an altitude of 870-905 km and ensure weather observation in all regions of the

world at six-hour intervals. A pair of such satellites can provide meteorological data on one half of the globe in 24 hours. "Meteor" earth satellites are equipped with television, communications, and other equipment, which can record the reflections of the clouds, snow, and temperature, day and night, from the earth's surface, and provide the measurement of radiation received on the earth and in the atmosphere which is reflected from them. The processing of all meteorological information automatically received from satellites takes one and a half to two hours.

In the future, the problem of the combat use of space means of radio-electronic warfare should also be anticipated. Such space means, with other special means in orbit, should carry out missions to jam radio communications at the operational control echelons of enemy armed forces, and to jam their air defense radio-technical means, antirocket means, and antiship defenses.

In modern wars, control of the Armed Forces operating in extensive land, air, and sea areas is of particular importance. In this connection, continuous and precise control of forces and means should ensure continual signal communications, which are provided by multichannel fast action signal equipment with high resistance against jamming, which can automatically ensure the secrecy of the communications. Control of military space means which have recently been introduced into the space communications system is designed to ensure continuous and firm control of the Armed Forces in war and peacetime.

Military space means face the most difficult control tasks during the intensive phases of war when the establishment of continuous and steady control of the Armed Forces' groupings in the TSMA, particularly with groupings that participate in the launch of nuclear strikes and repulsion of enemy air and space attacks, may become vital.

Existing signal communications means have achieved extensive improvements at the present time, but they are not adequately immune to jamming and their elements and equipment are not secured against enemy nuclear strikes. At the same time, space means are less likely to be neutralized by enemy jamming and, therefore, should be utilized to ensure not only continuous

control of the groupings of forces in the TSMA, but also the control of large units and separate units and combat task forces operating in the most remote areas in war or in peacetime.

An analysis of ordinary and space communications means indicates that they are better able to provide the control of the Armed Forces at the following echelons:

- Supreme High Command (General Staff of the Armed Forces);
- commands of the various Services of the Armed Forces;
- commands of the groupings of Armed Forces in a TSMA.

The space communications system ensuring the control of the Armed Forces is organized through the application of the principle of establishing orbiting space communications, which includes "Molniia" earth satellites, and land-based static and mobile reception and transmission communications centers. "Molniia" satellites are placed in orbit at an altitude of 40,000 km in the northern hemisphere and 500 km in the southern hemisphere. The operation of three such satellites provides round-the-clock telephone, telegraph, and television communications over long distances for all Warsaw Pact countries.

Generally, the employment of space means for troop control does not limit the use of ordinary communications means, but widely increases and supplements the capabilities of all signal communications systems of the Armed Forces.

V. The Employment of Military Space Means in Strategic Operations in a Continental Theater of Strategic Military Action

Strategic operations in a continental TSMA are the sum of the strikes of Strategic Rocket Forces, operations and combat actions of Ground Forces, Air Forces, PVOS, and Navy operational formations to destroy the enemy's armed forces within the entire limits of the TSMA, seize the main areas of enemy territory, and eliminate some of the enemy's allies from the war.

To support the various Services of the Armed Forces participating in strategic operations in the TSMA, space systems

capable of accomplishing the following tasks, in coordination with other means, should be deployed in advance.

During Preparation and Planning of the Strategic Operation

- gaining information about combat composition and changes in enemy nuclear-armed groupings of forces and their ground components, concentrations of enemy combat and engineer equipment, their air forces on the airfields, transport ships and landing craft in seaports and embarkation or debarkation areas;
- disclosing installation targets in enemy control systems in the TSMA, such as the identity and location of large headquarters, main and alternate command posts, signal centers, radar stations, and various other radio-technical means;
- confirming reconnaissance information about engineer work and preparation of the entire area of the TSMA, and the preparation of individual strategic directions such as defensive lines, communication routes, river crossing means, shelters for combat vehicles and equipment, etc.;
- providing and ensuring reliable control of operational formations and large units of various Services of the Armed Forces during mobilization, deployment and concentration;
- providing the staffs and the troops with timely information on the enemy's direct preparations to initiate combat actions in the TSMA, warning about the threat of enemy nuclear attacks, and supporting the transition of friendly armed forces to the required level of combat readiness.

During the Conduct of Strategic Operations

- detecting early the initiation of enemy combat actions and rapidly communicating the matter to the Supreme High Command, General Staff of the Armed Forces, and the Main Staffs of the Ground Forces, Strategic Rocket Forces, the Air Forces, Navy, and PVOS;
- providing firm and continuous troop control in the TSMA under all the complex and difficult conditions of the

situation, particularly during initial nuclear strikes by the *fronts*, and following enemy use of nuclear weapons on the combat formations of friendly forces and on targets in the operational depth;

- reconfirming information concerning enemy force groupings in the TSMA, including enemy nuclear delivery means, air forces, combat ships, transport ships, and landing craft, and disclosing the changes in the location of enemy targets, in the routine of his control and signal systems, and in the routine of his radio-technical means;
- providing reliable guidance of flights of *front* aviation, transport and airborne aircraft, and also of the combat actions of naval forces;
- meteorologically supporting operational formations and large units of the Armed Forces participating in the operations;
- assessing the consequences of nuclear strikes in the TSMA.

VI. The Form of Combat Employment and the Principles of Combat Readiness of Space Means

Forms of Combat Employment

An analysis of the missions of military space means indicates that such missions can be accomplished both in war and peacetime by one or a number of space devices. Depending on the number of such devices employed to accomplish desired missions, generally two forms of combat employment of military space means are known:

- individual actions of military space means;
- group actions of military space means.

INDIVIDUAL ACTIONS Individual actions of military space means are organized when the missions can be accomplished at a specific time, with the required effectiveness, by one space device, and also when a prolonged and extensive action against

the enemy is required. In the latter case, the time interval between individual space devices is determined by the nature of combat missions and the amount of time required to disclose changes in the nature of the actions of enemy targets. This is an exclusive form of action to accomplish reconnaissance and follow-up reconnaissance missions on individual targets, assess individual nuclear strikes, and carry out other missions in continental and oceanic TSMA's.

GROUP ACTIONS OF MILITARY SPACE MEANS This form of action is designed to establish groupings of space means which are capable of accomplishing the desired broader combat missions at a specific time with a required effectiveness. This is considered the basic form of action and used when different space systems are employed to conduct space reconnaissance missions, detect and disclose in advance the initiation of enemy nuclear attack, provide communications, and guide ships and aircraft. Military space means can be used to conduct different missions. Their actions in space are primarily directed in support of combat actions of the various Services of the Armed Forces.

To conduct the required missions, space means included in specific space systems, which usually operate in an understrength organization in peacetime, are used. Their deployment, until brought up to full strength, depending on the reserve means, is conducted secretly prior to the initiation of combat actions. The typical time for the employment of space systems can be the period of political and military threat, when the outbreak of war is most likely.

Depending on the situation and the nature of missions to be accomplished, individual space systems can be progressively deployed as it becomes necessary. The system established in advance may need to be brought up to full strength and redeployed. Therefore, to bring an active system up to full strength and deploy the new systems, on-call space means in an on-call duty (*dezhurstvo*) status are organized at the launch bases and in space.

On-Call Duties of Launch Platforms for Space Means

On-call duty at launch bases provides for the placement of the components of space means at different levels of combat readiness, which ensures the timely accomplishment of missions in accordance with the actual situation. In case of a period of political and military threat, as well as at the beginning of the war, and for some systems required to be at a high level of readiness, for which it is likely that space means will be widely used, even in peacetime, on-call space means on the ground, as well as in space, are established in a timely fashion.

With an on-call duty status at the launch bases, space means can be employed to conduct support missions in the interest of the Armed Forces, ensure troop control, conduct missions for early detection of enemy nuclear attack, maintain signal communications, and provide guidance and meteorological support. On-call space means at the launch bases are also used to bring the active space systems up to full strength and establish new space systems.

The establishment of on-call space means in space is designed for the early establishment of a grouping of space means which is capable of the timely accomplishment of assigned missions in accordance with the commands given from the earth's surface. On-call duties in space ensure the accomplishment of missions in the shortest time, particularly at crucial stages and in a period of threat, but they require using and expending a large number of space means. On-call duties in space are planned and organized for early detection of enemy nuclear attacks and the conduct of other missions. Such on-call duties which necessitate the deployment of a number of space means are designed to promote the operation and broad effectiveness of related systems.

Principles of Combat Readiness

Space means conduct missions in support of the Armed Forces in war and peacetime and during the conduct of combat actions. Therefore, it is required that such means be in a state of constant readiness in orbit and at the launch bases to carry out

their assigned missions. Space means assigned to conduct reconnaissance missions detect in advance the enemy's intention to launch a nuclear strike, and guide ships, submarines, Long-Range Aviation and rocket-armed Naval Aviation; the space means assigned to ensure signal communications for commanders and staffs are also required to be in the highest state of combat readiness.

An analysis of the likely nature and characteristics of future war and the circumstances under which military space means will be employed indicates that combat readiness of space means should be such at the launch bases and in orbit that it allows them to accomplish missions at a specified time with a specified effectiveness.

[When discussing the principles of the employment of military space means, the instructor for strategy at the Voroshilov General Staff Academy said that although currently placing nuclear rockets in space was very expensive, in the future it will be possible to deploy them in space, and for nuclear weapons there is no more secure place. Command posts equipped with various communications means will also be put in space to ensure more security and effective control. Therefore, requirements and needs will arise to bring active space systems to full strength and to deploy new space systems.]

Therefore, the basis for assessing the combat readiness of space means is the timeliness of the accomplishment of their assigned missions and the effectiveness of such means. Military space means should be in such a state of combat readiness so as to comply with the political and military situation, as well as with the operational-strategic situation. Generally, the levels, steps, and indices of space means combat readiness are the same as for the combat readiness of Armed Forces as a whole, the most important of which is the detailed quantitative and qualitative assessment of space means required for the accomplishment of specific missions.

The readiness of space means should be compatible with the readiness of the troops in the interest of which the space means are used and accomplish supporting missions. The reason is that the Armed Forces carry out various missions, both in war and

peacetime, and space means are particularly required to support the accomplishment of their missions.

In peacetime it is not necessary that all space means be kept in the highest state of readiness. In this case space means are launched into orbit according to plans to supplement systems operating in space and systems which are newly deployed. Accordingly, the state of readiness is specified for different means. In peacetime early reconnaissance space systems, systems for early detection of enemy nuclear attacks—before they are launched—and guidance systems are required to be in a high state of readiness.

During a period of political and military threat, when the threat of war is most likely, the combat readiness of space means is raised considerably. In this phase, new and adjusted missions may arise which may require space means, and, accordingly, the requirements of the Armed Forces, such as the maintenance and support of continuous control by such means, will develop.

With the outbreak of war, space means in orbit, as well as land-based space means, are brought up to a higher level of readiness. The launching of space means is greatly expanded, and redeploying all main space systems and bringing them up to full strength through the use of reserves will become necessary. The aforementioned principles of combat readiness of space means meet the requirements of peacetime, the period of political and military threat, and the conduct of combat action by the Armed Forces. In such readiness, it is required that appropriate relations be established between on-call and operating space means both in orbit and on the earth's surface.

VII. Conclusions

Military space means have specific characteristics, i.e., their intercontinental operation, the ability to stay and operate for a significantly long time in orbit, and the ability to accomplish varied and different missions, both in war and in peacetime. Consequently, military space means can accomplish missions concerning support and control of the Armed Forces more

actively than ordinary means. Therefore, significant importance is given to the broad use of space means for support purposes and for promotion of the active operations of Ground Forces, Air Forces, the Navy, and PVOS and Strategic Rocket Forces. Space means have extensive capabilities to conduct various support missions and to ensure control of the Armed Forces. Space means, in conducting such missions, do not supplant other means, but only supplement them. Therefore, it is better, and recommended, that military space means be primarily used to accomplish those tasks and missions which other means cannot accomplish with more dynamism and effectiveness.

The utilization of space means in war, as well as in peacetime, widely increases the capability of the Armed Forces and upgrades their combat readiness, and helps and facilitates the effective employment of various Services of the Armed Forces. The use of military space means in support of the Armed Forces is an entirely new and significantly important phenomenon. Many organizations, including the Academy of the General Staff of the Armed Forces, participate in planning and organizing the use of such means in support of the Armed Forces. Successful solution of the problems of using such means furthers the strengthening of defensive power of the Warsaw Pact.



CHAPTER SIX

Organization of Civil Defense

1. Introduction

Civil defense in contemporary conditions is a system of general State defensive measures taken during peacetime and wartime to protect the civilian population and the national economy against mass-destruction weapons and other enemy offensive means. Civil defense also conducts rescues, emergency repair actions, and restores situations at the center of losses and in the areas hit by natural disasters. The missions of civil defense are as follows:

- ensuring direct protection for the population against mass-destruction weapons and other enemy offensive means;
- increasing the operational sustainability of the State national economic organs during war;
- eliminating the impact of enemy attacks during war and eliminating the consequences of natural disasters during peacetime;
- preparing civil defense forces and the population;
- conducting repairs and restoration;

—ensuring security of the social system.

The role and importance of civil defense generally increases continuously due to future expansion of the economic potential of the nation and the greater possibilities of losses inflicted by the probable enemy on the economy.

II. Organizational Structure of Civil Defense

The organizational structure of civil defense must comply with missions assigned to civil defense. Therefore, the fundamentals of such structures are based on the regional-production principle. In observance of this principle all measures related to civil defense are planned and conducted by local state organs (republics, provinces (*oblast'*), regions (*rayon*), cities) and professional organs conducting production and economic activities (ministries, agencies, factories, State farms, educational institutions, and other organizations). Accordingly, in these centers, chiefs of civil defense with necessary control organs are assigned. Civil defense services and troops are subordinate to the command of these organs.

The Chief of Soviet Civil Defense is a Deputy Minister of Defense. Control of civil defense in republics, autonomous regions, provinces, and cities is conducted by the chiefs of civil defense, i.e., chiefs of the Council of Ministers of the republics and executive chiefs of the representative committees of the Workers' Councils. These officials, in the context of their administrative authority, have special responsibilities to organize and conduct civil defense.

Civil defense measures in ministries, agencies, factories, educational institutions, and other organizations are conducted under the control of the chiefs of these organizations who, at the same time, are the chiefs of civil defense in their related establishments.

The major and important tasks of civil defense are the responsibility of the Minister of Defense and main operational organs. The commanders of military districts are responsible for the following tasks:

- organizing the military district's civil defense plans;
- participating with civil defense chiefs of republics and provinces in planning, preparing, and conducting measures for protecting the population and national economic installations located in the area of the military district;
- coordinating civil defense plans of republics and provinces with mobilization measures of military districts;
- planning and conducting the deployment of military units, staffs, signal centers, and civil defense institutions in the framework of missions approved by the General Staff of the Armed Forces;
- organizing the interaction of military units, garrisons, and local control organs with civil defense organs, during the planning and conduct of civil defense in the area of the military district's jurisdiction;
- extending regular, methodical, materiel, and technical assistance to civil defense staffs and services in planning and conducting civil defense;
- extending regular assistance for joint control with civil defense chiefs and staffs of the republics and provinces in the areas of operational training and training of civil defense commanders, staffs, and services;
- informing air defense staffs of the republics, provinces, regions, and cities located in the area of the military district of the threat of enemy attacks, enemy use of mass destruction weapons, and of the development of the situation;
- planning and conducting field exercises of the operational formations, large units, and units of the military districts in conjunction with the participation of the civil defense chiefs of republics, provinces, regions, cities, and the civil defense troops;
- controlling the light [illumination] *maskirovka* of cities and other built-up areas, national economic installations, and transport means in the area of the military district;
- extending assistance to civil defense organs conducting rescues, emergency repairs, and restoration of the situation in the centers of losses (contamination), flooded areas, areas

hit by natural disasters, and to troop control organs of military units of the military district assigned to conduct these tasks.

In contemporary times military district commanders, along with civil defense control organs of the republics, provinces, regions, cities, and institutions, bear joint responsibility for civil defense and carrying out civil defense measures in the territories of the military district.

It must be understood that the commander of the military district in wartime cannot fully oversee [actions and issues associated with]:

- preparation of the population;
- protective installations;
- individual protective means;
- equipment of non-military institutions;
- protection of animals and agriculture;
- upgrading survivability measures of national economic targets.

In spite of this, the commander of the military district bears full and direct responsibility for the following:

- participating in general planning of civil defense measures in the military district in peacetime;
- coordinating all civil defense plans with those actions of the military command taken as a political and military situation becomes more complex;
- organizing combat and political preparations of civil defense units and maintaining their high combat readiness;
- [ensuring] the interaction of military units with civil defense organs.

Along with the civil defense chiefs they plan and conduct field exercises and control light [illumination] *maskirovka*.

III. Civil Defense Control Organs and Services

Command organs of civil defense include the following:

- civil defense staffs of political and administrative regions (the capital of the USSR, republics, provinces, regions, and cities);
- civil defense directorates of the military districts;
- civil defense staffs of the ministries and agencies.

The civil defense staffs are control organs under the civil defense chiefs. These staffs include operations; training; engineer; signal; protection against radiation; chemical protection; and other sections.

All civil defense staffs are run by military personnel. The civil defense staffs of some ministries and agencies are run by civilians who, as a rule, are retired military officers.

The Civil Defense Service is a system of organs, forces, and means assigned to conduct rescue operations related to civil defense. They include the following:

- medical troops;
- engineers;
- fire fighters;
- forces and means for maintaining social order;
- economic protection means;
- animal protection means;
- means for the protection of national economy;
- transportation support means; and
- signal means.

The Civil Defense Service is established on the basis of decisions of the Council of Ministers of republics, executive committees of the workers' representatives, and ministers and heads of agencies, institutions, and other organizations. Depending on the availability of bases in republics, provinces, regions, cities, and installations (objectives) the services of the following are established:

- signal;
- medical;
- fire fighter;
- engineer;
- energy;

- motor transport;
- maintenance of social order;
- materiel and technical supply;
- protection of the national economy;
- protection of animals and agriculture;
- others.

The chiefs of services are assigned by ministers, heads of agencies, institutions, and other organizations where such services are established.

IV. Civil Defense Troops

Civil Defense Troops include non-military organizations, military units, and civil defense institutions. They are assigned to support the protection of the population, to conduct emergency repair, and to conduct urgent restoration operations at the centers of casualties (contamination), flooded areas, and areas hit by natural disasters.

Non-military organizations of civil defense constitute the basis of Civil Defense Troops. They are organized from workers, service crews, and other employees working in different agencies, educational institutions, *sovkhozes*, and construction establishments typically organized by the national Civil Defense staff. In terms of the nature of their missions the non-military organizations of civil defense are divided into general purpose organizations and Civil Defense Service organizations.

General Purpose Organization

General purpose organizations are assigned to conduct emergency rescue, repair, and restoration operations at the national economic institutions, in centers of casualties [i.e., areas in which casualties are concentrated], and in areas hit by natural disasters. In organization they consist of general purpose civil defense detachments, civil defense rescue detachments (teams, groups), and separate rescue teams (groups).

Civil Defense Service Organizations

Civil Defense Service organizations are assigned to conduct special measures (reconnaissance, eliminating hazards, medical assistance) during emergency rescue, repair, and restoration operations, as well as to reinforce and support the actions of the general purpose organization during their operation at the center of fires and in areas hit by natural disasters. In structure they are organized in detachments, teams (separate teams), groups, volunteer squads (*druzhina*), and sections (*zveno*). In terms of subordination the non-military organizations are classified as follows:

TARGET FORMATIONS (*ob'ektivnye formirovani*) These formations conduct emergency rescue, repair, and restoration operations at the center of casualties and areas hit by natural disasters which directly affect specific economic targets in designated operational areas. These formations are established in advance and are employed in accordance with the plans of the civil defense chiefs of the targets.

LOCAL ORGANIZATIONS These organizations are assigned to conduct emergency rescue, repair, and restoration operations, along with target formations, at the most important targets of the national economy. They will conduct rescue missions and other civil defense actions in cities, regions, provinces, and republics, and will operate in areas hit by natural disasters. Local organizations are deployed around-the-clock and are employed in accordance with the plans of the chiefs of civil defense of cities, regions, provinces, and republics.

All civilians not subject to being called to the Armed Forces as part of the mobilization, including those who are temporarily exempted from mobilization into the Armed Forces, are employed in non-military organizations of civil defense. Only those with work handicaps, first and second category soldiers [reservists due to be called up], and children up to age seven are exempted from employment in non-military civil defense organizations.

CIVIL DEFENSE MILITARY UNITS Civil defense military units are composed of cadre motorized regiments and separate

battalions which fully deploy at the time of war. These units are better trained [than non-military civil defense units] and are equipped with various technical equipment. They are assigned to provide the following:

- assistance to affected population;
- conduct of emergency rescues;
- repair and restoration operations at centers of casualties on important directions and at targets of the national economy, as well as in areas hit by natural disasters.

In order to accomplish these missions the composition of such units will include motorized, medical, fire fighter, and other special subunits. These units and subunits may be assigned and conduct active actions to fight enemy airborne assault troops, and enemy diversionary and reconnaissance groups.

In peacetime, civil defense military units are under the command of the Chief of Civil Defense of the USSR and military district commanders. With the threat of war military district civil defense units are employed in accordance with the plans of civil defense chiefs of provinces and republics. As a rule they are employed at the center of the heaviest casualties. Armed Forces' units and subunits located on the territory of a military district may also be employed to conduct emergency rescue, repair, and restoration operations.

CIVIL DEFENSE INSTITUTIONS (*Uchrezhdenie*) Civil defense institutions (organized and deployed at the time of war) are special service institutions assigned to accomplish the following:

- conduct medical assistance;
- conduct laboratory control;
- provide materiel and technical support in the interest of non-military civil defense organizations and the civil population;
- carry out operations to eliminate hazards to terrain, installations, transport means, and clothing;
- conduct other special actions while eliminating the consequences of enemy attacks.

V. Planning Civil Defense Measures

Planning civil defense measures is conducted on the basis of orders and instructions on civil defense from the Central Committee of the Soviet Communist Party and Soviet Government and the Minister of Defense of the USSR. The aims of the plan support the combat readiness and planned actions of civil defense troops and their troop control organs during peacetime, their methods of actions to protect the population and national economic targets from enemy threats of attacks, and their actions during enemy air and space attacks.

The content, volume, and timing of civil defense measures related to the accomplishment of missions in cities, other built-up areas, and at large targets are determined in accordance with the political, administrative, economic, and military significance of the cities, built-up areas, and targets. For this purpose the political-administrative, industrial centers, cities, and large targets are classified as follows:

- especially important;
- first, second, and third category in terms of civil defense.

The classification is made by the Council of Ministers of the USSR based on the suggestions of the Council of Ministers of republics, in accordance with the plans of the Soviet Government and the plans of the Ministry of Defense.

The most responsible role in this important matter is borne by the staffs of the military districts. Under the direction of the General Staff of the Armed Forces, the staffs of the military districts—along with the civil defense staffs of the republics and provinces and on the basis of scientific analysis of the characteristics of future war—forecast likely situations which may result from nuclear weapon employment against rear targets on the territories of the USSR, in cities, and in areas of the military district's jurisdiction. The general State civil defense plan is worked out by the national Civil Defense Staff. On the basis of the general State plan, the plans for organizing and conducting civil defense in the military district areas are prepared. These plans must include the following:

- characteristics of terrain in the military district's area and assessment of the military, political, and economic significance of the area under the military district's jurisdiction;
- assessment of enemy potential for launching strikes with contemporary weapons on military and economic targets;
- assessment of forces and means to conduct civil defense measures:
- general concept for the conduct of civil defense in the military district area (the location of the main effort and how the assigned mission must be accomplished by the forces);
- order of deployment of civil defense forces and means;
- missions of forces and civil defense groupings regarding emergency rescue, repair and restoration of the situation on the main directions:
- measures for defense against radiation and chemical weapons, [and also] engineer measures, medical measures, and materiel and technical support;
- organization of troop control.

The civil defense plan of the military district is prepared by the military district staff with the participation of the chiefs of the civil defense staffs of the republics and provinces. The plan may be prepared in written form with map annexes, diagrams, graphics, tables, and calculations. The plan is considered the basic document. On the basis of the military district's civil defense plan, more elaborate plans are prepared by republics, provinces, regions, and cities. Special importance in planning is given to determining probable areas of destruction so that priority is given to those areas for protecting the population and establishing protective shelters approved by the State.

VI. Conduct of Civil Defense Measures

Civil defense measures are very extensive in terms of content and volume. Therefore, their accomplishment is possible only by conducting a large number of missions facing the state organs and the national economic authorities in advance during peacetime. First priority is given to protecting the population

against the effects of mass-destruction weapons and other destructive means.

Protection of the Population

Protecting the population in protective shelters is the only viable defense against likely threats, and establishing such installations is considered the number one mission. In terms of missions and tasks civil defense protective installations are divided into population protective shelters, and areas for the deployment of troop control organs (command posts, control centers, and signal centers). In terms of their characteristics there are two categories: fully-protective shelter and antiradiation cover. In terms of the location of the protective installations they can either be inside other buildings or they can be established separately.

SHELTERS Shelters are installations where the population is protected against all effects of nuclear explosion, radioactive material, and bacteriological substances. Shelters must be resistant to the power of explosions and must be equipped with radiation filter means.

ANTIRADIATION COVER INSTALLATIONS These installations provide protection for the population against radiation and are established in areas where damage is most likely to be light. Antiradiation cover installations must protect the population against destruction and may be equipped with radiation filters.

Protective Installations for Deployment of Troop Control Organs

These are special installations which can support the disposition, protection, and operation of troop control organs. These installations are normally established in advance.

Dispersion

Dispersion involves alternating between (1) the moving-out and organized establishment in outer city areas of workers

and employees of installations and establishments and (2) the continuation of their employment during the war in areas which most likely will be heavily hit by the enemy. This approach is conducted by an alternating method in which workers and employees take turns working in cities or installations under threat of destruction, and going to rest outside of the city.

Evacuation

Evacuation is the organized moving out of workers and employees from establishments, installations, and organizations which cease to operate during the war. People who are not capable of working, or are unemployed, are evacuated from likely areas of heavy destruction. The evacuated people remain outside of the city during the entire war or until the special situation is terminated.

Evacuation Commissions

Evacuation commissions are established on the basis of the decisions of the Council of Ministers of the republics, and executive committees of the workers' representative councils. They are also established in ministries, institutions, and national economic targets by their related chiefs. These commissions provide necessary support to civil defense staffs directly in matters of organization, the conduct of dispersal, and evacuation of the population.

Assembly and Evacuation Points

These points are established near railroad stations, ports, and motor transportation centers. Assembly and evacuation points are designated for assembling and registering the population to be dispersed and evacuated and sending them to embarkation areas.

Reception Commissions for Evacuees

These commissions are assigned to receive and process the population to be dispersed and evacuated to areas of

resettlement in outer city regions. The commissions include responsible personnel from organizations and services of the affected areas charged with the mission of reception, resettlement, and support of the arriving population. In order to provide protection for the population, special importance is given to advance preparation of dispersal and evacuation areas, as well as all outer areas of the cities.

Preparation of Dispersal and Evacuation Points

Dispersal and evacuation points are prepared for the purpose of resettling workers and other personnel who are not supposed to work in major cities. In their resettlement, special importance is given to preparation of fortified facilities outside of cities and establishments. Such preparation will include readying all buildings and built-up areas for the resettlement of the evacuated population, repair and expansion of the road network, and establishment of simple cover for the protection of the population from radioactive contamination.

Organization of Food Services and Medical Support

Organization of feeding, accommodation, and medical support of the population in dispersal and evacuation areas is vitally important in the context of protecting the population against mass-destruction weapons. For this aim, the following are established/expanded:

- provision [food] supply bases;
- dining facilities;
- food stores;
- cultural and relaxation facilities.

Capabilities of medical facilities are upgraded and further supplied with necessary materiel and medicine to extend urgent medical assistance and heating and cooking fuel are supplied.

The civil defense leadership, engineer and technical personnel, chiefs of services, and commanders conduct daily training directed at targets (in the form of commander's training, staff

exercises, participation in command and staff exercises, and special tactical training), in courses, and in educational institutions in order to perfect their training level.

VII. Support of the Sustained Activity of the National Economy

One mission assigned to civil defense is supporting the sustained activity of the national economy during wartime. In order to increase the sustained activity of national economic targets during peacetime and wartime various measures are taken.

Industrial areas and factories on national territory are dispersed. The creation of new industrial collectives and important targets in areas likely to be flooded by water, destroyed, or subject to fires must be avoided. Concentration of institutions within important industrial complexes must be limited. Establishment of new institutions and establishments and expansion of existing ones in major cities and their vicinities where they are subject to destruction must be prohibited.

Creation of important industrial establishments on the basis of back-up arrangements must be anticipated. [Establishments should be dispersed so that the output of damaged or destroyed facilities can be at least partially made up by surviving facilities.] Underground caves and caverns under mountains must be exploited for emplacement of important industrial establishments of the national economy.

In industrial establishments, systems of energy, water supply, sewer facilities, and gas supply independent from the general system must be created. Emergency reserves of energy and raw material (oil, coal, gas, etc.) must be established also. Resistance of buildings and installations at industrial targets is reinforced and measures against fire are taken. Buildings are kept sufficiently apart from one another so that destruction of one will not affect the others. A reliable system to control the activity of industrial establishments is organized.

At the start of the construction and establishment of industrial targets, factories, and other establishments, scientific views and

planning of civil defense and military authorities must be sought so that buildings are constructed in compliance with their considerations.

VIII. Eliminating Consequences of Enemy Attacks

At the start of war under the conditions of enemy use of nuclear weapons and other means of destruction against cities and targets of the national economy, the elimination of the consequences of enemy attacks is conducted by civil defense organs and civil defense forces. This includes the aggregate of measures conducted in a short time to provide all types of assistance to the affected population in the centers of casualties, contaminated areas, flooded areas, and centers of fires (as well as areas hit by natural disasters); to prevent further destruction and losses; and also to restore routine living conditions in cities, other built-up areas, and at national economic targets.

Rescue Work

Rescue work is conducted in casualty centers, areas of contamination, flooded areas, and areas hit by natural disasters to rescue the population, give medical assistance, and evacuate them to hospitals and medical establishments. Rescue work includes the following:

- conducting reconnaissance of casualty centers and contaminated areas, as well as flooded areas and areas hit by natural disasters;
- eliminating consequences of an attack, extinguishing fires, digging out destroyed and damaged installations, sifting through and digging out victims from the rubble;
- giving first aid to the population and evacuating them to the city and medical establishments;
- moving the population out of radioactive and chemically contaminated areas;
- rescuing inhabitants and materiel means from flooded areas;

- medically processing personnel, clothing, terrain, installations, equipment, and motor transportation means.

Emergency Repair and Restoration work

Emergency repair and restoration activities to provide for the successful and safe conduct of rescue work are conducted by civil defense forces at transportation networks, municipal energy networks, and establishments and targets of the national economy. Moreover, they are conducted to prevent further destruction and losses due to subsequent enemy nuclear strikes. Emergency repair and restoration work includes the following:

- creating access routes to, and establishing crossings within, centers of destruction;
- eliminating damage to municipal, economic, energy, transport, signal, and other support networks;
- restoring water supply stations, water pipe networks, and energy support systems in order to expedite rescue work;
- eliminating potential future hazards due to damage sustained by buildings and installations.

Groupings of civil defense forces are created during peacetime on each civil defense direction to conduct emergency rescues, repairs, and rehabilitation work.

IX. Civil Defense Direction

A civil defense direction is a terrain area where civil defense forces and means are located. It includes one or several regions of a city (part of the city is not organized into regions) and also rural localities included in the area.

The composition of groupings is determined in accordance with the availability of forces and means and the characteristics and volume of missions to be conducted in destruction centers and nuclear, chemically, and bacteriologically contaminated areas, as well as flooded areas, etc.

Groupings of forces must comply with concepts of the upcoming action and must provide the following:

- rapidly moving forces to damage centers, contaminated areas, and areas of natural disasters;
- deploying rescue equipment quickly and continuously conducting rescue actions with the full employment of forces and means;
- expanding the strength and maneuverability of troops during the rescue work;
- adequately controlling and maintaining coordination;
- protecting forces and means from mass-destruction weapons and other means of enemy attacks.

X. Interaction and Control

While conducting civil defense measures, special significance is given to the thorough and continuous organization of interaction [coordination] (*vzaimodeistvie*) between control organs of civil defense forces and means, the forces of military district commands, and all forces, large units, and units of the Armed Forces assigned to assist in civil defense matters. The main principles of interaction are specified in the orders of the Minister of Defense.

Nature of Interaction

The nature of interaction includes coordinating the actions of civil control organs of republics, military district commands, non-military organizations, and forces of civil defense, with large units and units of the Armed Forces in supporting successful accomplishment of assigned missions in various situations and also giving mutual assistance with available forces and means. The following activities support this aim:

- conducting joint planning;
- coordinating actions of reconnaissance troops;
- alerting inhabitants about the threat;
- [formulating] methods for resettling workers, employees, and inhabitants in shelters or providing for their dispersal;

- evacuating the population;
- planning and coordinating emergency rescue, repair, and rehabilitation work.

In order to eliminate the consequences of nuclear weapons and other enemy means of destruction the necessary measures are coordinated and assistance is extended to civil defense forces.

Control of Civil Defense

Control of civil defense is exercised by civil defense chiefs and staffs in order to organize the actions of subordinate organs, organizations, and troops for the preparation and conduct of timely measures regarding the following:

- protecting the population against mass-destruction weapons;
- ensuring the sustained activity of national economic targets;
- carrying out all-around support measures for eliminating the consequences of enemy attacks.

Control is exercised with the close contact of the civil defense chiefs and staffs, civil administrative authorities, and national economic and military organs. The main tasks of civil defense staffs are as follows:

- continuously maintaining the readiness of troops and civil defense systems;
- planning [civil defense] measures during peacetime and wartime;
- continuously supporting control of the actions of forces and means, staffs, services, and control organs of civil defense in provinces, republics, ministries, and establishments, along with maintaining interaction among them;
- controlling contaminated areas;
- collecting, analyzing, and continuously reporting information on preparing and protecting the population;

- warning all civil defense organs and the population about the threat of enemy use of mass-destruction weapons;
- organizing operational and combat training of staffs, military units and other organizations;
- preparing and organizing orders and instructions and their timely dissemination to subordinates, etc.;
- ensuring active and flexible control.

In order to conduct control of civil defense systems, control posts are established. These systems are a collection of command posts created for accommodating and supporting the actions of the chiefs of civil defense and control organs (staffs) in the control of subordinate forces and the implementation of civil defense measures. The control post system includes command posts of the civil defense chiefs of the republics and provinces inside and outside cities. In one of these, the deputy military district commander for civil defense is located. Mobile command posts for the civil defense chiefs of republics and provinces [exist] as well. In control posts, signal communications are established with subordinate, superior, and coordinating elements.

In order to alert civil defense forces and the population a warning signal communication system is established and kept constantly ready.

XI. Conclusions

Civil defense provides for the continuous operation of State productive forces involving the activity of millions in the population. Timely conduct of civil defense measures is a critical mission of the State and is part of the preparation of the nation for war and for the repulsion of enemy aggression. Successful conduct of civil defense missions is provided by the following:

- preparing and establishing in advance civil defense systems in State establishments, the national economy, and installations;
- systematically and centrally preparing the population for conduct of difficult measures at all levels of civil defense;

- establishing required materiel and technical reserves to conduct urgent rescue, repair, and restoration work;
- perfecting and strengthening the future organization of civil defense.



CHAPTER SEVEN

Role of Economics in War: Interrelationship of Strategy and Economics

I. Classical Marxism-Leninism on the Role of Economics in War

War is a complex and multi-faceted special historical phenomenon. In war, all aspects of State life are subject to a severe test. Some of these aspects are the following:

- the stability of its socio-political and economic system;
- the morale-political unity and durability of the people;
- the combat potential of the Armed Forces.

The military might of the State and the course and method of a war depend, above all, on economic conditions and the socio-political system of the State. Basically, the politics of Marxism, having discovered the laws of the development of human society, for the first time scientifically based the reasons for the emergence of war and its dependence on economics. "The victory of force," wrote F. Engels, "is based on the production of

weapons, and the production of weapons is, in its turn, based on production in general: consequently ... on the 'economic power,' on 'economic policies,' and on the 'material means' found in the distribution of forces."

V. I. Lenin showed that in the new epoch, when wars become worldwide, their course and outcome, to a great extent, depend on the following:

- economic factors;
- scientific-technical factors;
- morale-political factors.

"The connection between the military organization of the country and its economic and cultural aspects," Lenin wrote, "is sometimes very close, as at the present time." He emphasized that any war is ultimately decided by economics.

Lenin focused his attention on the necessity of timely preparation of the country for war. He indicated that it is necessary to prepare for war seriously and for a long period of time, beginning with the national economic status. Without serious economic preparation of the country, it is impossible to conduct modern war against imperialism. Intensive military preparation for a serious war requires prolonged, stubborn, and disciplined work on a massive scale.

Lenin showed the significance of the rear in a broad sense in modern war. To conduct a war, in reality, a strong and organized rear is needed. The durability and stability of the operation of the rear are important conditions for victory in any war.

Lenin attached enormous significance to the following elements as the basis for improving the welfare of the nation and creating a raw materials base:

- industrialization, especially the creation of heavy industry;
- electrification of the country;
- development of agriculture;
- transportation for all branches of the national economy.

Lenin also posited the tenet on the role of reserves in war: "He who has greater reserves, greater sources of power, and greater endurance will be victorious in war."

The role of science in war is increasing. He said that without science it is impossible to organize a modern army. He who has better equipment, better vehicles, and who is better organized and disciplined will have superiority. Especially under modern conditions, an army obtains newer and newer weapons, and these weapons require thorough knowledge, discipline, and organizational ability.

He considered the planned conduct of the economy in those branches which are decisive for the defense of the country, the concentration of basic forces and means in these branches, and the organization of firm economic control as a fundamental principle.

The basis for economic control is the Socialist State and the Armed Forces. In control, conscious choices of forces and means, devices, and methods of struggle are necessary.

It is necessary to understand fully and precisely all conditions of production, and to understand production equipment and models.

An important place in Lenin's heritage is occupied by a concept of requiring, in case war is unleashed, the transformation of the country into a unified military camp for the purpose of mobilizing all forces of the nation for the rout of the aggressor.

Lenin points to the leading role of the Communist Party in the field of economic development. The Party leadership emphasizes the unity of politics and economics and the practicality of our plans, which are directed toward consolidating the economic and defensive might of the country.

Marxist-Leninist theory on war and the army, and on the role of economics in war, has an enormous theoretical, methodological, and practical significance for resolving problems concerning the preparation of the economy and the Armed Forces for repelling an imperialist military attack. Lenin's position on the necessity of creating modern industry and increasing the role of science and technology is an incontrovertible foundation of the general line of the Communist Party of the Soviet Union in the area of creating the material-technical base for Communism and consolidating the economic might and defensive might of the country. The implementation of plans for industrialization and

collectivization of agriculture served as the material basis for outfitting the Soviet Armed Forces with modern weapons and achieving a historic victory in the Great Patriotic War.

The basis for the development of Socialist industry is, above all, heavy industry.

The experience of past world wars fully confirms the Marxist-Leninist position on the role of economics in war and the growing mutual connection and mutual influence of war and economy.

The demand for arms, military equipment, and materiel resources for the purpose of outfitting the armed forces and supporting operations has increased. From World War I to World War II, the production of aircraft increased 3.5 times, for tanks 32 times, for guns 6 times, and for materiel means 5 times.

Expenditures for conducting war have increased. Suffice it to say that direct military expenditures of governments in World War I totalled 208 billion dollars, which was ten times more than expenditures for all wars which had been conducted during the preceding 100 years. Direct military expenditures of warring states during World War II amounted to 1,380 billion dollars, almost seven times greater than for World War I. This comprised 50-60 percent of the national income.

Arms and military equipment have become complex and their cost has sharply risen. For the production of such arms, the necessity for conducting a large amount of scientific-research, experimental-design work, and the creation of the most advanced technology has increased. The cost of a US mechanized infantry division in 1945 was 19 million dollars, while the cost in 1960 was 111 million dollars.

The time for rearmament [modernization] of armed forces tends to decrease since arms and equipment become outdated and obsolete sooner than in the past. If in the past specific arms and equipment could last fifty years or more as standard pieces of equipment in armed forces, today they may last only ten to twelve years before they must be modernized. The interval between subsequent rearmaments [modernization] of aviation, rocket and artillery troops, and radio-technical forces is further decreased to five to seven years.

The intense course of scientific-technical progress led to the creation and rapid development of qualitatively new rocket-nuclear weapons and other means of destruction. Conventional weapons, the quality of which continues to increase, are necessary for outfitting multimillion-man armies and conducting operations which have grown in their scope and direction.

All this required the creation and rapid development of new branches of defense industry, and led to substantial shifts in the structure of supporting production. Military-economic potential now constitutes such new branches of military production as atomic production, aircraft-rocket engineering electronics, instrument-making, radio technology, and chemical technology. The technical level of existing branches of military production is improving as well.

As a result of the creation of weapons of great destructive force, the economy is required to respond to their influence. The issues of the economic readiness of the country, the transition of the economy to wartime programs, and its support and survivability have new significance. Therefore, the primary branches of the national economy, above all industry, must be prepared in advance to outfit the Armed Forces with everything necessary, and replenish losses in arms and materiel in the course of armed conflict.

Under modern conditions, the relationship between economics and military might has become deeper. Thus, economics is the basis of the foundation of strengthening the defensive might of the State. This points to the growing role of economics compared to the past, and to the intensification of ties between war and economics. Proper consideration of ties between the war and economics, the expedient use of increasing capabilities of the national economy, and the achievements of scientific-technical progress will provide for the defense capabilities of the country and the combat might of the Soviet Armed Forces.

II. Reciprocity of Strategy and Economics

Inasmuch as war is a product of socio-historical relations and is dependent on economics, strategy is closely connected

with—and, to a great degree, is dependent on—economics, the levels and rates of development of production, the achievements of technical progress, the quantity and quality of the population, and the morale-political state.

The Army and Navy and their weapons, personnel, organization, tactics, operational art, and strategy depend, above all, on the level of production achieved in given areas and the communication [transportation] means.

How, then, is the dependence of strategy on economics manifested? Economics affect the development and preparation of the Armed Forces and military art by creating a materiel-technical base for the Armed Forces, providing them with modern arms and materiel means in peacetime or wartime.

The following areas are dependent on the status and direction of the development of economics and the achievements of science and technology:

- the creation of a materiel-technical base of defense;
- the quantitative and qualitative status of the Armed Forces;
- the development and production of modern arms;
- the attainment and maintenance of superiority of technical production over the enemy in the principal means of armed conflict;
- changes of organizational structure with respect to Services of the Armed Forces and combat arms;
- the development of methods and forms for conducting military activities; and
- the preparation and maintenance of high combat readiness.

Economics influences the development of military doctrine and military-theoretical opinions concerning the nature of a future war. Through politics and ideology, economics affects the morale-political condition of Army and Navy personnel. Its technical level influences the education and culture of the population for the further improvement and preparation of specialists for all branches of the national economy, and economics is an important factor for perfecting the upgrading of our Armed Forces' combat power.

Influence of Strategy on Economics

Under modern conditions, as has been shown, the dependence of strategy on economics, science, and the achievements of scientific-technical progress has significantly increased. In addition to this, a reverse dependence of economics on war has grown as the influence of strategy on economics has grown.

Although the development of economics is subordinate to strategic laws, the direction of this development, to a great extent, is conditioned by the requirements of State defense and its protection against the enemy. This is particularly manifested during a war, when everything is subordinate to the achievement of victory over the enemy.

The higher military command, on the basis of directives from the political leadership and the requirements of military doctrine, works out the building and preparation of the Armed Forces and requirements for the preparation of the economy and the population of the country as a whole for war.

The essence of these requirements necessitates assuring the maintenance of national military might and the combat readiness of the Armed Forces. This guarantees the decisive and complete rout of the enemy. These requirements emerge from the policies of the State and from military doctrine. It is important that the following be accomplished with respect to the Armed Forces:

- they must be supplied with the newest weapons and combat equipment, transportation, and control means;
- the necessary reserves of arms and materiel for the conduct of war must be created;
- there must be provisions for their timely mobilization and operational-strategic deployment;
- there must be a timely transition of the economy to a war-time production program.

The influence of strategy on economics is implemented, as is known, not on the basis of direct ties and subordination of economics to strategy, but through the higher political leadership and organs of State power. In this process the following is understood:

- the military leadership cannot give taskings to the industrial ministers and departments, enterprises, and corporations on the production of weapons and combat equipment;
- the political leadership determines the tasks of the economy and allocates required materiel and personnel resources and directs them in their preparation for war.

The concepts of the military authorities are presented to the political leadership, i.e., the State. The State approves them and all organs are obliged to put them in practice and include them in developmental plans. Therefore, through the process of preparing and presenting proposals, this approach to strategic control influences the establishment of materiel reserves and bases of materiel and technical means, as well as the preparation of the economy and population for war. One of the important questions is determining the required amounts of weapons, materiel means, and technical means for the conduct of a future war.

After determining the composition of forces and means required for the conduct of a strategic operation, the organs of strategic control determine the requirements for weapons, materiel, and technical means. In determining the above mentioned requirements the following are taken into consideration:

- weapons and means of the Armed Forces in the peacetime;
- Armed Forces to be concentrated in wartime in accordance with the operational plans;
- irreparable losses which cannot be made up for by repair.

III. The Nature of Economic Support for Modern War

Economic support of every specific war depends on a number of factors, among which, above all, is specifying the nature of the war, its aims, its scale, its preparation, and its conduct. The nature of war largely depends on the quantitative and qualitative requirements posed by the war on the national economy. At the same time the character of wartime materiel support largely depends on economic factors and on those economic capabilities which the national economy has for providing materiel support to the Armed Forces. Thus, requirements are formed by

political and especially military factors, as well as economic factors.

In forecasting the nature of modern war, we must take into account its multiple variations. The following basic types of war are ones in which Socialist countries may participate:

- world nuclear war between the two opposing systems (Capitalist and Socialist) conducted using all means of destruction, with the participation of the majority of states from both systems;
- war between several Capitalist and Socialist states conducted by conventional weapons with the possibility of passing over to limited use of nuclear weapons;
- local wars by Capitalist states against Socialist states in which only conventional weapons are used.

Each of these types of war are distinctive in their scope, their use of means for armed struggle, and their requirements for special forms of economic support. The most crucial of these is the economic preparation of Socialist countries for unlimited nuclear war.

If one speaks about general features of economic support for war under current conditions, then one can distinguish three important tenets.

The *first tenet* is connected with the social essence of war, with those contradictions in societal life which can lead to the use of violent means of destruction. In case militaristic forces succeed in unleashing a world nuclear war, then it will be a decisive conflict between two social systems. In a nuclear war not only individual political issues of the world are resolved, nor is the struggle conducted only for individual interests and for the supremacy over this or that region of the world. But additionally, in such a war, the social issues that relate to development of humanity and the fate of all humanity are resolved.

In such a war, maximum efforts are used, as are all materiel resources, means, and capabilities. If in the war from 1914-18 all participants spent 208 billion dollars, and in the war from 1939-45 they spent 1 trillion 117 billion dollars, then a new

world war would be significantly more expensive. In the war from 1914-18, the armed forces needed $\frac{1}{6}$ to $\frac{1}{3}$ of the national income; $\frac{1}{2}$ to $\frac{2}{3}$ of the national income was needed from 1939-45; and in a future war even more will be needed.

The *second tenet* conditioning the innovation and specialization of modern military-economic tasks reflects the new degree of development of productive forces. In connection with the further development of the economic base in a number of the world's largest countries, the most important achievements in the field of science and technology reflect new potentials in the production of the means of armed conflict.

The scientific-technical revolution made it possible to outfit the Armed Forces with basically new types of weapons and combat equipment. The qualitative characteristics of materiel support means for the Armed Forces have sharply grown without exception. The economies of the largest countries of the world have grown to a degree which makes it possible in a short period of time to massively produce the most complex military equipment and to arm and equip multimillion-man mass armies. In the USSR, the capability of the production of materiel for the societal requirements is increased tenfold in 1973 in comparison with 1940.

Modern combat equipment is becoming increasingly more complex and costly. The necessity for fundamental rearmament of troops in relatively brief periods of time has arisen. The rapid application of the achievements of science and technology in military production has become particularly crucial.

The role of a number of missions which must be resolved in modern war, and the impossibility of resolving them with the help of universal means, has led to the fact that the Armed Forces have begun to evidence a demand for an increasingly larger number of types of weapons and combat equipment. This complicates the process of economic support for the defense of Socialist countries even more.

The *third tenet* reflecting the essentially new ties between war and economics is conditioned by military factors. Modern war fundamentally changed economic requirements in terms of the time needed to complete the most important military-economic tasks.

The strategic significance of basic economic measures has changed. The role of the periods (*srok*) of military-economic mobilization has sharply risen, and economic support for constant combat readiness of the Armed Forces has become exceptionally important.

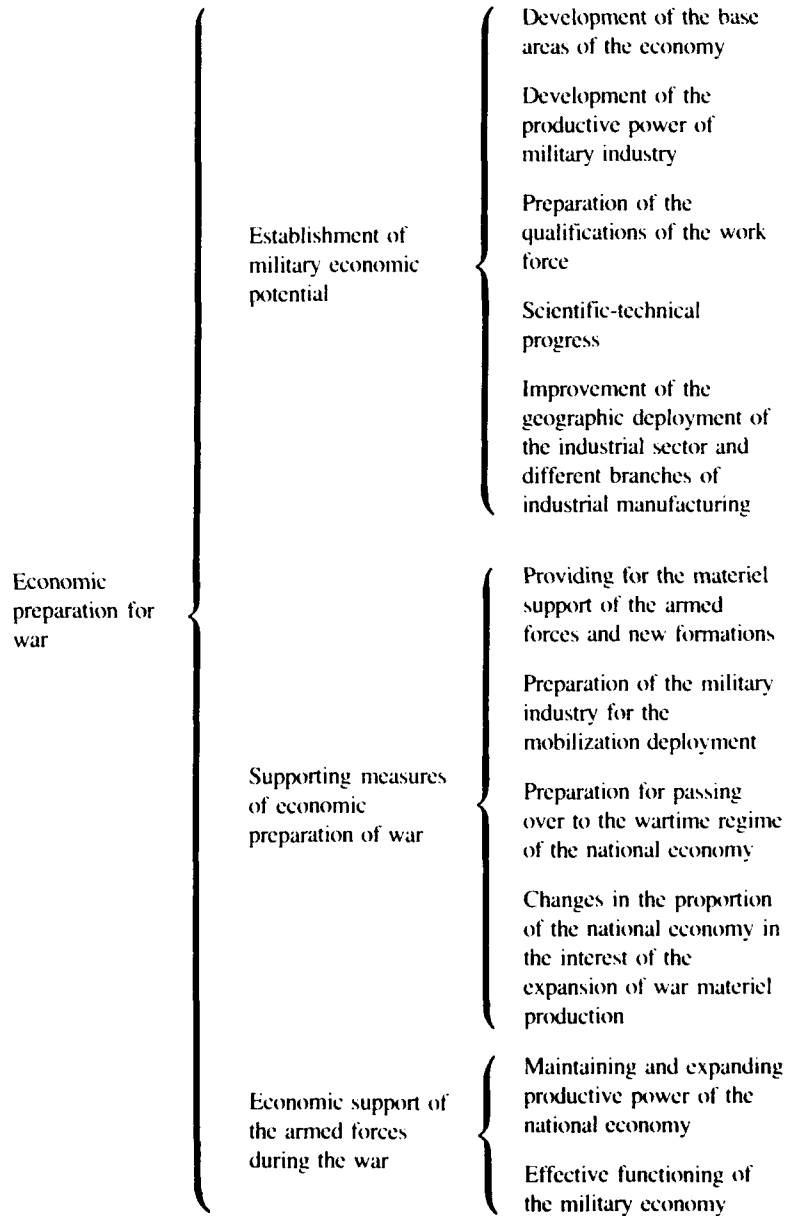
The largest Capitalist and Socialist states currently have powerful means for inflicting damage and destruction which can quickly destroy any target at any point of the world. In the event of the effective use of these means, it is possible to inflict decisive damage upon the enemy. On the strength of this, the possibility of a short-term war may be posited. At the same time, the possibility of conducting prolonged and protracted wars, which would require a thorough restructuring of the national economy of Socialist countries for economically ensuring victory, cannot be rejected.

The essentially new ties between war and economics are best observed if they are analyzed taking into consideration the overall structure of economic support of wars (see figure). [See page 148.] As is obvious from the figure, there exist two basic components for the economic support of war: (1) economic preparation for war and (2) economic support in the course of the war. The correlation between these components is not at all a given. It changes in connection with changes in the nature of wars and the conditions of their conduct.

Over the course of all military history until the beginning of the twentieth century, the first component (i.e., economic preparation for war) had predominant significance. The armies of the warring states basically were materially outfitted before marching off. In the course of the campaign, they predominantly used what was obtained at the outset. The economy of France, for example, gave Napoleon's army what it could at the beginning of the war. Materiel support up to the beginning of the 1812 war was limited. War in the first half of the twentieth century introduced fundamental changes into the economic support procedures.

The designated second component (i.e., economic support of the Armed Forces in the course of the war) came to occupy first place. Reserves stockpiled before 1914 were used up in the very

The Structure of the Economic Support of War



first months of the war. Requirements for seven million rifles were calculated for the Russian army, while 18 million rifles were actually sent to the *front*.

In World War II, the Germans set out with 4,405 combat aircraft and 3,200 tanks. In the course of the war German industry produced 104,000 aircraft and 65,100 tanks. Consequently, the pre-war supply comprised 4 percent and 4.7 percent of aircraft and tanks respectively [of the total eventually involved].

A fundamental role in the "feeding" (*pitanie*) of the war was played not by current production but by the law of material production means. As a basic of demonstration, two arguments are presented.

First argument: Under modern conditions, the economic "rear" of any warring country may be subjected to powerful and considerably effective strikes. The degree of damage to the economy from combat effects increases from war to war. Losses in World War I amounted to 13 percent, and in World War II to 28 percent. In a Third World War, and especially in a nuclear war, this indicator will sharply increase. A military-economic situation is possible where expanded production is extremely difficult or even impossible, both on a scale involving the entire national economy and in its military sector. Therefore, it is impossible to count on the fact that the basic mass of materiel resources will be produced after the beginning of the war. Successful economic support of the war would depend on how much is done in the prewar period.

Second argument: The second argument is connected with the following consideration: the maximum advance of military economic efforts is always ahead of the maximum military effort, since the military effort reaches its climax during the decisive phase of the war when it achieves its principal aims. Consequently, the level of military consumption increases to its highest degree at the decisive phase of war, when there is a maximum military effort. But, you see, consumption always outruns production. The requirement is higher than what has been produced at the moment. Therefore, production, at the decisive phase of a military effort, must reach the point of meeting the maximum requirements of the Armed Forces.

For example, the primary mission of the Great Patriotic War (the routing of fascist Germany) was resolved in 1944 and 1945. By the beginning of 1945, both the number of personnel and combat equipment had reached the highest level for the period of the war. In order to attain materiel support for the decisive phase of the war, the highest level of development of the military economy had to be achieved for this phase. The sum of production of arms and combat equipment in 1943, in comparison with 1940, was 224 percent, while in 1944 it was 251 percent. The proportion of the State budget in 1944 was somewhat lower than in 1943.

Under modern conditions, we should consider them differently. Since the armed forces of Socialist countries have at their disposal more powerful weapons and can achieve the strategic aims of war at the beginning of the war, the main role is played by the nuclear weapons and Strategic Rocket Forces. In a nuclear war enemy bases are destroyed and suppressed at the beginning of the war, by massive nuclear strikes.

The primary means for conducting a global nuclear war are simultaneous annihilation and destruction of military-economic bases and enemy armed forces in the entire depth of his territory by means of massive nuclear strikes, with subsequent use of the results of these strikes to complete the destruction of enemy reserves.

And so, the main missions of a modern war are resolved at the very beginning of the war. In such operations, maximum military efforts will be employed. But since the primary efforts are shifted to the beginning of the war, it means that the preceding or primary military-economic efforts should be shifted to the prewar period.

Thus, the most important components of the established ways of economically supporting war, in proportion to their importance, changed places. Under modern conditions, early economic preparation for war moved into the foreground. This conclusion is dictated by the capabilities of the enemy with respect to combat influence (*vozdeistvie*) on the socialist economy; the general nature of the dynamics of modern war; and the basic considerations of our doctrine and strategy.

IV. The Most Important Directions of Economic Preparation of the Warsaw Pact States for War

The increasing role of economics in modern war requires sound, all-around economic preparation of Socialist countries for defense. Particular significance has been acquired by the conduct of important military-economic measures and their alinement with the requirements of modern war, and the missions assigned to the Armed Forces.

The coordination of military-economic tasks among themselves and with other tasks of economic development is of no small importance. Optimizing the distribution of economic resources among the needs of defense and other materiel requirements of Socialist society is acquiring even more important significance.

The successful resolution of all these complex tasks depends, to a large extent, on how correctly the basic directions for preparing the economy of the Socialist countries for war are determined. To understand them and their specific designation, it is necessary to clarify the essence of several key military-economic concepts (categories). These include:

Military-economic potential: Military-economic potential is the actual capability to provide the materiel requirements of the Armed Forces, defined by the status of productive forces and production ratios, and by the political system of the State. The magnitude of military-economic potential depends on the magnitude of economic potential, which is understood as the maximally attainable volume of economic activity of a country under actual historical conditions. It is natural that, whatever the degree of military-economic effort, all economic resources, as a whole, cannot be spent on military requirements. During the Great Patriotic War, for example, in the Soviet Union the proportion of military requirements in the entire national income was 57-58 percent.

The creation and development of military-economic potential include the following elements:

- development of the base areas of the economy;
- development of the productive power of military industry;

- scientific-technical progress;
- improvement of the geographic deployment of the industrial sector and different branches of industrial manufacturing.

To calculate beforehand the military-economic potential of one or another country, and how it will be used, is a complex task. However, the means for its resolution are known. They may be reduced to three successively implementable steps:

1. Determination of the production capacity of enterprises suitable for the output of materiel;
2. Evaluation of the probability for widening this capacity and the probability of the destruction of manufacturing establishments as a result of the enemy's combat influence; and
3. Calculation of the capabilities to use economic resources for military production in a given country under concrete economic and socio-political conditions.

The latter point is very important. Without consideration of social aspects, it is impossible to obtain a genuine impression of military-economic potential. It is sufficient to cite the fact that Hitler's Germany exceeded the Soviet Union before the war in overall volume of production of a number of the most important types of industrial products. But thanks to the superiority of the Socialist economic system, the USSR was able to produce during the war years significantly more military products, i.e., the USSR used its potential capabilities for materiel support of the Armed Forces much better and much more fully.

The superiority of the Socialist system in the military-economic field exists as well under modern conditions. This must be taken into consideration when comparing the military-economic capabilities of states with various social systems.

The military-economic potential created during preparation for war fulfills its primary role under conditions of the maximum mobilizational deployment of the national economy. It is important, however, not simply to have the capability to deploy a war economy. In addition to the creation of such a capability,

an enormous role is played by the realization of this capability; factors affecting the realization in a specific timeframe; requirements and imperatives of State politics; military doctrine; strategy; and the dynamics of international relations.

Consequently, for the successful conduct of war, it is sufficient to have not only a developed military-economic potential, but to provide for the timely deployment of military production; the coordination of its development; and its compatibility with the requirements of the Armed Forces at every specific moment and in accord with actual changes of the internal political situation.

Such requirements are reflected in the category "economic readiness for war." It expresses the degree of direct preparation of the national economy for the commencement of military actions, a shift of the economy ahead of time to a status under which the fundamental materiel requirements of the front in the first phase of the war can be satisfied without a radical restructuring.

Military-economic readiness includes the following major components:

- providing for the equipping of Armed Forces' cadres and new formations;
- assistance in the mobilizational deployment of military industry;
- readiness to shift the entire national economy to a wartime regime.

Without verging on the extreme, it cannot be considered that all materiel requirements of the war will be possible to satisfy using prewar reserves. But it is completely clear that there have occurred qualitative changes in assuring economic readiness. Now it is not so much a question of readiness for the deployment of a military economy as deployment ahead of time and providing arms even before the beginning of the war by the principle masses of means for the achievement of victory. The pivot of military-economic readiness is to support the first strategic operations which are called upon to resolve main missions of modern war.

Providing economic readiness for war under modern conditions is an extremely complex task, a task with much that is uncertain. It is necessary to be concerned in advance about the economic support of an enormous military machine, a complex system of the various Services of the Armed Forces and combat arms. From a military-economic viewpoint, it is difficult to separate the primary and secondary components in this system. All the components of our Armed Forces must be in a state of high combat readiness, and, it follows, under conditions of all-around materiel support.

The optimal solution to the mission of assuring economic readiness is extremely complex because of the uncertainty of the moment when war will arise, and, consequently, the indeterminate periods of time for such readiness. The following contradictions arise:

- on one hand, it is necessary to maintain the economy in a state of maximum readiness for war, i.e., increase the degree of military-economic effort;
- on the other hand, a higher degree of military-economic effort cannot be maintained forever. Sooner or later an economy excessively subordinate to military aims will not withstand a very high load and, thus, will lose the speed of its development. The rate of broadening economic potential will slow down, which will negatively affect the military-economic potential as well.

It is necessary to militarize the entire country and the entire economy in order, on the one hand, to achieve greater results for conducting a war and, on the other hand, so that mobilization does not disrupt the basic economic backbone. The basic directions of economic preparation of socialist states for repelling aggression are, in the first place, the deployment of economic potential and, in the second place, high military-economic readiness for war.

It is particularly important that these directions be maximally coordinated, and in agreement with one another. It is intolerable that, while increasing the military-economic potential, only the capabilities for attaining a high level of development of military

production in the future be assured. It is necessary that a specific part of the military-economic potential be used in peacetime for the materiel support of high combat readiness of the Armed Forces. At the same time, the present tasks for materiel support of the Armed Forces and the struggle for constant military-economic readiness should not push into the background long-term tasks for the further steady increase in the military-economic might of Socialist states.

In the interest of providing high economic readiness for war in Socialist countries, important measures for preparing the national economy to transition to a wartime status are realized. Modern war presents extraordinarily crucial requirements for such measures which will develop all branches of the national economy. The most important measures for preparing the primary branches of the national economy for war will be examined in more detail.

Preparation of Industry

Industry is the most important branch of materiel production in which civil goods, manufactured weapons, military equipment, and materiel resources are created in order to outfit the Armed Forces and satisfy requirements of war. The basis of all industry is heavy industry. In it are included metallurgical, mining, fuel-energy, chemical, and machine building components.

The development of industry in general, and heavy industry in particular, has important significance. Heavy industry remains the foundation of the economic might of a country, providing for technical progress and strengthening State defensive capabilities. In preparing industry for war, an important role is played by the creation of a structure which corresponds to the tasks of defense economics. It is important that those branches on which, first of all, the development of military production depends, incorporate the latest achievements of science and technology. These industries would carry out the manufacturing of machinery, instruments, chemicals, special materials, electronics, and computers.

The organization of industry, particularly its organization in a system of interrelated and interconnected enterprises, has great

military-economic significance. The system of interconnected enterprises is manifested in "specialization" and "cooperation." Specialization is the concentration of enterprises in this or that country for the production of one type of military materiel and large machinery components. Cooperation comprises gathering and assembling of large machinery components to create a full system of materiel means for outfitting the Armed Forces.

A large number of factories participate in the production of modern military equipment. For example, as many as 500 participate in the production of modern aircraft, while more than 300 enterprises participate in the production of a tank. The system of specialization and cooperation has a great economic effect. It makes possible the growth in productivity of labor and unites the efforts of many production collectives for the implementation of complex military-technical programs. At the same time, under conditions of war, the system of specialization and cooperation may complicate the output of military products, as with the failure to provide individual parts or the disruption of transport links.

These negative properties of the system of specialization and cooperation can be neutralized or reduced by creating "duplicate" enterprises, widely using intra-regional cooperatives, and creating territorial complexes of enterprises. It is particularly important to provide flexibility in the system of ties among the enterprises, and the timely transfer to new links in case of the disruption of some enterprises.

The standardization, unification, and typification (*tipizatsiia*) of goods used for producing military equipment has great significance. A reduction in the number of varied goods reduces labor waste and accelerates the process of preparing for production. Unification is important not only in the system of military-economic means, but also with respect to the civil sector of industry. It facilitates the shift of a wide circle of enterprises to a military footing. Rapid mobilizational deployment of industry may be implemented only with the existence of reserve productive power. Such power may be used under unusual conditions for the production of civil goods, and if necessary it may be quickly switched to fulfilling military orders.

A necessary condition in preparing industry for war is providing for its survivability and ability to function under the most complex conditions. Survivability is increased by creating shelters and structures outfitted industrially. The dispersal of enterprises, both on a national scale and by economic region, plays a large role. Finally, in the significance of determining in advance the order of transitioning to a wartime posture, emphasis should be placed on the cadres of military enterprises and other types of enterprises.

Preparation of Agriculture

One of the main Warsaw Pact national economic sectors, involving almost one third of the population, is agriculture. The existence of a highly diversified agriculture is a necessary condition for victory in modern war. Lenin stated that the defense interests of the country required the organization of provisions and the creation of State food reserves. With the development of weapons and combat equipment, the role of agriculture is increased as a provider of raw materials for the food industry and for civilians and Armed Forces personnel.

A modern war, if initiated by the aggressor forces, will be conducted by multimillion-man armed forces. Arising from the consideration that for each twenty-four hour period every soldier requires two kilograms of food, the Armed Forces' requirement for food may be determined by the number of personnel in the Armed Forces.

The volume of agricultural products necessary to conduct a war depends on food norms, the total size of the Armed Forces, and the duration of the war.

In connection with this, there are great demands for a level of agricultural production which should provide a stock of necessary reserves in peacetime and, during war, should replenish food and raw material resources on the required scale.

In agriculture there are large quantities of trucks, tractors, gasoline refueling means, repair means, and other equipment. Maintaining such equipment in operational status is of significant defensive importance, since part of it may be allocated to the Armed Forces during war.

Taking into consideration the complex conditions of agricultural functioning in modern war, it is necessary to foresee creating reserves of crops, fertilizer, feed, and agricultural equipment. As with industry, agriculture may be subjected to nuclear strikes. Therefore, undertaking measures to prepare for the protection of the work force, livestock, food, equipment, and potable water from the effects of means of mass destruction, and for the elimination of the consequences of nuclear strikes, must be foreseen in advance.

The fulfillment by agriculture of military-economic tasks depends, for the most part, on an accelerated rate of further development. For this, it is especially important to consolidate agriculture's materiel-technical base, achieve agricultural intensification, deepen its specialization, condition its productive concentration, and improve land fertility, equipment, and agricultural labor resources.

Preparation of Transport

In preparing for war, the development of plans for shifting transport to a wartime footing has primary significance. It is necessary to continue to develop transport systems (roads, waterways, airfields, mobile personnel, pipelines). The system of mutual reinforcement and interchangeability of the various types of transport will play a large role under conditions of war. The maintenance of the ability of transport to function under conditions of war will be made possible by constructing of parallel main routes and detours, and creating reserves of transport means.

Creation of State Materiel Reserves

For the purpose of providing uninterrupted operation of the national economy and maintaining national defense capabilities, State reserves and stocks of materiel means are created in advance, during peacetime. Scarce raw materials, fuel, semi-finished products, machines, equipment, hard currency value items, food, and various materials widely used in the national economy and Armed Forces are stockpiled in these reserves.

State materiel reserves are designated to satisfy the needs of the country as a whole. With an increase in the threat of war or with its commencement, part of the State reserves are used for deploying military production, reestablishing destroyed targets, supplying the populace, establishing of reserves of the armed forces, and for other purposes. Materiel is dispersed at State depots (bases), depots of ministries and departments, enterprises, and transport organizations. The level of stockpiling and nomenclature of reserves are established by the government.

Preparation of Human Resources

One of the fundamental problems of preparing the economy in military respects is the problem of labor resources necessary to satisfy the cadre requirements of both national economic and Armed Forces' personnel. Lenin stated that wars are now conducted by nations. Therefore, the level of Armed Forces' combat capability and the operation of the national economy depend on the size of the population, morale, cultural levels, and general and special training.

One of the most important issues in preparing human resources is determining their optimal allocation between the Armed Forces and the national economy. In determining this allocation, the influence of the following factors must be taken into consideration:

- the size of the Armed Forces at the beginning of the war;
- the personnel requirements for new organizations;
- probable human losses at the front and in the rear; and
- potential requirements for human resources in the national economy under conditions of war.

An exceptionally important role in the expedient distribution of labor resources is played by Socialist planning, in particular the balance method of planned use of the work force. The balance of labor reflects the volume and composition of labor resources, their distribution among branches and regions, the use of work time, an increase in personnel qualifications, the growth of productive labor, and resources for replenishing the work force. Developing a balance of labor makes it possible to

clarify labor reserves or scarcities. This allows timely measures directed toward the better support of production by cadres to be taken in case of war.

The preparation of the population for war assumes a systematic increase in worker production qualifications and the further development of general and special education in Socialist countries. The preparation of national economic specialists, whose experience and knowledge can be used in the Armed Forces, has special significance. Thanks to the high level of worker preparation in the national economy, there is the potential to prepare Army and Navy personnel in a short period of time as military specialists capable of skillfully operating combat equipment. Special preconscription training for young men also makes this possible.

In the entire system of measures directed toward preparing the population for war, instilling steadfastness in citizens of Socialist countries and strengthening their morale-political condition has enormous significance. In this plan, it is particularly important to acquaint the populace beforehand with the destructive properties of modern weapons, to instruct novices in regard to their operation and employment, and to help overcome the psychological barrier of shifting from peacetime to wartime conditions.

V. Military-Economic Integration of Warsaw Pact Countries

Military-economic cooperation is one of the most important trends in the unity of Socialist countries for the joint repulsion of the forces of aggression. The necessity of this cooperation, from the political side, is conditioned by the attempts of imperialism to unify anti-Socialist forces on an international scale. Only the unified strength of peoples who have thrown off the yoke of capitalism from their shoulders can oppose these forces.

From the economic side, cooperation among Warsaw Pact countries is conditioned by expediently combining efforts in the materiel supply of their Armed Forces, and by achieving greater efficiency in the joint use of resources allotted for strengthening the country.

From the military-strategic side, economic cooperation among Warsaw Pact countries is dictated by the coalitional form which a new world war would most likely take, and by the requirement for materiel support for the jointly coordinated Armed Forces' actions by the Socialist military coalition. In military history, coalition economic support experience has been accumulated. However, this experience is predominantly that of Capitalist countries, inasmuch as the coalition of Socialist countries arose after World War II. In addition to this, the unity of Socialist countries is a factor of primary importance in the struggle for strengthening the military-economic might of the Socialist community.

The fact of the matter is, that the materiel base for the defense capabilities of Warsaw Pact countries is not the simple sum of the national economies. Actual capabilities of economic support of the Warsaw Pact Armed Forces depends, for the most part, on the mutual supplementation of national economies, their drawing together, and their interaction. The unification of economic efforts significantly increases the totality of the military-economic potential of these countries.

The economic base of the coalition of Socialist states has its own features which, in principle, distinguish it from the economies of bourgeois coalitions. These features are shaped by relationships confirmed among the given countries of the Socialist community, by the politics of the states, and by the totality of the socio-economic conditions of their development.

The *first feature* consists of the fact that economies of friendly countries have a single social base—public ownership of the means of production. Thanks to this fundamental feature, which defines the entire Socialist structure of the coalition, conditions are created for a solid and valid unity of the countries entering into it. Objective conditions are created for working out a coordinated foreign policy which is based on the unity of class interests. In the Socialist coalition, there is an absence of centrifugal forces engendered by special interests, competition among imperialist allies, and attempts of the ruling classes of one country to make a profit at the expense of other countries.

The Socialist coalition engenders, in principle, a new system of economic relations between the allies. It allows for more efficient and effective decisions on the most important economic issues of the coalition. Public ownership of means of production creates broad capabilities for the centralization of economic leadership, efficient maneuvering of materiel resources, all-around use of human resources and production capabilities, and the mobilization of economic forces in the interests of defense.

On the basis of the supremacy of common ownership of the means of production, conditions are created for the planned coordination of the most important economic measures implemented within the framework of the coalition. [In this way.] the possibility for wide development of military-economic integration is provided.

The *second feature* of economic support for the coalition of Socialist countries is the harmonious combination of national interests in the development of a military economy having the *international interests* of the coalition.

Revealing the principal differences between proletarian internationalism and bourgeois nationalism, Lenin showed that proletarian internationalism arises from a principle of advancing common national interests over national interests. At the same time, the interests of individual nations and individual states should definitely be taken into consideration.

Differences in the interests of individual Socialist countries in the field of military economics are explained by the size of the population, the expanse of territory, the structure and degree of economic development, and other factors. It is obvious that it is easier for countries with higher economic development to allocate specific materiel resources to collective defense needs, while, on the other hand, it is more difficult for the less developed countries. Countries having immediate borders with imperialist countries have specific military-economic tasks which do not face countries surrounded by friendly states. This feature is not ignored.

Military-economic activities of the coalition originate from a principle under which each country organizes war preparations on the basis of international missions and the interests of collective security arising from their own capabilities and taking into

consideration national features and the position of the country in the system of the coalition. Coordinated preparation for war includes the integration of plans for preparatory measures among the states of the coalition and the implementation of a number of measures through joint efforts of [word obscured] countries. The contribution of each country in preparing the Socialist coalition to repel aggression is regulated by the allies through treaties and agreements, on the basis of which rests the idea of friendship and mutual assistance in the struggle against a common enemy.

The *third feature* of the economic basis of the organization of the Warsaw Pact is the rapid and steadfast growth rates of material production in the countries making up that organization. Facts related to this feature are included under the second question [word illegible].

The military-economic capabilities of Socialist countries broaden considerably because of their indivisible integrity and their continuous economic cooperation. The significance of such cooperation increases, above all, because the coalitional nature of a potential new world war made the issue of military-economic integration an especially sharp and important one. Relying only on the unified forces of Socialist countries, it is possible to successfully struggle against the aggressive forces of international capitalism.

The economic integration of Socialist countries is an important system of measures directed toward the all-around cooperation and drawing together of the countries' national economies. The resolutions made at the twenty-fifth session of the CEMA (July 1971) played a main role in the economic solidarity of Socialist countries. The system of measures anticipated by the complex program is successfully developing. In particular, the work program for coordinating national economic development plans of CEMA member countries in 1976-80, as well as for the extended development of the most important branches of the national economy and types of production, has been confirmed.

The cooperation of Socialist countries in the field of machine building has significantly deepened. Currently, within the framework of the CEMA there are 17 multi-lateral agreements

which anticipate specialization and cooperation for the production of around 1,700 various types of machines and instruments. Among the most important trends in Warsaw Pact military-economic integration of the Warsaw Pact countries are the following:

1. *Coordination of national economic plans:* This makes possible the coordination of the most important economic development trends and the support of consolidating military-economic potential. Based on this coordination, each country can plan the development of its own base and the military branches of the national economy, taking into consideration what it must provide for other countries and what it will receive from them.

2. *International division of labor of specialization and cooperation in the field of military production:* As in other areas of production, international division of labor in the area of creating weapons and combat equipment has great economic significance. The sense of it lies in the distribution of the most important military-economic functions among the Socialist countries. Specialization and cooperation are the primary forms of Socialist division of labor.

3. *Creation of large economic structures by joint efforts:* This allows for the consolidation of Warsaw Pact defense capabilities such as the integration of industrial complexes, large energy systems, and other objectives. [It includes] the integration of energy systems which support the shift of energy from one direction to another, in case of the destruction of one energy source, gas pipelines, and petroleum pipelines.

4. *Coordination of development of weapons and equipment in the Warsaw Pact countries:* This has important military-economic significance. It facilitates the organization of production of the most important types of combat equipment and weapons, fuel, and other materiel resources.

5. *Implementation of joint measures for preparing transport for war:* This plays an important role in the overall integration of economic processes. It is necessary to create a uniform system of all types of transport, lines of communication, transport control organs, and common truck parks.

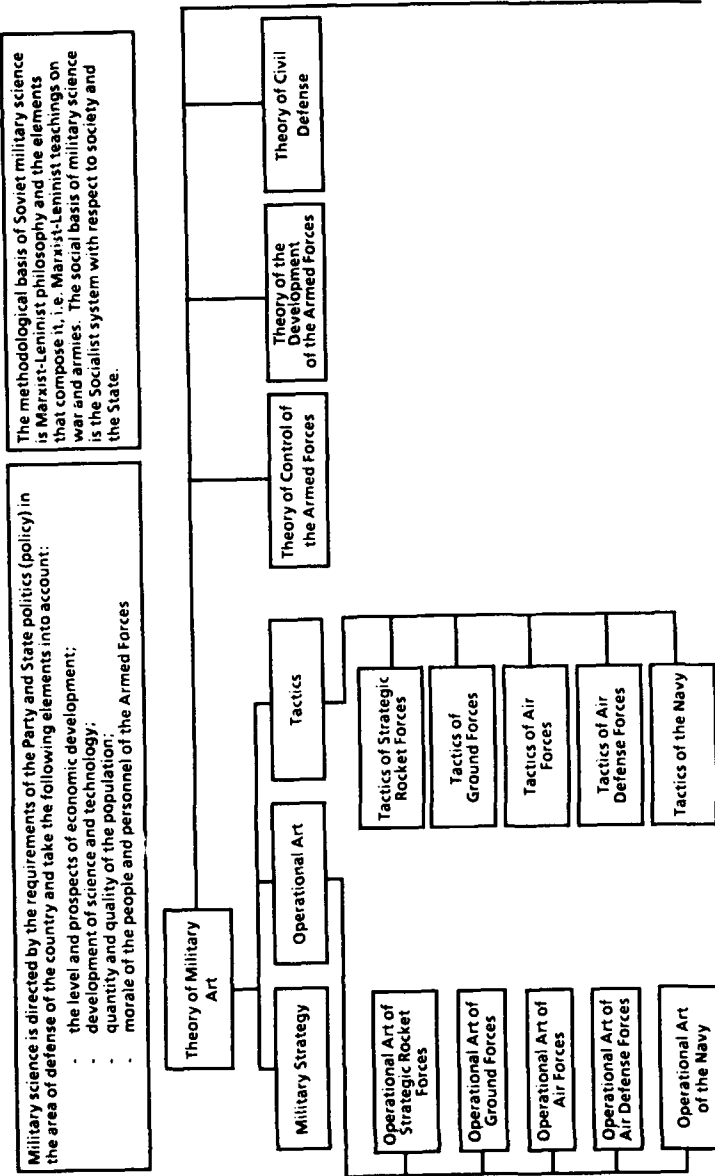
6. *Preparation of TSMAs and the territories of the Warsaw Pact countries:* This plays a substantial role in the system of military-economic measures.

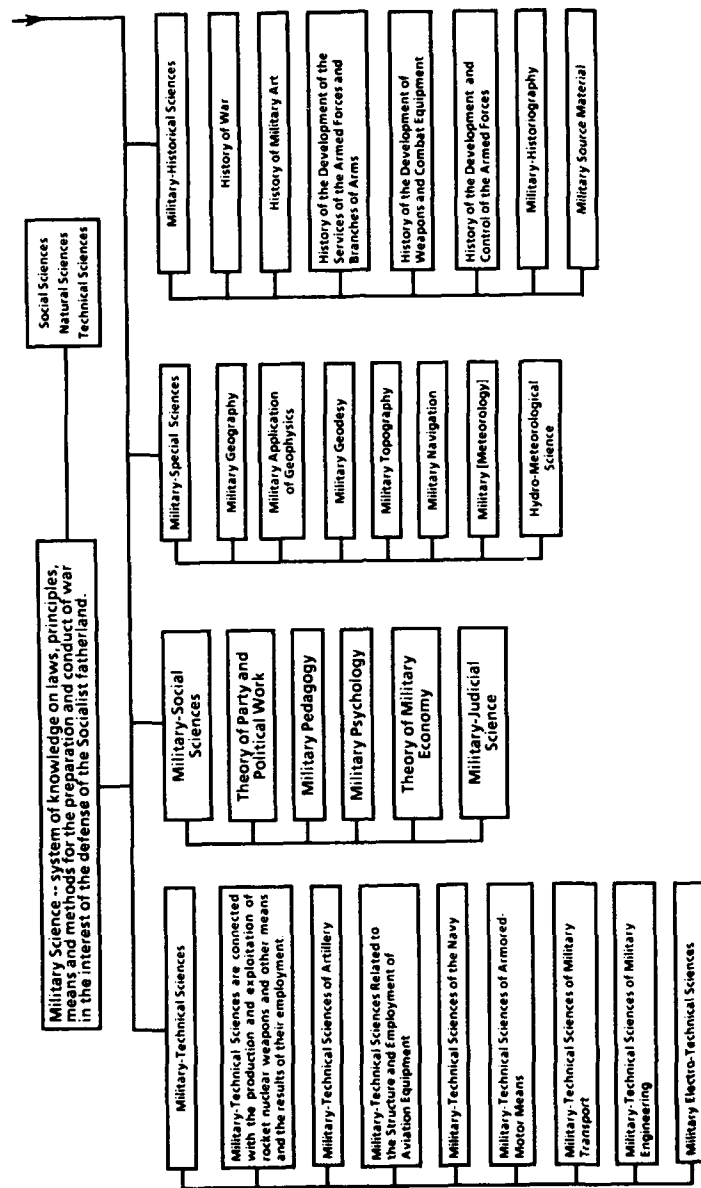
7. *Determination of the possible nature of rear support of the Combined Armed Forces:* This is an important military integration measure. Rear support may be implemented according to three principles:

- each country supports its national forces;
- a unified (coalition) rear service establishment is established which includes national organs of the rear services. Each organ supports its national forces. (This principle is applied when forces of one nation operate in another country or are attached to the forces of another nation.)
- the forces of one nation are supported by the rear service of the *front* or army in which they operate, and later the bill of consumption is sent to the related country for payment.

Appendix

THE STRUCTURE OF SOVIET MILITARY SCIENCE





*Glossary of Soviet Military Terms**

ARMEISKAIA ARTILLERIISKAIA GRUPPA (AAG) Army artillery group: The army artillery group is organized for the accomplishment of missions in support of the main forces of the army in the operation. These missions include combat with the enemy's tactical nuclear means and artillery; inflicting losses on enemy reserves and command posts; and supporting the first echelon divisions in the direction of the main attack. Depending on the number of first echelon divisions operating in the direction of the main attack, the army artillery group can be divided into several subgroups.

The number of artillery battalions in the army artillery group can be 8-10 or more. In addition, a rocket artillery group can be established at the army level.

ARMEISKAIA GRUPPA REAKTIVNOI ARTILLERII (AGRA) Army rocket artillery group: In order to use the enormous capability of rocket artillery organic to the artillery division reserve of the Supreme High Command, a separate rocket artillery group is established in the army for

*These definitions, prepared by Colonels Wardak and Jalali, are based principally upon material presented at the Voroshilov General Staff Academy in the mid-1970s and the Frunze Military Academy in the early 1980s. The reader is also referred to S.F. Akhromeev, ed., *Voennyi entsiklopedicheskii slovar'* (Military Encyclopedia Dictionary) (Moscow: Voenizdat, 1986), for additional discussion of a number of these, and other, key Soviet military terms. It should be noted that throughout the glossary and the text, frequent reference is made to military organizations of various sizes that in some cases have no precise English translation. In this regard, *podrazdelenie* has been translated as "small unit" or "subunit" (typically denoting a force of battalion, company, or platoon size); *chast'* has been translated as "unit" (usually a regiment or separate battalion); *soedinenie* appears as "large unit" (typically a division or brigade); and *operativnoe ob'edinenie* and *ob'edinenie* are rendered as "operational formation" and "formation," respectively (both terms usually referring to an army or front).

central use in the direction of the army's main attack. It provides for rapid maneuver of artillery in the directions required to conduct missions for inflicting maximum losses on the main grouping of the enemy.

ARMIIA PROTIVOVOZDUSHNOI OBORONY (PVO) Air defense army: An operational formation of the National Air Defense Forces assigned for the air defense and cover of political, administrative, industrial, and military centers; groupings of ground, airborne, and naval forces; and groupings of aircraft mobilization areas, naval bases, airfields, communication routes, and supply bases against enemy air strikes.

The composition of an air defense army is not constant, but depends on the mission, significance of the direction to be covered, characteristics of the TSMA, scope of the covered area, and the nature of enemy action. An air defense army having one to two corps, two to four air defense divisions, and other separate units of troop and service arms can have the following composition:

- 5 to 7 air defense rocket brigades;
- 15 to 20 air defense rocket regiments;
- 6 to 12 fighter aviation regiments;
- 3 to 6 radio-technical brigades (regiments);
- 1 separate radio regiment of special designation [jamming] (*otdel'nyi radiopolk spetsial'nogo naznacheniia-spetsnaz*);
- 2 to 3 radio-technical battalions [jamming] (radio-technical battalions of special designation *spetsnaz*);
- signal center;
- engineer units;
- chemical protection units;
- rear service units and installations.

The area of action of the army is assigned by the General Staff.

ARTILLERIIA RESERVA VERKHOVNOGO GLAVNOGO KOMANDOVANIIA Artillery reserve of the Supreme High Command: Artillery units and large units whose employment and allocation are reserved by the Supreme High Command. Their armament is similar to that of the combined arms troops' artillery, and also includes high power (heavy) and special guns (175-mm to 240-mm). While artillery reserves of the Supreme High Command are not organic to combined arms units and large units, they are temporarily assigned by the Supreme High Command (i.e., temporarily placed in operational subordination) to reinforce combined arms groupings operating in the main direction(s).

ARTILLERIISKAIA GRUPPA Artillery group: The artillery group includes artillery subunits, units and large units grouped during battle (operations) to conduct missions in support of combined arms units (large units and operational formations) and is controlled by unified command. The artillery group is under command of the commander of the combined arms unit, large unit, and operational formation. The composition of the group depends on the size of the penetration area

(breakthrough area), nationality of the defending troops, support requirements, the number of targets, available artillery resources, and the missions to be accomplished to destroy the targets by artillery. The composition of an artillery group can be changed during battle (operation).

ARTILLERIISKAIA PODDERZHKA Artillery assault support fire: Artillery assault support fire is an artillery action at the beginning and during the conduct of the assault by friendly troops, which inflicts direct and continuous losses on the enemy by fire in front of, and on the flanks of, the attacking troops to create conditions for their uninterrupted advance. At the same time, it continues to inflict losses on targets in the depth of the enemy defenses. The artillery assault support fire begins after the end of the artillery preparatory fire. The principal methods of assault support fire are:

- ognevoi val* (OV) rolling fire simultaneously on one or two lines combined with concentration of fire;
- postedovatel'nyi sosredotochennyi ogon'* (PSO) successive concentration of fire simultaneously on one or two lines;
- sosredotochennyi ogon'* (SO) concentration of fire on call by the commanders of attacking subunits.

The artillery assault support fire during the attack is coordinated with the advance of the motorized rifle and tank battalions (regiments).

ARTILLERIISKAIA PODGOTOVKA Artillery preparation: A direct combat action of the artillery prior to the assault of infantry and tanks. It is conducted to destroy (suppress) and to annihilate enemy targets. Artillery preparatory fire is pre-organized fire to deprive the enemy of his capability to resist attacking troops. Artillery preparatory fire is part of the assault preparation fire. It begins at a specific time and ends on the arrival of the attacking subunits at the assault line. The duration and composition of artillery preparatory fire is determined by the concept of the operation (battle) grouping of the troops, characteristics of the enemy defense, required degree of inflicting losses on the enemy, and also the nature of missions conducted by the air force, rocket troops, and other elements. The duration of preparatory fire during an attack from the march includes the time from the deployment of the units into battalion columns until they reach the assault line. In an attack from direct contact with the enemy, the duration of preparatory fire is determined by the number of targets to be destroyed or by the width of the penetration area and the nationality of the enemy. Preparatory fire consists of one or several fire strikes for a duration of 20 to 40 minutes or more. During penetration of the enemy defense in the depth of his defenses, during the commitment of the second echelon troops into battle (engagement), and during the conduct of counterattacks (counterblows), its duration can be 10 to 30 minutes.

ARTILLERIJSKOE OGNEVOE SOPROVOZHDENIE Artillery accompanying fire:

An artillery combat action during the development of the attack in the depth of the enemy defenses. It is conducted by artillery and rocket strikes with non-nuclear warheads to inflict losses on newly detected targets and surviving enemy troops, which hamper the advance of the attacking troops. Artillery accompanying fire is part of accompanying fire. It begins at the end of the artillery assault support fire and continues until the accomplishment of the combat mission by the troops.

During artillery accompanying fire, artillery preparatory fire and artillery assault support fire can be conducted at specific junctures such as at the prepared defensive lines in the depth of the enemy defenses which are to be penetrated on the march; in repelling enemy counterattacks; in supporting the action of airborne troops; during the commitment of second echelon troops into battle, etc. Accompanying fire is conducted by methods of concentration fire (SO) and massive fire (MO) or by fire with artillery platoons, batteries, and battalions on call by the combined arms commander.

AVANGARD Advance guard: A motorized rifle or tank subunit detached by a combined arms unit for tasks in advance of the main body of troops. In the march, the advance guard serves as a march security element which is detached by the main body along the direction of march to ensure uninterrupted movement of the main body, to prevent enemy surprise attack on the main body, to prevent the infiltration of enemy ground reconnaissance in the area of the march of the protected troops, and to create favorable conditions for the deployment and commitment of the main body into battle.

In the attack, advance guards are detached from first echelon regiments to destroy enemy units defending in the security zone, or during pursuit to destroy the enemy's covering troops and to delay the withdrawal of the enemy's main troops.

AVIATSIJA PROTIVOVOZDUSHNOI OBORONY (APVO) Air defense aviation:

An arm of the National Air Defense Forces, which is assigned to cover important directions, areas, and targets against enemy air strikes. Air defense aviation destroys enemy aircraft in the air at long distances from the covered targets. Air defense aviation includes fighter aircraft and also transport helicopters and other aircraft.

AVIATSIONNAIA GRUPPIROVKA Aviation grouping: Aviation groupings consist of aviation formations, large units, and units. They are deployed or concentrated to conduct combat missions during an operation (battle) in accord with the concept of the operation. Aviation groupings are established in TSMA's along strategic and operational directions, and in areas of combat actions. In terms of scale, the groupings may be strategic, operational, or tactical and organized into main force (strike) groupings, support echelons, and development forces.**AVIATSIONNAIA PODDERZHKA** Air support: A type of aviation support conducted to support the assault of the troops. It supports combat

formations and large units of the ground forces in operations or battle. It is part of the supporting fire of the attack. Air support begins when the troops initiate the assault. It is conducted by *front* aviation. Air support suppresses or destroys the enemy's nuclear delivery means, immediate reserves, command posts, strong points, weapons, and other targets. Small and mobile targets and targets out of range of artillery are among those suppressed by aviation means.

AVIATIONNAIA PODGOTOVKA Air preparation or air preparatory fire: Air preparation (preparatory fire) to support the assault of the troops is a type of aviation combat action which is carried out before the commencement of the assault by ground forces in order to inflict casualties on the enemy. It is an integrated part of preparatory fire of the attack, and is simultaneously conducted with artillery preparatory fire. During air preparatory fire, *front*, army, and sometimes Long-Range Aviation participate. Air preparatory fire primarily attacks enemy nuclear delivery means; command posts; tanks, artillery, and their assembly areas; defensive strong points and defensive areas; enemy aircraft on airfields and the airfields themselves; and crossing sites. During air preparatory fire, small and mobile targets and the targets which are out of the range of the artillery are suppressed by aviation.

AVIATIONNOE OGNEVOE SOPROVOZHDENIE Aviation accompanying fire: A type of aviation support conducted on behalf of the attacking troops, and in constant cooperation with the troops in the depth of enemy defenses, by launching air attacks on enemy nuclear delivery means; reserves; tanks, rockets, and artillery systems; and defensive strong points. It is part of the accompanying fire during the offensive operation.

AVIATIONNOE PEREKRYTIE Air cover: One of the main tasks of fighter aviation. It is conducted to prevent enemy air strikes on the main body of troops, rocket troops, airfields, fleet components, and rear service installations, as well as to prevent air reconnaissance by the enemy. In addition, air cover is conducted to protect the units and subunits of other aviation arms and services.

Air cover is achieved through the active and decisive actions of fighter aircraft to destroy the enemy's aircraft in the air. Air cover is conducted in coordination with the grouping of air defense troops.

AVIATIONNO-TEKHNICHESKAIA CHAST' Aviation-technical unit: The principal organizational unit of aviation rear services organic to the Air Forces, Naval Aviation, and National Air Defense Forces aviation assigned to provide direct supply of materiel and equipment, technical support of the airfields, and medical support of the aviation units deployed on one or several airfields. The aviation-technical unit can be a separate organization, or it can be part of aviation-technical large units. Aviation-technical units include aviation bases and technical support battalions (companies).

- AVIATIONNO-TEKHNIKESKOE SNABZHENIE** Aviation-technical supply: A system of measures conducted to supply aviation units, large units, and operational formations with all types of aviation materiel and equipment. Aviation-technical supply is conducted by the associated services of the aviation rear services, and aviation-technical units and large units, through depots and aviation-technical bases.
- AVIATIONNYI PREDSTAVITEL'** Aviation representative: An air staff officer, or a member of the command element of an aviation operational formation (large unit), attached to an operational formation (large unit) of the Ground Forces, fleets, and Airborne Troops in order to maintain constant coordination of aviation with these troops. The aviation representative is authorized to control the aviation troops in the air, to confirm the previously assigned missions and to direct them to other targets. The aviation representative is attached to the designated headquarters along with a number of required personnel and communication means to ensure his ability to communicate with his parent unit, with aircraft, and with supported troops.
- BAZIROVANIE AVIATSII** Basing of aviation: The use of airfields, airfield complexes, bases, depots with materiel reserves, lines of communication, local food sources, and designated civilian installations by aviation units and subunits in order to deploy in support of daily aircraft operations in peacetime, and in support of combat action in time of war.
- BESPILOTNYE RAZVEDYVATEL'NYE LETATEL'NYE APPARATY** Pilotless reconnaissance aircraft drones: Pilotless aircraft which provide strategic, operational, and tactical air reconnaissance in continental and oceanic TSMAs. These pilotless reconnaissance means are capable of conducting reconnaissance during day and night (through photography, radar, and other collection means).
- BIOLOGICHESKOE ORUZHIE** Biological weapons: A weapon of mass destruction. The basis of their action is the use of military biological means to create epidemic disease. The high combat effectiveness of biological weapons is based on the limited possibilities of their detection and the capability for secret employment in large areas where masses of people, animals, and plants are contaminated. They produce strong psychological effects and create difficulties in protecting people and troops, and in eliminating their effects.
- BIOLOGICHESKOE ZARAZHENIE** Biological contamination: Contamination of the terrain and air in contact with the ground by microorganisms of epidemic disease, the use of which contaminates masses of people, animals, and plants.
- BLIZHAISHAIA ZADACHA** Immediate mission: The immediate missions of subunits, units, large units, and operational formations of the ground forces in the attack are normally the destruction of enemy nuclear delivery means, destruction of his main forces in the specified area,

and seizure of lines (areas, objectives) which facilitate the development of the attack and accomplishment of the long-range (subsequent) mission.

The immediate mission of a first echelon division is penetration of the enemy's defense in the depth of his first echelon brigades and seizure of the positions of his brigade reserves.

BOEVAIA GOTOVNOST' Combat readiness: Combat readiness (operational readiness) is the capability of troops to initiate combat action in the shortest time under all conditions of a given situation, and to accomplish successfully combat missions at the specified time.

Combat readiness is determined by the combat capabilities of the troops; an accurate understanding of the missions by the commanders, staffs, and political organs; completeness of organizational cadres; completeness of supplies; operability of combat equipment; timely preparation for the upcoming operation; and anticipation of likely changes in the situation. The level of combat readiness in peacetime should be such as to ensure the rapid passage of the troops from peacetime to wartime status, organized commitment of the troops into military action, and their capability to accomplish assigned combat missions.

There are three levels of combat readiness.

—*Postoiannaia boevaia gotovnost'* Constant (routine) combat readiness or Level (*stepen'*) 3. This level ensures the completeness of the troops in personnel and materiel to the extent possible, and maintaining the operability of combat equipment in the conduct of routine activities.

—*Vysshaia boevaia gotovnost'* Increased combat readiness or Level 2. This level is associated with bringing all personnel to permanent residence in the barracks (garrisons), loading supplies on vehicles, assigning operational and combat duty details, and preparing for passage to full combat readiness in the shortest time.

—*Polnaia boevaia gotovnost'* Full combat readiness or Level 1. This level includes leaving the garrison, occupying assigned areas, and fully preparing troops to conduct assigned combat missions.

BOEVAIA ZADACHA Combat mission: A mission assigned by higher commander to subunits, units, large units, and operational formations to achieve specified aims in battle (operation) at the specified time. The content of combat missions depends on the importance, number, combat capability, combat power of friendly and enemy troops, and also the conditions of the situation. The combat mission of an operational formation (large unit, unit, subunit) in the offensive is normally the destruction of the main troops of the enemy in a specific area and seizure of assigned lines (areas and objectives). The time of accomplishment of the action and the method of action can also be included in the

content of a combat mission. A combat mission is divided into immediate and long-range (subsequent) missions. In the defense, a combat mission includes repelling enemy blows, inflicting maximum losses on him, and retaining (holding) specified areas or lines (positions). The most important part of a combat mission in the attack and the defense is the destruction of the enemy's nuclear means.

BOEVOE DEZHURSTVO Combat (on-call) duty: Combat duty constitutes a status in which specific forces and means are brought to full combat readiness to accomplish missions or conduct combat actions which unexpectedly arise. Combat duty may be conducted in peacetime or wartime.

The forces and means assigned to combat duty initiate action in accord with the command (signal) of the higher commander. When such an order or signal fails to reach the duty forces for any reason, these forces initiate action in accord with the decision of their immediate commander.

BOEVOE PORIADOK Organization for combat or combat formation: The grouping of large units, units, and subunits with support means to conduct the battle in accord with the commander's decision. The combat formation is established in accordance with the form, character, and the concept of combat to be fought. It should establish superiority in forces and means over the enemy in the direction of the main attack and should ensure that the maneuver reinforces efforts for exploitation. It also should ensure troop coordination and control in the course of combat. The organization for combat should ensure the decisive destruction of the enemy by skillful use of all weapons and means, terrain, and the consequences of the fire of higher echelons against enemy targets. The basis of the combat formation consists of motorized and tank subunits. Other arms and services are included in accordance with the concept of the operation of these motorized and tank units. The organization for combat should be established to maximize the capabilities of the weapons in accordance with the concept of the operation.

DAL'NEISHAIA (POSLEDUIUSHCHAI) ZADACHA Long-range (subsequent) mission: The long-range mission assigned to combined arms operational formations in the attack is conducted after the accomplishment of the immediate mission. The long-range mission of an operational formation is normally the destruction of newly detected nuclear delivery means, completion of the destruction of opposing enemy groupings and its operational reserves, and seizure of areas which provide for the achievement of the aim of the operation.

For large units, a subsequent mission is assigned which is conducted after the accomplishment of the immediate mission. It includes the penetration of the enemy defenses in the entire depth of the enemy's divisions' defensive area, destruction of enemy divisional reserves, and

seizure of lines which ensure the development of the attack in the depth and to the flank.

DAL'NIAIA AVIATSHIA Long-Range Aviation: Part of the *Voennovozdushnye sily* (VVS—Air Forces) directly under the control of the Supreme High Command. It is assigned to inflict losses on the enemy's vital targets in a theater of strategic military action and conduct air reconnaissance. Long-Range Aviation accomplishes its missions independently or in cooperation with the Strategic Rocket Forces, Navy, Group Forces' operational formations, and National Air Defense Forces.

Long-Range Aviation is organized into aviation corps and aviation divisions, which are equipped with rocket-armed aircraft and bombers. These aircraft carry nuclear and various conventional rockets and are the type of aircraft capable of carrying a heavy load of bombs and rockets a long distance.

DEZHURNAIA SLUZHBA Patrol (on-call) service: This comprises a series of complex measures taken by commanders and staffs of units, large units, and formations during peacetime or wartime to conduct patrol (on-call) activities to monitor enemy actions. These measures include specifying lines and positions for patrol activity, specifying the composition of participating and supporting forces, and indicating the actions to be taken when the enemy is detected as well as other measures.

DIVERSIONNAIA GRUPPA Diversionary group or sabotage group: Groups consisting of units, subunits, partisan detachments, or individual persons located in the rear of the enemy to destroy military industrial targets, disrupt enemy control, and destroy communications groups, personnel, and equipment and destroy other targets. It must be noted that inflicting losses on the enemy by subversive actions greatly affects enemy morale.

DIVIZIONNAIA ARTILLERIISKAYA GRUPPA (DAG) Division artillery group: The division artillery group is organized and assigned to combat the enemy's tactical nuclear means, artillery, and mortars; to inflict losses on the immediate enemy reserves, radioelectronic means, and command posts; and to reinforce the fire of regimental artillery groups operating on the direction of the main attack of the division.

The division artillery group includes several artillery battalions of the same or different calibers. There can be four to six artillery battalions or more found in a DAG.

ESHELONIROVANIE MATERIAL'NYKH SREDSTV Echelonment of materiel means: Echelonment of materiel reserves in an operation (combat) is carried out to meet the requirements of troops for ammunition, POL, food, and other supplies; effectively protect materiel reserves from enemy actions; and provide more freedom of action to troops for longer periods of time. Such echelonment is determined by the directives and orders of higher commanders.

FORSIROVANIE VODNYKH PRIGRAD Forcing water obstacles: A crossing by attacking troops across a water obstacle to the far bank which is defended by enemy troops. The troops in a combat river crossing use tanks, BMPs, self-propelled rafts, and other vehicles. The river crossing is normally conducted on the march (without stopping) to ensure that the high speed of the attack is maintained, and to create favorable conditions to shift the main efforts rapidly to the far bank. A combat river crossing on the march is conducted on a wide front and includes the following elements:

- destruction of the enemy on the river bank;
- crossing of the forward detachments and advance guards, which, along with airborne assault elements, seize bridges and crossing sites or cross the river by means of their own organic equipment;
- crossing of the main troops of the first echelon.

The second echelon troops and reserves are crossed to the far bank in accordance with the development of the attack by their own means or through prepared crossing sites, and are committed for exploitation of the success achieved by the first echelon.

If the river crossing does not succeed on the march, the main forces deploy at the water obstacle and, after a brief preparation, the crossing is conducted by the troops in direct contact with the enemy or by troops advancing from the depth. In this case, prior to the assault crossing, artillery preparatory fire is conducted, which is followed by assault support fire after the initiation of the assault crossing.

GRAZHDANSKAIA OBORONA Civil defense: A system of general national and military measures taken in peacetime and war to protect the population and national economy from weapons of mass destruction and other means of enemy air attack, and also to conduct rescue operations and urgent repair work and restoration in casualty centers and in areas of natural disaster.

The missions of civil defense are as follows:

- directly protecting the population from weapons of mass destruction and other enemy means;
- maintaining the operation of State organs and the national economy during war;
- eliminating the consequences of enemy attack during war and the impact of natural disasters in peacetime;
- preparing civil defense forces and the population for war;
- conducting rescue and restoration operations;
- providing security for social order.

GRAZHDANSKO-OBORONOE NAPRAVLENIE Civil defense direction: A terrain area where civil defense forces and means are located. A civil defense direction may include one or several regions of a city as well as rural localities included in the area. Civil defense forces and means are deployed to civil defense directions in accord with the availability of resources and the type and scope of destruction or contamination.

GRUPPA BOEVOGO UPRAVLENIIA (GBU) Combat control group: The combat control group is detached from an air army and posted at the command posts of the first echelon divisions of the *front*. Their mission is to conduct coordination of aviation troops with the motorized rifle and tank divisions and airborne troops, provide mutual identification between the aircraft and ground forces, and guide the aircraft to the ground targets.

GRUPPIROVKA VOISK Grouping of forces: The concentration of the troops, i.e., operational formations, large units, units, or subunits of various arms and services of the Armed Forces and rear service units in a specified system, in accord with the plan and the assigned mission in the operation or battle. Groupings of forces are established in the TSMA and on strategic directions, on operational directions, or in specific areas in zones. Depending on the Service or branch of the Armed Forces, the grouping of forces is classified as follows: Grouping of Air Forces, Air Defense Forces, Artillery, etc. In terms of the scale, a grouping is designated a strategic grouping, operational grouping, or tactical grouping. In terms of the mission, groupings are classified as main groupings, strike groupings, etc.

ISKHODNYI RAION Staging area: An area fortified by engineer troops for large units, units, and subunits before the initiation of an attack, river crossing, or airborne assault operation. It is selected at such a distance from the enemy that the deployed forces are safe from enemy artillery fire. It may also be occupied when in direct contact with the enemy.

Within the staging area are the lines and positions for the covering troops, positions for the first echelon units, assembly areas for the second echelon troops and reserves, positions and areas for rocket and artillery troops and air defense troops, and the movement and maneuver routes for the second echelons and reserves, command posts, and rear service control points. It is prepared beforehand or by the troops when they reach the area.

ISKHODNYI RAION DLIJA DESANTIROVANIIA Staging area for airborne or sea-borne assault landing operations: An area on the ground reinforced by engineer work for the deployment of subunits, units, and large units before they are embarked to conduct assault landing operations. In the case of airborne operations, for example, it provides for force concentration in preparation of the airborne assault operations and operations of military transport aircraft. The staging area, in this case, includes the following elements: areas of deployment of airborne units, waiting areas, and the main airfields and reserve airfields for military transport aircraft or areas for landing of helicopters. It is covered by air defense units.

ISKHODNYI RUBEZH Start line or line of departure: A designated line from which troops begin to conduct assigned missions. The departure line is assigned in order to ensure simultaneous action of troops in a march or

during river crossings. The departure line in the march is located a specific distance from the location of troops or from their assembly area. It is selected at a place which ensures the formation of march column by the units and subunits which are to move at the head of the column at specific times. During river crossing operations, the line of departure is selected at a distance from the river to ensure or facilitate the deployment of troops into combat formation and protect them from the direct fire of enemy artillery, i.e., guns, tanks, and guided antitank rockets. In the attack, the line of departure is actually the line of initiation of the assault.

KOMANDNYI PUNKT (KP) Command post: The main point from which the commander controls his troops. At the command post, along with the commander, are the main component of the staff, the political affairs department, and other departments, and control organs of the various arms and services. There are 45 to 50 percent of control personnel at the command post. The operation is supported by a signal center and supporting elements.

KOSMICHESKAYA SISTEMA Space system: A grouping of space and ground-based forces and means assigned to accomplish special military missions with the help of various types of space means.

The composition of space systems includes the following elements:

- unified space means deployed in space in a specific way and specific orbit, including one or several space vehicles;
- space vehicles prepared for launch with their payload at the launch complex (for the deployment of new space systems or to reinforce active space systems and to compensate for them if the active systems cease to function). There are normally two to three launch complexes in each system;
- two to three command and measurement centers, centers for electronic calculations, and other elements of command and measuring complexes needed for the control of space vehicle flights and their operations in space;
- several receiving centers of information (data) from space means (three to four), which are connected by communication links with the center of collection, processing, and analysis of information;
- search and rescue complexes;
- command posts of the system from which the control of the operation of the system is conducted.

Military space means are under the direct control of the Supreme High Command, and they are centrally employed.

LETNYI RESURS Flight resource (sometimes translated as "sortie rate"): The number of aircraft (helicopter) flights, and the number of aviation subunit, unit, and large unit flights allocated to conduct specific combat missions. The flight resource is determined by the content of the missions, combat composition of subunits, units, large units, and operational formations, their combat capabilities to inflict losses on targets,

- probable combat efficiency, training of flight crews, and also availability of fuel, ammunition, and other materiel.
- MARSH** March: An organized advance of operational formations and troops in marching columns on infantry combat vehicles or by foot on roads in order to reach a specific area or assigned lines by a specific time, prepared to accomplish combat actions. In time of war, the march is conducted parallel to the front or from the front to the rear. In each case it can be conducted with or without the probability of a meeting engagement with the enemy. It can also be conducted under conditions using nuclear weapons or without the likelihood of their use. The march is normally conducted at night or under conditions of limited visibility. It should be conducted at high speed, to the extent that this is possible. Marches are conducted to exploit the operations of the first operational echelon troops, to create new groupings in new directions, to cover the gaps, to participate in a counterblow in order to repel an enemy attack, to accomplish and complete the destruction of individual enemy groups, and to create combined arms reserves in the TSMA, etc.
- MARSHRUT** March route or direction: The actual march route in a designated direction of march assigned to the troops and transport means. The direction of march is shown on the map by marking the important points through which the direction of march will pass, or it is shown by azimuth. Normally the march will not be conducted through large built-up areas, lines of communication centers, defiles and passes, chokepoints, or in the vicinity of major railroads.
- MASKIROVKA** Camouflage, concealment, and deception: A collection of measures conducted in terms of aim, time, and space to deceive the enemy about the location, ability, and composition of the troops and targets (especially nuclear rockets), the status of preparation and combat action of the troops, and the plans and intentions of the troops. *Maskirovka* is a type of combat support measure which ensures surprise action and protection of the combat capability of the troops. It can be conducted on different scales, i.e., strategic, operational, and tactical. In terms of the type of enemy reconnaissance encountered, *maskirovka* may be classified as hydroacoustic, sonar, optic, electronic, radar, radiation, radio, radio-technical, heat, and other types. The high effectiveness of *maskirovka* is ensured when it is conducted simultaneously against all types of enemy reconnaissance. It is conducted continuously in all types of troop combat. The forms of *maskirovka* measures are maintaining secrecy, conducting deceptive actions and demonstrative actions, destroying any indications which would disclose or assist the enemy in determining the location or intention of friendly troops, and conducting broad disinformation operations.
- MASSIROVANNYI OGON'** Massive fire: A type of artillery fire, with all or most of the artillery organic to a large unit, conducted simultaneously

to inflict losses on enemy targets in the shortest possible time. Targets can be fired at singly or simultaneously and distributed among the artillery groups or units and battalions.

MOBILIZATSIYA Mobilization : The collection of a series of measures to bring the Armed Forces, the nation's economy, and State administration to a war footing. This can be a general mobilization or partial mobilization, depending on how much of the Armed Forces of the country is mobilized. The mobilization can be conducted covertly or openly. The announcement of mobilization is conducted through the declaration of the highest authorities of the State. In the Soviet Union, this is the Presidium of the Supreme Soviet. To conduct a successful mobilization of the Armed Forces the following actions should be taken: preparing personnel and resources for quickly providing the necessary means; facilitating the deployment of military organizations; collecting required reserves of weapons, combat equipment, and other materiel means in time of war; appropriately and accurately calculating and alerting related authorities for the collection of required reserves for war in a timely manner; and mobilizing transport means. Economic mobilization includes the following: deploying military production elements; making required adjustments in the nation's economy to support upgrading the production of military materiel; ensuring the operation of transport organs and lines of communication means in the interest of meeting wartime requirements; ensuring the viability of the agricultural system of the country; adjusting the operation of scientific and experimental institutions of the production elements of the country to meet the requirements of the Armed Forces for new products, equipment, and technologies to be used in war.

OGNEVOE SOPROVOZHDENIE Accompanying fire: Accompanying fire inflicts losses on the enemy by fire during the course of the attack. It includes artillery fire and rocket and air strikes in the course of the attack by the subunits, units, and large units of combined arms forces in the depth of enemy defenses. Accompanying fire inflicts continuous losses on the enemy by fire to destroy its personnel and equipment opposing the attacking forces. It also inflicts losses on the immediate reserves of the enemy. Accompanying fire is conducted following assault supporting fire, i.e., it begins after the termination of assault supporting fire and continues through the entire depth of the assigned mission.

OGNEVOI VAL Fire barrage: A fire barrage is a continuous fire screen on one or two lines conducted simultaneously in front of the attacking forces which are advancing into the enemy defenses. The first is conducted and moved into the depth of enemy defenses successively, in accordance with the advance of the attacking forces. The artillery barrage is a type of fire and also a method of artillery support of the attack. This fire is prepared during the penetration of the enemy

defenses. It is conducted on principal lines and intermediate lines. The shifting of fire from one line to another is conducted in accordance with the signal of the battalion and regiment commanders of the attacking forces.

OPERATIVNAIA ZADACHA Operational mission: A mission assigned by a higher commander to operational formations, i.e., army or *front*, to achieve a designated objective in the operation at a specific time.

OPERATIVNO-STRATEGICHESKII VOZDUSHNYI DESANT Operational-strategic airborne assault landing: An operational-strategic (until the early 1980s termed simply "strategic" in open literature) airborne assault landing is conducted by one or several airborne divisions supplemented by motorized rifle troops which are landed. Such an operation is planned by the General Staff with the participation of the overall command of the Air Forces, and the Airborne Troops command. Several divisions of Military Transport Aviation, Airborne Troops, Long-Range Aviation, a motorized rifle division, troops from PVOS, fleet elements, *front* air armies, and *front* rocket, artillery, and air defense troops may participate in the operation.

The missions of an operational-strategic airborne landing are as follows:

- seizing enemy political and administrative centers and disrupting national control means;
- completing the destruction of bases and troop groupings and the groupings of enemy nuclear weapons which are hit by friendly nuclear strikes;
- seizing important economic areas, large islands, and peninsulas;
- supporting forces resisting within enemy territory and opening a domestic (internal) front;
- assisting the troops operating from the front in accomplishing their missions;
- preventing the movement and advance of enemy reserves;
- opening new fronts on new directions.

The depth of the operational-strategic airborne landing can be 500 to 600 km or more.

OPERATIVNO-TAKTICHESKII VOZDUSHNYI DESANT Operational-tactical airborne assault landing: An operational-tactical (a term introduced by the early 1980s into open literature) airborne landing may be conducted by up to one airborne regiment or by a landing assault brigade (*desantno-shтурмова́я бригада*). It is assault landed at a depth of 100 to 150 km in a conventional war and a depth of 250 to 300 km in a nuclear war. The operational-tactical landing force conducts the following missions:

- destroying nuclear weapons and chemical and nuclear weapons bases and depots;
- destroying airfields and air bases, control points, and air defense means;

- seizing bridges and bridgeheads, mountain passes, critical terrain areas, and other important targets;
- seizing and retaining in some conditions, important lines and areas in the enemy rear, covering the open flanks of army troop groupings, fighting enemy reserves and air-mobile forces, and enemy airborne and seaborne troops.

The high versatility of landing assault brigades allows them to conduct combat action from the air and on the ground in coordination with attacking troops and other elements of the *fronts* and armies, and to launch surprise blows on the enemy. When nuclear weapons are employed, they are employed mostly in the wake of nuclear strikes. Planning their employment is conducted by *front* and army commanders with the participation of the chiefs and commanders of various arms and services.

OPERATIVNO-VOZDUSHNYI DESANT Operational airborne assault landing: An operational airborne landing may be conducted by an airborne division which is dropped in a conventional war at the depth of 150 to 300 km, and in a nuclear war at a depth of 300 to 400 km. The planning and conduct of an operational airborne assault landing is done by the *front* commander with the participation of Military Transportation Aviation, other Services of the Armed Forces, and the chiefs and commanders of the various arms and services of the *front*. The missions of an operational landing are as follows:

- destroying enemy weapons of mass destruction, and seizing and destroying his nuclear rocket bases and nuclear ammunition depots;
- facilitating a high speed of attack by *front* forces;
- cooperating in the envelopment and destruction of enemy groupings hit by nuclear strikes;
- preventing the withdrawal of the enemy and the advance of enemy reserves;
- destroying troop control means and disrupting the operation of enemy rear services;
- seizing crossing sites and assisting *front* troops in crossing major water obstacles on the march.

The assault force is landed in a defined area. The area for a division airdrop can be 30 to 40 km.

For dropping an airborne division, three to four Military Transport Aviation divisions are required, with each transport division having up to 130 aircraft. The airborne division can conduct independent operations for a duration of six to seven days.

OPERATIVNOE NAPRAVLENIE Operational direction: A part of the strategic direction which includes land areas, water surfaces of adjacent seas, and air space where important operational objectives, i.e., where the enemy's grouping of ground forces, important economic centers, etc.

are located. Within the limits of the operational direction, operational formations of large units and units of various Services of the Armed Forces are deployed and conduct operations or combat actions in time of war.

OPERATIVNOE OBESPECHENIE Operational support: A series of measures taken to create favorable conditions for successfully accomplishing the operation. It includes skillful use of the means of armed struggle, retention and maintenance of the high combat capabilities of the troops, timely warning of the troops (preventing a successful enemy surprise attack), and reducing the effectiveness of enemy strikes on friendly troops. The basic types of operational support are the following: reconnaissance, protection against weapons of mass destruction, radioelectronic combat (*radioelektricheskaya bor'ba*), *maskirovka*, chemical support, engineer support, hydrometeorological support, rear service support, and at the tactical level, security. In the Air Forces, Navy, and National Air Defense Forces, operational support includes specific support measures related to these forces.

OPERATIVNOE POSTROENIE Formation for operations: The grouping of troops in an organization to conduct operations. This must be in compliance with the concept of the operation and should ensure successful implementation of the concept of the operation. The *operativnoe postroenie* of combined arms will consist of one, two, or sometimes more echelons and combined arms reserves. These will include operational formations of large units of combined arms, groupings of rocket forces, artillery groups, *front* aviation, air defense troops, combat support troops, airborne and seaborne assault landing troops, mobile obstacle detachments (*podvizhnyi otriad zagrashdenii*, POZ), rear services groupings, and various kinds of reserves.

OPERATIVNOE RAZVERTYVANIE VOISK Operational deployment of forces: The creation or establishment of operational groupings of forces in the TSMA and in the operational and strategic directions. The principal measures and elements of operational deployment are the following: movement and deployment of the first operational echelon forces in the departure of forming-up areas or directly to the deployment lines, in accordance with the assigned operational missions and operational formation; movement of second echelon troops to the areas of their upcoming action; restoration of Air Force and Navy bases; deployment of control systems; deployment of operational rear services; and organization of all types of supporting measures. Depending on the situation, the operational deployment of forces can be conducted simultaneously or successively.

OPERATIVNOE VZAIMODEISTVIE Operational coordination, interaction, or cooperation: The coordination of the combat action of an operational formation in large units of various arms and services to achieve the aim of the operation in one or several adjoining operational directions.

Based on the instructions of the General Staff of the Armed Forces, it is organized by the commanders of the operational formations.

OPERATIVNYE POKAZATELI Operational indices: Operational indices are used to show the scope of operations and operational action. These depend on the size and expanse of an operation. Each one of the operations has its own indices. For instance, in an offensive operation, the indices will include the depth of the operation in kilometers, the duration of the operation in days, the average rate of advance of the attacking troops in kilometers per day, and the width of the attack zones in kilometers. In a defensive operation, they will include the width and depth of the defensive area. In a march, the length of the distance to be covered in kilometers (from the starting point or starting line to the line or the point of the marching objective or new assembly area), the duration of march in hours or days, the number of assigned directions of march, the width of the movement area, the length of the daily march in kilometers and the average rate of march in kilometers per hour are included.

OPERATIVNYI PERVYI IADERNYI UDAR Operational initial nuclear strike: The operational initial nuclear strike is conducted to inflict maximum losses on the enemy by delivering simultaneously a large number of rockets, bombs, and nuclear rounds against one or several groupings and the most important objectives of the enemy in the TSMA. It is conducted by using all *front* troops, such as *front* rocket troops and aviation, army rocket troops, and division rocket troops. The operational initial nuclear strike is planned by the *front* staff in accordance with the instructions of the General Staff and in cooperation with the staffs of the armies.

ORGANIZATSIYA OPERATSII Organization of the operation: Part of the preparation of the operation (*podgotovka operatsii*). It includes making the decision, transmitting the mission to subordinates, and organizing coordination, organizational control, and combat support missions.

ORGANIZATSIYA VZAIMODEISTVIIA Organization of coordination, interaction, or cooperation: The coordination of the form of the conduct of action of operational formations, large units, units, and subunits of various Services of the Armed Forces and the various arms and services in terms of objective, place, and time; and the direction of this coordination of action to accomplish the assigned missions in achievement of the aim of the operation (battle). Depending on the aim of the action and the size of the coordinating groupings, the interaction of the troops can be strategic, operational, or tactical.

PEREDOVOI KOMANDNYI PUNKT (PKP) Forward command post: The forward command post is established in order to move control organs closer to the troops. This post always should be ready to take over full control of the troops when needed. There are 18-20 percent of the control personnel in the forward command post.

- PEREDVIZHENIE VOISK** Troop movement: Troop movement from one place to another or one area to another is conducted by a march, by railroad, air transport means, maritime transport means, river transport means, or by combined forms. The form of troop movement depends on the number of troops, distance, availability of transport means, communications groups, and other conditions.
- PEREGRUPPIROVKA VOISK** Regrouping of forces: The organized shifting of groupings of ground, air, or naval forces from one area to another. Regrouping is conducted to reinforce the existing grouping or to create new groupings of forces to repel an enemy's attack, develop success in the attack, or shift the combat efforts from one area to a new direction. It also includes the establishment of second echelon troops or reserves. In terms of the objective in scale, the grouping of troops may be termed as strategic, operational, and tactical. The regrouping of forces is conducted by movement of available forces and means by various modes of transport and combined transport from other areas.
- PEREPRAVA** Crossing or crossing site: A passage of the troops over water obstacles, such as rivers, canals, gulfs, straits, and also dams. In another sense, *pereprava* is a crossing site, i.e., the area along water obstacles which are prepared for the crossing of the units. Engineer troops, technical support elements, medical elements, traffic regulation elements, and recovery elements are organized on crossing sites. The crossing sites are classified into assault crossing sites, deceptive crossing sites, bridge crossing sites, ferry crossing sites, ice crossing sites, underwater crossing sites for tanks, and raft crossing sites.
- PEREVAL** Halt: The temporary stop of the marching column for the purpose of resting of personnel, feeding, control and materiel reserves, and technical maintenance of the vehicles. A short halt is normally given after 2 to 3 hours of march for a duration of 30 minutes to an hour. A long halt is given at the beginning of the second half of the daily march for a duration of two to four hours. In a short halt the vehicles are stopped on the right side of the road, the distance between vehicles is decreased to 10 meters, and the designated structure of the columns is not broken. In a long halt, the units disperse and take cover.
- PLANIROVANIE OPERATSII** Planning the operation: Preparing or working out the details of the decision of the commander by marking it on the map with written instructions, calculations, and necessary arguments. Planning may also be conducted in written form with a map addendum depicting the decision of the commander. In addition to this, the operational plan will have other addenda, including the plan of combat employment of various combat arms, combat support arms, and services. Planning elaborates the details and the sequence of the accomplishment of assigned missions by the troops, distribution of the efforts of the troops in terms of the directions of action, coordination between

the troops, combat measures of the troops in different phases, and control actions. Planning is a component of the preparation of the operation and it is conducted under the direct supervision of the chief of staff using the instructions of the commander on the basis of his decision for the operation. Planning is also conducted in accordance with the directions of the commander and staff of the higher echelon. The chief of political affairs, and chiefs and commanders of arms and services take part in the planning process. Only a limited number of people are called to participate in planning to ensure secrecy. Planning of the operation is conducted by different methods: successive, parallel, or a combination of both methods. In the successive method, the subordinate staffs begin planning when planning is completed at the higher echelon. In the parallel method, planning at the lower echelon begins when the decision is made at the higher echelon and the missions are assigned to the lower echelon, i.e., before the completion of planning at the higher echelon. In the third methods, a combination of both methods is normally used when time is limited. Planning in the lower echelons begins after the higher commander's concept of the operation is known, and the initial instructions are given to the lower echelon. The actions taken in planning an operation are supported by the high level of professional training of the officers, the cooperation of the staff, and the wide use of technical equipment, calculators, and computers. The overall planning results are reflected in the operational plan.

PLANIROVANIE STRATEGICHESKOI OPERATSII Planning a strategic operation: Planning of a strategic operation is conducted by the General Staff in peacetime and is a State secret. The overall command and staffs of the various Services of the Armed Forces, the chiefs of arms and services, Deputy Minister of Defense for Rear Services and his staff, the commanders of military districts and fleets and their staffs, and the general staffs of the Warsaw Pact countries participate in the planning only for issues directly related to the use of their forces.

The planning of strategic operations includes the plan of the employment of nuclear weapons; plans for *front*, air, air defense, airborne, and naval operations; plans for combat actions of operational formations and large units of the National Air Defense Forces, and other forces and means participating in the operation; plans for support measures; and others. The planning for military action, with or without the use of nuclear weapons, is based on realistic calculations of both sides with in-depth anticipation and forecasts of the military and political situation around the world. The unified aim of the operation, the attack sectors for *fronts* and armies, the directions of the main attacks and other attacks, and the immediate and long-range missions are specified in the plan. These are the same for both nuclear and non-nuclear war. The plan must be flexible and clear.

In strategic planning, special importance is given to planning the use of nuclear weapons, particularly the plan for the initial nuclear strike.

PODAVLENIE OB'EKTOV ILI (TSELEI) Suppression of objectives (targets): Inflicting such losses, so as to create conditions where an objective or target has lost its combat capability for some time, and its maneuver capability has been restricted or lost. Experience proves that if 25-30 percent losses are inflicted on a group of targets or their area is covered by fire of the same proportion, the targets are considered suppressed.

PODGOTOVKA STRATEGICHESKOI OPERATSII Preparation of a strategic operation: Preparation of a strategic operation in a TSMA is conducted in advance in peacetime. It includes the following elements:

- making the decision for the strategic operation;
- planning the operation;
- establishing groupings of Armed Forces for the conduct of the operation;
- assigning missions to operational formations;
- organizing the interaction of participating forces;
- preparing measures for all-round support in the interest of the strategic operation;
- organizing actions for secret deployment and the constant combat readiness of Armed Forces' groupings;
- organizing control of Armed Forces' groupings in the operation;
- ensuring systematic strategic control of the full and timely implementation of all measures.

POKHODNAIA KOLONNA March column: A formation of large units, units, and subunits for movement in the march along one direction. The march column of large units and units is divided in terms of its depth into columns of units and subunits. It is covered by security elements during the march. In the event a meeting engagement is likely, the march column is structured in accordance with the concept of upcoming battle. This should ensure rapid deployment of troops into combat formation. When a meeting engagement is unlikely, a march column is structured by putting different types of vehicles into separate columns according to their capabilities, so that high rates of advance are maintained and pressure on personnel and combat equipment is decreased. In this case, a separate direction of march is designated for tracked vehicles.

POKHODNYI PORIADOK March formation or order: The order of the march of units, subunits, and large units or vessels conducting a march or passage by sea, to complete an assigned mission. The march formation or the march order should ensure the following: high speed of march, rapid deployment of troops into pre-combat formation, or combat formation and speedy and continuous troop control. The march formation of large units, units, and subunits of combined arms forces normally consists of security elements, the main body, technical support units and subunits, and rear services.

POLKOVAIA ARTILLERIISKAIA GRUPPA (PAG) *Regimental artillery group (RAG):* A regimental artillery group is assigned to inflict losses on enemy personnel, mortars, and other weapons deployed in the first enemy defensive position (i.e., positions of first echelon battalions) or in their immediate rear. A regimental artillery group is established from several artillery battalions. Their number can be three to four or more.

POLOSA DVIZHENIIA *Movement sector or area:* The aggregate of all routes or directions of march which the units and large units of an operational formation use to move from their location to the objective of the march or to a new assembly area. One direction of march or one route is given for units and subunits. For a large unit, one or two march directions or a movement area is assigned. For an operational formation, a movement area is assigned, which includes four to seven march directions.

PORAZHENIE OB'EKTOV ILI (TSELEI) *Destruction of objectives (targets):* Inflicting such losses by various means of destruction that the target completely or partially (temporarily) loses its combat capability and will no longer be able to conduct combat missions. When losses of 40-60 percent are inflicted on a group of targets or their area is covered by fire of the same proportion, the target is considered destroyed.

In a nuclear war, if a division suffers 60 percent casualties (losses), the division is considered to be a unit which has totally lost its combat power (capability). However, in a war without the use of nuclear weapons, a division with a 60 percent loss is considered a force with limited combat capability.

POSLEDOVATEL'NYI SOSREDOTOCHENNYI OGON' *Successive concentrated fire:* A type of artillery fire conducted during the support of the assault, e.g., assault support fire for motorized rifle and tank units. This fire is conducted to destroy any personnel equipment, tanks, and other equipment of the enemy in front of the attacking forces and on their flanks. These targets are engaged successively. The successive concentration of fire is conducted on predesignated areas which are to be suppressed. One or several specific disclosed enemy targets are included in each of these areas.

POSTY TSELEUKAZANIIA (PTs) *Target identification posts:* Target identification posts are under the command of tactical or operational combat control groups, and they are assigned for the identification of targets to aviation. These posts are established by helicopters, small aircraft, infantry combat vehicles, or armored personnel carriers.

POSTY VOZDUSHNOGO NABLIUDENIIA (PVN) *Air observation posts:* An air observation post is assigned for the observation and detection of air targets at low altitudes where radar cannot operate effectively.

PRINIATIE RESHENIIA NA STRATEGICHESKUIU OPERATSIU *Making the decision for a strategic operation:* The decision for a strategic operation

constitutes the basis for developing all measures related to the preparation and conduct of the operation. The decision should be based on an objective assessment of the situation and always should be realistic in every aspect.

The decision for a strategic operation in a continental TSMA is made by the Supreme High Command, and it includes the following elements:

- deductions from an assessment of the military and political situation in a TSMA;
- assessment of the groupings of enemy armed forces and strategic aims of the enemy and his likely plans of action during war;
- composition and capabilities of the forces and means assigned for the conduct of the strategic operation;
- correlation of forces and means on both sides at the beginning of and during the operation;
- aim and concept of the strategic operation;
- structure and layout of the groupings of the Armed Forces for the operation;
- method of employment of nuclear weapons;
- missions of the operational formations of various Services of the Armed Forces;
- instructions on the organization of interaction;
- instructions on all-round support measures;
- instructions on control during the preparation for, and in the course of, the operation.

PROTIVOTANKOVYI REZERV (PTR) Antitank reserve: An antitank reserve consists of antitank artillery units (subunits) assigned to repel the strikes of enemy tanks, to reinforce antitank defenses on the most important directions, and to conduct combat against enemy tanks during the battle. Its composition includes, in addition to artillery troops, other means such as mobile obstacle detachments, flamethrowers, etc. The antitank reserve is established in combined arms units, large units, and operational formations during all types of combat action. The antitank reserve is directly under the control of the commander.

In a *front* the antitank reserve is organized from one or two antitank brigades of the *front*, or from the reserves of the Supreme High Command. In an army the antitank reserve is organized from the army antitank regiment or *front* antitank brigade. In a division the antitank reserve is organized from the division antitank battalion or the army antitank regiment. In a regiment the antitank reserve is organized from the division antitank battalion or antitank guided rocket battery.

PROTIVOVOZDUSHNAIA OBORONA (PEREKRYTIE) VOISK Air defense (cover) of troops: This constitutes complex measures and combat actions related to repulsing enemy air attacks and covering groupings of troops and rear service targets against such attacks. Air defense is organized

in all types of operations (combat actions), marches, and deployment. It includes aerial reconnaissance and warning of enemy air activity; combat actions of air defense rockets and artillery units; combat actions of fighter aviation; organized fire of antiaircraft means; and infantry weapons of troop subunits.

PUNKT NAVIGATSII I TSELEUKAZANIIA (PNTs) Navigation and target identification point: Navigation and target identification points are established in each center of an air army's combat control center. Two to three navigation and target identification points are established. These points are assigned to ensure and support the arrival of aviation at ground targets, guide fighter aircraft to air targets, provide aviation coordination with air defense rocket units, provide mutual identification between aircraft and ground forces, and ensure the flight security of the aircraft.

PUNKT SBORA Collection point: Collection points are designated for the organization of further activities by military personnel and combat equipment of small units after an alert signal. That is, they serve as gathering points for subunits after an alert signal, and must be designated so that all associated forces and means can quickly and easily reach them prepared to move to collection or concentration areas, or to conduct combat actions.

PUNKTY UPRAVLENIIA Control or command posts: Points specially established and equipped with technical means from which the commander and staff officers control the troops during the preparation for and conduct of the operation (battle), and also during combat (on-call) duties.

The following points are established for troop control: main command post, forward command post, auxiliary command post, alternate command posts, rear command post, and airborne command post.

Moreover, mobile command posts are established in armored vehicles, aircraft, helicopters, ships, trains, etc., which are provided with special equipment. Permanent command posts are established underground in the form of fortified and reliably protected facilities.

The relocation of control posts is conducted in a way not to disrupt the activities of control.

RADIONAVIGATSIONNYE PUNKTY (RNP) Radio navigation points: Radio navigation points are established by the *front* to support the operation of *front* aviation. Two to three such points are established at the *front*. They are assigned to support the flight of aircraft in the area of combined arms and tank armies and to designate the flight corridors for friendly aircraft at the *front* line.

RAION DESANTIROVANIIA Assault landing/drop zones or areas: The terrain areas in the rear of the enemy where airborne assault units are dropped or landed. It includes one or several drop zones for the parachute troops, or one or several airfields for air landing operations.

RAION OTDYKHA Rest area: An area where the troops, during long distance marches, spend the night or the day, depending on when the

march is conducted. In the rest area, troops move off the roads and disperse close to the roads or direction of the march. In long distance marches, the troops will be given or designated a 24-hour rest area after each three to five days of the march.

RAION OZHIDANIIA Waiting area: An area on the ground or close to airfields or embarkation areas for the concealed deployment of airborne and seaborne assault units to conduct preparation for embarkation and other necessary preparation of the units.

RAION POGRUZKI I VYGRUZKI Loading and unloading area: An area which is designated for loading and unloading of troops and materiel supplies. It may include several railroad stations, ports, harbors, airfields, helicopter landing areas, waiting areas for embarkation and marshalling areas after debarkation, movement routes for motor vehicles, and stopping areas for loading and unloading of ships in the case of naval movements.

RAION POSADKI MORSKOGO DESANTA Embarkation area of seaborne assault units: A part of the coastline with its adjacent waters where seaborne assault units are embarked on the vessels and transport ships. It includes main and reserve ports for the embarkation of troops on the ships and transport means.

RAION SBORA Collection area: Those areas designated for units to gather after an alert signal and their move out of the garrison. When the combat alert signal is given, subunits may first move to their designated collection points, and from there move quickly to the larger collection areas. These collection areas are to be located in concealed areas which can accommodate the entire unit. Conditions in these areas must be favorable for the formation of march columns and the rapid movement of troops to concentration areas, to avoid detection by the enemy and losses from his air and rocket strikes.

RAION SOSREDOTOCHENIIA Concentration area: Concentration areas are delineated sections of terrain where forces are assembled and concentrated. They are designated in peacetime and are located in places that are judged safest from enemy nuclear strikes. Sites are prepared by various kinds of engineer works. Troops are dispersed in concentration areas by units. These areas must be suitable for supporting the rapid preparation of troops for the conduct of combat actions, or their rapid movement from the area. Alternate concentration areas are also prepared.

RAION VYSADKI DESANTA [Seaborne] assault landing area: A part of the coastline with its adjacent waters where seaborne assault units land and the supporting ships operate. It includes the main and reserve landing areas, areas for the maneuver of ships providing naval gunfire, areas of tactical deployment of landed forces, areas of reembarkation of the troops, areas for the disposition of technical equipment and supplies used for the landing of the seaborne assault units, and areas for the

preparation of different waves of assault landing vessels to land the troops and materiel in the designated area.

RAKETNYE VOISKA STRATEGICHESKOGO NAZNACHENIIA Strategic Rocket Forces: One of the important Services of the Armed Forces. The State and the Communist Party pay significant attention to this Service. The Strategic Rocket Forces have enormous combat capability which includes the destructive power of nuclear weapons, the virtually unlimited range of rockets, great accuracy of fire, a higher combat readiness than other Services in launching massive strikes, the ability to maneuver strikes, and a relatively reduced vulnerability against enemy air strikes.

The main missions of Strategic Rocket Forces are:

- inflicting losses on enemy strategic nuclear delivery means;
- destroying enemy armed forces' groupings;
- destroying enemy nuclear, rocket, air, and naval bases and his military installations;
- destroying targets in the enemy systems of political and military administrative control, transport, power, energy, etc.

The composition of the Strategic Rocket Forces includes the following: operational formations and large units of intercontinental rockets, and operational formations and large units of medium and intermediate-range rockets.

In modern times, rockets may have multiple nuclear warheads, each of which can be directed to a specified target by an automated control system.

RASSREDOTOCHENIE SIL I SREDSTV Dispersal of forces and means: Dispersal of forces and means is conducted to decrease the casualties and losses in personnel and equipment due to enemy action. This is achieved by deploying large units, units, ships, and subunits in the departure areas of forming-up areas, assembly areas and defensive positions, in those places which can accommodate a dispersed disposition of forces. When the troops are moving, the directions of march should be separated by a sufficient distance to decrease the casualties and losses effected by the enemy through the use of different weapons. Sufficient and reasonable distances should be allowed between the vehicles, subunits, and units when they march. The degree of dispersal is dependent upon the nature of the assigned missions, control capabilities, the nature of the terrain, the time of the year and seasonal considerations, meteorological conditions, weather, etc. With the introduction of nuclear weapons in the armed forces, the dispersal of the forces is determined by the fact that two subunits or units located side by side should not be able to be destroyed simultaneously by one nuclear strike.

RAZVEDKA SPETSIAL'NOGO NAZNACHENIIA (RAZVEDKA SPETSNAZ) Special purpose reconnaissance: A type of reconnaissance conducted against

targets in political and economic centers and potential military targets. Its principal missions are the following: acquiring information about political, economic, and military targets; destroying or neutralizing these targets; organizing sabotage and subversive action; and preparing and training saboteurs. Units intended to accomplish such missions are organic to the reconnaissance components of *fronts*, armies, and divisions and constitute special organizations.

RAZVIVAIUSHCHIE VOISKA Development forces: Development forces are part of the formation for operations of an air operation. They are assigned to launch strikes on airfields which are newly detected during the operation and on targets not sufficiently damaged by strike forces and to carry out other missions which unexpectedly emerge during an operation. The composition of the development forces will include up to 10 percent of *front* aviation and 15-20 percent of assigned Long-Range Aviation.

RUBEZH RAZVERTYVANIIA Line of deployment: A designated line on the terrain where units and subunits deploy from march columns to the pre-combat formations or from pre-combat formations to combat formations. The deployment line is designated and assigned to the troops conducting the offensive operation or conducting an attack from the line of march while advancing from the rear. It is also for advancing troops being committed into the meeting engagement or conducting counterattacks or counterblows. A line of deployment is also designated for the antitank reserve. This is the line where the antitank reserve deploys into combat formation to repel an attack or counterattack of enemy tanks.

RUBEZH REGULIROVANIA Traffic regulation line: A designated line on the terrain being crossed by the head of the column of troops moving on a direction of march when conducting offensive operations or approaching from the depth. Traffic regulation lines are also designated to serve as lines for the deployment of troops into battalion columns, company columns, and platoon columns.

RUBEZH VKHODA V BOI (SRAZHENIE) Line of commitment into battle (engagement): A designated line where the second echelon troops or reserves are committed into battle (engagement) and begin their combat action. This line is designated by the commander in his decision. In the course of battle (engagement), the locations can be readjusted according to the situation.

SILY I SREDSTVA Forces and means: Forces and means include personnel and combat equipment of the subunits/large units in formations assigned to conduct combat actions and combat support actions. In this sense, *sily* (forces) means units, such as rifle, tank, or rear service units. During the calculations for determining the correlation of forces and means, *sily* applies to the number of units/subunits and large units. *Sredstva*, or means, applies to the calculation of the weapons systems

such as guns, tanks, aircraft, launching pads, etc., as well as materiel and facilities supporting the forces.

SOSREDOUCHENIE VOISK Troop concentration: The deployment of operational formations, units, large units, and ships in designated areas. Depending on their scale, it may be a strategic concentration, operational concentration, or tactical concentration. Success in troop concentration is achieved through proper selection of the method of troop movement, the directions of march and concentration areas, and the rapid and covert operations of the troops.

SOSREDOUCHENNYI OGON' Concentrated fire: Artillery fire conducted simultaneously by several artillery batteries or several artillery battalions or ships on one or a group of targets. The field artillery is assigned areas of concentrated fire in the context of prepared plans. The battery and battalion conduct the concentrated fire on one target or one area.

SOZDANIE GRUPPIROVOK VOORUZHENNYKH SIL Establishment of a grouping of the Armed Forces: A grouping of Armed Forces in a continental TSMA is determined in advance in peacetime on the basis of the decision for the strategic operation and its components. It is created from the forces and means having constant combat readiness, the forces and means kept in incomplete (cadre) strength, and the troops which are going to be deploying after mobilization.

In determining an Armed Forces grouping and its combat capabilities when composed of troops at different levels of combat readiness, the following elements are taken into consideration:

- role of military action in the TSMA for achieving the aim of the war;
- political and military situation;
- composition and strategic situation associated with the preparation of enemy groupings;
- the degree of the threat of war;
- geographic characteristics of the TSMA, preparation of the TSMA, and mobilization capabilities;
- strategic situation of the groupings of friendly forces and the status of troop movement and deployment;
- economic capabilities.

Depending on the intensity of the threat of war and level of tension in the international situation, the composition of the forces and means kept in constant combat readiness in each TSMA can be decreased or increased.

SPETSIAL'NYI OTRIAD Special detachment: A permanent organization or a temporary establishment in the Armed Forces to conduct special missions, such as destruction of weapon systems, depots, nuclear bases, command posts, military/industrial targets, bridges, communications facilities, and other important targets.

STRATEGICHESKAIA OPERATSIIA Strategic operation: A strategic operation in a continental TSMA comprises the aggregate of strikes by Strategic Rocket Forces, and operations and combat actions by operational formations and large units of Ground Forces, Air Forces, National Air Defense Forces, and the Navy conducted in accordance with a unified general concept and plan, under the control of the Supreme High Command, to achieve the aim of the war in the TSMA..

The composition of forces and means participating in a strategic operation in a continental TSMA can be as follows:

- three to four *fronts*;
- operational formations and units of Supreme High Command reserves;
- operational formations and large units of Strategic Rocket Forces;
- operational formations and large units of National Air Defense Forces;
- operational formations and large units of Long-Range Aviation;
- operational formations and large units of Military Transport Aviation;
- forces and means of the Navy.

The principal elements of a strategic operation can include the following:

- nuclear strikes by Strategic Rocket Forces on important targets in the entire depth of the TSMA;
- air operations of the Air Forces to destroy enemy air forces, nuclear rockets, and other targets;
- initial and subsequent operations of *fronts*;
- naval operations to destroy groupings of enemy ships and submarines in the oceanic TSMA, operations to destroy coastal targets, operations to launch seaborne assault landings, operations to destroy naval communication routes, and operations to defend against seaborne assault landings;
- operations by Airborne Troops;
- combat actions of National Air Defense Forces;
- other elements.

Several thousand nuclear rounds of various yields are allocated for a strategic operation. The following planning factors are associated with a strategic operation:

- width of operations of 1,000-2,000 km;
- depth of operations of 1,200-1,800 km;
- average rate of advance of 40-60 km per day;
- duration of operations of 25-30 days.

STRATEGICHESKII PERVYI IADERNYI UDAR Strategic initial nuclear strike:

The strategic initial nuclear strike is conducted by surprise to inflict maximum losses simultaneously by rockets, torpedoes, air bombs, and other nuclear rounds on the entire enemy main groupings and his main

military, political, economic, and industrial targets in the TSMA. In the strategic initial nuclear strike, all forces of Strategic Rocket Forces, Long-Range Aviation, naval forces and submarines, operational-tactical and tactical rockets and *front* air armies take part. If the operational-tactical and tactical rockets and the *front* air armies are not ready to launch the nuclear strike simultaneously with the strategic nuclear strike, then the combat (on-call) elements of *front* operational-tactical and tactical rockets and *front* aviation forces participate. It is ideal to launch the operational initial nuclear strike simultaneously with the strategic initial nuclear strike, but if it is not possible, then the gap between these two strikes should be narrowed as much as possible. Since the strategic nuclear forces are normally at a higher degree of combat readiness, they may be prepared for the nuclear strikes far ahead of operational nuclear forces. The strategic initial nuclear strike is planned by the General Staff.

STRATEGICHESKII RAION Strategic region: An important part of the TSMA, where a country or part of a country and the most important targets having strategic significance are located. Such targets would include rocket bases, air bases, naval bases and groupings of ground forces, main centers of control, nuclear weapons depots, large communication centers, areas designated to form strategic reserves, rear services, industrial bases, and economic, administrative, and political bases or centers.

STRATEGICHESKOE NAPRAVLENIE Strategic direction: A large area within the TSMA, including the ground areas, coastal areas, and air space areas. Within the limits of the strategic direction, large groupings of the armed forces of the enemy and the most important strategic targets are located. The destruction of these groupings and the seizure and retention of strategic targets and objectives in that area are a main objective of military actions of the strategic operation. Within the limits of the strategic direction, large groupings of the various Services of the Armed Forces assigned to accomplish strategic and operational missions are deployed and used. In time of war, operations or combat actions of such groupings are conducted along a strategic direction. Each continental TSMA may have several strategic directions.

STRATEGICHESKOE OBESPECHENIE VOENNYKH DEISTVII Strategic support of military actions: Strategic support of military actions includes a number of measures taken to maintain troops in a high state of combat readiness, maintain their combat capability, create favorable conditions for the organized and timely commitment of the forces in war, successfully accomplish the assigned missions, warn and prevent an enemy surprise attack, and weaken the effectiveness of enemy strikes.

The principal types of support of a strategic operation in a continental TSMA are as follows:

—reconnaissance;

- protection of the troops and rear service targets against weapons of mass destruction;
- operational *maskirovka*;
- radio-electronic warfare;
- engineer support;
- rear service support;
- others.

Measures for the principal types of strategic support are planned by the General Staff and implemented by the forces and means of the Supreme High Command and also by operational formations participating in the operation.

Different types of support in the interest of the Armed Forces are prepared and implemented in peacetime, and they are further developed and expanded during the operation.

STRATEGICHESKOE RAZVERTYVANIE Strategic deployment: The aggregate of a series of interconnected measures for bringing the Armed Forces from a peacetime to a wartime status. It also establishes the groupings of the Armed Forces for the conduct of war in accordance with the war plan and completes the direct preparation for war. The strategic deployment of forces includes the following elements: transition of the Armed Forces from a peacetime to a wartime status, i.e., bringing the troops to a level of full combat readiness and the mobilization of forces; operational deployment of the groupings of forces in the TSMA; formation of new units, large units, and operational formations required by the operational plans; strategic regrouping of troops by bringing forces from the depth of the country, shifting troops amongst the TSMA's, and the deployment of strategic reserves. Strategic deployment of forces is conducted in accordance with the situation either simultaneously or successively, but it is conducted in extreme secrecy, without giving any indication of the process. The timely strategic deployment of forces is ensured by accurate and precise planning in accordance with the forms of the initiation of war, by maintaining a constant and high combat readiness and mobilization fitness of the force, by preparing the TSMA's in terms of operational and all-round support measures in advance, conducting all-round support of the Armed Forces, ensuring precise and accurate troop control, and adequately covering control centers by air defense and other means.

STRATEGICHESKOE VZAIMODEISTVIE Strategic coordination, interaction, or cooperation: The organization of coordination in groupings of the Armed Forces is one of the most important elements of preparing for a strategic operation. It is the coordination of the actions of the operational formations and large units of the various Services of Armed Forces and branch arms and services in terms of the objective, time, and place in the form of the accomplishment of assigned missions and the direction of their efforts toward the achievement of the assigned

strategic aims. Strategic interaction is organized by the Supreme High Command on the basis of the unified concept and plan of the strategic operation.

SUKHOPUTNYE VOISKA Ground Forces: A Service of the Armed Forces which includes motorized rifle, tank, airborne, rocket, artillery, and air defense operational formations, large units, and units. To support the combat action of the Ground Forces the following special troops are included in their composition: engineer, chemical, radio-technical, signal, transportation, road construction, rear service units and installations, reconnaissance units, etc.

The Ground Forces, along with the Strategic Rocket Forces, are tasked to inflict decisive losses on enemy troops in a theater of strategic military action. The Ground Forces play a decisive role in the destruction of the enemy in a conventional war and in the completion of their destruction in a nuclear war. The Ground Forces are equipped with nuclear weapons, tactical and operational rockets, air defense and antitank rockets, modern tanks, and other contemporary combat equipment.

The principal mission of the Ground Forces, in coordination with the other Services of the Armed Forces in nuclear war, is to undertake decisive attacks at high speed to complete in a short time the destruction of enemy groupings which have been hit by strategic and operational nuclear strikes, and in a conventional war to inflict decisive losses on enemy forces and seize important and vital areas and targets in enemy territory.

SUTOCHNYI PEREKHOD Daily march distance: The distance to be covered by the troops during the march in a 24-hour period. The daily march distance depends on the speed of march of the columns, the length of the marching distance, and the physical capabilities of the drivers and combat and transport vehicles. The length of the daily march of the troops for motor transport columns is 400 kilometers per day. For combined vehicle columns it is up to 300 kilometers. In mountains, jungles, swamps, deserts, and other difficult areas, the average rate of movement and the length of daily march can be decreased.

TAKTICHESKII VOZDUSHNYI DESANT Tactical airborne landing: A tactical airborne landing is conducted by units ranging from a reinforced company to a regiment. They are mostly employed on the first day of an attack. The depth of the landing can be 50-100 km from the original enemy forward edge of defense (*perednii kraj oborony*).

The missions of a tactical landing force can include the following:

- destroying enemy nuclear delivery means, command posts, and surviving small enemy units;
- preventing maneuver by enemy forces and means which have retained their combat capabilities;

—assisting the first echelon divisions in the seizure of road junctions, crossing sites on rivers, and also crossing radioactive contaminated areas and obstacles, especially those caused by nuclear minefields.

The planing of tactical airborne landings is conducted by army and division commanders with the participation of the chiefs and commanders of arms and services, especially those of the air army.

TAKTICHESKOE VZAIMODEISTVIE Tactical coordination, interaction, or cooperation: Tactical coordination is organized by the commander of operational formations, large units, and units amongst the formations and units of various combat and combat support arms carrying out combat actions. Interaction is organized for coordinated action of the troops in battle (engagement) in terms of objective, time, and lines, as well as the types of combat action to be conducted.

Among the important issues in operational and tactical interaction is coordinating the employment of nuclear weapons and other means of destruction with the action of the troops in order to achieve the most effective use of all forces and means in the combat action.

TEATR VOENNYKH DEISTVII (TVD) Theater of Strategic Military Action (TSMA): [The term is sometimes translated as Theater of Military Action(s) or Theater of Military Operations.] In modern times, a component of a continent with its coastal waters, internal seas, and its air space. A TSMA may also consist of an ocean, including the islands, seas, and coasts around the ocean, and its air space. This is called an oceanic TSMA. Generally a TSMA is a space where the various strategic groupings of the Armed Forces, to include ground, air, and naval forces, deploy and conduct military action to achieve the objective of a war. The limits and composition of force and means of a TSMA are determined by the political and military leaders of a nation or allied countries.

TEKHNICHESKAIA GOTOVNOST' Technical readiness: This constitutes the technical status of equipment and weapons that determines their readiness for employment. Adequate technical readiness is particularly critical for nuclear delivery means. Thus, for nuclear rocket weapons, high technical readiness is a state in which rocket forces can facilitate timely delivery of strikes on enemy targets in order to successfully accomplish their assigned missions. In a state of full operational combat readiness, rocket troops achieve specified levels of technical readiness in order to launch timely nuclear strikes on short notice. This includes in the case of rocket troops, for example, measures associated with warhead preparation and the preparation of launchers and aiming mechanisms.

TEKHNICHESKII RESURS Technical resource or technical "life": The capacity for action or operation of a vehicle from the time a unit begins to use that vehicle (or from the time that vehicle is used after a principal

repair job) to the time at which it is no longer operational. Technical resource is measured in terms of years, hours, kilometers, tons, and other units of measurement.

TREVOGA (BOEVAIA) Combat alert, combat alarm: 1. A number of measures taken in the Armed Forces to bring units (ships) to a level of full combat readiness at a specified time, and to prepare them for the conduct of combat missions, surprise attacks, and other operations of critical urgency. In the Soviet Armed Forces, the declaration of combat, air, fire, chemical, and other alarms have been established. 2. A signal to bring troops to a readiness level for action.

TSEL' OPERATSII Aim of the operation: The final outcome of the combat action to be achieved by the troops in the operation. It is determined by the higher echelon or higher commander, and is usually achieved through successive accomplishment of a number of operational missions.

TSEL' STRATEGICHESKOI OPERATSII Aim of the strategic operation: The aim of the strategic operation in a continental TSMA should provide for the complete destruction of enemy groupings in the TSMA; destruction of the enemy's economic and military bases and those of his allies; and eliminating important enemy countries from the war.

TSENTR BOEVOGO UPRAVLENIIA ISTREBITEL'NOI AVIATSII VOZDUSHNOI ARMII (TsBUIAVA) Combat control center of the air army's fighter aviation: The combat control center of the air army's fighter aviation is composed of a number of air army officers with communications means located in the air defense command post of the *front*. Its mission is to control fighter aviation covering the troops and targets of the *front* rear against enemy air attacks, particularly during the repulsion of the mass flights of enemy air forces, and to provide the coordination of fighter aviation troops with air defense elements.

TSENTR BOEVOGO UPRAVLENIIA VOZDUSHNOI ARMII (TsBUVA) Combat control center of the air army: The combat control center is composed of a number of officers of the air army with communications means attached to the command post of combined arms and tank armies. Its mission is to provide for the coordination of aviation with the army troops, to control the *front* aviation troops, and control the air movement of all arms and types of aircraft in the area of the combat action of the combined arms or tank army.

TYL VOORUZHENNYKH SIL Rear (services) of the Armed Forces: An indispensable element of the Armed Forces which includes diverse large units, units, and installations with materiel reserves deployed in the composition of combined arms units, large units, and operational formations, and also with the rear service large units, units and installations directly attached to the central organs of the rear services. Rear services provide for the materiel, technical, and medical support of the Armed Forces.

The rear services are divided into troop, operational, and central components.

The troop rear includes mobile rear service units and subunits organic to large units, units, and subunits. They are assigned for direct materiel, technical, and medical support of the troops under all conditions.

Operational rear services include materiel, technical, and medical large units, units, and installations organic to operational formations and assigned for the all-round support of the troops. The operational rear consists of rear services of *fronts*, fleets and naval bases, military districts, PVO districts, combined arms and tank armies, air armies, and other operational groupings.

The central rear services include rear service large units, units, and installations directly controlled by the main and central directorates of the Ministry of Defense and Main Staffs of the various Services of the Armed Forces. The central rear services comprise rear service reserves of the Supreme High Command.

TYLOVOI PUNKT UPRAVLENIA (TPU) Rear control post: The rear control post is established for the control of the rear services. It should always be ready to take over the full control of the troops when needed. The following elements are in the rear control post: the staff and directorates of rear and technical services as well as those departments and sections of the staff, the political affairs department, and additional elements not included in the composition of other command post.

VERKHOVNOE GLAVNOKOMANDOVANIE (VGK) Supreme High Command (VGK): The VGK is the highest organ of control of the Soviet Armed Forces during wartime. It will directly control the Strategic Rocket Forces (through the General Staff or commander-in-chief of the Strategic Rocket Forces) and *fronts* and separate armies of the Ground Forces deployed in the main TSMA's. The VGK exercises control of large units and formations of the National Air Defense Forces, Air Forces, and Navy through organs from the lowest to the highest levels of control. In this case, the VGK has the authority to assign missions directly to formations and large units without observing the established channels of control.

VIDY VOORUZHENNYKH SIL Services (types) of Armed Forces: Services are an integral part of the Armed Forces assigned for the accomplishment of strategic, operational, and tactical missions during war in one or several spheres of military action (on the ground, at sea, in the air, and in space). The various Services of the Armed Forces include Strategic Rocket Forces, Ground Forces, National Air Defense Forces, Air Forces, and the Navy. All five of these Services of the Armed Forces are specially organized and equipped with weapons and combat equipment consistent with the type of missions they are assigned to accomplish.

VOENNAIA BAZA Military base: An area specially equipped in military terms and prepared for the deployment of military-technical means, required ammunition reserves, fuel and lubricants, foodstuffs, and other materiel. Military bases are divided into aviation bases, naval bases, and rocket bases.

VOENNAIA BLOKADA Military blockade: A form of combat action to isolate (disrupt communication with other areas) an enemy country, large groupings of enemy troops, cities, ports, and other targets. The objectives of military blockades are as follows: disrupting military-economic state power, inflicting heavy losses on enemy groupings, and achieving their subsequent destruction or surrender. A blockade can include total or partial isolation of ground, naval, and air force troops or a combination of total and partial. A blockade is conducted at the strategic and operational level. At the tactical level it becomes an encirclement of the troops.

VOENNAIA DOKTRINA Military doctrine: A system of theories accepted by the State and the Armed Forces about the characteristics, form, and conduct of war, and the preparation of the nation and the Armed Forces of war.

Military doctrine is developed by a country's political leadership according to domestic and foreign policy, on the basis of ideologies about war and the Armed Forces, in close consideration of military-scientific achievements. Military doctrine reflects the economic, political, and historical characteristics of the population and its international commitments.

Military strategy is closely connected with military doctrine and is subordinated to it. At the same time the political basis of military strategy has a direct influence on the development and perfection of the military-technical fundamentals of military doctrine.

VOENNAIA TRANSPORTNAIA AVIATSIIA (VTA) Military Transport Aviation: Military Transport Aviation, a part of the Air Forces, is considered an asset of the Supreme High Command, and is assigned to accomplish missions in landing airborne forces, air transport of other troops, supply of weapons, fuel and lubricants, foodstuffs and other materiel, and evacuation of sick and wounded.

Units and subunits of Military Transport Aviation can be attached to *fronts* for the maneuver of the troops and supply of rockets, nuclear rounds, weapons and other materiel. Military Transport Aviation is organized into divisions and separate regiments equipped with transport aircraft having long-range capability and various transport capacities.

In order to increase the range, speed, and altitude of flight, special measures are taken on the design of wings, and special engines are anticipated which will operate by nuclear power. These aircraft will be able to conduct vertical takeoffs and landings. Transport aircraft are capable of transporting large numbers of airborne troops with their

heavy equipment and armor over long distances, even from dirt airfields with limited runway lengths. Great progress is being made in development of the speed, payload capacity, sustainability, and control of helicopters.

VOENNO-MORSKOI FLOT (VMF) Navy: A Service of the Armed Forces, which is also equipped with nuclear weapons. Nuclear rocket submarines are considered an asset of the Supreme High Command and constitute the basic strike means of the Navy.

The mission of the Navy is the destruction of the enemy posing a threat from the sea, and on the sea: destruction of enemy military and naval bases; protection and defense of communication lines, etc.

The following elements are included in the composition of the Navy:

- submarines equipped with ballistic rockets of long and intermediate ranges;
- submarines equipped with cruise missiles and torpedoes with nuclear warheads;
- Naval Aviation armed with rockets and anti-ship weapons, and reconnaissance aircraft;
- surface vessels;
- coastal artillery and rocket troops;
- Naval Infantry.

Moreover, the Navy has special troops such as reconnaissance, chemical, signal, hydrography, and rear service units and installations.

VOENNO-VOZDUSHNYE SILY (VVS) Air Forces: One of the Services of the Armed Forces assigned to launch strikes on enemy air, ground, naval, rocket, and air defense groupings; and enemy political, administrative, industrial, and economic centers in order to destroy or disrupt the enemy's state and military control systems, his rear services and transport means, and his air reconnaissance. The Air Forces accomplish these missions independently, or in cooperation with other Services of the Armed Forces.

The Air Forces are equipped with operational aircraft, seaplanes, and various types of modern helicopters. The main combat forces consist of supersonic aircraft. The aircraft are equipped with nuclear rockets; air-to-air, air-to-surface, and air-to-ship conventional rockets, and other types of modern weapons; automated control systems; and radio jamming means. The speed of flight, the range of flight, and the altitude of their flight have developed enormously, and some aircraft can conduct vertical landings and takeoff. Special aircraft and helicopters are developed with the capability of carrying heavy artillery and tanks. There are aircraft which can lift a full subunit with all its equipment. Military aviation forces include *front* aviation, Long-Range Aviation, and Military Transport Aviation. The Air Forces, in terms of the characteristics of missions, are classified into the following forms: fighter aviation, fighter-bomber aviation, bomber aviation (and

bombers armed with rockets), reconnaissance aircraft, transport aircraft, and auxiliary aircraft.

The Air Forces also have special troops, such as signal, chemical, radio-technical support, rear service units and large units, etc.

VOJSKA PROTIVO-VOZDUSHNOI OBOROY STRANY (PVOS) National Air Defense Forces: A Service of the Armed Forces assigned to provide defense against aircraft, rockets, and space means on behalf of important targets, to include political, administrative, and economic centers; Strategic Rocket Forces groupings; and operational formations of the Ground Forces, Air Forces, and the Navy. Special emphasis is placed on protection against enemy nuclear strikes.

The National Air Defense Forces are composed of anti-rocket defense forces, air defense rocket troops, radio-technical troops, fighter aviation, and also special troops such as radio-reconnaissance and radio jamming, engineer troops, chemical and signal troops, and rear service units and installations. The National Air Defense Forces are organized into operational formations, i.e., air defense military districts, air defense armies, and large units. The armament of National Air Defense Forces includes anti-rocket complexes; anti-space complexes; long-range and intermediate range air defense rockets, and low-altitude rockets, all armed with nuclear and conventional warheads; long-range and short-range fighter aviation armed with rockets; various radio-technical means; and automated control systems.

Further progress is being made in the perfection of long-range radars, laser means, and infrared equipment to detect targets and independently guided warheads. In the future, a universal system of automated guidance leading to the destruction of various targets such as aircraft, rockets, and even space means will develop. Also anti-rocket complexes will be further developed.

VOORUZHENNYE SILY SSSR Armed Forces of the USSR: The Soviet Armed Forces as a State organ constitutes an element of the State's political infrastructure, a principal means of applying force, and the most important weapon of the political leadership for achieving political aims through the conduct of war. The Armed Forces as a means for conducting war includes a collection of organizations and structures which are organized from the required number of trained personnel armed with weapons and combat equipment, and assigned for conducting war to achieve specific political aims and to ensure the fulfillment of the ideals and supremacy of Marxism-Leninism on the entire globe.

The Soviet Armed Forces include the following elements: Strategic Rocket Forces, Ground Forces, National Air Defense Forces, Air Forces, the Navy, the Armed Forces rear services, Civil Defense, special troops, Border Troops, forces of the Ministry of Internal Affairs (Internal Troops), and other elements of the nation's military structure.

VOZDUSHNAYA ARMIYA (VA) Air army: An operational formation of the Air Forces, which is organic to a *front*. Its missions are as follows:

- Covering troops and *front* rear services against enemy air strikes;
- destroying enemy air forces on their airfields, in the air, and in base areas;
- searching out and destroying enemy nuclear rocket means;
- providing air support to combined arms and tank armies;
- destroying and suppressing enemy reserves;
- conducting air reconnaissance;
- supporting the landing and combat action of seaborne assaults and cooperating with the *front* troops in coastal defense on naval directions;
- landing and supporting Airborne Troops;
- destroying enemy airborne and seaborne assault forces in the air, and in landing areas.

The organization of an air army is not fixed. It depends on the missions of the *front*, condition of the TSMA, and the characteristics of the air enemy. In the Western TSMA the organization of an air army can be as follows:

- up to three fighter aviation divisions;
- one to two fighter-bomber aviation divisions;
- one bomber aviation division;
- up to two air reconnaissance regiments;
- one radio jamming regiment;
- two to three combat and transport helicopter regiments.

VOZDUSHNYI DESANT Airborne (assault) landing or airborne (assault) landing force: Troops especially trained to conduct combat actions in the rear of the enemy. They are dropped or landed by aircraft, helicopters, and gliders.

Depending on the number of troops to be employed, the characteristics of the missions to be accomplished, and the depth of the landing or drop, an assault landing is classified as operational-strategic, operational, operational-tactical, tactical, and also special purpose.

Assault landing forces can be parachuted, landed, or a combination of both. Parachute landing forces are dropped from military transport aircraft to accomplish combat action in the enemy rear, and also to seize airfields which will support the landing of reinforcing elements of various types. A landing force is delivered by aircraft, helicopters, and gliders, against airfields and helicopter landing pads in the enemy rear. [It should be noted that the forms of the Russian word *desant* (including the verbal form *desantirovat'*) refer generally to an assault landing conducted by various air, sea, and ground means. *Desant* also may refer to an assault landing force itself. In the volume, the forms of *desant* are translated as "landing," "assault landing," "assault landing force," and variations thereof depending upon context and issues of style. Unless otherwise specified in the text, these terms should be understood to be pertinent to the airdrop of an airborne assault landing

force (*vybroska vozdushnogo desanta*), airlanding of an airborne assault landing force (*vysadka posadochnogo desanta*), and an assault force landed by the combined airdrop/airlanding method (*kombinirovannyi desant*). In some cases, as dictated by common usage, forms of *desant* are not translated literally. For example, in addition to "Airborne Troops," this was done in the text with "airborne division" (lit. *vozdushno-desantnaia diviziia*—air-assault landing division), and airborne operation (lit. *vozdushno-desantnaia operatsiia*—air-assault landing operation).]

VOZDUSHNYI KOMANDNYI PUNKT (VKP) Airborne command post: An alternate command post providing continuity of control. Its composition is specified by the commander in each case. This means that if a larger helicopter or aircraft is employed, a large number of personnel can be assigned. If not, a smaller complement will be detailed.

VSPOMOGATEL'NYI PUNKT UPRAVELNIIA (VPU) Auxiliary control point: An auxiliary control point is established under special conditions. It may be assigned to control the troops operating on a separate or isolated direction. Its composition and the individual in charge are both specified by the commander.

VYZHIDATEL'NYI RAION Waiting area, attack position: An area of terrain occupied by troops before going over to the offensive. All measures associated with preparation for the offensive are taken here. In recent years, the term refers to the forming-up area and is the final area in which troops wait prior to commitment into combat. It is the area typically associated with the final waiting area occupied by the first echelon unit prior to combat, if such an area is occupied at all. The preferred method now is for the unit to enter combat straight from the approach march, in which case no waiting area is occupied. This area may also be the final waiting area of a second echelon unit. In this case, the unit is formed in columns and makes final preparations while waiting for the first echelon units to accomplish their mission. However, this area, in general, is not always designated in any special terms. During the course of an operation, units (including second echelon units) are generally on the move and, therefore, do not occupy areas, but rather stop periodically in column formation.

VZAIMODEISTVIE Coordination, interaction, or cooperation: See entries for *operativnoe vzaimodeistvie*, *organizatsiia vzaimodeistviia*, *takticheskoe vzaimodeistvie*, and *strategicheskoe vzaimodeistvie*.

ZADACHA DNIA Daily mission: The daily mission is assigned to large units in the attack to be accomplished by the end of the daily operation. It may include the destruction of enemy corps reserve in coordination with adjacent formations, and seizure of areas (objectives and lines) to the depth of 40-60 km.

ZAGRADITEL'NYI OGON' Blocking fire: A type of artillery fire conducted on specific lines of terrain on the front and flanks of units and subunits

operating in a defensive action. This fire is preplanned and prepared in the course of a defensive operation. It is conducted in order to inflict losses and casualties on enemy infantry and tank units and to prevent their attack against the lines supported by artillery. Blocking fire is conducted by regimental artillery groups and divisional artillery groups. These fires are prearranged, prepared, and conducted at a specific time. Blocking fire is divided into two types: fixed (*nepodvizhnyi*) and mobile (*podvizhnyi*). Fixed blocking fire is the highest density of artillery fire used to stop the movement of the enemy, i.e., to repel his attack and counterattack at the specific lines selected beforehand. It is conducted at a specific time by guns using prearranged fire data. Mobile blocking fire is a type of artillery fire used in the defense to repel the assault and attack of enemy tanks and infantry troops by inflicting casualties on them, and to prevent the advance of the enemy to the main defensive line. This fire is conducted continuously along specific lines and is shifted from one line to another successively. The lines are preselected on the most dangerous direction of tank attack.

ZAMYSEL OPERATSII Concept of the operation: The concept constitutes the basis of the decision on conducting a combat action. The concept includes the following elements: the direction of the main attack and other attacks or the area where the main efforts are going to be concentrated; the sequence and forms of destroying the enemy; the method of conducting fire; in the case of nuclear war, the method of inflicting losses on the enemy by nuclear means; and the grouping of forces and the establishment of an organization for operations (see *operativnoe postroenie*).

ZAMYSEL STRATEGICHESKOI OPERATSII Concept of the strategic operation: The concept of the strategic operation in a continental TSMA constitutes the principal content of the decision of the Supreme High Command, and normally reflects the ideas of simultaneous or successive destruction of the groupings of the enemy armed forces and the destruction of important military and economic targets in the entire depth of the TSMA. In the concept of the operation the following points are specified:

- destruction of important groupings, above all enemy nuclear aviation and space groupings, destruction or seizure of important economic and military targets on which the morale and technical support of the armed forces are based; foiling the enemy's mobilization, disrupting his state and military control by the initial strategic nuclear strike or, in the absence of the use of nuclear weapons, by conducting an air operation, which inflicts losses on enemy targets;
- direction of launching the main attacks and other attacks;
- method and form of the destruction of the main enemy groupings in the TSMA and the seizure of vital and most important enemy

areas, the seizure of which foils or greatly restricts enemy military action;

- groupings of the Armed Forces and establishment of the strategic formation of forces in the continental TSMA;
- conduct of airborne and seaborne operations to seize the most important areas and targets and to force the withdrawal of some of the enemy's allies from the war.

ZAPASY MATERIAL'NYKH SREDSTV Reserves of materiel: Materiel reserves constitute a specified quantity of weapons, combat equipment, ammunition, fuel, food, engineer supplies, medical supplies, and other items. Reserves are maintained in rear service arsenals, depots, and bases and in formations, large units, units, and subunits. Reserves of materiel are specified in accord with anticipated peacetime and wartime requirements. In terms of their level of echelonment, they are classified as strategic, operational and troop (tactical) materiel reserves. More specifically:

- strategic reserves are maintained in central arsenals, depots, and bases;
- operational reserves are maintained in the bases and depots of operational rear services found in the various Services of the Armed Forces, where they are under the control of formation commanders;
- troop materiel reserves are maintained in the depots of large units, units, on the transport vehicles of subunits, on combat vehicles, in the launch positions of rockets, with guns, mortars, machineguns, in repair and medical subunits, and with personnel. Troop reserves are divided into materiel reserves of divisions, brigades, regiments, battalions, companies (batteries), and platoons.

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