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USSR REPORT  
MILITARY AFFAIRS

MILITARY HISTORY JOURNAL

No 4, April 1986

Except where indicated otherwise in the table of contents the following is a complete translation of the Russian-language monthly journal VOYENNO-ISTORICHESKIY ZHURNAL.

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## 27TH CPSU CONGRESS ON INCREASED DEFENSE CAPABILITY

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 4, Apr 86 (signed to press 25 Mar 86) pp 3-12

[Unattributed article: "The 27th CPSU Congress on Further Strengthening the Country's Defense Capability and Increasing the Combat Readiness of the Armed Forces"]

[Text] At all stages of socialist construction carried out under the conditions of uninterrupted economic pressures, ideological subversion and constant threats of military attack, originating from the reactionary circles of imperialist states, the Communist Party and the Soviet state have been invariably guided by Lenin's instruction that "we must accompany our steps to peace with an intensification of our entire military readiness...."(1)

The history of the Soviet state represents a convincing confirmation of the leader's prophetic words. During the Civil War the united forces of international imperialism and internal counterrevolution, striving to overthrow the soviet power, counted, first and foremost, on the defense weakness of the young republic of the soviets. In unleashing military conflicts in the region of Lake Khasan and Khalkhin Gol, the Japanese imperialists also counted on easy victory. The entire concept of the Barbarossa Plan was based by the military-political leadership of Nazi Germany on unfounded conclusions about the weakness of our country's economy and the inability of the Red Army to withstand the powerful strikes by the Wehrmacht offensive groups that had been formed and deployed beforehand.

Reality refuted the calculations of the enemy: the interventionists, Japanese aggressors, and German occupiers suffered crushing defeats. However, the aggressive forces of imperialism stubbornly refuse to take into account the instructive lessons of history. Only this can explain the fact that at the present time the leading circles of the United States nurture the pipe dreams of destroying the Soviet Union by depriving it beforehand of the possibility to carry out a retaliatory strike.

Past experience teaches the Soviet people to be vigilant and to maintain constant readiness to rebuff a possible aggression. The contents of decisions and documents of the 27th CPSU Congress represent a striking expression of the manifestation by the Communist Party and Soviet state of their tireless

concern for strengthening the economic and defense might of our fatherland. "The CPSU considers the protection of the socialist fatherland, the strengthening of the country's defense, and the ensuring of state security as one of the most important functions of the Soviet state," the program document states.(2)

The Political Report of the CPSU Central Committee to the 27th CPSU Congress and other congress documents provide a profound scientific substantiation of the objective necessary to strengthen the defense capability of the Soviet state and increase the combat readiness of the Armed Forces. This necessity results from the laws of social development and the peculiarities of class struggle and is authoritatively dictated by the attempts of imperialism to resolve the main contradiction of the contemporary period, the contradiction between socialism and capitalism, by military means. "The more strongly the course of historical development undercuts the positions of imperialism," the new edition of the CPSu Program states, "the more the policy of its most reactionary forces become hostile to the interests of peoples."(3)

Trying to stop and turn back the march of history by force, undermine the positions of socialism, and achieve a social revanche on a worldwide scale, international imperialism is strengthening the reaction in all directions. Imperialists oppose the course of the USSR and its allies aimed at stopping the arms race, strengthening peace and detente, and protecting the sovereign rights and freedoms of peoples, with their plans of military preparations that are unprecedented in their scale and with their policy of threats and shameless interference in the affairs of sovereign states that have liberated themselves from colonialism, the policy of suppression of the liberation struggle of peoples.

The unrestrained arms race is assuming an especially dangerous character. The United States is concentrating its main efforts on developing new types of weapons with the aim of achieving military-technological superiority over the Soviet Union. It is planned, first and foremost, to accelerate the further increase of the strategic offensive weapons, that is, the Ohio nuclear submarines equipped with missiles, the MX and Midgetman intercontinental ballistic missiles, the new B-1B and Stealth strategic bombers, and the air-, sea-, and land-based long-range cruise missiles. The general-purpose forces are being developed at an unprecedented scale, new concepts of their use are being developed, and the organizational structure of troops is being perfected. "Never, perhaps, in the postwar decades," it is noted in the Political Report of the CPSU Central Committee to the 27th CPSU Congress, "has the situation in the world been as explosive, and hence more difficult and unfavorable, as in the first half of the eighties. The right-wing group that has come to power in the United States and its main fellow travelers in NATO have sharply turned away from detente to a military policy of force."(3a)

The striving of the United States to transfer the arms race to outer space and the course taken by the United States toward preparations for Star Wars present a special threat to peace. What is being counted on is the creation [sozdaniye] and deployment of a new class of arms, that is, the space-based strike weapons with the simultaneous large-scale increase and perfecting of the offensive nuclear potential. According to the thinking of American

strategists, this will ensure the possibility for inflicting the first disarming strike, something that will make it possible to destroy the USSR's strategic nuclear forces and thereby exclude the possibility for a retaliatory strike, and then to exterminate [istrebit] the population and destroy the economy of the Soviet Union.

The U.S. ruling circles strive to even more deeply draw into the orbit of their adventurist plans the European NATO states on whose territories the American first-strike Pershing II missiles and land-based Tomahawk cruise missiles are being deployed. New types of tanks, aircraft, artillery, and other types of combat materiel are being introduced in the armaments of the bloc. A wide complex of antitank weapons is being developed. Strike antisubmarine and other classes of ships are being perfected and developed.

The unprecedented increase in military budgets is one of the most striking manifestations of the aggressiveness of imperialism. Whereas in 1970, NATO member-countries spent \$104 billion for military purposes, the overall total of their military spending amounted to \$254 billion as early as in 1980 and then increased to a total of \$357.5 billion in 1985. They plan to increase this total to between \$400 and \$450 billion in the next few years. Direct military preparations of the United States and its NATO allies have assumed a threatening scope.

Recently the United States has set forth a new concept of "neoglobalism" which asserts the right of the United States to interfere in the affairs of sovereign states on a large scale and to wage against them undeclared wars and covert and overt subversive operations. Proclaiming entire regions of the world as the zones of its "vital interests," the United States strives to establish its political and military control over them and is setting up military bases and large groups of troops, air force, and navy in these zones. As a result of this, the international situation is being further aggravated, new hotbeds of military tension are created, and the threat of a world war is increasing.

Imperialist circles have developed a massive ideological war against the Soviet Union and other socialist countries on the basis of malicious anticommunism and anti-Sovietism. The vilest means and methods, up to and including falsifications of universally known facts and direct ideological diversions, are employed for this purpose and deliberate lies and slander about the Soviet reality are disseminated.

Under these conditions the Communist Party and the Soviet government consider the strengthening of the country's defense capability as one of their main tasks. The Leninist idea of dialectical interconnection between the policy of peaceful coexistence and the necessity of ensuring the reliable security of the country and of the entire socialist community stands out in the congress documents. "There has never been such an awesome danger hanging over mankind," the new edition of the Program says. "But neither have there ever been such real opportunities to preserve and strengthen peace.... The CPSU proceeds from the premise that the historical dispute between the two opposing social systems into which the contemporary world is divided can and must be resolved peacefully."(4)

On the basis of a comprehensive Marxist-Leninist analysis of the main trends of world development, the congress worked out a comprehensive program of the struggle for peace on the planet, for further relaxation of international tension, and for preventing a thermonuclear war that is being prepared by imperialism. In the interests of mankind and for the good of the present and future generations, the CPSU and the Soviet state champion a broad constructive program of measures aimed at stopping the arms race, at disarmament, and at ensuring peace and security of peoples. Suffice it to say that since World War II the Soviet Union has submitted for consideration by world community more than 100 proposals on strengthening stability in international relations and curbing the arms race. "The complex of the new foreign policy initiatives proposed by us," it is said in the statement of M. S. Gorbachev, General Secretary of the CPSU Central Committee, "is calculated to ensure that mankind will enter the year 2000 under peaceful skies and outer space, that it will know no fear of nuclear, chemical, or any other threat of annihilation, and that it will be firmly confident of its own survival and the continuation of the human race."(5)

The new large-scale complex of Soviet peace initiatives precisely defines the concrete goals, methods, mechanisms, and time schedules for achieving a complete elimination of nuclear weapons everywhere and a simultaneous prohibition of space-based strike weapons. "The Soviet military doctrine, too, is formed in complete conformity with the letter and spirit of the initiatives that have been set forth. We intend to continue to act in the military sphere in a way that will give grounds to no one for any fears, even if only imagined ones, for his security."(5a)

Expressing the immutable allegiance of the Soviet Union to the policy of peace and detente, the 27th CPSU Congress, at the same time, expressed the resolve to continue to maintain the country's defense power at the proper level because the implementation of the peaceful foreign policy course requires that the state's defense capability be kept at a high level.

Historical experience teaches us that comprehensively preparing the country for defense, strengthening the might of the Armed Forces, raising their combat readiness to higher levels, and intensifying vigilance represent the decisive factors of restraining the aggressive imperialist circles and ensuring the security of the Soviet Union and the entire socialist community. The potential enemies must know that any encroachment upon our country's security and the peaceful life of the Soviet people will be met with a crushing retaliatory strike. Proceeding from this, the Communist Party is making enormous efforts to ensure that the Armed Forces of the Soviet Union will be maintained at a level that will preclude strategic superiority of the forces of imperialism, that the Soviet state's defense capability will continue to be comprehensively perfected, and that the combat community of armies of the fraternal socialist countries will continue to be strengthened.

In solving this question, the Communist Party and the Soviet state proceed from the most important tenets of Marxism-Leninism on the law-governed connection between war and economy and between military organization of the

society and its entire socioeconomic system. The party considers the development of the economy as one of the decisive factors of strengthening the state's defense capability, of combat capability of the Armed Forces, and of ensuring military victories. Only a strong and modern economic basis can ensure the possibility for maintaining and perfecting the Armed Forces, supplying them with the required quantities of modern weapons, military technical equipment, and all other types of supplies, and complementing them with trained reserves in peacetime and wartime. Taking this into account, the Communist Party has outlined a broad program of growth of the basic branches of heavy industry, the foundation of the country's economy and the basis for ensuring the means of production for the national economy and for maintaining the state's defense capability at the proper level. It is planned to at least double the output of industrial products in the coming 15 years. The key role in carrying out the scientific-technological revolution and in the material application of the latest scientific and technological achievements has been assigned to the machine building industry. The task has been set to considerably accelerate its development, to radically improve the qualitative standard of its products, and to develop and master the production of new generations of technical equipment.

A comprehensive dynamic development of all branches of agriculture and a considerable improvement of their effectiveness are of great importance for the country's defense potential. The implementation of the Food Program, outlined by the party, and the further industrialization of agricultural production will make it possible to reliably ensure the supply of raw materials for the industry and to more fully satisfy the needs of the people and the Armed Forces for food and other types of products.

All types of transportation have a significant role in increasing the country's defense capability. In the coming 5-year plan period it is planned to "commission for regular operations 2,300 km of new railway lines, build no less than 4,000 km of secondary roads, and electrify 8,000 km of railway lines."(6) The volume of sea, river, air, and road freight transportation will increase. This will make it possible to satisfy in good time the transport needs of the national economy, improve transportation for the Army and Navy, and increase the stability of communications under the conditions of a possible aggression by imperialism.

The party decisions on accelerated development of the economic potential of eastern regions and on including in economic operations the most efficient natural resources of the north are of great importance for strengthening the country's economic might and increasing its defense capability.

The party plans to carry out a further progressive transformation in the distribution of productive forces, taking into account the specific features of economic territories and of social and natural conditions. This is required by the necessity to move the energy-intensive production operations closer to the fuel and energy supply bases of Siberia and Northern Kazakhstan. A more efficient distribution of the country's productive forces will ensure a certain autonomy, the stable operations, and the necessary duplication of those production branches on which the society's vital activities depend. The ability of the economy to satisfy the needs of the Armed Forces both in

peacetime and in wartime will increase and the level of its readiness for economic mobilization and for shifting from peacetime to wartime conditions will be raised.

Thus, the Communist Party has embarked on a course of accelerating the socioeconomic development. As a result of the economy's advance to new qualitative levels, the scientific-technological standard of the national economy will be substantially raised and opportunities will be created to ensure the optimal structure and equilibrium in the unified national economic complex of the country. All this will open up the prospects of the Soviet Union, it will have a direct effect on further strengthening its defense might and increasing the combat might of the Army and Navy, and it will raise the authority of world socialism.

Historical experience shows that military development has always been closely connected with scientific-technological progress, and this connection has become increasingly close and multifaceted in proportion to the development of science and technology. Taking this into account, the party has set the task of decisively increasing the role of science and technology and ensuring widespread introduction into the national economy of new technologies: electron beam, plasma, pulse, biological, radiation, membrane, and chemical.

Soviet science is honorably fulfilling its duty to the people -- it is serving the cause of peace at a time when scientific research in the United States and a number of other NATO countries are primarily directed at providing for military needs and at creating the most destructive arms models, including those based on new physical principles. In this, particular significance is given to discovering still unknown properties of matter and the laws and phenomena of nature that would permit a qualitative leap forward in creating new kinds of weapons.

In connection with this the Soviet state has been forced to take reciprocal measures and also divert a necessary portion of scientific forces to work in the interests of strengthening the country's defense in order not to allow imperialist circles to achieve a so-called technical breakthrough in developing means of armed struggle. In its program document, the party stated that is "will make every effort so that the USSR Armed Forces are at a level that eliminates the strategic superiority of the forces of imperialism..."(7)

This produces a need to ensure the immediate development of the types of armaments and combat equipment on which the combat might of the Army and Navy depend, and their ability to successfully accomplish missions of the country's defense against aggression in any conditions. It is therefore important that the creation of new models of weapons and combat equipment is based on the latest scientific achievements and that fundamental and basic research be aimed at the invention of advanced combat equipment.

Military science has an important role in successfully accomplishing military development tasks. It takes into account and utilizes the achievements of all other sciences in the interest of enhancing the combat might of the Army and Navy, researches the laws of warfare, elaborates the theoretical foundations of the planning, organization, conduct, and comprehensive supplying of

military operations, gives recommendations on questions of military training and indoctrination, and reveals possible paths of developing military affairs.

Military-historical research is of great significance. It helps to analyze and summarize valuable domestic and world historical experience and allows +extraction of the necessary lessons from it, revelation of the patterns of the development of military affairs, and appropriate changes to be made in military practice. Without profound study of the experience of past wars, it is impossible to make a correct assessment of changes occurring in military affairs, to project prospects for its development, and to validly accomplish the tasks of building and preparing the Armed Forces.

The interests of strengthening the country's defense capability require further intensification of the work of educating the working people and servicemen of the Armed Forces in the spirit of the inviolable friendship between the USSR peoples, of Soviet patriotism, and of socialist internationalism. "Military-patriotic education and molding a readiness to defend the socialist homeland and to give it all one's strength and, if necessary, one's life," the new edition of the CPSU Program points out, "remain important tasks of ideological indoctrination work." (8) This gives rise to the need, through all forms of ideological work, to educate ideologically staunch, steadfast, and conditioned servicemen, more actively and purposefully develop in them an awareness of their lofty personal responsibility for the defense of the motherland, and a desire, through their labor, to strengthen its defense might and avert manifestations of placidity and passiveness.

The Soviet Armed Forces are on combat watch in one formation with the fraternal armies of the Warsaw Pact member-countries. "Under the conditions of the existence of the NATO imperialist military bloc, the party considers it necessary to assist in every way the improvement of the activities of the Warsaw Pact organization as a tool of collective defense against the aggressive aspirations of imperialism..." (9) The party is tirelessly fighting so that devotion to the homeland of October and pride for the historical achievements of the world's first socialist state combine in the Soviet person with proletarian and socialist internationalism and a feeling of class solidarity with the working people of fraternal countries and everyone who is waging a struggle against imperialism, and for social progress and peace.

One of the basic indicators of a state's defense capability is the heightened combat readiness of its armed forces, because the practicality of its might in contemporary conditions is determined not only by combat capabilities but also the time that is needed to prepare and put troops and naval forces into action. The combat readiness of the Soviet Armed Forces must therefore constantly be at a level that rules out the least opportunity for an aggressor to suddenly attack and that ensures successful accomplishment of the mission to thwart him.

The time factor is particularly important in combat readiness. In past wars, quite lengthy periods were allotted for bringing troops and naval forces to full readiness for conducting military operations. Under present conditions, the situation has sharply changed. An analysis of NATO's strategic concepts

shows that the command of this aggressive bloc counts on suddenly unleashing war, and the long-range weapons at its disposal permit quite a rapid strike at main groups of forces and important installations in great depth. Under these conditions, the time to organize reciprocal operations is sharply reduced, which produces an urgent need to steadily improve the combat readiness of formations, units, and ships.

As opposed to the past, combat readiness of the Armed Forces currently represents a complicated package of measures to ensure the ability of troops and naval forces to begin military operations within prescribed deadlines and successfully accomplish set missions under any conditions.

Combat readiness directly depends on the level that formations and units are equipped with modern weapons and combat equipment that are always ready to use.

Displaying concern for improving the Army and Navy, the party is doing everything necessary to maintain their state of equipment availability at the level of the advanced achievements of science and technology. "We will continue to spare no effort," Comrade M. S. Borbachev, General Secretary of the CPSU Central Committee, noted, "so that the USSR Armed Forces have everything necessary to reliably defend our homeland and its allies and so that no one can take us unawares."(10)

The history of past wars shows that armed forces that have fallen behind the requirements of the times in their training have always been defeated. Combat readiness is therefore determined not only by the quantity of available modern weapons, but also the professional skill of personnel, the ability to use to the utmost and effectively the combat capabilities of equipment and to use the best methods of achieving victory over the enemy. This requires heightened field, airborne and naval proficiency of troops. Soviet servicemen must know quite well the most complicated weapons, be able to skillfully use them in combat, and learn to defeat a strong and technically equipped enemy.

Modern weapons are basically team weapons. The effectiveness of their use and combat readiness therefore depends on the coordinated action of all members of a crew or detachment and their combat training, physical fitness, psychological compatibility, and precise interaction. In this the combat teamwork of subunits, units, and formations is of particular significance.

The ideological conviction of personnel and their heightened moral-political and psychological qualities are important components of combat readiness. Although the Army and Navy now possess enormous military-technical capabilities, the decisive force is people, upon whose mental state victory in war ultimately depends. Moreover, the nature and features of modern missile-nuclear warfare make increased demands on the combat, moral-political, and psychological training of servicemen.

The state of combat readiness significantly depends on the reliability of the management system, the preparedness of commands and staffs at all levels and their skill in leading troops, mobilizing their will and energy to achieve a set goal and using scientific methods of management and new technical means.

Forecasting the military-political situation, thoroughly analyzing the totality of all measures being taken by imperialist circles connected with preparations for war, and determining the levels of military threats in the world and in individual regions acquire great importance in solving the problems of enhancing combat readiness. All this permits prediction of possibilities of the development of military conflicts of varied scales and of timely measures appropriate to the level of the growing threat. It is also necessary to constantly follow the changes in the military-theoretical views of the armies of NATO countries, to be informed of the direction of their preparations, and foresee the methods by which a war could be unleashed.

Total conformity of the organizational structure of troops and naval forces to the requirements of the times; bringing formations and units up to strength with personnel; the availability of necessary supply reserves; preparing theaters of military operations, and many other things are also important components of combat readiness.

Combat readiness is unthinkable without iron military discipline. The change in the nature of warfare and the availability of complicated combat equipment for arming the Army and Navy have sharply increased the importance of discipline and require from every serviceman a heightened state of organization, stamina, precision of action, conscientious execution of military duty, unquestioning fulfillment of the requirements of the oath, regulations, and orders, and strict observance of regulations procedure.

The human factor is particularly important in enhancing the combat readiness of the Army and Navy. Maintaining it at a high level largely depends on the initiative of personnel and a creative approach to accomplishing set missions.

The whole life of the forces is subject to improving the aforesaid elements of combat readiness: the internal regimen in units and on ships, the combat, operative, and political training of personnel and management organs, and the agitation-propaganda and mass cultural work of commanders, political organs, and party and Komsomol organizations. Everything is aimed at focusing the main efforts on constantly enhancing the quality of combat readiness: continuously seeking to reduce normative indicators for preparing weapons and combat equipment for operations and bringing units and formations to a state of full readiness for accomplishing combat missions.

It should also be borne in mind that a high level of the combat readiness of the Armed Forces largely depends on the state of the national economy. The massive use of nuclear weapons by the aggressor could, for instance, at the very beginning of war substantially damage the military-economic potential. In this connection it is particularly important to maintain the country's economic readiness at a proper level, accelerate the stockpiling of logistical resources necessary to wage war, enhance the mobility and vitality of the economy and its ability to switch over to meeting the needs of the country's defense within a short time.

The need to further strengthen the role and influence of the Communist Party in military construction follows from the decisions of the congress. Under

its guiding role, policy in the sphere of the country's defense and security and Soviet military doctrine are being elaborated and implemented, and questions of strengthening the material and spiritual foundations of the Army and Navy are being settled. The party advances and theoretically elaborates pressing military-political problems and ensures coordination of the work of state and public organization in strengthening the country's defense.

The contemporary stage is characterized by the national increase of the CPSU's guiding role in strengthening the defense might of the Soviet state. This primarily depends on the complexity of the tasks of defending the country in the conditions of an unrestrained arms race and the increase of the threat of a new world war; on the increased scale of military organization development, its complexity and many-sidedness; on the importance of the task of the moral-political and psychological training of the forces' personnel; on the expansion of the international mission of the Soviet Armed Forces to defend the gains of socialism, and a number of other factors. Enhancing the party's guiding role is practically implemented in the strengthening of the organizational and orienting influence of political organs, Army and Navy party organizations, and in ensuring greater effectiveness of their work.

The principles and conclusions contained in the documents, decisions, and materials of the 27th Congress are a major contribution to further developing Marxism-Leninism and its teachings on defending the socialist homeland under the conditions of developed socialism. The performance of measures projected by the Communist Party in the sphere of defense will ensure the security of the Soviet Union and other socialist community countries, and will create favorable external conditions for building communism.

At present, the "Soviet Army and Navy have at their disposal modern armaments and equipment, have well-trained personnel, and prepared command and political cadres who are selflessly devoted to the people. They worthily perform their duties in the most complicated, and at times harsh situations."(11)

Servicemen of the Soviet Armed Forces are under the inspiring influence of the work of the 27th Communist Party Congress and its projected vast prospects for building communism in our country. They are fully resolved to honorably accomplish the tasks set before them of enhancing to the utmost the combat readiness of the Army and Navy to defend the great gains of October and the peaceful creative labor of the Soviet people and our allies and friends.

#### FOOTNOTES

1. V. I. Lenin, PSS [Complete Collected Works], Vol 40, p 248.
2. "CPSU Program (New Edition)," PRAVDA, 7 March 1986.
3. Ibid.
- 3a. PRAVDA, 26 February 1986.
4. "CPSU Program (New Edition)," PRAVDA, 7 March 1986.
5. PRAVDA, 16 January 1986.

- 5a. Ibid., 26 February 1986.
6. "Basic Direction in Soviet Economic and Social Development in 1986-1990 and for the Period to the Year 2000," PRAVDA, 9 March 1986.
7. "CPSU Program (New Edition)," PRAVDA, 7 March 1986.
8. PRAVDA, 7 March 1986.
9. Ibid.
10. "Materialy aprelyskogo Plenuma TsK KPSS (1985 g.)" [Materials of the April Plenum of the CPSU Central Committee (1985)], Moscow, Politizdat, 1985, p 23.
11. PRAVDA, 26 February 1986.

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SUPERIORITY OF SOVIET MILITARY SCIENCE, MILITARY ART IN GREAT PATRIOTIC WAR

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 4, Apr 86 (signed to press 25 Mar 86) pp 13-21

[Article by Professor, Col Gen F. F. Vayvoronskiy, published under the rubric "Soviet Military Art"]

[Text] The victory of the Soviet people and their Armed Forces in the Great Patriotic War was a victory for the Soviet social system and a victory of socialism over fascism, the shock force of imperialism. It clearly demonstrated the viability and insurmountable force of Marxist-Leninist ideas and the economic and military might of a socialist state and showed the falaciousness and complete baselessness of the plans of imperialism to destroy the Soviet Union, the world's first socialist state.

Over the years of the Great Patriotic War, the Soviet Armed Forces conducted more than 50 operations by groups of fronts, around 250 front operations and thousands of engagements and battles(1) in the course of which they were enriched by outstanding examples of military art and demonstrated the complete superiority over the military practices of the armed forces of Nazi Germany.

The supremacy of Soviet military science was determined by the superiority of the social system and the military organization of the socialist state, by its creative nature and close link with combat practice. The main efforts of military science were aimed at elaborating the theoretical concepts of military art and working out recommendations on their employment in troop and staff practices as well as elaborating recommendations on the organizational development of the armed forces and on the questions of improving command, control, logistics and so forth.

The General Secretary of the CPSU Central Committee, M. S. Gorbachev, at a ceremony on 8 May 1985 devoted to the 40th anniversary of the victory of the Soviet people in the Great Patriotic War said: "In the clash with a strong, experienced enemy the superiority of Soviet military science and generalship thought was disclosed in strategic foresight, the creative nature of the adopted decisions, the tenacity and activity in achieving the set goals and in the ability to fuse into a single alloy the high combat morale of the soldiers and officers and the crushing might of modern equipment."(2) The high level of Soviet military science and military art and their superiority over the

military science and military art of the enemy were a major factor in the achieving of victory by the Soviet people and their Armed Forces in the Great Patriotic War.

The superiority of Soviet military science over bourgeois was vividly demonstrated by the results of the armed combat and by the complete defeat of the armed forces of Nazi Germany and militarist Japan.

On the Soviet-German Front, the main front of World War II, the main forces of the Nazi bloc, some 607 enemy divisions, were defeated and taken prisoner. Up to 75 percent of the tanks and assault guns, over 75 percent of the aircraft and 74 percent of the artillery pieces were lost by the enemy on this front. Some 80 percent of the total casualties of the Nazi Army were suffered as a result of the engagements against the Soviet Army.(3) Soviet troops also caused the Japanese Army major losses. As a result of the defeat of their armed forces, Nazi Germany and militarist Japan were forced to surrender unconditionally. The heavy, fierce armed combat can provide an object lesson to all aggressive forces endeavoring to rout socialism.

A distinguishing feature of Soviet military science was the profound scientific prediction of the nature of future war. The theoretical studies of the prewar period pointed out that if the imperialists unleashed a new war, it would be a world war, a class war, of exceptional decisiveness and uncompromisingness. The war would be protracted and would require a maximum straining of all the material and spiritual forces of the Soviet people. The strategic offensive was designated as the main type of military operations while the main method of fighting would be deep frontal strikes on the crucial sectors in the aim of splitting or breaking up the enemy's strategic front and the subsequent destruction of it piecemeal. The defensive was recognized as a valid forced type of military operations but basically on the tactical and more rarely the operational levels. The theoretical studies pointed to the necessity of careful and thorough preparation of the armed forces and the state as a whole to repel aggression. The war confirmed the correctness of these theoretical concepts but, quite naturally, made the necessary adjustments in them.

The military science of Nazi Germany was based upon a theory of a "lightning war" (blitzkrieg) according to which victory over any enemy should be achieved as a result of a single crushing military campaign. The strategic offensive was considered to be the main type of military operations by launching strong, surprise attacks using large groupings of motorized troops and aviation. In relying on these concepts, the Nazi troops were able to achieve major strategic successes in the war against the armed forces of the Western states and force them to surrender. However, the attempt by the armed forces of Nazi Germany and its allies to employ the same methods of military operations against the Soviet Army did not produce the expected results. The Soviet people and their Armed Forces, in being guided by the Communist Party, showed unprecedented tenacity, courage and mass heroism in the struggle against the aggressor. Instead of a brief campaign, Nazi Germany and its allies were forced to conduct an extended and intense war for which they were not prepared.

Soviet military science creatively resolved the arising problems of military art. It did not and does not recognize dogmatism in military affairs and boldly abandoned obsolete theoretical concepts which did not correspond to the combat situation. The creative nature of Soviet military science was vividly expressed in the broad employment by the commanders and staffs of the new achievements of military theory in combat practice. The failures of the initial period of the war posed a major problem for military science, that is, the elaboration of a theory and the providing of practical recommendations on the questions of organizing and conducting a strategic-scale defensive capable of halting the enemy advance. This was successfully solved by involving military scientists as well as field military leaders. The Soviet Command mastered the art of establishing a deeply echeloned, active and stubborn defense. Substantial changes were made in its configuration and in the combat employment of the branches of troops and aviation. Artillery began to be massed on likely tank approaches and echeloned in depth. Antitank strongpoints and areas, maneuvering artillery antitank reserves and mobile obstacle construction detachments began to be established on the tank axes. The tank formations and units were employed not only for counterattacks and counterstrikes but also for ambush operations. Various man-made antitank obstacles were used on the likely tank approaches. All of this led to a situation where by the autumn of 1941, the defenses of the Soviet troops had become stronger and more active. In the course of this conditions were established for going over to a counteroffensive. From the summer of 1943, the strategic and operational defensive of the Soviet troops became insurmountable for the enemy.

German military theory and practice up to the war's end was unable to elaborate procedures and methods for establishing a strong defense either on the operational or strategic scale. The defenses of the Nazi troops were marked by great tenacity and activeness but as a whole they were incapable of checking the powerful blows of the Soviet Army.

A major accomplishment of Soviet military science was the elaboration of new forms of strategic operations. The experience of the commenced war showed that for achieving major operational and strategic aims, it was essential to concentrate the efforts of several fronts. For this reason, the strategic operations in the course of the war were conducted by the troops of two-four fronts with the involving of large air forces, air defense troops and on maritime sectors, naval forces (see Table 1).

As a rule the conduct of strategic operations involved: 100-200 divisions, 20,000-40,000 guns and mortars, 3,000-6,000 tanks and 2,000-7,500 aircraft. In the course of an operation, the Soviet troops defeated from 50 to 90 enemy divisions, they destroyed a large amount of military equipment, they liberated significant territories and achieved major military political results.

The advantage of conducting successive and simultaneous operations by groups of fronts on different, remote sectors of the Soviet-German Front was that the strategic front of enemy defenses was split into parts and its major groupings were defeated. The enemy was forced to dissipate its efforts, as a part of its reserves, being on the move, could not participate in combat operations, the troops were ground down and were late for crucial engagements.

Table 1

Basic Indicators for Major Strategic Offensive Operations  
of the Soviet Armed Forces\*

Operations	No. of participating fronts, fleets and flotillas	Width of front of advance, km	Depth of advance, km	Duration of operation, days
Counteroffensive at Moscow (1941-1942)	3 fronts	1,000	100-250	33
Counteroffensive at Stalingrad (1942-1943)	3 fronts and a flotilla	850	150-200	75
Counteroffensive at Kursk (1943):				
Orel	3 fronts	400	150	37
Belgorod- Kharkov	2 fronts	300	140	20
Belorussian (1944)	4 fronts and a flotilla	1,100	550-600	68
Iasi-Kishinev (1944)	2 fronts, a fleet and a flotilla	500	over 300	10
Baltic (1944)	4 fronts and a fleet	About 1,000	300	71
Vistula-Oder (1945)	2 fronts	Over 500	500	23
Berlin (1945)	3 fronts and a flotilla	300	100-220	22
Manchurian (1945)	3 fronts, a fleet and a flotilla	2,700	600-800	24

\* See: "Istoriya vtoroy mirovoy voyny 1939-1945" [History of World War II of 1939-1945], Vol 12, p 284.

The military science of Nazi Germany during the war years was unable to introduce anything new in the conducting of strategic operations, regardless of the abrupt changes in the nature of combat operations on the Soviet-German Front in comparison with the hostilities in the West. Virtually all the offensive operations were conducted, as a rule, by army groups each of which fought on an independent strategic axis. Formations and field forces of tank troops were the main shock force. Just in the initial period of the war did the Wehrmacht succeed in carrying out operations by army groups to a great depth and achieve significant results. Subsequently the depth, pace and results of the offensive operations declined sharply. In particular, in Operation Citadel the shock groupings of Nazi troops in 7-18 days of fighting advanced 10-35 km on individual axes without achieving the set goals.

In the creative development of Soviet military art a major role was played by the constant generalizing of combat experience and its introduction into troop practices. During the years of the last war, Hq SHC [Headquarters Supreme High Command], the General Staff, the Main Political Directorate, the People's Commissariat of the Navy, the commands and staffs of the Armed Forces and branches of troops, the field forces and formations not only led the troops but were the main centers of military theoretical thought. The faculty of the military academies played an important role in the development of military science. As a result of the extensive creative activities by the officers and generals, Soviet military science in the course of the war underwent significant development. In 1943-1944 alone, 30 manuals, regulations and instructions involving the conduct of combat operations and troop training were reworked and revised.(4)

In the Armed Forces of Nazi Germany in the course of World War II virtually no manual was revised, although the hostilities on the Soviet-German Front urgently demanded this.

An important trait of Soviet military science, in contrast to bourgeois, was objectivity in assessing its own forces and combat capabilities, the strong and weak points in enemy military art and the combat capability of enemy troops. This brought about, as a rule, a scientific approach in working out the overall concepts and plans of the military campaigns and strategic operations, the positing of realistic strategic and operational goals and tasks, the ability to choose the most effective methods of strategic actions in the operations and so forth. The clearest example of this was the elaboration of the overall concepts and plans of strategic actions in 1943-1945. As is known, in 1943-1944, the Soviet Armed Forces still did not have the necessary superiority over the enemy. The defeat of the Nazi groupings under these conditions was carried out by the successive execution of strategic offensive operations along the entire Soviet-German Front. In 1945, when the balance of forces had changed in favor of the Soviet Army, the defeat of the enemy armed forces was achieved by the conducting of simultaneous strategic offensive operations along virtually the entire front of hostilities against the Nazi troops.

Inherent to the strategies of Nazi Germany over the entire war were adventurism, an overestimation of the forces and combat capabilities of its own armed forces and an underestimation of the enemy. This was most apparent

in working out the plans for war against the Soviet Union and in the desire to defeat the Soviet Armed Forces in a single brief campaign. The plans of the Nazi leadership proceeded from an underestimation of the forces and combat capabilities of the Soviet Armed Forces and were characterized by a divorce from actual reality. Often in the course of the war the Wehrmacht leadership endeavored to make reality conform to its own theoretical views and military plans. In the summer of 1943, when the situation on the Soviet-German Front had changed sharply in favor of the Soviet Army the Nazi leadership endeavored to employ the same forms and methods of conducting an operation as in the start of the war. At Kursk the Soviet troops established a deeply echeloned defense and employed methods of combat which checked the offensive plans of the Nazi Command. "In the course of World War II there was no example," pointed out the Chief of the General Staff and USSR First Deputy Minister of Defense, MSU S. F. Akhromeyev, "where a major and carefully prepared Wehrmacht offensive suffered such a crushing defeat in such a short period of time. The battle on the Kursk Salient was the final collapse of the Wehrmacht's offensive strategy. The failure of the summer offensive once and for all buried the myth created by Nazi propaganda concerning the high skill of the Nazi command and troops in preparing and carrying out large-scale offensive operations."(5) The collapse of the German defenses on the Dnieper in 1943 overturned the plans of the Wehrmacht Command of waging a protracted war and showed the crisis of its defensive strategy and the inability to halt the strategic offensive by the Soviet troops.

A major achievement of Soviet military science and a vivid indicator of its superiority over the military science of Nazi Germany was the elaboration of theoretical concepts and practical recommendations on the questions of preparing and carrying out the breakthrough of a strong, deeply echeloned enemy defense, for establishing strong shock groupings, effective fire damage to the enemy, the massed employment of artillery, tank and air formations and field forces, the maintaining of cooperation between them in dynamically developing operations, the conduct of meeting engagements, the crossing of large water obstacles and other questions of military art.

In solving the problem of breaching the deeply echeloned enemy defenses, a major achievement of Soviet military science was the elaboration of questions concerning the combat employment of artillery, aviation and tank troops. The Directive of Hq SHC of 10 January 1942, the "1942 Infantry Field Manual" and other documents established new methods and forms of employing the artillery, aviation and tank troops in offensive operations and the new concepts of the artillery and air offensive were introduced. It was recommended that the men and weapons be massed on the breakthrough sectors, a deep configuration of the troops be established an continuous fire support provided during the entire offensive. The artillery and air offensive sharply increased the effectiveness of fire effect against the enemy and increased the pace of the breakthrough and the development of the operation. The tank units and formations (brigades) were employed in the breakthrough as infantry close support tanks while the tank (mechanized) corps were used as mobile groups.

The skillful execution of the artillery and air offensive and the prompt commitment of the mobile groups of the armies and fronts to the engagement had a determining influence on the scope of operations. Their depth increased

from 100-140 km at the outset of the war to 300-400 km in its last period with an average daily rate rising from 6-10 to 15-20 km and for the mobile formations up to 40-50 km a day.(6) The enemy succeeded in achieving such depth and pace only at the outset of the war with the surprise attack on the USSR. In the subsequent period the depth of the operations and the rate of advance for the Nazi troops declined sharply. For example, the German Army Group Center over the first 18 days of the operation (June-July 1941) advanced to a depth of 420 km with an average rate of 23 km a day. In the subsequent 80 days, in the offensive on the Smolensk axis, it advanced just 170 km with an average pace of 2 km a day.(7) All of this shows the superiority of Soviet military art over the German.

An example of the high achievements of Soviet military theory and practice and an indicator of their supremacy were the operations conducted by Soviet troops to encircle large Nazi troop groupings, with many of these being classic in the history of wars. In these operations the sectors of the main thrusts and the methods for surrounding the enemy troops were skillfully selected, internal and external perimeters of encirclement were brilliantly established, the men and weapons were distributed optimally between them, the sealing off of the surrounded groupings from the air was organized as well as their splitting up and piecemeal destruction in a short period of time (see Table2).

Table 2

Operations of Soviet Troops in 1942-1945  
for Surrounding and Destroying Enemy Groupings\*

Operations	Fronts involved in encirclement	Day of operation when encirclement was reached	Number of surrounded troops	In how many days surrounding grouping was destroyed
Stalingrad	Southwestern, Don, Stalingrad, Voronezh	5th	22 divisions and number of separate units (330,000 men)	71
Ostrogozhsk-Rossoshani	Voronezh	6th	13 divisions	9
Voronezh-Kastornaya	Voronezh and left wing of Bryansk	5th	9 divisions	20

[Table 2 continued]

Operations	Fronts involved in encirclement	Day of operation when encirclement was reached	Number of surrounded troops	In how many days surrounded grouping was destroyed
Korsun-Shevchenkivskiy	First and Second Ukrainian	4th	10 divisions, 1 brigade	14
Vitebsk-Orsha	First Baltic and Third Belorussian	3d	5 divisions	2
Bobruysk	First Belorussian	4th	6 divisions (40,000 men)	2
Minsk	First, Second and Third Belorussian with assistance of First Baltic	11th	20 different formations	7
Lwow-Sandomierz	First Ukrainian	6th	8 divisions	4
Iasi-Kishinev	Second and Third Ukrainian	5th	18 divisions	5
Budapest	Second and Third Ukrainian	59th	20 different formations	49
East Prussian (Heilsberg fortified area, Semland Peninsula, Konigsberg Fortress)	Second and Third Belorussian	14th	Around 32 divisions	74
Prague	First, Second and Fourth Ukrainian	4th	Over 50 divisions	2

\* "Velikaya Otechestvennaya voyna 1941-1945. Entsiklopediya" [The Great Patriotic War of 1941-1945. An Encyclopedia], p 511.

The characteristic features of the Soviet troop pincer operations were the great scope of the fighting, the deep configuration of the troops, the presence of tank armies, tank and mechanized corps as part of the shock groupings of the fronts and armies, the clear coordination of the ground troops with aviation and so forth. The operations developed along a front of 380-500 km and to a depth of 160-270 km and they developed at an average rate of advance of 15-20 km a day for the rifle troops and 20-50 km for the mobile formations.(8) An important trend in the development of these operations was the merging of the encirclement and destruction of the enemy groupings into a single process (Vitebsk-Orsha, Bobruysk, Minsk and Iasi-Kishinev). This made it possible to maintain a high rate of advance during the entire operation.

The superiority of Soviet military science was also apparent in elaborating the theory of the organizational development of the armed forces. Since the main events developed on a continental theater of operations, chief attention was given to the development of the ground troops. Theoretically the necessity was established of creating large formations and recommendations were provided for their organizational structure and for supplying them with weapons and combat equipment. As the severe consequences of the first months of the war were overcome and as experience was gained in troop leadership, the corps element of command was re-established. The rifle corps, along with the rifle divisions and brigades, included tank, artillery and engineer units. By the end of 1943, the ground troops numbered 161 headquarters of rifle corps, including 36 guards ones. In the troops the amount of artillery increased including antitank, antiaircraft and rocket as well as the self-propelled artillery mounts. The artillery and rear of the rifle formations were motorized. All of this increased the fire power, mobility and maneuverability of the all-arms armies and formations. The armored and mechanized troops were equipped with new medium and heavy tanks, self-propelled artillery mounts, antiaircraft artillery and mobile means of support. In March 1942, they began organizing tank corps and in September, mechanized corps. In May-July of the same year, the first four tank armies were created. Rapid development in quantitative and qualitative terms also occurred in the artillery of the RVGK [Reserve Supreme High Command]. In October-November 1942, they began establishing RVGK artillery divisions and antiaircraft artillery divisions and in December, heavy rocket artillery divisions, and in the spring of 1943, artillery breakthrough divisions and corps. Such an organizational structure of the artillery improved the questions of command and control, cooperation, the massing and maneuvering of it to the sectors of the main thrusts.

In 1942, on all fronts air armies were established equipped with new models of fighters, bombers and ground attack planes. At the same time, separate air corps of the RVGK were established and this made it possible to widely maneuver and quickly concentrate major air forces on important sectors. Serious changes occurred in the organizational structure and weaponry of the air defense troops.

The established structure of the Soviet Armed Forces for all indicators surpassed the troops of Nazi Germany and this largely predetermined the success of the Soviet Army operations.

In the course of the war great attention was given to solving the problem of establishing strategic reserves. During the first period the basic method of establishing reserves was the organizing of new formations and operational field forces. Subsequently, reserves were established chiefly by manning up and adding to the material supplies of the field forces, formations and units which were being moved from the front to the rear. Such methods were the optimum ones. They made it possible for the Supreme High Command to constantly have at its disposal large forces, to effectively employ them on the major sectors and have a decisive influence on the course and outcome of the strategic and front offensive and defensive operations. The military-political leadership of Nazi Germany did not succeed in resolving the problem of establishing the necessary amount of reserves or the most effective employment of the existing ones.

Thus, the combat practice of the Great Patriotic War and the victory of the Soviet people and their armed forces over the Nazi militarist bloc clearly and convincingly showed the superiority of Soviet military science and military art over the military science and military art of the Nazi Wehrmacht. "From the end of 1942," pointed out the Candidate Member of the Politburo of the CPSU Central Committee and USSR Minister of Defense, MSU S. L. Sokolov, "the art of strategic leadership over the Soviet Armed Forces was fully apparent. Hq SHC and the General Staff worked out plans clearly and effectively, they were prudent and farsighted in their plans as well as decisive and effective in the methods of realizing them. The commanders and staffs of the fronts, armies and fleets demonstrated their superiority in the question of preparing and organizing the operations, in the flexibility of troop command, and in the tenacity with which they endeavored to achieve the aims. The tactical skill of the command in employing the formations and units of the Ground Troops, aviation and Navy gained the upper hand."(9) The superiority of Soviet military science and military art was one of the important factors in the victory of the Soviet Union in the Great Patriotic War.

In postwar times, the military theory and military art of the Soviet Armed Forces has risen to a new, higher level and are making a major contribution to increasing the might of the Army and Navy and to strengthening the defense capability of our state and the socialist commonwealth countries.

#### FOOTNOTES

1. "Istoriya vtoroy mirovoy voyny 1939-1945" [History of World War II of 1939-1945], Moscow, Voenizdat, Vol 12, 1982, p 278.
2. M. S. Gorbachev, "Bessmertnyy podvig sovetskogo naroda" [An Immortal Feat of the Soviet People], Moscow, Politizdat, 1985, p 8.
3. See: "Velikaya Otechestvennaya voyna 1941-1945. Entsiklopediya" [The Great Patriotic War of 1941-1945. An Encyclopedia], Moscow, Sovetskaya Entsiklopediya, 1985, pp 23-24.
4. M. A. Gareyev, "M. V. Frunze -- voyenny teoretik" [M. V. Frunze -- Military Theorist], Moscow, Voenizdat, 1985, p 235.

5. "Korennoy perelom vo vtoroy mirovoy voyne" [The Turning Point in World War II], Moscow, Voenizdat, 1985, pp 15-16.
6. "Sovetskaya Voyennaya Entsiklopediya" [Soviet Military Encyclopedia], Moscow, Voenizdat, Vol 8, 1980, p 337.
7. "Voyennoye iskusstvo vo vtoroy mirovoy voyne i v poslevoyenny period" [Military Art in World War II and the Postwar Period], Moscow, Izd. VAGSh, 1985, p 388.
8. "Sovetskaya Voyennaya Entsiklopediya," Vol 6, 1978, p 38.
9. "Korennoy perelom vo vtoroy....," pp 207-208.

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## IMPROVING COMMAND SYSTEM OF AIR DEFENSE TROOPS IN GREAT PATRIOTIC WAR

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[Article by Col Gen Avn I. M. Maltsev, chief of the Main Staff of the Air Defense Troops]

[Text] Improving the system of command and control of the Air Defense Troops during the years of the Great Patriotic War was necessitated by the need to bring the system into full conformity to the development level of the weapons, forms and methods of fighting by the Air Defense Troops as well as by the particular features of the operational-strategic situation.

On the eve of the war, general leadership over national air defense and the troops was provided by the Main Air Defense Directorate (GU PVO) which was in charge of the questions of general planning, accounting, weapons and special combat training. Its chief was directly under the USSR people's commissar of defense. However, the GU PVO was not given any operational functions and this substantially complicated the organization of air defense for the major regions of the country and troop groupings and hindered the maneuvering of the air defense forces and the organizing of new units. Leadership of air defense in the field was entrusted to the commanders of the military districts.

USSR territory, in accord with the boundaries of the military districts, was divided into air defense zones which were headed by commanders who were, in turn, the assistant commanders for air defense of the military districts. The command of the air defense units and formations on the level of these zones was provided directly by the commanders or through the chiefs of the brigade air defense regions. The brigade regions were established in the event that the zone had numerous separate air defense units spread over a large territory and not included in the air defense formations. These did not have a definite TOE composition and were organized as intermediate command levels.

The fighter aviation assigned for air defense purposes was under the air forces commander. Only the fighter aviation assigned to cover Moscow, Leningrad and Baku in operational terms was under the air defense commands of these cities. The artificial and unsound subordination of active air defense weapons to several chiefs instead of concentrating their command and control

in one authority was an obvious mistake in organization and did not ensure precise and effective troop command.

For the attack on the Soviet Union, the Nazi Command had concentrated at airfields along our western frontiers some four air fleets out of the five existing in the Luftwaffe as well as the Finnish, Romanian and Hungarian aviation. As a total this represented around 5,000 combat aircraft.(1) The combat operations of the Air Defense Troops to repel the massed enemy air raids from the very first days of the war assumed an unprecedented scope and fierceness. These broke out along the entire length of the western frontier from the Baltic to the Black Sea to a depth up to 400 km. The complex and crucial task of controlling the Air Defense Troops actually rested on the small staff of the GU PVO (chief, Col Gen Art N. N. Voronov, from 19 July 1941, acting chief Maj Gen Art A. A. Osipov).(2) However, this small body which did not have the rights of operational leadership was unable to provide centralized command over the air defense resources. Centralized command of the air defense troops was also lacking in the fronts (districts) since the headquarters of the zone commanders were not adapted to directing the combat operations of the air defense formations and units.

In the aim of systematizing command and control the commands of the air defense zones in the European USSR in July 1941 were freed from leadership over the air defense of the troops and began to be responsible solely for the air defense of major installations located within the zones subordinate to it. The commanders of the air defense zones began to be subordinate to the commanders of the fronts only in operational terms.(3) Direct leadership over air defenses for the troops was entrusted to the air defense headquarters (sections) set up under the staffs of the fronts (separate armies). Such an organizational structure for the command system was maintained for 4 months of the war. This made it possible to somewhat improve command but the problem was not completely resolved.

The tenseness of the situation, the great activity of enemy aviation and the greater complexity of tasks in combating it demanded a change in the organizational forms of the air defense troops and the centralizing of their command. By a decision of the State Defense Committee [GKO] of 9 November 1941, a fundamental reorganization was carried out in the Air Defense Troops (see Diagram 1) according to which the position was instituted of commander of the National Air Defense Troops who would also be the deputy people's commissar of defense for air defense (commander, Maj Gen M. S. Gromadin), and headquarters bodies were established: a staff (chief of staff, Maj Gen N. N. Nagornyy), an air defense fighter air headquarters (commander of the air defense fighter aviation, Maj Gen Avn I. D. Klimov, from April 1942, MajGenAvn A. S. Osipenko), an air defense antiaircraft artillery headquarters (commander of the air defense antiaircraft artillery, Maj Gen Art A. F. Gorokhov) and others.

The air defense formations and units covering the major regions, the administrative-political and industrial centers of the nation were under the commander of the National Air Defense Troops. On the basis of the zones existing in the European USSR, corps (Moscow and Leningrad) and divisional air defense regions were established. The Transcaucasian, Central Asian,

Transbaykal and Far Eastern air defense zones were temporarily maintained. The fighter air corps and divisions assigned for carrying out air defense tasks in operational terms were under the commander of the National Air Defense Troops and in the field to the commanders of the corps (divisional) air defense regions.(4) The Order of the USSR People's Commissar of Defense of 24 November 1941 defined what air defense units and formations were to be turned over to the commander of the National Air Defense Troops and which to the commanders of the fronts and in this manner air defense was split into national air defense and troop [organic] air defense.

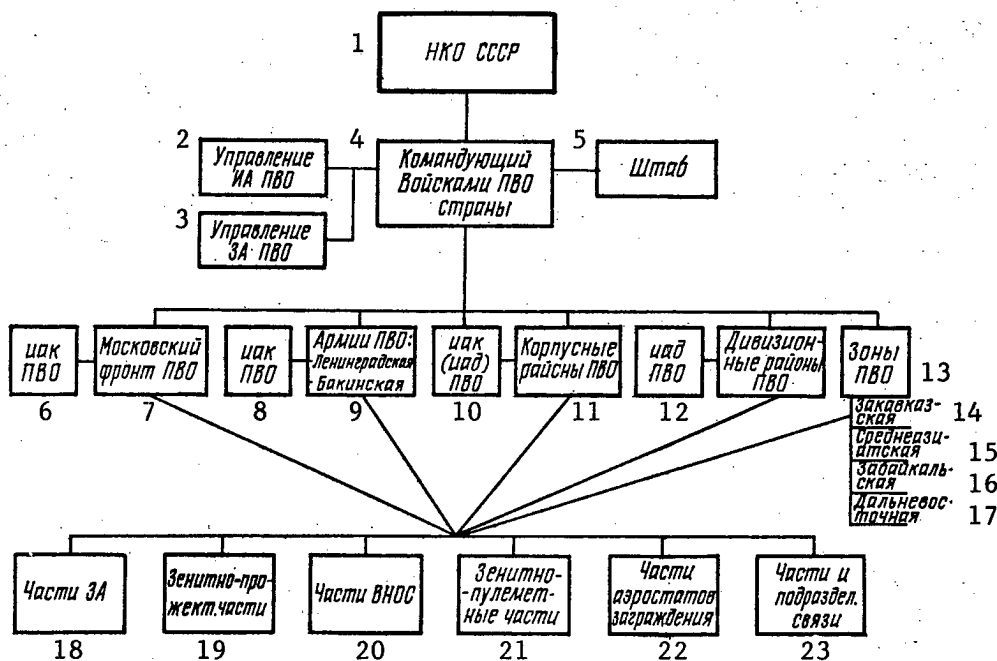


Diagram 1. Organizational Structure of National Air Defense Troops After Fundamental Reorganization of 1941-1942

- Key:
- 1--USSR People's Commissariat of Defense
  - 2--Headquarters of Air Defense Fighter Aviation
  - 3--Headquarters of Air Defense Antiaircraft Artillery
  - 4--Commander of National Air Defense Troops
  - 5--Staff
  - 6--Air Defense Fighter Air Corps
  - 7--Moscow Air Defense Front
  - 8--Leningrad, Baku Air Defense Armies
  - 9--Air Defense Fighter Air Corps (Division)
  - 10--Corps Air Defense Region
  - 11--Air Defense Fighter Air Division
  - 12--Air Defense Divisional Region
  - 13--Air Defense Zone
  - 14--Transcaucasian
  - 15--Central Asian
  - 16--Transbaykal
  - 17--Far Eastern
  - 18--Antiaircraft artillery unit
  - 19--Antiaircraft searchlight unit
  - 20--VNOS unit
  - 21--Antiaircraft machine gun unit
  - 22--Barrage balloon unit
  - 23--Signals units and subunits

In January 1942, the fighter aviation which was carrying out air defense tasks was put fully under the commander of the National Air Defense Troops.(5) In April, the first field formations were organized: the Moscow Air Defense Front (commander, Lt Gen Art D. A. Zhuravlev), the Leningrad Air Defense Army (commander, Maj Gen Shore Serv G. S. Zashikhin) and the Baku Air Defense Army (commander, Maj Gen Art P. M. Beskrovnov).(6)

The centralizing of command of the National Air Defense Troops made it possible to increase the effectiveness of their operations in repelling the massed enemy air strikes at rear installations, it facilitated the organization of cooperation with troop air defenses and the fighter aviation of the front air forces and ensured rapid maneuvering of the resources to the threatened sectors.

The air defense troops turned over to the fronts initially did not have a central leadership body. The antiaircraft weapons as before were under dual subordination. In the aim of centralizing command, the air defense troops of the fronts in June 1942 were put under the artillery chief of the Soviet Army. On the artillery staff of the Main Directorate of the artillery chief an air defense section was established (from November, the headquarters of organic air defense) assigned to resolve the questions of the combat employment, support and development of the air defense troops of the fronts. In the troops they established the positions of deputy artillery chiefs of the fronts (armies) for air defense, the air defense headquarters of the fronts and the air defense sections of the armies were turned, respectively, into the air defense sections and departments of the headquarters (sections) of the artillery chiefs of the fronts (armies) while in the divisions the organization of air defense was assigned to the artillery chiefs.

The new structure of the command system eliminated the dual subordination of the air defense troops and provided conditions for their further improvement. From the second half of 1942, in the air defense troops of the fronts they organized antiaircraft artillery regiments and divisions which were then reduced to antiaircraft artillery groups and used for air defense of the main troop groupings of the fronts, armies, corps and divisions. This reorganization completed the process commenced in July 1941 of splitting the unified command system of the Air Defense Troops into two independent ones: the National Air Defense Troops and the Air Defense Troops of the Ground Troops. The advisability of such a solution to the problem of the command of the Air Defense Troops was confirmed by the subsequent course of the war.

With the going over of the Soviet Army to a strategic offensive, new tasks confronted the National Air Defense Troops. The need arose for closer cooperation with the Air Defense Troops of the Ground Troops and the organization of air defense for installations on territory which had been liberated from the enemy. In addition, air defense for the rear installations had to be maintained on a proper level. This involved a revision of the organizational forms and systems of command for the National Air Defense Troops.

In June 1943, the National Air Defense Troops fighting in the European USSR were split into two air defense fronts: Western and Eastern.(7) The troops of the Western Air Defense Front (commander, Col Gen M. S. Gromadin) were responsible for the air defense of Moscow, the Moscow and Yaroslavl industrial regions, Murmansk, as well as the frontline installations and lines of communications. The troops of the Eastern Air Defense Front (commander, Lt.Gen Art G. S. Zashikhin) were to provide air defense for the major installations of the Northern and Southern Urals, the Volga area, the Caucasus and Transcaucasia. The Far Eastern, Transbaykal and Central Asian air defense zones were put under the military councils of the appropriate fronts and military districts. The Leningrad Air Defense Army and the Ladoga Divisional Air Defense Region in operational terms remained under the military council of the Leningrad Front.

The headquarters of the commander of the National Air Defense Troops was eliminated and control over the activities of the air defense fronts and zones, the planning of armaments and manning questions were assigned to the artillery commander of the Soviet Army (see Diagram 2). Under him were created: the Central (from December 1944, the Main) staff of the air defense troops, the Central (from December 1944, the Main) staff of the air defense fighter aviation, the main air defense inspectorate, the directorate for combat training of air defense troops and the Central VNOS [aircraft warning] Post. On the basis of the VI Air Defense Fighter Air Corps which was defending Moscow, the 1st Air Defense Fighter Air Army was organized (commander, Maj Gen Avn A. V. Borman, from April 1944, Maj Gen Avn A. I. Mitenkov).

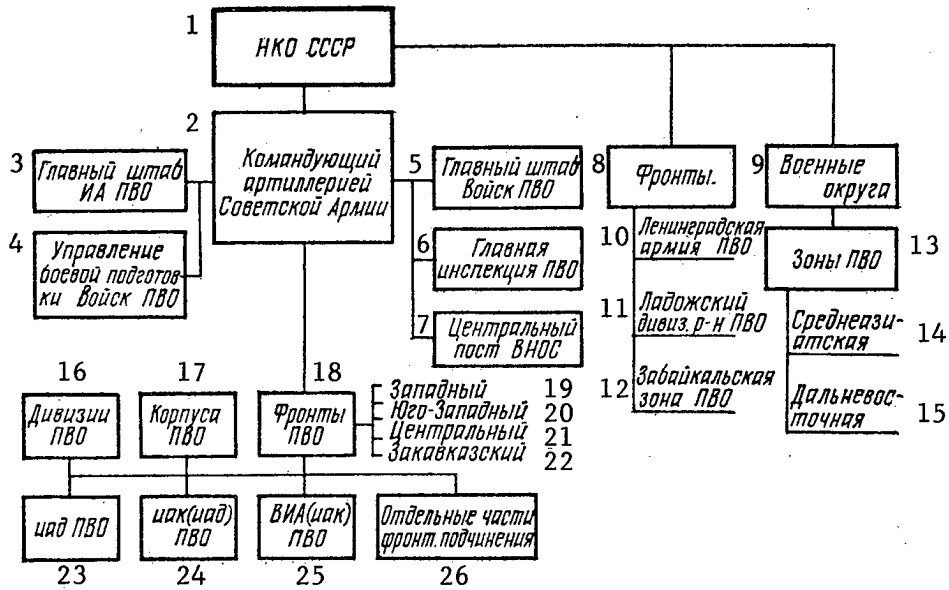


Diagram 2. Organizational Structure of National Air Defense Troops  
After Reorganization of 1943-1944

- Key:
- 1--USSR People's Commissariat of Defense
  - 2--Artillery commander of Soviet Army
  - 3--Main Staff of Air Defense Fighter Aviation
  - 4--Directorate of Combat Training for Air Defense Troops
  - 5--Main Staff of Air Defense Troops
  - 6--Air Defense Main Inspectorate
  - 7--Central VNOS Post
  - 8--Fronts
  - 9--Military districts
  - 10--Leningrad Air Defense Army
  - 11--Ladoga Air Defense Divisional Region
  - 12--Transbaykal Air Defense Zone
  - 13--Air defense zone
  - 14--Central Asian
  - 15--Far Eastern
  - 16--Air Defense Divisions
  - 17--Air Defense Corps
  - 18--Air Defense Fronts
  - 19--Western
  - 20--Southwestern
  - 21--Central
  - 22--Transcaucasian
  - 23--Air Defense Fighter Air Division
  - 24--Air Defense Fighter Air Corps (Division)
  - 25--Air Defense Fighter Army (Fighter Corps)
  - 26--Individual units subordinate to front

With the establishing of the air defense fronts, control over the troops was improved in the theater of operations and it became more flexible and effective. However, as the gap increased between the formations of the Western Air Defense Front which were moving up behind the advancing troops and the formations of the Eastern Air Defense Front which remained on the spot, the shortcomings of the reorganization carried out became evermore apparent. The air defense of the European USSR was provided by two independent fronts. This not only created serious difficulties in command and control, in maneuvering the air defense resources in depth, but also put the fronts under unequal conditions. While the Western Air Defense Front was fighting intensely against enemy aviation, the troops of the Eastern Air Defense Front were passive, as the enemy air force did not carry out systematic actions against objectives in the deep rear of the nation. In other words, the nation's air defense resources were not fully utilized and with a varying combat load. Moreover, the abolishing of the position of the commander of the National Air Defense Troops (restored in February 1946) and the turning over of his functions to the artillery commander of the Soviet Army, in our opinion, were a step backward in improving the organizational structure and command system of the National Air Defense Troops.

For this reason in March-April 1944, the Supreme High Command implemented a series of measures aimed at improving leadership of the National Air Defense Troops which were defending objectives in the frontline area and ensuring the mobile organization of the cover for the enemy-liberated areas. Thus, the Western and Eastern Fronts as well as the Transcaucasian Air Defense Zone were reorganized. On the basis of them three air defense fronts were established: the Northern (commander, Col Gen M. S. Gromadin), the Southern (commander, LtGen Art G. S. Zashikhin) and the Transcaucasian (commander, Lt Gen Art P.Ye. Gudymenko). The boundary line between the Northern and Southern Fronts was set from east to west and each of them became active. However, the Northern Front covered three strategic air sectors and its troops operated in an area more than 3,000 km wide. Naturally, under such conditions the command and staff of the front could not always respond effectively to changes in the situation, particularly in the course of a strategic offensive.

In the second half of 1944, the commands and staffs of the Northern and Southern Air Defense Fronts began to experience difficulties in troop command. This was explained by the constant increase in the depth of the operational configuration of the troops of the air defense fronts and by the relocating of a number of formations into the Baltic, Western Belorussia, Poland, Hungary and Romania in the aim of covering important economic regions and objectives.

For bringing the operational leadership bodies closer to the subordinate troops, in December 1944, the Northern and Southern Air Defense Fronts were transformed into the Western (commander, Col Gen Art D. A. Zhuravlev) and Southwestern (commander, Col Gen Art G. S. Zashikhin) while the Central Air Defense Front (commander, Col Gen M. S. Gromadin) with a staff in Moscow was established for commanding the formations and units covering the objectives in the deep rear.(8) After the reorganization the National Air Defense Troops in the European USSR and in the Transcaucasus included four air defense fronts covering all the most important strategic air sectors. Such a structure for

air defense conformed most completely to the tasks confronting it and was kept until the end of the war. Only in March 1945, in the Far East and Transbaykal, on the basis of the air defense zones existing there they established the Maritime (commander, Lt Gen Art A. V. Geraimov), and Amur (commander, Maj Gen Art Ya. K. Polyakov) and Transbaykal (commander, MajGenArt P. F. Rozhkov) Air Defense Armies.

In the air defense troops of the Ground Troops, the increased number of formations and units, the massing of forces and the establishing of large anti-aircraft artillery groups urgently demanded the centralizing of command from the combat area, since the deputy artillery commander of the front (army) for air defense did not directly control the fire. However, the proposal prepared for establishing a corps system for controlling the air defense troops of the Ground Troops was not taken up by the Supreme High Command. The existing structure of command and control was not altered until the end of the war.

The improved organizational structure for the system of command of the Air Defense Troops was accompanied by changes in the composition and functions of the control bodies and posts and contributed to the development of the forms and methods of work by the command and the staffs and this was the main condition for increasing the effectiveness of command in all elements, from the strategic to the tactical.

At the outset of the war, the main command bodies were the Main Air Defense Directorate of the RKKA [Worker-Peasant Red Army] and the staffs of the air defense zones. In the Main Directorate of the Artillery Chief of the Soviet Army, from July 1941 (the moment of its establishing), they organized the section for combat training of anti-aircraft artillery while in the operations sections (departments) of the artillery staffs of the fronts (armies) the TOE envisaged one anti-aircraft officer for each.

With the establishing of the staffs and headquarters of the commander of the National Air Defense Troops, the air defense fronts and armies and in the air defense troops of the Ground Troops the creation of the troop air defense headquarters for the artillery staff of the Main Directorate of the Artillery Chief of the Soviet Army, with the establishing and transforming of the air defense headquarters of the fronts and the air defense sections of the armies, respectively, into the air defense sections and air defense departments of the headquarters (sections) of the artillery chiefs of the fronts (armies), the work of all the command bodies assumed a structure and effectiveness while organization and efficiency were increased.

The troop air defense headquarters of the artillery staff of the Main Directorate of the Artillery Chief of the Soviet Army was concerned with supplying the anti-aircraft units with combat equipment, weapons and motor transport; with planning, preparation and supervision of combat; with the considering and generalizing of incoming data; with the collection of materials on the experience of the war for special information summaries; with the elaboration of draft directives and instructions; with the organization and implementation of cooperation with the National Air Defense Troops and the solving of other questions (the formation of the units and military schools,

the supplying of these with personnel, weapons and so forth). Analogous functions not only on a scale of the fronts (armies) were carried out by the air defense sections (departments) of the headquarters (sections) of the artillery chiefs of the fronts (armies).

The field headquarters of each of the air defense fronts included: the staff of the front, a command post, political headquarters, headquarters of the commanders of fighter aviation and antiaircraft artillery, sections of the chiefs of the services (VNOS, antiaircraft searchlights, barrage balloons, signals and so forth). The commands and staffs of the air defense fronts were responsible for: operational planning and organization of the defense of installations within the boundaries of the zones of responsibility, ensuring high combat readiness of the subordinate troops, the operational maneuvering of resources, the maintaining of continuous cooperation with the field forces of the other Armed Services and adjacent air defense field forces, the carrying out of operational camouflage measures, the generalizing of combat experience and improving the methods for the combat employment of the troops, the elaboration of proposals for the development of the troops and for improving their supply. They were concerned with elaborating the long-range plans for organizing the cover of the installations on liberated territory, their coordination with the staffs of the fronts and fleets, the regrouping of troops from the interior to the frontline zone and leadership over them during the course of the operation.

The command of the air defense units, formations and field forces in the course of preparing and conducting combat operations was provided from stationary (with a varying degree of protection) command posts. In addition, in the air defense troops of the Ground Troops there were mobile command posts (control posts) while in the air defense fighter aviation there were guidance posts. The command posts of the air defense field forces (formations) were usually located in the areas of the main covered objects (see Diagram 3). The equipping of the command posts made it possible to visually and promptly depict the situation and the course of combat of the subordinate troops as well as carry out the necessary operational calculations.

The chief elements of the command posts were: the command group, the main VNOS post and the signals center. The command group was concerned with preparing for the commander the necessary data for taking a decision and directing the combat activities of the troops. It included several officers from the staff and services. A duty officer directed the abbreviated combat team. He controlled the troops until the arrival of the commander and complete combat team at the command post during a period when combat was not underway or was underway with available resources.

The full crew of a command post included a chief of staff, the commanders (chiefs) of the branches of troops, the main personnel of the officers of the staff and services, the crew of the main VNOS post and the signals center. The full crew was the chief organizer for preparing and carrying out the commander's decisions.

Overall leadership of the troops was carried out from the Central Command Post of the commander of the National Air Defense Troops (Soviet Army artillery)

and the command posts of the air defense field forces (formations). Direct command over the antiaircraft artillery units (subunits) was entrusted to their commanders. They were given freedom of action but within the limits of the overall plan for the defense of the installations (troops), the set combat missions and the particular features of the situation. Command of the air defense fighter aviation was carried out by the commanders of the fighter air corps and divisions from their own command posts usually located together with the command posts of the commanders of the air defense field forces (formations). Thus, the duplicating of command functions was excluded and a sufficiently flexible and dependable operation of the entire command post system was ensured. Its further improvement was carried out by maintaining high combat readiness of the command posts, improving their technical equipping, engineer organization and camouflage, establishing a network of alternate command posts and so forth.

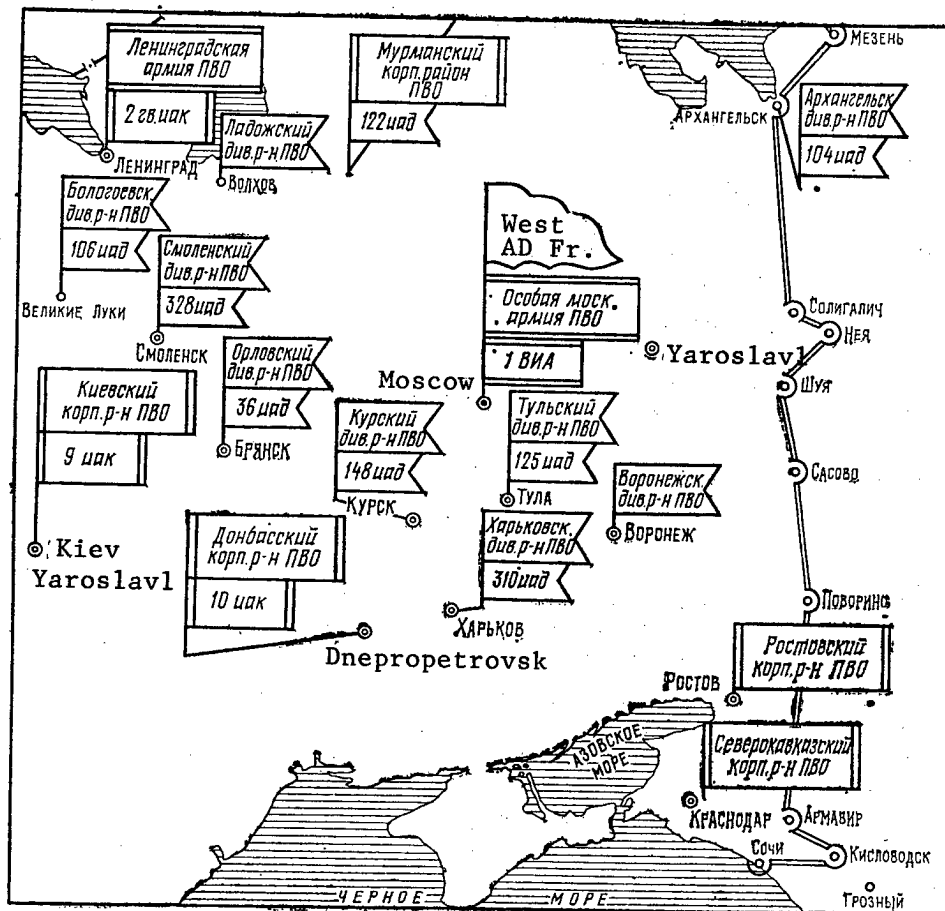


Diagram 3. System of Control Posts of Western Air Defense Front by Start of 1944

Radio and wire communications combined into a signals system were employed for the command of the Air Defense Troops. Radio communications was predominantly

shortwave while wire communications was provided using the poled and permanent overhead and cable lines.

In the course of the war, the signals system was improved under the influence of changes occurring in the structure of the command system as well as due to the increased number and improved quality of the employed equipment, to its greater combat readiness, resistance to jamming and survivability as well as ensuring the secrecy of the transmitted information.

Initially, for broadening the signals capabilities and its operational organization in the frontline zone, extensive use was made of the signals channels of the Ground Troops and in the rear areas of the nation that of the various people's commissariats. The regulation equipment of the Air Defense Troops was employed chiefly to equip the signals centers and organize signals inside the subunits and units. The quantitative growth of men and equipment made it possible subsequently under the staffs of the air defense field forces and formations to organize individual signals regiments, battalions and companies.

The air observation, warning and communications [VNOS] service was the main organ for collecting and processing information on the situation and alerting the troops (installations) of it as well as guiding the aviation to the enemy air and ground targets. On the eve of the war, the carrying out of VNOS missions was entrusted to the observation posts and radars of the radio battalions of this service and to the observation posts of the troops, naval forces, the border and railroad security.

In the Air Defense Troops VNOS regiments, separate battalions (companies) and radio battalions were organized while in the all-arms field forces and formations there were VNOS subunits. These observed the air space along the state frontier from the Baltic to the Baltic Seas in a zone 150-250 km deep.(9)

In the border zone the VNOS observation posts were located according to a grid system and for air defense of particularly important centers of the nation, a center of concentric (three-five) observation zones was established. Around Moscow, Leningrad and Baku the concentric zones were located 10-15 km apart, forming a solid observation field up to 60-120 km deep. Between the concentric zones were VNOS observation posts forming radial observation zones. A system of detection zones formed by the radars of the radio battalions was superimposed upon the system of VNOS observation posts.(10)

In the course of hostilities the VNOS service was organized on the forward edge, in the troop, army and front rear according to the principle of establishing a solid observation field. This was achieved by employing spotters in the companies, battalions and regiments as well as the observation posts of the all-arms formations and the army and front VNOS companies. The spotters and observation posts of the subunits, units and formations were in the battle formations. With the movement of the troops a network of mobile observation posts was set up. For collecting and generalizing the intelligence data, under the staffs of the all-arms formations and field

forces as well as the air defense formations and field forces, main VNOS posts were established and under the artillery commander of the Soviet Army the Central VNOS Post.

Fundamental changes in the VNOS service occurred due to the transition from visual observation of the air space to radar. From 1943, the visual observation posts in the Air Defense Troops virtually lost their importance as a means of guidance. They survived only in the air defense troops of the Ground Troops while in the National Air Defense Troops they served as a supplement to the radar detection system. At the end of the war, radar had become the basic means for detecting the air enemy and guiding the fighters to it.(11)

Thus, an analysis of the experience of the Great Patriotic War shows that the air defense of the state was an important strategic task. To carry it out it was essential to have a strong air defense system established to the entire attainable depth of the air enemy. During the war years, the Soviet Command adopted a number of measures aimed at improving the structure and system of command for the Air Defense Troops. Among the most essential one must mention the following: the separating of air defense into the air defense of the nation and the air defense of the troops; the establishing of operational-strategic and operational field forces of the National Air Defense Troops; the organizing of fighter aviation and antiaircraft artillery into independent branches of the Air Defense Troops. The command system was improved by: establishing a qualitatively new organizational structure for it; reorganizing the command bodies and posts; developing the means of command, the signals system and the VNOS service.

As a result of the designated measures, the National Air Defense Troops gained the traits of an independent Soviet Armed Service: in carrying out a strictly determined range of tasks of a strategic nature, they had a structure inherent only to them, a system of control and independent command directly subordinate to the superior military leadership. The formations, units and subunits of the air defense troops of the Ground Troops remained as part of the all-arms field forces, formations and units. Their control bodies and posts were part of the all-arms command system. Along with this an independent system was established for the command of the air defense troops of the Ground Troops and headed by the artillery commander of the Soviet Army.

A thorough study of the experience of the development of the Air Defense Troops in the Great Patriotic War and its creative employment can to a definite degree contribute to an effective solution to the tasks of further improving the troop command system under present-day conditions.

#### FOOTNOTES

1. "Istoriya vtoroy mirovoy voyny 1939-1945" [History of World War II of 1939-1945], Moscow, Voenizdat, Vol 4, 1975, p 21.
2. See: "Voyska protivovozdushnoy oborony strany" [National Air Defense Troops], Moscow, Voenizdat, 1968, p 126.

3. TsAMO SSSR [Central Archives of the USSR Ministry of Defense], folio 49-A, inv. 1554, file 9, sheet 217.
4. See: "Voyska protivovozdushnoy...", pp 126, 127.
5. See: "Sovetskaya Voyennaya Entsiklopediya" [Soviet Military Encyclopedia], Moscow, Voenizdat, Vol 2, 1976, p 320.
6. See: "Voyska PVO strany v Velikoy Otechestvennoy voyne 1941-1945" [National Air Defense Troops in the Great Patriotic War of 1941-1945], Moscow, Voenizdat, 1981, pp 101-103.
7. See: "Sovetskaya Voyennaya Entsiklopediya," Vol 8, 1980, p 334.
8. TsAMO, folio 225, inv. 181945, file 1, sheet 91.
9. "Sovetskaya Voyennaya Entsiklopediya," Vol 2, 1963.
10. Ibid., p 164.
11. See: Ibid.

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## REINFORCING, WIDENING BRIDGEHEADS IN VISTULA-ODER OPERATION

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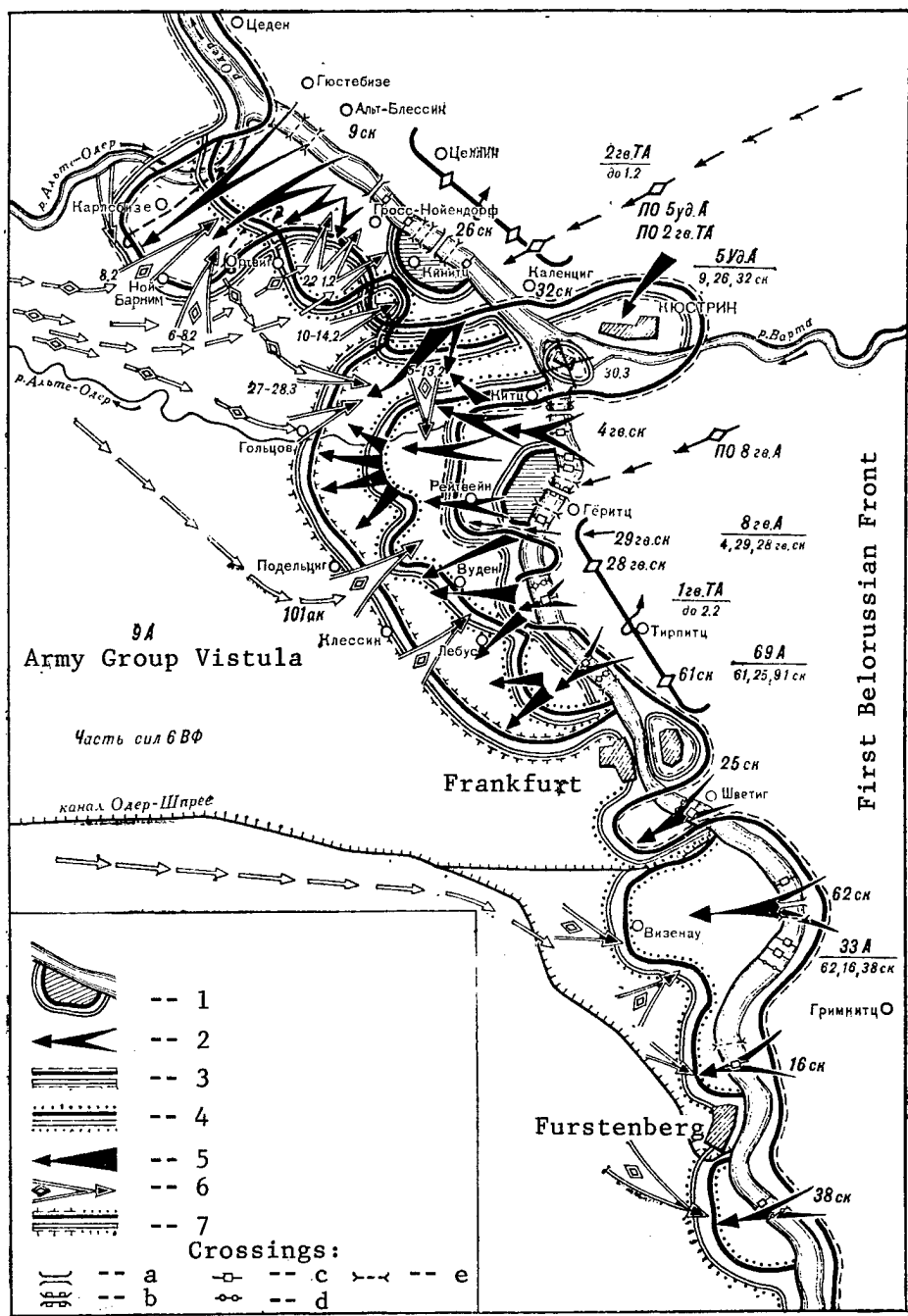
[Article by Candidate of Historical Sciences, Col A. M. Sokolov; the article has been written from the experience of the combat actions of the First Belorussian Front]

[Text] In the course of the Vistula-Oder Offensive Operation (12 January-3 February 1945), the Commander of the First Belorussian Front, MSU G. K. Zhukov in a directive to the troops of 27 January demanded: "...Without considering fatigue, as quickly as possible to unseat the enemy...on the approaches to the Oder River and...capture the western bank of the Oder River.... If we capture the western bank of the Oder, then the operation of capturing Berlin will be fully guaranteed...." The operational directive of 28 January to the armies of the center and left wing of the front ordered the crossing of the river on 2-3 February.(1)

The first to reach the Oder on 31 January were the forward detachments of the 5th Shock Army and the 2d Guards Tank Army. They captured a bridgehead to the northwest of Kustrin in the Kinitz area more than 4 km wide and up to 2 km deep.(2) To the south, in the Goritz area, forward detachments from the 8th Guards Army together with the motorized rifle subunits of the 1st Guards Tank Army captured a bridgehead more than 3 km wide and up to 1.5 km deep(3) (see the diagram). The fight to reinforce and widen them was carried out in the aim of establishing the jump-off area for launching attacks in the following operation. This was carried out in two stages. In the course of the first stage (February) the armies fought to retain the tactical bridgeheads and widen them to operational ones. In the second stage (March) there was a fight to combine the army bridgeheads into a single bridgehead which would ensure the deployment of a large troop grouping on the Berlin sector.

A particular feature of the fighting for the bridgeheads was primarily that combat operations were conducted by limited forces. While the main forces of the front, including the 1st and 2d Guards Tank Armies had been diverted to defeat the East Pomeranian Nazi troop grouping, only four below-strength all-arms armies remained on the Oder (one reinforced rifle corps from each of the 8th Guards and 69th Armies were 150 km to the east of the Oder and involved in eliminating the enemy grouping surrounded in Poznan; heavy artillery not

engaged in the Poznan area has fallen behind some 100 km). In addition, on the right bank in the areas of Kustrin and Frankfurt an der Oder, the enemy groupings continued to stubbornly hold bridgeheads and to eliminate these two or three rifle divisions were assigned to each.



The Fight for the Oder Bridgeheads (31 January - 30 March 1945)  
 [See Key on following page]

[For diagram on preceding page]

- Key: 1--Bridgeheads held by forward detachments of 5th Shock Army and 8th Guards Army, 31 January-1 February  
2--Axes of Soviet troop thrusts, 1 February-1 March  
3--Position of troops by end of 3 February  
4--Position of troops by end of 1 March  
5--Axes of Soviet troop thrusts, 2-30 March  
6--Counterstrikes by Nazi troops  
7--Frontline by end of 30 March  
a--Low-level bridge  
b--Floating bridge  
c--Raft  
d--Assault  
e--Ice

The fighting for the bridgeheads was marked by exceptional intensity. The Nazi Command, having brought up reserves, endeavored to throw the Soviet troops back to the right bank of the Oder. Two motorized divisions and two infantry divisions as well as a large number of various battalions were thrown against the 5th Shock Army alone in the first half of February. During this time the enemy made over 150 counterattacks from a company to two infantry regiments strong with the support of from 5 to 40 tanks and assault guns. The units and formations of the 8th Guards Army each day repelled 5-7 counterattacks from a company to 2 infantry battalions strong and reinforced by 20-50 tanks and assault guns. In the counterstrike initiated by the enemy on 6-8 February against the troops defending a bridgeheads to the northwest of Kustrin, over an infantry division and up to 80 tanks were involved on a narrow sector of the front.(4)

The enemy counterattacks and counterstrikes were repulsed by the joint actions of the rifle units and formations, the tanks, artillery and aviation. A bold maneuver was executed in the aim of massing resources on the sector where the main enemy efforts were concentrated. But on individual sectors in a number of instances an unfavorable situation developed. For example, in the region of Karlsbise, Neu-Barnim, the IX Rifle Corps of the 5th Shock Army was even forced to retreat. The commander of the front turned to the military council and commanders of the army formations with the appeal: "The 5th Shock Army has a particularly responsible mission of holding the captured bridgehead on the western bank of the Oder and broadening it, at least to 20 km along the front and 10-12 km in depth.

"I urge all of you to understand the historic responsibility for carrying out the mission assigned to you and...demand exceptional steadfastness and valor from the troops."(5)

In the aim of spreading out the enemy reserves along a wide front and depriving it of the possibility of shifting men and weapons from unattacked sectors against troops defending the bridgeheads in the Kustrin area, the armies on the left wing of the front were ordered to intensify actions and cross the Oder on the sector from Lebus to Furstenberg. As a result, formations from the 69th Army were able to capture two bridgeheads in the area of Lebus and Schwetig, while the 33d Army captured three in the areas of

Wiesenau, to the northeast and south of Furstenberg. In the Wiesenau area, the captured bridgehead was 14 km wide and up to 6 km in depth.(6)

The active operations of the left flank armies forced the enemy to constantly send a portion of the reserves into their areas and to fight along a broad front. This weakened the pressure in the Kustrin area and this was one of the factors helping the formations of the 5th Shock and 8th Guards Armies to initially broaden and then link up the bridgeheads.

In the fight to hold on to the bridgeheads, particular attention was given to the establishing of antitank defenses. These were organized primarily on the main likely tank approaches and on the flanks of the defending troops. For this they employed the antitank artillery which had crossed the river as well as large caliber howitzers. All artillery pieces on the bridgehead fired with direct laying.

The holding of the captured bridgeheads depended largely upon the combat activeness of the troops. Hostilities were conducted night and day, to the full limit of the physical and moral forces of the personnel. The prompt increasing of effort by the immediate commitment of the crossing reserves to battle, the counterattacks launched and the imposing of our will on the enemy made it possible to carry out the set mission. The attempts of the Nazi command to throw the formations of the First Belorussian Front back from the captured bridgeheads failed.

The primary task, the fulfillment of which determined the outcome of the fighting for the bridgeheads, was the constant increasing of men and weapons on them. Thus, up to 5 February, the command of the 5th Shock Army had succeeded in moving to its bridgehead up to two rifle corps and the 8th Guards Army had shifted up to five rifle regiments.(7) Subsequently the increase of effort on the bridgeheads, particularly to the northwest of Kustrin, occurred slowly. While the 8th Guards Army still had capability for this (as a total in the first half of February, two rifle corps were moved over), in the 5th Shock Army the increase in men and weapons occurred by employing the limited army reserves, the arriving artillery as well as the personnel from the rear and other subunits. Subsequently, the increasing of effort on the bridgeheads was carried out by committing the arriving front reserves and the draft battalions. As a result of this, at the beginning of March, the manning levels of the rifle divisions on the bridgehead of the 5th Shock Army had been brought up to 6,000-7,000 men and for the 8th Guards Army up to 4,100-4,300 men. The armies also received additional reinforcements. Thus, the 5th Shock Army received five different artillery formations and units and a motorized pontoon bridge regiment. The 8th Guards Army was also reinforced: eight different artillery formations and units, as well as an anti-aircraft artillery division. Moreover, at the end of February the XXIX Guards Rifle Corps was returned to it (with three divisions) and now reinforced by two self-propelled artillery regiments and a tank regiment.(8) A portion of its forces had crossed to the bridgehead and been committed to battle.

The experience of the fighting on the bridgeheads reaffirmed the need for the quickest crossing of artillery, particularly antitank, to the opposite bank. Thus, 15 76-mm guns from the 507th iptap [antitank artillery regiment] and 16

120-mm mortars from the 489th minp [mortar regiment] crossed over thin ice along with the forward detachment of the 5th Shock Army. Subsequently, the artillery subunits crossed with the first echelons of the rifle divisions. By the end of 2 February, some 184 guns and mortars had been concentrated on the bridgehead in the Kinitz area. The remaining artillery fired from firing positions on the right bank of the Oder. With the creation of raft and ice crossings with increased load capacity, the pace of artillery crossing, including the large-caliber, rose. This made it possible not only to reinforce the captured bridgeheads but also begin fighting to widen them. Thus, the initially captured bridgehead in the area of the 5th Shock Army was more than 4 km wide and up to 2 km deep. Then on a number of sectors it was widened initially to a depth of up to 5 km and then along the front to 27 km, while by the end of February its width had increased by another 5 km.(9)

The insignificant depth of the captured bridgeheads made it possible for the enemy to observe and fire with artillery not only at the battle formations of the formations and units located on them but also the crossing areas. All of this impeded the increasing of men and weapons on the bridgeheads, it impeded troop supply and ultimately told on the rate of widening the bridgeheads.

After broadening the bridgeheads in the Kustrin area, the troops of the front carried out the task of linking them up. It was essential to cut the 3-km corridor which separated them and had been reinforced by the enemy. For this purpose the 5th Shock Army and the 8th Guards Army and the main forces of the 16th Air Army carried out a carefully prepared secondary operation. Its overall plan was for the armies to launch simultaneous encounter attacks, to break through the enemy defenses and eliminate the corridor. The going over to the offensive was set for 22 March. This was preceded by massed air strikes for 4 days. As a result of the operation, the army bridgeheads were combined into one up to 44 km wide and 7-10 km deep.(10) However, on the island in the Kustrin citadel, a surrounded enemy grouping which had strong reinforcements remained. For destroying it they employed large caliber weapons up to 203-mm set for direct laying. The going over to the offensive was preceded by massed air strikes. The attack was carried out simultaneously from all sides. On 30 March the fortress fell.

In the fight for the bridgehead, an important role was played by the engineer troops. The significant width of the Oder (200-300 m), the weak ice some 18-40 cm thick and the frequent thaws during this season impeded the operation of the crossing. With the start of the crossing the main crossings were ice ones. In the zone of each army some three-four such crossings were built. With the capturing of bridgeheads by the forward detachments and with the laying of tracks of panels and beams on the ice, the load capacity of certain crossings increased up to 5-8 tons.

The building of bridge crossings started immediately after a certain widening of the bridgeheads in the beginning of February. Under enemy fire and air strikes, the work was carried out rapidly. Simultaneously with the building of bridges, raft crossings were established on open water. Use was also made of captured self-propelled barges. While at the beginning of February ice and assault crossings and three self-propelled barges were operating, in the following 7-8 days, on the Hustbise, Furstenberg sector the engineer troops

were able to throw up two 60-ton low floating bridges in the Zellin and Kinitz areas, a 16-ton floating bridge from a N2P train in the Goritz area and 15 raft crossings of varying load capacity.(11)

Subsequently, the pace of completing the crossings dropped. This was caused by the thaw, by the beginning of the ice drift and the unceasing enemy air raids. The aviation was particularly active from 7 through 12 February. Thus, on 8-9 February, the enemy aviation just in the zone of the 5th Shock Army made over 700 aircraft sorties. All in all during the crossing and in the fight for the bridgeheads, the artillery fire and enemy air strikes damaged, destroyed and sank some 126 pontoon sections of the N2P and TMP trains.

Under these conditions air defense for the crossings and troops on the bridgeheads assumed important significance. At the beginning of February, in the aim of repelling enemy air strikes, the basic mass of antiaircraft artillery was promptly moved up to the Oder line. It was used in a massed manner on the main sectors. For example, the troops of the 5th Shock Army were covered by five antiaircraft artillery divisions and three antiaircraft regiments.(12) Subsequently, as the remaining antiaircraft artillery was brought up, the air defense for the troops and the crossings was stiffened. Enemy aviation was forced initially to increase the bombing altitude and then reduce its activity. The skillful employment of camouflage smoke also helped to reduce the effectiveness of the enemy air strikes and for this chemical defense subunits and units were employed.

The successful fight for the bridgeheads and the rate of widening them depended largely upon the actions of supporting aviation. In the first stage, its operations were limited, as the rebasing of the air units was carried out extremely slowly due to the inoperable field landing strips. Enemy air operations increased sharply and it succeeded in temporarily seizing the initiative in the air. Just over 2-3 February, it made over 5,000 aircraft sorties.(13) The losses from air strikes in the ground troops rose.

As the air units and formations were rebased to newly built airfields, the activity of Soviet aviation rose. It concentrated its main efforts on the fight to win operational and tactical air supremacy in the area of the crossings, on detecting and destroying reserves in the aim of checking counterstrikes as well as on air support for the troops fighting to hold and widen the captured bridgeheads.

From requests of the all-arms commanders and the instructions of the guidance officers, groups of aircraft from the 16th Air Army destroyed the strongpoints and firing positions of enemy artillery. Under the strong and unceasing attacks of Soviet aviation, the enemy troops were forced to break off the counterattacks and counterstrikes and go over to the defensive.

In the course of the fighting for the bridgeheads, troop command and control became more complex. The command of the front controlled simultaneously two groupings fighting on different axes. Initially the chief attention of the commander and the staff was focused on leading the troops on the bridgeheads. With the shifting of efforts of the front to the East

Pomeranian sector, troop command on the Oder began to be carried out basically by combat orders, verbal instructions over the telephone and radio as well as by the detaching of generals and officers to the army staffs.

Such a situation arose in the 8th Guards Army. Its commander was in charge of directing the elimination of the Poznan enemy grouping. At the same time, he commanded the formations fighting on the bridgehead. The frequent moves of the commander and the staff officers over hundreds of kilometers impeded command and reduced its effectiveness.

Experience showed that for ensuring stable command of the troops fighting for the bridgeheads as well as those left in the rear to complete the elimination of surrounded enemy groupings or carrying out other tasks, it was essential to establish independent control posts.

In the fight to strengthen and widen the bridgeheads, an important role was played by party political work. Its main efforts were directed at explaining the importance of the bridgeheads to the personnel. The orders of the Supreme Commander-in-Chief were announced regularly with commendations for the outstanding units and formations. Depending upon the situation, their content was read at brief meetings, assemblies and talks. The political bodies of the formations printed commendatory certificates for each order of I. V. Stalin. Signed by the unit commanders and under a seal, they were presented to the soldiers and officers directly in the battle formations. The appeals of the military councils of the front and the armies had a great impact upon increasing the steadfastness of the troops fighting on the bridgeheads.

The capturing and retaining of the bridgeheads on the Oder were of important significance. They not only helped to keep a good operational situation on the Berlin sector but also ensured the concentration of the main shock grouping of the First Belorussian Front on the left bank and freed the troops from the need to cross a major water obstacle with the start of the Berlin Operation.

#### FOOTNOTES

1. TsAMO SSSR [Central Archives of the USSR Ministry of Defense], folio 233, inv. 2307, file 189, sheets 209, 232-242.
2. "Sbornik materialov po izucheniyu opyta voyny" [Collection of Materials on Studying the Experience of the War], Moscow, Voenizdat, No 25, 1947, p 69.
3. TsAMO, folio 233, inv. 2356, file 598, sheets 1-10.
4. Ibid., sheet 56.
5. Ibid., inv. 2307, file 194, sheets 100-101.
6. Ibid., inv. 2356, file 598, sheets 58-60.
7. Ibid., file 572, sheets 49-55.

8. "Operatsii Sovetskikh Vooruzhennykh Sil v Velikoy Otechestvennoy voyne 1941-1945" [Operations of the Soviet Armed Forces in the Great Patriotic War of 1941-1945], Moscow, Voenizdat, Vol 4, 1959, p 184.
9. Ibid.
10. "Sovetskaya Voyennaya Entsiklopediya" [Soviet Military Encyclopedia], Moscow, Voenizdat, Vol 4, 1977, p 550.
11. TsAMO, folio 69, inv. 28975, file 42, sheets 27-54.
12. "Sovetskaya artilleriya v Velikoy Otechestvennoy voyne 1941-1945 gg." [Soviet Artillery in the Great Patriotic War of 1941-1945], Moscow, Voenizdat, 1960, p 645.
13. "Sbornik materialov po izucheniyu...", No 25, p 72.

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## LANDING OF AMPHIBIOUS FORCES IN OFFENSIVE OPERATIONS OF GREAT PATRIOTIC WAR

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 4, Apr 86 (signed to press 25 Mar 86) pp 39-47

[Article by Vice Adm (Res) Yu. S. Bondarevskiy; the author of this article during the war years served on the Black Sea Fleet. The submarine M-35 where he was a navigator participated in the landings of certain amphibious forces]

[Text] One of the active forms of the participation of naval forces in offensive operations by fronts in maritime, lakeside and riverine areas during the years of the Great Patriotic War was the landing of amphibious forces. Here the landing forces were employed the more frequently the offensive operations of the Soviet Army developed. Thus, while the Black Sea Fleet in 1941 landed 2 amphibious forces, in 1942 the figure was 3 and in 1943-1944, 8 (see Table 1). The Northern Fleet just in 1944 landed 7 forces, while in 1941-1942, it landed a total of 8. The Danube Naval Flotilla in 1944 landed 13 different forces, that is, 6.5-fold more than in 1941.(1) The exception was the Baltic Fleet and the Ladoga Naval Flotilla which due to the developing situation employed the landing of forces more in 1941. As a total over the years of the Great Patriotic War, the Navy landed more than 100 amphibious forces of varying scale and numbering over 250,000 men.(2) The basic data on certain of these are given in Table 2.

The preparation and direct execution of the tasks by the landing forces were carried out in several stages, each of which had common as well as distinguishing features.

The preparatory stage included: the complete elaboration of a plan for the operation and other documents (schemes for the loading and unloading of troops and equipment, the routes of the crossing, fire support, signals and so forth); careful reconnaissance not only of the area of the proposed landing but also the regions adjacent to it and the collecting of reliable data concerning the enemy; a precise calculation of the available resources, a determining of the time and most effective landing places; measures to ensure secrecy of the actions and the camouflaging of men and weapons.

During the period of preparing to carry out the set mission, the landing plans were adjusted considering information acquired in the course of the conducted reconnaissance. Due to close cooperation between the army and navy

intelligence bodies, for example, careful reconnaissance was conducted in preparing to land the force in Novorossiysk. In carrying it out aerial photography and fixing of the objectives and firing positions were widely employed in conducting it. The shore surveillance and observation posts actively acquired the necessary information. As a result of the well organized and comprehensive reconnaissance of the landing areas, it was possible to precisely establish the location of the enemy artillery batteries and firing positions and rather completely study the nature of the man-made obstacles.

Table 1\*

Amphibious Forces Landed in Course of Offensive Operations

No.	Fleets and Flotillas Which Landed Forces	----- Number of Amphibious Forces -----			Total for Fleets and Flotillas
		----- Years -----			
		1943	1944	1945	
1	Northern Fleet (see also Diagram 1) . . . .	--	7	--	7
2	Red Banner Baltic Fleet	--	6	2	8
3	Black Sea Fleet . . . .	4	4	--	8
4	Pacific Fleet and Northern Pacific Flotilla . . . . .	--	--	7	7
5	Lake and river flotillas	6	25	12	43
6	Total for years . . . .	10	42	21	73

\* Table compiled from data of: TsVMA [Central Naval Archives], folio 6, file 11242, sheets 33-324; folio 11, file 17814, sheets 58-60; file 37093, sheet 79, 80; file 39643, sheet 152; folio 46, file 830, sheet 102; folio 10, file 239, sheets 120-123; folio 82, file 2056, sheet 233 and others.

During the preparatory period the personnel assigned to the landing force underwent special training. This included tactical, weapons, sea and engineer training. Joint drills were conducted for the members of the ship crews and men of the landing force in loading and unloading, and the manuals and instructions determining the actions under various situations were studied. If the situation permitted, exercises were organized under conditions close to actual combat. Party political work was widely carried out: the experience of the landing of previous forces was popularized, talks were conducted in the

Basic Information on Certain Amphibious Forces

Name of Force or Landing Operation	Date & Place of Landing	Tasks Assigned to Force
1	2	3
<p><b>Novorossiysk Landing</b></p> <p>Landed in course of Novorossiysk Operation</p>	<p>10-11 Sep 1943. Port of Novorossiysk</p>	<p>Capturing port and coast of Tsemes Bay, helping units of 18th Army in liberating Novorossiysk</p>
<p><b>Tuloksa Landing Operation</b></p> <p>Carried out in course of Svirsk-Petrozavodsk Operation</p>	<p>23-27 June 1944. Northwest of mouth of Tuloksa River</p>	<p>To cut in enemy rear in interfluve of Vidlitsa and Tuloksa the highway and railroad running along the bank of Lake Ladoga and, holding occupied beachhead until approach of main forces, disrupt planned retreat of Nazi troops</p>
<p><b>Moonsund Landing Operation</b></p> <p>Carried out in course of Baltic Strategic Operation by troops of Leningrad Front and Baltic Fleet</p>	<p>27 Sep-24 Nov 1944, islands of Moonsund Archipelago</p>	<p>Successive taking of islands with launching of main thrust against Saaremaa (Esel) Island, where main enemy forces were</p>
<p><b>Landings made in course of Petsamo-Kirkenes Operation</b> (see also Diagram 1)</p> <p>Forces of Northern Defensive Area under Northern Fleet in cooperation with units of 14th Army</p>	<p>9-25 Oct 1944. On Cape Pikushev, in Malaya Volokovaya Bay, in Port of Linakhamari on Cape Ristiniyemi, in Suolavuono Bay, in Kobholm fjord, in Holmengorfjord</p>	<p>To break through enemy defenses on Isthmus of Sredniy Peninsula, to come out on Titovka-Petsamo Road, preventing retreat of enemy troops; to capture Linakhamari Port; to assist units of 14th Army in capturing Ports of Petsamo and Kirkenes</p>

Note: Table compiled from data of TsAMO SSSR, TsVMA, "Istoriya vtoroy mirovoy voyny 1939-1941" [History of World War II of 1939-1945], and other sources.

Table 2

## Landed in Course of Offensive Operation

Strength of Landing		Results
Troops	Landing Forces	
4	5	6
<p>1339th Rifle Reg. of 318th Rifle Div.; 255th Naval Rifle Brig.; 393d Sep. Naval Inf. Bttln.; 290th Rifle Reg. of NKVD. Total 6,480 men</p> <p>70th Sep. Naval Rifle Brig.; 3d Sep. Naval Inf. Brig. Over 8,000 men</p> <p>109th and 8th Estonian Rifle Corps of 8th Army, 260th Sep. Naval Inf. Brig. Total 78,000 men</p> <p>63d Naval Inf. Brig.; 249th Sep. Machine Gun Bttln.; subunits of 125th Reg. of 12th Naval Inf. Brig. Total 5,667 men</p>	<p>3 landing detachments and support detachment. Around 150 combat ships, launches and auxiliary vessels of Black Sea Fleet</p> <p>Detachment of landing craft, 2 detachments of transports, detachment of escort ships, detachment of artillery support ships, cover group for landing forces (2 small submarines). Around 80 units</p> <p>129 ships and vessels</p> <p>Depending upon size of landing force, from 3 to 33 torpedo boats and large and small subchasers were used. A total of over 40 different boats</p>	<p>Port liberated, assistance provided in liberating city of Novorossiysk</p> <p>Basic communications cut for Svirsk Enemy Grouping; threat of its encirclement created</p> <p>Complete liberation of Moonsund Archipelago</p> <p>Coast liberated from Isthmus of Sredniy Peninsula to Bekfjord. Enemy deprived of near airfields as well as important points in Varangerfjord. Assistance provided to troops of 14th Army in capturing Ports of Petsamo and Kirkenes</p>

units and on the ships, party and Komsomol meetings were held, oaths were taken by the personnel, the appeals of the military councils were read and so forth. All of this helped to strengthen the combat morale of the men and mobilize them to properly carry out the set tasks.

Often the decision to make a landing was made in the course of an offensive operation and then the training of the force for combat was carried out quickly. Thus, the order for conducting the Kuril Landing Operation was issued on 15 August 1945. Regardless of the short time, the command and the staffs of the Kamchatka Defensive Area and the Petropavlovsk Naval Base were able to work out a plan for the landing as well as other documents and carry out the necessary measures to train the personnel, prepare the weapons and landing equipment.(3)

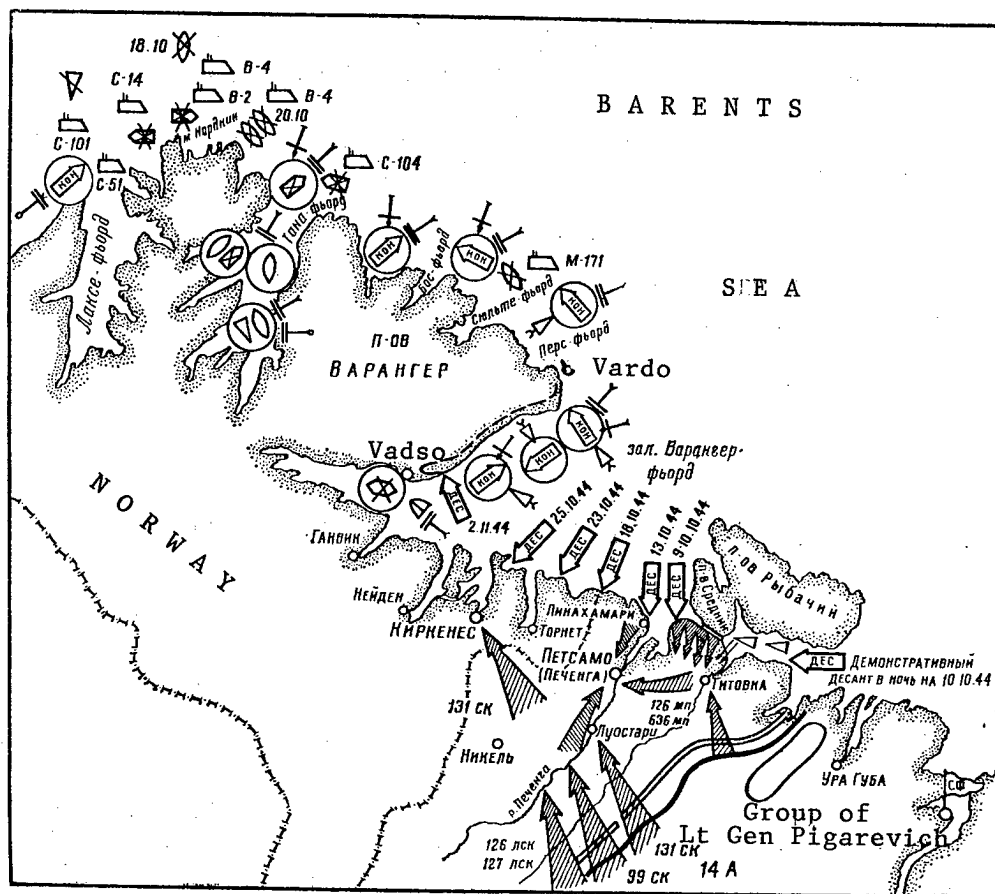


Diagram 1. Amphibious Forces Landed by Northern Fleet on 9-25 October 1944 in Course of Petsamo-Kirkenes Operation

During the preparatory stage great importance was given to camouflage and deceiving the enemy. The ships and vessels assigned to transport the men and equipment were spread out. Forces were assigned for combating air, ship and

other types of enemy reconnaissance and in addition false loading points were established and diversionary maneuvers were initiated with the equipment and personnel. In preparing the force for landing at Novorossiysk, the Command of the 18th Army and the Black Sea Fleet in the aim of ensuring surprise and deception strictly limited the number of persons involved in working out the documents and these were written out only in hand. The duties of each executor were strictly outlined. In order to mislead the enemy, aside from the real one, a false directive was issued for landing the force in the area of Yuzhnaya Ozoreyka. In addition, reconnaissance of the coast was strengthened in this area. All regroupings, concentrations of the troops, ships and vessels as well as training of the personnel were carried out strictly at night.

Camouflage was strictly observed in the embarking of the personnel and equipment on the ships and vessels. The loading points were covered from the land, air and sea by air defense weapons, aircraft, ship and shore artillery. The procedure for loading the personnel on the ships was set out ahead of time. Sometimes loading was made to seem a continuation of a tactical exercise. This was the case prior to the landing of the Tuloksa force. A training embarkation was announced for the units which had arrived in the designated area and had taken cover in the forest during the night of 22 June 1944. This was carried out according to a carefully elaborated plan which was a component part of the plan of the operation. This helped to achieve surprise in the landing of the force.

The sea crossing was carried out according to a clearly elaborated plan and required a high level of organization and teamwork among the forces and the adopting of effective measures to ensure the security of the force and the surprise of its actions. For example, the landing of the force in Novorossiysk was unexpected for the enemy, since it did not assume that the numerous launches and small boats concentrated in Gelendzhik Bay could quickly and covertly leave their darkened anchorages, without delay form up into a cruise formation and, without giving itself away, reach the destination. The successful choice by our command of the day and time, the precisely calculated schedule for the loading and crossing made it possible to catch the enemy by surprise and prevent it from attacking the force in the move at sea.

During the crossing of the ships and vessels with the landing force on board, intense reconnaissance was conducted by aviation, surface vessels and submarines. Air, antiboat, antimine and antisub defense was provided and measures taken for navigation and hydrographic support. One of the noteworthy features of the Tuloksa Landing Operation, for example, was the dependable antiboat defense of the force carried out by two specially organized detachments: ship escort (5 gunboats, 2 patrol boats and 2 torpedo boats) and the immediate security of the force (6 boats of the M0 class, 2 armored boats and a landing barge).(4) Submarines were deployed on the most dangerous sectors and in the event that the enemy took antilanding measures they were ready to force combat on the enemy ships in order to restrict their actions. The air units of the Karelian Front as well as the naval air forces involved in the operation were in full combat readiness for supporting and covering the force. For better control of the landing detachments in the move as well as for organizing and maintaining close cooperation between the antiboat forces

and the other types of defense, a cruise staff was established (chief, Capt 1st Rank K. M. Kuznetsov). This was located on one gunboat and had permanent contact with the commanders of the individual detachments as well as with the leader of the landing operation, the commander of the Ladoga Naval Flotilla, Rear Adm V. S. Cherokov.

The amphibious assault determined much in carrying out the set missions by the landing force. In the course of this the following missions were carried out: the crossing of the antilanding obstructions in the water, final reconnaissance and capturing of the landing points, the establishing of the base and beachhead. The success of the amphibious assault was aided by the rapid reaching of the shoreline by the force. One of the measures which ensured this condition was the precise organization of the transferral of the personnel and equipment from the ships, transports and vessels to the landing equipment (in landing according to the "shore--transports--landing equipment--shore" scheme) or directly on the beachhead (in landing according to the "shore-to-shore" scheme). Thus, in the course of the Tuloksa Landing Operation, all the landing equipment was divided into three groups and assigned to certain groups of transports which identified themselves by hoisting the appropriate flags. This made it possible for the landing force to carry out the landing quickly and with minimal losses (enemy bombers sank just one barge).(5) The choice of the type of transport also played an important role. More often during the years of the Great Patriotic War, due to the fact that there were no specially built boats and vessels, various classes of fighting ships were used. Torpedo boats were frequently employed in landing forces in the course of offensive operations. Thus, due to this the Novorossiysk landing was able to achieve significant success in the amphibious assault. The high speed and great maneuverability of the torpedo boats shortened the time for delivering the landing force to the designated areas and as a result of the skillful employment of torpedo weapons the antilanding defenses of the enemy were significantly weakened. In the liberation of North Korea, in line with the rapid pace of the commenced operation, only high-speed ship formations and units, primarily the torpedo boats, were involved in the successive landing of amphibious forces. In the Pacific Fleet for the first time in the Soviet Navy specially built vessels were employed for transporting and landing the amphibious forces (forward detachments). This ensured the rapid and steady landing of the assault force and equipment on the open beach.(6)

The weakening of the enemy antilanding defenses in the amphibious assault was achieved by preliminary and direct artillery and air softening up. Thus, the amphibious assault of the Novorossiysk Landing started with heavy artillery softening up (see Diagram 2). The supporting weapons were split into subgroups. In the aim of supporting one or another landing detachment, for each of them planned lines were clearly designated. The ground attack and bomber aviation provided significant support to the landing force.

Due to the well planned and organized artillery and air softening up, for example, the forward detachment of the Tuloksa Landing was landed at a rapid pace and without losses. Artillery softening up commenced an hour before the landing. By this time, the ships carrying this out had taken up their firing positions and according to the agreed-upon signal opened aimed fire at the

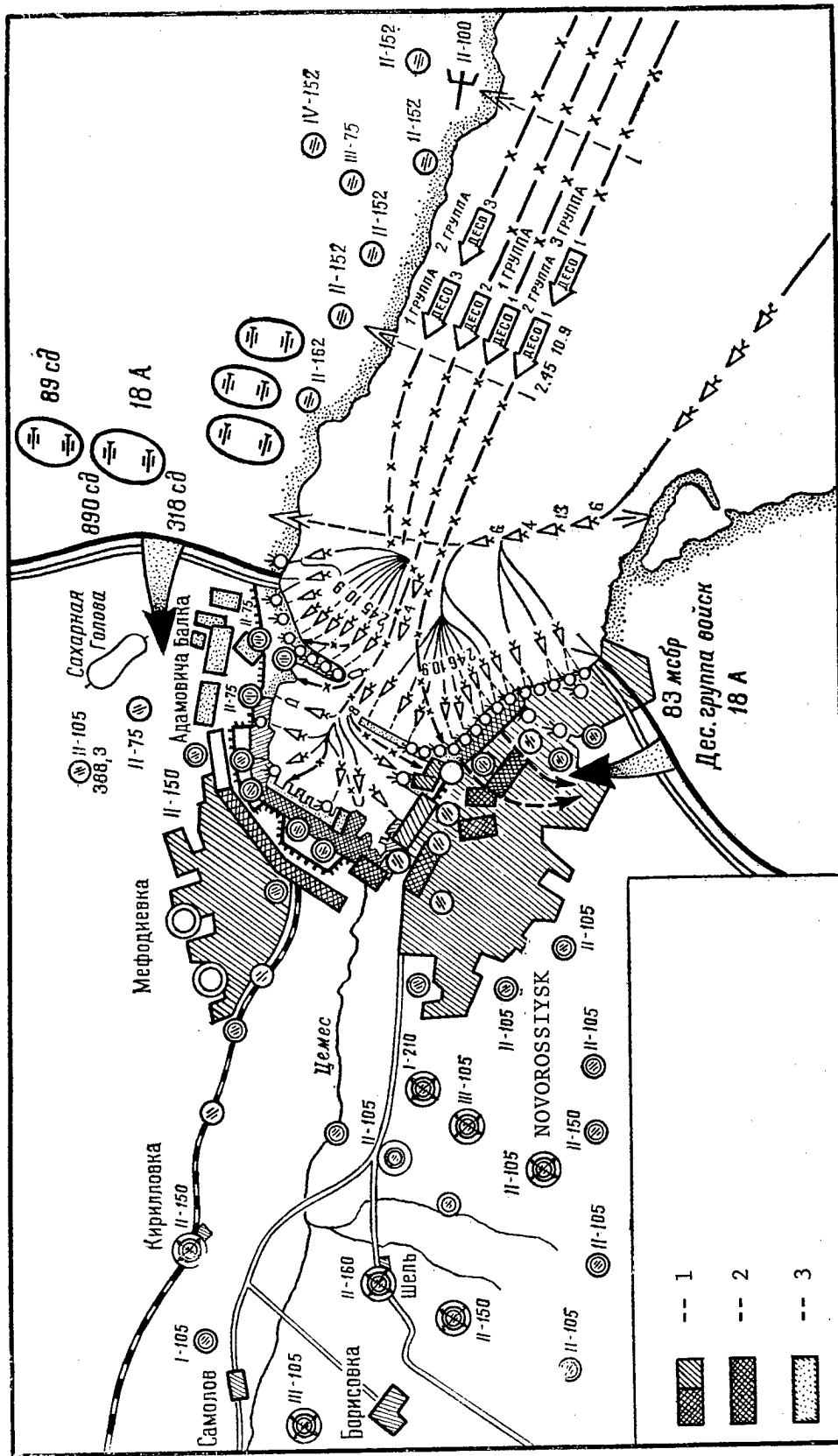


Diagram 2. Combat for Landing Amphibious Force in Novorossiysk 10 September 1943

- Key:
- 1--Planned firing lines for artillery subgroup No 1 for supporting first landing detachment
  - 2--Planned firing lines for artillery subgroup No 2 for supporting second landing detachment
  - 3--Planned firing lines for artillery subgroup No 3 for supporting third landing detachment

antilandings installations. Some 50 minutes later, they shifted fire deep into the enemy defenses while the boats from a range of 5-10 cable lengths opened up direct laying against the forward edge. Some 15 minutes before the start of the landing, aviation made a bombing and strafing attack against the enemy positions. Also effective was the landing of the spotter posts along with the forward detachment and these immediately established contact with the ships and began to give them accurate target designations.

The success of the landing with its actions on the shore was largely ensured by the prompt and strong artillery support and a dependable air cover. In the course of the Kerch-Eltigen Landing Operation (31 October-11 December 1943), an auxiliary amphibious force landed in the Eltigen area for 36 days drove off the attacks of superior enemy forces due to the support from the field, shore and ship artillery. The aviation of the front and the fleet provided essential aid to the force. The naval air force made strikes against the enemy firing positions and infantry, it repelled enemy air attacks and together with the ship forces prevented the establishing of an enemy sea blockade of the landing force and ensured an air cover in transferring troops, weapons and ammunition to the captured beachhead.

The organization and realization of close cooperation among the diverse forces assumed important significance. Thus, in liberating the islands of the Bjork Archipelago (June 1944) in the course of the Vyborg Operation, the active joint operations of the naval aviation and surface ships prevented the enemy from launching counterstrikes against the force and to land reinforcements for our defending troops. In the fight for the islands of Vyborg Bay (July 1944), due to stubborn enemy resistance, they were liberated by the successive breaking through of the enemy defenses with strong support from the aviation, shore and troop artillery. The support provided for the force by aviation which had been assigned a main role and the cover against air strikes were organized personally by the commander of the Baltic Fleet who was at the forward command post of the fleet close to the landing area.

In those instances when leadership of a landing force was entrusted to the commander of a fleet, command of combat on shore was usually provided from a permanent shore flagship command post (BFKP). In the aim of direct surveillance of the course of combat and prompt taking of decisions with a change in the situation, auxiliary control posts (VPU) were organized and these were positioned close to the front and army command posts. In the Kerch-Eltigen Landing Operation, the VPU of the commander of the Black Sea Fleet was located close to the command post of the 18th Army. At times, the fighting of a landing force was controlled from a single command post. In the Novorossiysk Operation the commander of the Black Sea Fleet was at the command post of the commander of the 18th Army with the naval commander providing overall leadership of the landing of the force in Novorossiysk.

The experience of employing amphibious landings in offensive operations has confirmed that the greatest success in the course of their actions can be achieved with careful planning, thorough consideration of the situation, of one's own capabilities and the enemy forces, the anticipating of different variations of the development of events, the ensuring of secrecy and camouflage as well as dependable artillery and air support. A great deal

depended upon the training of the first wave subunits and the ability of the landing force to act decisively, courageously and unstintingly. Here a major role was given to party political work.

The active employment of amphibious landings and their greater role in the course of the offensive operations on the maritime, lake and river sectors have sharply posed the question of the need to build landing craft and special landing equipment. The development of naval art in the postwar years and the experience of employing amphibious landings in local wars have confirmed this necessity.

#### FOOTNOTES

1. TsVMA [Central Naval Archives], folio 6, file 11242, sheets 33-324; folio 11, file 17814, sheets 58-60.
2. "Istoriya vtoroy mirovoy voyny 1939-1945" [History of World War II of 1939-1945], Moscow, Voenizdat, Vol 12, 1982, p 304.
3. L. I. Olshtynskiy, "Vzaimodeystviye armii i flota" [Cooperation of Army and Navy], Moscow, Voenizdat, 1983, p 296.
4. V. Achkasov, B. Vayner, "Krasnoznamenny Baltiyskiy flot v Velikoy Otechestvennoy voyne" [The Red Banner Baltic Fleet in the Great Patriotic War], Moscow, Voenizdat, 1957, p 258.
5. See: "Istoriya voyenno-morskogo iskusstva" [History of Naval Art], Moscow, Voenizdat, 1969, pp 380, 381.
6. See: Ibid., pp 507, 510, 513-514.

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## QUESTION OF STRATEGIC OPERATIONS IN GREAT PATRIOTIC WAR

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[Reader comments published under the rubric "Discussion"]

[Text] VOYENNO-ISTORICHESKIY ZHURNAL (No 10, 1985) contained an article by V.V. Gurkin and M. I. Golovnin entitled "On the Question of Strategic Operations in the Great Patriotic War of 1941-1945" and asked the readers to voice their opinion on the question raised.

Starting with the given issue of the journal, the editors, as a point of departure for discussion, are beginning to publish the responses received from readers on this article.

[Article by Candidate of Historical Sciences, Maj Gen N. K. Glazunov and Candidate of Historical Sciences, Col B. I. Pavlov]

In the course of the Great Patriotic War, an active strategic defensive and a strategic offensive were conducted by the Soviet Armed Forces in the form of operations of groups of fronts and including several simultaneously executed front operations linked by a common overall concept and by the leadership of the Supreme High Command.

The question of what operations conducted by the Soviet Army in the period of the Great Patriotic War can be considered as strategic ones has not been finally resolved up to the present. During the first postwar years it was felt that over 20 strategic operations had been conducted, in the 1960's data appeared in print on more than 40 operations, in the 1970's, 55 operations and later over 50 strategic operations (more than 50 operations of groups of fronts).(1) Finally, the authors of the discussed article give a list of 52 strategic operations.

The presence of such differences of opinion clearly shows that this question requires a thorough approach and discussion. It is one of the important scientific problems which has not lost its importance at present. For this reason, the editors of VOYENNO-ISTORICHESKIY ZHURNAL have proceeded correctly in presenting the article of V. V. Gurkin and M. I. Golovnin for discussion.

A majority of the operations listed in the article has already been described in Soviet literature and for this reason there is no need to assess them and it would be a question merely of individual clarifications. At the same time there is a number of operations which previously had either not been put into scholarly discussion or were not considered strategic. Moreover, the validity of considering certain of them to be strategic, in our opinion, is dubious.

For example, the authors call the 1941 Odessa-Melitopol Defensive Operation a strategic one, while in the Soviet scientific and memoir literature, this operation is not mentioned at all. The time context is also unclear, since the defense of Odessa lasted from 5 August through 16 October while Melitopol was abandoned by our troops on 6 October. It would be possible to include this operation among the strategic ones only by relying on substantial arguments which are lacking in the article.

In describing the Voroshilovgrad-Rostov Offensive Operation of 1943, the authors have artificially linked two operations of the Southwestern and Southern Fronts and here have not considered that the Rostov Operation of the Southern Front was carried out as a part of the Northern Caucasus Offensive Operation of 1943 with assistance of troops from the Transcaucasian Front.(2) The Rzhev-Vyazma Offensive Operation of 1943 has been sufficiently described in the Soviet literature. The events of this period developed in the following manner: on 2 March, under the cover of strong rear guards, the Nazi Command began the planned pullback of its troops from the Rzhev-Vyazma Salient. Hq SHC gave the Kalinin and Western Fronts the task of thwarting the organized retreat of the enemy and the defeat of its grouping. However, it was unable to carry this out and the actions of the fronts were more of the nature of pursuit and displacement of the enemy with insignificant losses for it.(3) Thus, there are clearly insufficient grounds for considering this operation as a strategic one.

It is impossible to agree with the authors who view the Kharkov Operation of the Voronezh and Southwestern Fronts of 1943 as a defensive one. The fighting of this period around Kharkov was a combination of offensive and defensive. Initially both fronts advanced and then, on 19 February, the Southwestern Front went over to the defensive while the Voronezh continued to advance until 3 March. It is also essential to bear in mind that the defensive of the Southwestern Front involved only a portion of its forces, the 6th Army and the mobile group.(4) For this reason it would be more correct to call this operation the Kharkov Engagement of 1943.

The list does not include the Tikhvin and Rostov Operations of 1941 which, in terms of significance, scope and particularly results, substantially surpassed certain other operations mentioned by the authors as strategic ones. These were the first major offensive operations on the flanks of the Soviet-German Front and ending with the defeat of significant enemy forces. The Nazi Command was unable to use the flank groupings to reinforce its troops on the western strategic sector and this played a major role in the conducting of the Moscow counteroffensive by the Soviet troops.(5)

It is also essential to clarify the effective strength of the forces involved in a number of operations. Thus, in assessing the Moscow Offensive Operation

of 1941-1942, one should also reflect the involvement in it of the Bryansk Front which was restored on 24 December 1951.(6) The Belgorod-Kharkov Offensive Operation of 1943, on the contrary, shows the fighting of the 57th Army of the Southwestern Front while at the very beginning of combat it had been turned over to the Steppe Front. For this reason it would be more correct to consider that the operation was carried out by two fronts, the Voronezh and Steppe.(7) The strength of the enemy forces should also be clarified in the Belgrad Offensive Operation of 1944: the advancing troops were actually opposed by Army Group Serbia consisting of the Army Group F and a portion of the forces from Army Group E.(8) The Vyborg-Petrozavodsk and Belgrad Offensive Operations of 1944, the Budapest and Vienna of 1944-1945 involved, in the authors' opinion, respectively, the Leningrad, Karelian, Third and Second Ukrainian Fronts. In actuality only a portion of the forces from these fronts fought in the designated operations.(9) It would be desirable to clarify the involvement of the Navy in a number of the strategic operations: the Baltic Defensive Operation of 1941 involved virtually the entire Baltic Fleet and not a portion of its forces; the Leningrad Defensive Operation of 1941 also involved the Ilmen Naval Flotilla; in the Northern Caucasus Offensive Operation of 1943 and the Berlin Offensive Operation of 1945, a role was played, respectively, by a portion of the forces of the Black Sea Fleet and a portion of forces of the Baltic Fleet.(10)

There are also individual inaccuracies in describing the scope as well as the given results of the operations. In the opinion of the authors, in the Leningrad-Novgorod Offensive Operation of 1944, 23 enemy divisions were defeated, although actually the number was 26. In the Dnieper-Carpathian Operation of 1943-1944, just 59 enemy divisions lost from one-half to three-quarters of their personnel and not more than 60, as is pointed out in the article. The spatial scope of the Kursk Defensive Operation of 1943 is given by the authors as 500 km along the front while the Soviet literature confirms a figure of 550 km. One can scarcely agree to the limiting of the frontal extent of the Lower Dnieper Offensive Operation of 1943 to 400 km. More accurate, in our view, is a figure of 750-800 km.(11) We agree that the authors have carried out a major and important study. It persuasively sets out and formulates the main criteria for classifying one or another operation. The data prepared by V. V. Gurkin and M. I. Golovnin on the strategic operations of the Soviet Armed Forces during the years of the Great Patriotic War can help to evolve a uniform scientific viewpoint on certain aspects of Soviet military strategy.

#### FOOTNOTES

1. See: V. P. Morozov, A. V. Basov, "Osnovnyye etapy Velikoy Otechestvennoy voyny" [Main Stages of the Great Patriotic War], Moscow, Prosveshcheniye, 1971, Appendix 1, pp 107-112; "Partiya i armiya" [Party and Army], Moscow, Politizdat, 2d Edition, 1980, p 192; "Istoriya vtoroy mirovoy voyny 1939-1945" [History of World War II of 1939-1945], Moscow, Voenizdat, Vol 12, 1982, p 278; KOMMUNIST, No 6, 1985, p 60.
2. "Velikaya Otechestvennaya voyna 1941-1945. Entsiklopediya" [The Great Patriotic War of 1941-1945. An Encyclopedia], Moscow, Sovetskaya Entsiklopediya, 1985, p 621.

3. "Istoriya vtoroy mirovoy...", Vol 6, 1976, pp 144-145; "Sovetskaya Voyennaya Entsiklopediya" [Soviet Military Encyclopedia], Moscow, Voenizdat, Vol 7, 1979, p 118.
4. "Istoriya vtoroy mirovoy...", Vol 6, pp 136-138.
5. "Sovetskaya Voyennaya Entsiklopediya," Vol 7, pp 146-147; Vol 8, 1980, pp 47-49.
6. "Istoriya vtoroy mirovoy...", Vol 4, 1975, p 292.
7. Ibid., Vol 7, 1976, pp 171, 174; Vol 12, p 284.
8. Ibid., Vol 9, 1978, pp 176-178.
9. Ibid., pp 27, 176, 198-199; Vol 10, 1979, pp 187-190.
10. Ibid., Vol 4, 1975, pp 26, 121-123; Vol 6, p 158; "Sovetskaya Voyennaya Entsiklopediya," Vol 3, 1977, p 511; Vol 1, 1976, p 457.
11. "Istoriya vtoroy mirovoy...", Vol 8, 1977, p 131; Vol 12, p 288; Vol 7, p 270; "Sovetskaya Voyennaya Entsiklopediya," Vol 4, 1977, p 619; Vol 6, 1978, p 492.

[Article by Doctor of Naval Sciences, Professor, Capt 1st Rank V. S. Shlomin, Honored Scientist of the RSFSR]

The publishing of the article by V. V. Gurkin and M. I. Golovnin "On the Question of Strategic Operations in the Great Patriotic War of 1941-1945" opened up a useful and timely discussion. In actuality, some 40 years after the end of the war, there is still not a uniform approach to determining the names and number of strategic operations. In line with this the attempt to bring clarity into the question of strategic operations is undoubtedly of significant interest.

The authors of the article basically correctly establish the criteria for determining the strategic operations. However, in assessing the scale and results of one or another operation, it is essential also to know its aim as formulated by the Supreme High Command and consider the enemy's responses. The non-observance of the designated conditions can lead to a violating of the principle of a correct historical approach in the retrospective examination of operations during the Great Patriotic War. This applies particularly to its initial period.

The authors assert that at the end of June 1941, the Soviet Command took the decision to go over to a strategic defensive along the entire Soviet-German Front. Here they make no references to documents. Three defensive operations of this period -- Baltic, Belorussian, Lwow-Chernovtsy -- which are mentioned in the article are not confirmed by the documents as strategic ones.

As is known, there were no special decisions of the military leadership to carry out the designated operations. During the period from 22 through 25 July, the fronts carried out the Directive No 3 of the Main Military Council which required the launching of decisive counterstrikes in the aim of defeating the enemy groupings which had broken through. From 25 through 30 June, due to the unsuccessfully developing border engagements, Headquarters issued instructions to the fronts to pull back the troops and for them to take up the defensive on new lines (the Western Dvina and the old fortified areas). Subsequently (14-15 July), there followed the decisions and instructions of Headquarters to commit the strategic reserves to battle on the main sectors.

From what has been said it can be seen that the time limits of the border engagements and the initial period of the war as a whole and the nature of the combat actions of the fronts require clarification on the basis of a profound analysis of the decisions and directives of Headquarters and the commanders of the fronts. It is also essential to give a clear definition to events occurring during the period from 25-30 June up to mid-July on the Northwestern, Western, Southwestern and Southern sectors.

In this context it is scarcely advisable to rigidly limit the time for the ending of the Baltic Operation to 9 July and the Lwow-Chernovtsy to 6 July. The Nazi offensive on the Luzhsk line was halted on 14 July while the counterstrike at Solntsy was launched by our troops on 14-18 July. Then the sides for almost 4 weeks went over to a positional defense on this sector. On the Southwestern Front up until 15 July, there were stubborn battles against the advancing enemy at Berdichev and Novgorod-Volynskiy after which the enemy halted temporarily and its attempt to take Kiev without a pause failed.

A retrospective approach in assessing events is also apparent in separating the Dnieper-Carpathian Strategic Offensive Operation (24 December 1943-17 April 1944). With the rapid change of the strategic situation, it was impossible to plan an offensive operation for such an extended period. It must be pointed out that the authors of both "Istoriya vtoroy mirovoy voyny" [History of World War II] and the encyclopedia "Velikaya Otechestvennaya voyna" of the Great Patriotic War declined to define the operations of this period as strategic ones and described them under the general name of "the offensive of the Soviet Army on the right bank Ukraine." It can be assumed that in "Istoriya vtoroy mirovoy voyny" (Vol 8, pp 62-98), it is a question of the planning and execution of the 1944 winter-spring campaign. Here, in our view, there were two strategic offensive operations linked by a common plan. The first (December 1943-February 1944) included the Zhitomir-Berdichev, Kirovograd, Korsun-Shevchenkivskiy, Rovno-Lutsk, Nikopol-Krivoy Rog Operations, while the second (March-April 1944) included the Proskurov--Chernigov, Uman-Botosani, Bereznigovoye-Snigarev, Odessa and Polesse. Headquarters took the decision to carry out these strategic operations and planned them. The operations were separated by an operational pause from 11 through 17 February (on certain sectors, from 29 February through 4 March).

The names, time limits and results of a number of other strategic operations also require clarification. Thus, the defensive operation in the Arctic (29 June-10 October 1941) would be more accurately called the "Defensive Operation in the Arctic and Karelia." Regardless of the fact that the

fighting in the operation developed on independent sectors which were far apart, they were carried out by the same front (Karelian) and at the same time.

The results of the Leningrad Operation, in our view, should be supplemented: in the course of it not only was the Nazi plan to capture Leningrad without a pause thwarted (this plan was checked on the Luzhsk line), but also the front was stabilized on the southwestern and western approaches to the city. 10 September, obviously, must not be considered as the end of the operation, as the active offensive operations of the enemy continued until the end of the month.

Since the authors of the article link the results of the Odessa-Melitopol Operation with the heroic defense of Odessa, the dates of its start and end must be clarified. The defense of Odessa, as is known, lasted from 5 August through 16 October 1941.

The Kerch-Feodosiya Landing Operation can scarcely be considered strategic. It was planned as the first stage of the significantly larger scale Crimean Operation the ultimate aims of which were not achieved.

It is also essential to clarify the date for the end of the Petsamo-Kirkenes Operation. The authors of the article give 29 October. However, "Istoriya vtoroy mirovoy voyny" (Vol 9, p 152) states that Headquarters ordered the 14th Army of the Karelian Front to go over to the defensive on 9 November.

As a whole, we feel that the authors of the article have carried out great and useful work. With certain adjustments the list proposed by them for the strategic operations could assume significant scientific and historical value.

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COMBAT OPERATIONS OF 35TH RIFLE, 31ST TANK BRIGADES ON SOLNECHNOGORSK SECTOR

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 4, Apr 86 (signed to press 25 Mar 86) pp 53-57

[Article by Lt Col G. A. Ostreyko published under the rubric "Mastery and Heroism"]

[Text] In the first days of December 1941, the Soviet troops continued stubborn defensive battles along the approaches to Moscow. At that time Nazi propaganda stated that "the German offensive against the Bolshevik capital has advanced so far that it is possible to see the center of the city...through a good pair of binoculars."(1) The Nazis were transporting their dress uniform in order to put it on during the parade planned by Hitler on the Red Square.

At that difficult time for us, the command of the German Army Group Center was endeavoring at any price to surround and capture Moscow. The enemy had occupied Krasnaya Polyana and Belyy Rast which was 25-35 km to the northwest of the capital.(2) A serious danger hung over Moscow.

However, the plans of the enemy were not realized. It was unable to advance farther as the men of the 20th Army together with formations of the 1st Shock and 16th Armies on 3-5 December launched counterstrikes in the region of Yakhroma, Krasnaya Polyana and Kryukov, and in the morning of 6 December, after a brief artillery softening up went over to the offensive. In the course of fierce battles against units of the enemy 23d and 106th Infantry Divisions and the 1st and 2d Tank Divisions, by 1630 hours on 8 December they had captured Nikolskiy, Belyy Rast, Puchki, Krasnaya Polyana and continued to develop the offensive on the general axis of Solnechnogorsk.(3) In suffering great losses in personnel and equipment, the enemy began to retreat.

The formations of the 20th Army received the mission of going over to pursuit. In fighting on the flanks and boundaries of the enemy troops and using the gaps in the enemy battle formations, they were to surround and destroy the enemy in the area of Udino, Glazovo.

The 35th Rifle Brigade and the 31st Tank Brigade which were commanded, respectively, by Cols P. K. Budykhin and A. G. Kravchenko, were, in pursuing the units and subunits of the 106th Infantry Division and the 1st Tank Division, by the end of 9 December to capture Popovka and Rozhdestveno(4) (see the diagram).

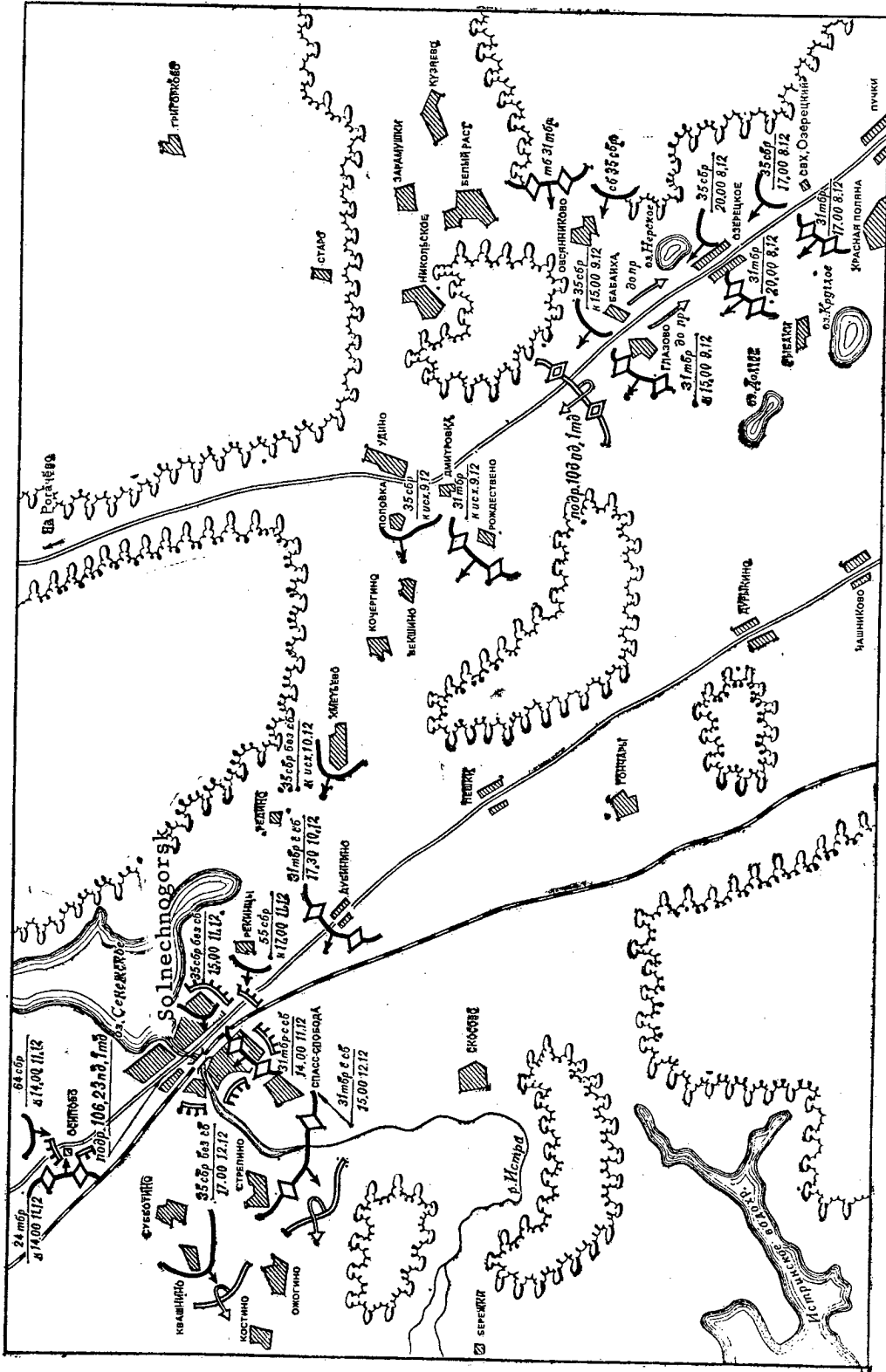


Diagram. Combat Operations of 35th Rifle and 31st Tank Brigades, 8-12 December 1941

The terrain in the area of the advance of the formations was wooded, the forest ran almost up to the edge of many of the villages and hamlets and there were no bypasses. It was difficult to maneuver off the roads as the snow cover reached 50-70 cm in depth and in the forest 90 cm and more.

The brigades after month-long heavy defensive battles, without a break, went over to the offensive, in being 1.6-fold weaker than the enemy in artillery and tanks. Both formations at 1700 hours on 8 December commenced the offensive from the area of the Ozeretskiy Sovkhoz. An hour later they were already fighting hard for the settlement of the same name. Here was concentrated up to an enemy infantry regiment with artillery and tanks. By attacks from the front and the flanks, the brigades with the support of the 1st and 2d Battalions of the 517th Artillery Regiment by 2000 hours had captured a larger portion of the settlement. But the Nazis had moved up to its northern edge up to two infantry companies from Babaikha Glazovo and the enemy undertook a counterattack. The rifle and tank troops, having repelled this, intensified the pressure on the enemy. In retreating, the Nazis forced around 200 persons into one of the buildings and burned them alive and then set fire to the remaining houses.(5) This was not the first instance of Nazi atrocities which the personnel of both brigades was to encounter. Anger and hate for the Nazi invaders filled the hearts of the Soviet fighters. By the morning of 9 December, they had completely captured Ozeretskiy.

Having coordinated their actions, the formations with the main forces continued the advance along the Rogachevo Highway. A rifle battalion and a tank battalion (with a portion of the riflemen and combat engineers mounted on the armor) skirted the edge of the forest to outflank and attack Ovsyannikovo from the east.

Ovsyannikovo, Glazovo and Babaikha had been turned by the Nazis into strongpoints and adapted for all-round defense. The approaches to them were covered by minefields and rubble as well as by artillery fire and for this reason they were taken only after several hours of hard fighting. In capturing the population points, the following persons distinguished themselves: the combat engineer Pvt G. F. Savostyanov, the machine gunner Pvt I. K. Yepishev, the rifleman Pvt G. M. Plokhikh, the tank driver Sgt G. G. Babich, the commander of the rifle squad Sr Sgt A. Ye. Solovyev, the gun commander Sgt A. M. Sekatskiy, the commander of the machine gun platoon LtN.M. Yavorskiy, and the commander of the tank battalion Capt K. I. Velmizov. The command of the formations submitted them for decorations.(6)

The units and subunits of the Nazi 106th Infantry and 1st Tank Divisions suffered high losses. Vies Werner captured from the headquarters company of the 240th Infantry Regiment of the 106th Infantry Division indicated that over the last 3 days of fighting the regiment had lost 500 men killed and wounded and less than one-third of the personnel remained in the headquarters company. In covering the retreat of its formations using rear guards, the enemy had endeavored to pull back the personnel and equipment to the area of Solnechnogorsk. Here it had given great importance to holding the Leningrad Highway as the main road for movement against Solnechnogorsk.

The 35th Rifle and 31st Tank Brigades received the mission of pursuing the enemy on the Vekshino, Khmetyevo axis in order by the end of 10 December to reach the area of Redino, Dubinino and then advance against Solnechnogorsk from the south.

It was over 16 km from Popovka, Rizhdestveno to Redino. This distance had to be covered in deep snow in a day of fighting. Col A. G. Kravchenko proposed that his 31st Tank Brigade which possessed great maneuverability and shock force would be the first to start. His proposal was approved. At 0900 hours on 10 December, the brigade moved out from Rozhdestveno to Vekshino, Khmetyevo. Following behind it on the same route was the 35th Rifle Brigade from Popovka.

Col Kravchenko sent out a forward detachment consisting of one KV tank, three T-34 and one BT as well as a platoon of submachine gunners as a mounted assault force on them. By a bold attack, having destroyed up to an enemy infantry company in Kochergino and more than a company in Khmetyevo, the detachment at 1630 hours fought its way into Dubinino where it dug in, having cut the Leningrad Highway to the southeast of Solnechnogorsk. An hour later all the subunits of the 31st Tank Brigade as well as the 2d Battalion of the 35th Rifle Brigade moved up here for a further offensive against the city from the direction of the highway. The remaining subunits of the 35th Rifle Brigade by the end of the day reached Khmetyevo and continued the offensive, with the mission of capturing the northeastern and northern outskirts of Solnechnogorsk.

During the day the 31st Tank and 35th Rifle Brigades, in pursuing the enemy, fought their way 16 km. At 1400 hours on 11 December, the forward battalion and then the other subunits of the 31st Tank Brigade and the 2d Battalion of the 35th Rifle Brigade broke into the southwestern and southern outskirts of the town. At this time the right flank 64th Rifle Brigade and the 24th Tank Brigade (commanders, respectively, Cols I. M. Chistyakov and V. P. Zelinskiy) which had outflanked Solnechnogorsk to the north, reached the Leningrad Highway and attacked Osipovo. The 1st and 3d Battalions of the 35th Rifle Brigade, having captured Rekinsy, by 1500 hours had taken the eastern outskirts of Solnechnogorsk. At 1700 hours, the 55th Rifle Brigade (commander, Col G. A. Latyshev) which had been temporarily reassigned as reinforcements from the 1st Shock Army to the 20th Army, initiated combat for the southeastern edge of the town.(8)

It was impossible to take Solnechnogorsk without a pause. The subunits of the enemy 106th and 23d Infantry Divisions, reinforced by tanks from the 1st Tank Division, had turned the town into a fortified point and put up fierce resistance. Upon the order of the artillery chief of the 35th Rifle Brigade, Capt V. F. Ukov, the crews of 76-mm cannons which were in the infantry battle formations by direct laying hit the enemy tanks, pillboxes and other firing positions, ensuring that the rifle subunits carried out their given task. The day before there had been wind and snow. The drifts on the streets by 11 December were even larger. The artillery troops, pushing themselves to the utmost, by hand moved the guns from line to line. Opening fire against the advancing troops was a German mortar battery and this was immediately neutralized by the artillery troops of Capt Ukov.(9)

On one of the streets a rifle company and the crew of a 45-mm cannon fighting with it were halted by the fire of a Nazi machine gun located in the bell tower of the Nikol'skiy Church. The attempts of the infantrymen to destroy the machine gun were unsuccessful. The commander of the cannon was killed. The gunner Pvt I. M. Preobrazhenskiy assumed command of the crew.

In fighting decisively and courageously, the men of the 35th Rifle and 31st Tank Brigades fought their way house by house, street by street. By the morning of 12 December Solnechnogorsk had been completely cleared of Nazis.

The enemy had suffered significant losses of personnel and equipment. From 10 through 12 December, the 31st Tank Brigade alone destroyed up to 2 infantry battalions of the 106th Infantry Division and a combat engineer battalion of the 23d Infantry Division, it captured all the materiel of the 23d Artillery Regiment, 4 German tanks, 12 mortars, 75 motor vehicles, 125 rifles as well as several thousand shells, mines and cartridges.(10)

In the battle for Strelino, the military commissar of the tank company, the political leader Ya. A. Platun, and members of a tank crew perished. In coming out in the enemy rear, they cut the road to Ozhogino and camouflaged the tank. The crew met up to two retreating companies of enemy infantry and two antitank guns with flanking cannon and machine gun fire at a range of 200m. The artillery crew and around 20 Nazi invaders were knocked out. In the course of the clash, the tank of Ya. A. Plastun sustained damage to the undercarriage. The crew fought to the last shell and cartridge. The Nazis, having surrounded the tank, offered surrender to the Soviet soldiers. The tankmen preferred death. Then the Nazis blew up the tank along with the crew.(11)

"Those December days, I feel, are memorable to the veterans of the 35th Rifle, the 31st Tank and other brigades, regiments and divisions from the 20th Army," we were told recently in a talk with its former chief of staff, now Col Gen (Ret) L. M. Sandalov. "We did everything to lift the threat to the capital of our motherland and made our contribution to achieving this goal. The experience gained then helped us in subsequent battles and engagements to defeat the enemy and achieve victory.

#### FOOTNOTES

1. "Soobshcheniya Sovetskogo Informbyuro" [Announcements of the Soviet Informburo], Moscow, Izd. Sovinformbyuro, Vol 1, 1944, p 409/
2. TsAMO SSSR [Central Archives of the USSR Ministry of Defense], folio 373, inv. 6631, file 3, sheets 17-18.
3. Ibid., sheet 19.
4. Ibid., file 1, sheet 22.
5. Ibid., file 3, sheet 20.

6. K. I. Velmizov, G. G. Babich, I. K. Yepishchev, A. M. Sekatskiy, A. Ye. Solovyev and N. M. Yavorskiy received the Order of the Red Banner, G. M. Plokhikh the Order of the Red Star and G. F. Savostyanov the medal "For Valor" (TsAMO, folio 373, inv. 6650, file 11, sheets 4-6, 16, 50).
7. TsAMO, folio 373, inv. 6631, file 1, sheet 24.
8. Ibid., file 3, sheets 23-24.
9. Capt V. F. Ukhov perished in the battles for Solnechnogorsk. After the war one of the streets of the town was named after him.
10. TsAMO, folio 373, inv. 6631, file 3, sheet 28.
11. Ibid., folio 3114, inv. 1, file 2, sheet 49.

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## DEVELOPMENT OF FIGHTER BOMBER TACTICS IN LOCAL WARS

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[Article by Lt Gen Avn V. A. Sokolov published under the rubric "Local Wars"]

[Text] After World War II the Air Forces of the militarily advanced capitalist countries began receiving double-purpose aircraft. Armed with air-to-air weapons they were to be employed as fighters while with "air-to-ground" ones, as bombers. The experience of employing such aircraft did not exist previously. The tactics of their combat employment was developed in the course of the local wars initiated by the imperialist states.

During the war in Korea (1950-1953) the jet fighter bombers of the U.S. Air Force were given combat missions which during World War II had been carried out by bombers, that is, making strikes against lines of communications, power plants, dams and other objectives. In addition, the fighter bomber subunits were used in providing direct air support for the ground troops.

The largest group attack comparable with the combined air raids from the period of World War II was made on 23 June 1952 by 230 carrier-based ground attack planes in cooperation with 270 fighter bombers from the U.S. 5th Air Army against the four main power plants of North Korea. The bombing attack was preceded by operations by groups of naval fighters of the Panther class to neutralize the anti-aircraft artillery covering the objectives of the attack. During this period the altitude-separated strike groups were in holding areas.

The first to attack was a group consisting of 72 carrier-based ground attack planes A-1 Skyraider. On the break-up line the flights broke out of the general squadron combat formation for attacking the targets from different directions. After these the same targets were bombed by 120 F-84G Thunderjet and F-80 Shooting Star fighter bombers. A short time after the first attack, a second was repeated and then a third "wave." However, regardless of the involvement of a large number of aircraft in the air raid, the aggressor did not succeed in completely knocking out the North Korean power plants. Foreign military specialists explained this by the insufficient fire power of the air strikes.

In launching attacks against the lines of communication in North Korea, relatively small groups of fighter bombers were employed. The objectives of the operations were bridges, railroad lines (as a rule, the strategic B-29 aircraft were employed for bombing railroad stations) and important sections of highways.

According to the air reconnaissance data, the Americans established that bridges and the sections of roads adjacent to them were usually covered by 135 anti-aircraft guns (including 90 of large caliber) which constantly changed their positions. As a result, in the course of the raids by the fighter bombers, they frequently encountered ground fire not from the direction from which it was expected. This made it necessary to conduct final reconnaissance which preceded the operations of the strike groups.

In a specially planned operation to destroy bridges, of the 1,166 aircraft sorties some 713 were made for the purposes of reconnaissance and for neutralizing the anti-aircraft artillery and 453 for destroying the bridges. The most acceptable methods of attack were considered to be bombing from medium altitudes (3,500-4,500 m) without entering the effective fire zone of the small-caliber anti-aircraft weapons. Moreover, the experience gained indicated that for carrying out the mission of destroying the lines of communications the group should consist of up to 8 fighter bombers at night and not more than 24 during the day. Here for maximum impeding of work by the repair brigades, it was necessary to employ high explosive bombs with delayed action fuzes.(1)

The operations by American aviation to destroy the North Korean dams also had their characteristic features. On 13 June 1953, 54 fighter bombers made a tree-top bombing strike against the Quson Dam. The first "wave" of 26 F-84G aircraft suddenly appeared over the target and made a straight-in bombing run. Some 10 minutes later a second "wave" consisting of 28 F-84G aircraft approached from another direction. The dam suffered but was not blown up. On the following day the strike was repeated by 41 F-84G aircraft and a day later by 8 F-84G aircraft and 16 carrier-based A-7A Corsair attack planes. The raids ended on 18 June with a strike by a group of 7 F-84G and 16 Corsair aircraft.(2)

As a whole the experience gained in the war in Korea, in the opinion of foreign specialists, showed that "jet fighter bombers can be employed in carrying out strategic missions if the strategic targets are located within their operating range."(3) The characteristic features of their tactics in carrying out these missions were: raids "in waves" consisting of 20-200 different types of aircraft; the assigning of combat support groups for a cover, for neutralizing the air defense weapons and then also for final reconnaissance; the employment of the "pincers" method based upon the use of attacks from different directions; the combined use of weapons including bombs and unguided missiles. However, during this period it was not possible to finally elaborate the tactics for fighter bombers.

In the air war in Vietnam (1964-1963) the tactics of the American fighter bombers was repeatedly changed. These changes were mainly brought about by the resistance of the air defense weapons of North Vietnam. It is possible to

arbitrarily establish four periods characterized by the change in tactics and the introduction of new weapons into combat.

The first period (2 February 1965, the day of the first American air raid on objectives in North Vietnam to July 1965) is considered to be the period of so-called "range" tactics. This was characterized by operations of small groups of fighter bombers of the F-105 Thunderchief type and F-4 Phantom at medium altitudes (3,000-4,000 m) most advantageous for bombing without the assigning of significant cover forces. During this period the resistance of the North Vietnamese air defense weapons was weak and only small subunits of anti-aircraft artillery and subsonic MIG-17 fighters participated in repelling the massed raids by the air aggressor. For this reason the groups of American aircraft were able to remain an extended time over the targets, to make strikes in several passes, predominantly from horizontal flight or with slight dive angles.

The American fighter bombers suffered their first loss 2 months after the start of the raids, on 2 April 1965. A supersonic F-105 aircraft with a bombload during the flight to the target as part of an attack group covered by F-4C fighters was attacked and shot down by a North Vietnamese MIG-17 fighter. "The MIG-17 aircraft even with their careful use," wrote the West German magazine TRUPPENPRAXIS, "had successes which forced the Americans to carry out retaliatory measures, primarily to organize a dependable cover for the attack groups of fighter bombers and work out other methods of combat corresponding to the situation."(4) The retaliatory measures were expressed in a change in the battle formations of the fighter bombers and placement of forces. Groups consisting of up to 20-24 aircraft flew to the break-up line which was 15-20km away from the attack objectives in a close combat formation and then formed up into flights (groups of four) for the simultaneous attack on several targets. The bombs were dropped on the first run. Due to the pull-out of the attacking pairs in different directions the time spent over the target was reduced. After making the strike the aircraft immediately left for the safe zone, toward the Gulf of Tonkin or toward the Laotian frontier.

Thus, the "Korean tactics" not only left its trace in the actions of the supersonic fighter bombers but was also supplemented by the "star" attack method known from the times of World War II.

The second period (24 July 1965-23 April 1966) was marked at the outset by the first combat success of the surface-to-air guided missile (SAM) subunits which had been received by the North Vietnamese air defenses and at the end by the successful entry into combat of the North Vietnamese supersonic MIG-21 interceptors. The changes in fighter bomber tactics were expressed in a transition to low-altitude operations.

The basic advantage of low-altitude flight was considered to be the sufficiently high degree of radar deception as the range of detecting the aircraft by a surveillance radar, in comparison with medium altitudes, was reduced by 3-4-fold. The covert approach of the fighter bombers to the target ensured the surprise of the attack. The surprise element "freed" them from organizing complex combat support in the form of the preliminary neutralization of the air defense weapons of the installations by specially

assigned aircraft groups. The new tactics at the same time had serious shortcomings. Low-altitude flight involved a sharp increase in the per-kilometer fuel consumption. Due to the fact that the objectives of the attacks were a long distance away from the base areas in Thailand, the F-105 and F-4 fighter bombers from the attack groups were forced to refuel in mid-air in established zones over Laotian territory and the Gulf of Tonkin.

In low-altitude flights, as a consequence of the influence of the terrain, radio contact of the groups was disrupted with the ground command centers and between the aircraft and the use of the onboard radars and electronic close and long-range navigation systems was limited. Regardless of the fact that the aircraft carried cumbersome electronic equipment for instrument flying, the pilots, as a rule, made their orientation and surveillance of the route visually. In truth, without the aid of radar with the high speed of flight it would have been significantly difficult to detect and spot the target in the limited number of time. In a number of instances this mission was beyond the power of the crews.

One other difficulty was the impossibility of using large groups of fighter bombers at low altitudes. Since the attention of the pilots was focused completely on controlling the flight altitude, it was very difficult simultaneously to keep one's place in formation. For this reason, there was a transition from massed concentrated strikes to small group wave actions. This meant a reduction in the number of bombs dropped on a target per unit of time, that is, the "scorched earth" tactics which had been adopted by the aggressor from the very outset of the air war in Vietnam was placed in doubt.

Low-altitude flights were used for reducing the resistance of the SAM. However, the fighter bomber losses remained on the previous level. The aircraft entered a zone of intense fire from small-caliber antiaircraft artillery, with the number of barrels constantly increasing. "Low-altitude flights became dangerous for the antiaircraft artillery located in the zones of the most important North Vietnamese objectives put up dense fire for effect. Over the last 2 months the cannons have multiplied like rabbits. A majority of the American aircraft presently flying over North Vietnam have been downed by the fire of automatic weapons of 20- and 35-mm caliber," wrote the journal AVIATION WEEK.(5)

Thus, in the "low altitude" tactics after testing out under real combat conditions, substantial shortcomings were disclosed the elimination of which required significant time.

The third period which began on 23 April 1966 (the first air combat involving MIG-21 aircraft) and ended with the concluding of a temporary peace in December 1968 was indicative in the fact that active resistance to the air aggressor was now put up by antiaircraft artillery, SAM installations and modern supersonic fighter interceptors.

As was pointed out, the measures undertaken by the Americans to protect the aircraft against the fire of small-caliber antiaircraft artillery did not produce the expected results. No new evasive maneuvers making it possible to escape from the fire of the "old" weapons was worked out (for such simply did

not exist). This was one of the reasons for the return of the fighter bombers (as was the case 15 years previously in the Korean War) to medium altitudes, that is, beyond the limits of effective fire by the small-caliber antiaircraft artillery. They began to search for effective "neutralization" measures against the antiaircraft guided missiles and the fighter interceptors.

Masking and imitative radio interference began to be widely employed to ensure the concealment of the flight in the combat area. Masking interference was set up by special electronic combat aircraft from air patrol zones. But, as experience was to show, the premature or unaimed setting of masking interference was only a warning for the North Vietnamese air defense weapons of the threat of attack.

The setting of imitative interference was carried out from the combat formations of the attack groups and was designed to create a complicated situation on the radar screens and to make it difficult to choose the actual air targets against the background of many dummy ones. This type of interference had characteristics analogous to the characteristics of the channels of the radars to be neutralized and for this reason did not require high transmitter power. Each fighter bomber had suspended to it two pods with electronic combat equipment designed to set up interference to the detection and SAM guidance radars and the fighter interceptor radars.

The low powers of the suspended transmitters forced them to close up the battle formations of the attack groups, that is, radar masking was achieved only with the precise maintaining of strictly determined intervals and distances between the aircraft. In order not to give itself away, the close battle formation could be broken open only several seconds before the arrival of the fighter bombers at the objectives of attack. This circumstance substantially impeded the execution of antimissile and antifighter evasive maneuvers. As a result, regardless of the equipping of each combat aircraft with electronic combat gear, their covering by the setting of interference from zones was employed up to the war's end.

The approach at medium altitudes made it possible for the American aviation to resume massed attacks on North Vietnamese objectives. Simultaneously with the start of the intensive use of radar interference for concealing the flight, the fighter bombers began to form up in large groups and this led to an increased number of aircraft exposed to the air defense weapons. Regardless of the defensive measures undertaken the level of losses remained virtually unchanged.

In March 1968, the Americans employed the F-111A fighter bombers for attacking airfields. These modern aircraft had a variable wing configuration and were equipped with devices for making flights at maximum-low altitudes with terrain following (see the Diagram). The basic principle of their employment was the actions of individual aircraft at night under instrument weather conditions. However, soon thereafter of the six recently arrived F-111A aircraft in Southeast Asia, two were downed by air defense weapons, one suffered an accident and the remaining were returned to the United States by the end of the year.

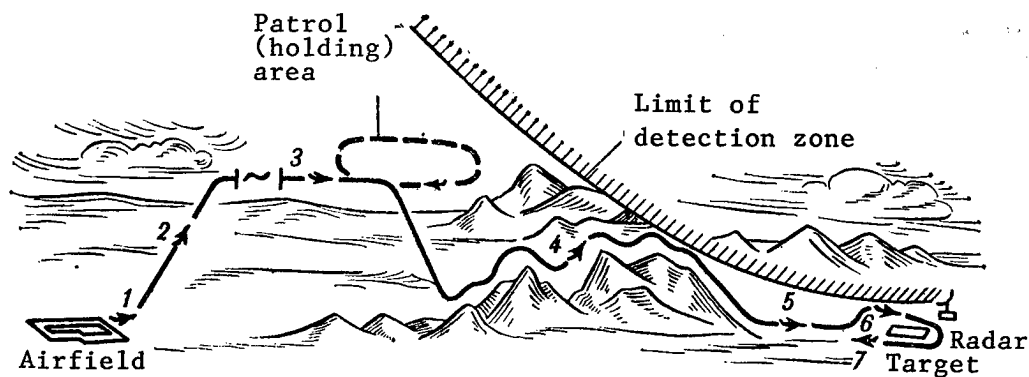


Diagram. Typical Flight Profile of a F-111A Fighter Bomber:

- 1--Take-off (wing sweep angle 16o; 2--Climb leg (M=0.9; wing sweep angle 26o); 3--Flight along route at H=9-10 km; 4--Leg of flight with terrain following (wing sweep angle 50-72.5o); 5--Leg of flight at maximum-low altitude; 6--Straight in attack of target; 7--Departure from target at maximum-low altitude

The fourth period (March 1972-January 1973) commenced with the resumption of intense bombing of North Vietnam by American aviation and involving the B-52 strategic aircraft. As in the war in Korea, for realizing the "scorched earth" tactics the fire power of the fighter bombers was not sufficient.

The strike force of tactical aviation was to be increased by new weapons including guided bombs with television and laser guidance. Their main merit was in the high precision of hitting the target: the circular error probable was just several meters. For this reason substantial corrections were incorporated in the tactics of fighter bomber operations. In being able to drop a guided bomb from a great range (up to 25 km from the target) and gaining freedom of actions after this, the fighter bomber crews endeavored not to enter the impact zone of the air defense weapons but in entering them they could count upon the effective execution of an evasive maneuver.

The increased accuracy of bombing made it possible to reduce the number of fighter bombers assigned for hitting one typical target.(6) In their tactics there was a gradual transition to actions in small attack groups equipped with high precision weapons. This helped to increase their maneuverability and, consequently, the probability of crossing the air defense weapons.

Guided weapons were employed initially only against individual targets, for example, objectives on North Vietnamese territory which were covered only by small-caliber antiaircraft artillery. In the concluding stage of the war, fighter bombers were employed for increasing the effort of the B-52 strategic aircraft (according to the plan of the air operation Linebacker-2) and were incorporated in the air defense neutralization groups.

In the opinion of foreign specialists, during the first period of the air war in Vietnam, the tactics of the American fighter bombers was determined by the weak resistance of just the anti-aircraft artillery and was called "range" by the specialists. In the second period the appearance of a new type of weapon in the North Vietnamese air defenses, the ground-to-air guided missile, led to the employment of "low altitude" tactics. The third period was characterized by the elaboration of "electronic warfare" methods widely employed for supporting the fighter bomber operations. Finally, the tactics of the fourth period was substantially influenced by the new guided "air-to-ground" weapons.

In the local wars in the Near East (1967, 1973, 1982), the fighter bombers were represented by the already known American (F-4 Phantom) and Israeli (Kfir) produced aircraft. Guided weapons, reconnaissance and electronic combat equipment underwent further development.

In the 6-day war of 1967 the Israeli pilots followed the "low altitude" tactics similar to the American during the second period of the war in Vietnam. The only additional feature was that they bet on the surprise and unpreparedness of the enemy to repel the raid. This ultimately also played the crucial role. The fighter bombers on the very first day of the war launched simultaneous massed attacks against 25 airfields as a result of which the overall losses of the Arab countries were from 60 to 66 percent of the initial size of their aircraft fleet.(7)

The basis for the successful employment of the "low altitude" tactics by the Israelis was the presence of reliable data on the state of the Arab troops and aviation and this was gained by all sorts of intelligence (including U.S. space reconnaissance) and also by achieving surprise in the air attacks.

In the October war of 1973 the Israeli aviation did not seek out unblazed trails in tactics. As before, the groups of Phantom aircraft, in flying in battle formations of "columns of pairs," widely employed maximum-low altitudes. However, in contrast to the 1967 war, the Israeli pilots had to fight against the improved and increased combat readiness of the Arab air defense system. Just during the first day of the war, 30 aggressor aircraft were downed (a majority of them were Skyhawk ground attack planes and Phantom fighter bombers). This circumstance subsequently forced the Israelis to assign a significant portion of the forces for directly attacking the SAM batteries and radars, but due to the low accuracy of the unguided weapons they were ineffective.(8)

In attacking tank columns, for the first time, albeit in limited numbers, American produced Maverick guided missiles were employed with a television guidance system. The conditions for employing the guided missiles were considered ideal (flat open terrain and contrasting targets which stood out starkly against the background), but the launch range did not exceed 7-13 km.(9)

In the Lebanese armed conflict of 1982, the tactics of the Israeli fighter bombers was characterized by the abandonment of actions just at low altitudes; by a higher density of group strikes; by a wider scale of employing air-to-

ground guided weapons and by the broad employment of electronic combat equipment.

At the very outset of the hostilities, the Israelis attacked the air defense weapons. During the preparatory period, the pilots carefully worked out their actions against designated targets on a range which was set up in terrain identical to the attack area. The sortie of the fighter bombers was accompanied by the setting of active and passive interference and by actions of feint groups.

The attack groups traveled in two waves. The first wave fighter bombers attacked the radars and command posts with guided bombs from high altitudes and the guided missiles from medium and low altitudes. The second wave used conventional bombs and unguided missiles. These forces knocked out a majority of the SAM battalions. Air defense assumed a focal character and this subsequently made it possible for the fighter bombers to skirt the impact zones of the surviving weapons without dropping to low altitudes.

The rise to medium altitudes made it possible to convert from open battle formations of a "column of pairs" to tight ones which increased the power of the attack. The flights opened up only in arriving at the target for an attack by pairs (individual aircraft) from different directions. A raid of the "star" type forced the scattering of the air defense fire covering the objectives of the attack. The dive was entered from altitudes of 2,500-3,000m and the pull out at 1,500 m. The strike was made from the first run, without repeat runs against the target.

The methods of employing the guided weapons differed noticeably from conventional formation bombing. Due to their higher precision characteristics, the fighter bombers were employed according to the principle of "each its own target." However, the massed employment of guided weapons in a single sortie was excluded due to their costliness and the limited supplies. For this reason attacks with guided bombs and missiles were made, as a rule, against the most important targets.(10)

Foreign specialists have pointed out that in the course of local wars, the basic principles of fighter bomber tactics have taken on a new content, in particular, the realization of continuous command and control and cooperation with other branches of aviation.

The difficulty of maintaining continuous cooperation with the support forces and the difficulties of the commanders of the attack groups in controlling their crews in the target area have led to a situation where the functions of command and control over the fulfillment of the combat missions have been entrusted to an air command post (ACP). From onboard the ACP using the existing equipment the movement of the tactical air attack forces can be controlled, the sequence of the reaching of the target by the groups (flights, pairs, individual aircraft) could be established, the actions of the electronic combat aircraft and the fighter screens could be coordinated, help provided in assembling the groups and so forth.

The change in fighter bomber tactics in the local wars occurred under the impact of the improvement of air defense weapons, electronic combat, control and the aviation weapons.

With the limited capability and general weakness of air defense in the victim nations, the fighter bomber tactics were characterized by the launching of massed attacks against designated objectives with large groups of aircraft, wave operations in tight battle formations with an operational configuration in several waves ("wave" raids) and the absence of support groups; multiple attacks on targets from medium altitudes employing conventional bombs and unguided missiles.

The saturation of air defense with fighters and antiaircraft artillery, as well as the delivery of SAM forced the aggressors to assign significant forces for supporting the attack groups. These included reconnaissance and final reconnaissance forces, forces for neutralizing the ground air defenses, electronic combat and also fighter "screens." In the aim of reducing the effective resistance of air defense weapons, the fighter bombers converted to operations in small groups in extended battle formations at low and maximum-low altitudes. Raids were organized according to the "star" type and the attacks, as a rule, were made straight in. In the impact zones of the SAM and antiaircraft artillery they began to widely employ electronic combat equipment and various types of maneuvers and if guided weapons were carried the attacks were made without entering the fire area of the air defense weapons.

#### FOOTNOTES

1. See: G. Stewart, "Vozdushnaya moshch -- reshayushchaya sila v Koreye" [Air Power, the Decisive Force in Korea], Moscow, Izd-vo Inostrannoy literatury, 1959, p 170.
2. Ibid., p 187.
3. G. Feuchter, "Istoriya vozdushnoy voyny v yeye proshlom, nastoyashchem i budushchem" [The History of Air Warfare in Its Past, Present and Future], Moscow, Voenizdat, 1956, p 320.
4. TRUPPENPRAXIS, No 5, 1967, p 315.
5. AVIATION WEEK, No 6, 1966, p 24.
6. MICROWAVES, No 10, 1972, p 35.
7. "Lokalnyye voyny. Istoriya i sovremennost" [Local Wars. History and Present State], Moscow, Voenizdat, 1981, p 252.
8. AVIATION WEEK, No 23, 1973, p 13.
9. Ibid., No 24, p 13.
10. See: AVIATSIYA I KOSMONAVTIKA, No 10, 1983, p 47.

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EXPERIENCE OF EMPLOYING SHIP ARMAMENT IN NAVAL COOPERATION WITH GROUND TROOP FORMATIONS, UNITS

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[Text] In the course of defensive and offensive operations which involve the Navy along with the ground forces, a major burden rested on its ship forces, and in particular the guns. In possessing great power and high maneuverability, the armament of the ships carried out the most diverse missions (see the Table).

One of the main tasks in which the ship armament of the fleets and flotillas was involved from the very outset of the war was armament support for ground troops in the course of defensive and offensive operations. Depending upon the situation and the available forces, this was carried out both by individual ships (groups of ships) as well as by specially organized detachments of ship support (see the Table).

At the outset of the war, the firing of ship guns was carried out, as a rule, at areas, without the necessary correction. As experience was gained, the organizing of the firing of ship guns against shore installations improved and the fire tasks began to be given more concretely for it. Fire support for the ground troops was carried out in accord with the plan for employing the ship guns. Moreover, a general planning table was worked out for fire coordination in the operation. This set the fire tasks according to the stages of combat with the indication of approximate ammunition consumption standards. Provision was made for the time, place and means of armament reconnaissance, a unified target designation system, a procedure chart and uniform-scale maps were employed. Proceeding from the tasks planned, the fleet command determined the classes and number of ships while the staff worked out the fire plan tables indicating the specific fire tasks and targets for each group of ships and for each individual ship.

The prompt elaboration of the required documents and the informing of the executors of their content helped to organize clear command of the ship artillery and increase the effectiveness of its employment in the interests of

Table\*

## Employment of Ship Armament in Assisting Naval Forces to Ground Troops on Maritime Sectors

No.	Date	Nature of Combat	Involved Forces	Missions Carried Out by Ships	Results of Using Ship Armament
1	2	3	4	5	6
1	29 June-1 July 1941	Repelling first assault by Nazi troops on Murmansk sector	Destroyers "Kuybyshev" and "Uritskiy," boats MO No 123 and MO No 121 of Northern Fleet	Fire support for 135th Rif. Reg. of 14th Rif. Div. defending isthmus of Rybachiy Peninsula	Destroyed up to 2,000 enemy soldiers and officers and several of its firing positions; 3 Ju-88 bombers downed
2	7-14 Aug 1941	Covering crossings of our troops over Southern Bug	Gunboats "Udarnyy" and "Zheleznyakov" and armored boats (2 detachments) of Danube Naval Flotilla	Thwarting the crossing of enemy infantry, tanks and artillery to left bank of Southern Bug (into rear of our troops) over pontoon and railroad bridges in area of Voznesensk. Fire support and support for retreat and crossing of our units in this area as well as near Troitskiy, Novaya Odessa, Guryevka, Varvarovka, Nikolayev	Train with ammunition blown up, rail and pontoon bridges damaged; 10 tanks and other equipment destroyed
3	16 Sep-18 Oct 1941	Assisting ground troops in repelling attempts by enemy to break through to Crimea without a halt and in conducting defensive battles	Gunboats "Rion," "Don," "Rostov-Don," "Krenkel," No 4, patrol minesweeping boats "Pervansh," "Shturman," "Voykov"; inshore minesweepers "Poti," "Tuapse,"	Fire support for maritime flank of 275th Rif. Div. of 51st Sep. Army in area of Genichesk; counter-battery bombardment; repelling enemy air raid; covering mari-	Around 2 batteries neutralized; 2 motor boats sunk; 6 aircraft downed; 7 armored vehicles and several hundred men destroyed; supported crossing of 343,250

1	2	3	4	5	6
		along northern coast of Azov Sea	"Tsiklon," "Uragan" and others of Azov Naval Flotilla	time flanks for units of 9th Army defending on line of Lake Molochnoye, Melitopol. Participation in defense of Mariupol and Taganrog. Convoying of merchant vessels transporting grain from Nogaysk, Botyev, Raynovka, Osipenko and on lines of Mariupol, Kerch; Mariupol, Yeysk, Rostov. Supporting evacuation of troops as well as removal of ships and vessels from Mariupol and Taganrog	tons of various cargo (grain, oil products, coal, ammunition and so forth), removal of uncompleted cruiser "Kuybyshev" from Mariupol, destroyer "Ozornoy" from Azov and leader "Yerevan" from Yeysk
4	Sep-Dec 1941	Assistance to troops of Leningrad Front in defense of Leningrad	Battleships "Oktyabrskaya revolyutsiya" and "Marat," cruisers "Kirov," "Maksim Gorkiy," "Petrovskiy," the leader "Leningrad," destroyers "Smetlivyy," "Svirepyy," "Surovyiy," "Gordyy"; cannon boats, patrol boats, armored boats and small subchasers of Baltic Fleet	Systematic shelling by naval artillery of advancing enemy troops; repelling storming of Leningrad initiated by enemy; firing on enemy troops located on the northern coast of the Gulf of Finland in the Belooostrov area, artillery support for actions of 23d Army; artillery support for the landing of tactical forces in the area of Petergof, Strelna; artillery support ahead of advance of troops of	Around 200 pillboxes and covered shelters and 6 bridges destroyed; 4 ammunition dumps blown up; 38 batteries and several score machine gun nests, over 20 tanks, 9 staffs and 28 observation posts destroyed; 48 motor columns fired on and partially destroyed

1	2	3	4	5	6
5	30 Aug- 31 Oct 1942	Assistance to ground troops in defense of Stalingrad	Second brigade of river ships consisting of a division of gun- boats ("Shchors," "Chapayev," "Kirov," "Fedoseyenko"), a division of floating 152-mm batteries (4 units), a detachment of armored boats (4 units), a detachment of hydro- planes (10 units) and others from the Volga Naval Flotilla	54th and 55th Armies as well as the Neva Opera- tions Group at Sinyavin and artillery support for advancing troops; counterbattery bombard- ment; fire strikes against buildings occu- pied by enemy units and its firing positions in the aim of destroying and wearing down its forces	2 artillery bat- teries and a separ- ate gun, 2 mortars, 14 pillboxes and covered shelters, an ammunition dump, 18 machine guns and up to 3 infantry companies destroyed; 3 aircraft down; 10 firing points neutralized
6	12-30 Jan 1943	Assistance to ground troops in operation "Iskra" to break through to Leningrad blockade	Group of ships at firing positions in middle portion of Neva (destroyers "Strogly," "Opytnyy," "Stroynyy," gunboats "Zeya" and "Oka") of Baltic Fleet	Destruction of strong- points and centers of resistance deep in enemy defenses, de- struction of its arriving reserves, counterbattery bom- bardment; support	876 targets fired on; 11 centers of resistance destroyed; several-score large- caliber guns and 33 firing points de- stroyed; 37 major fires and explosions

1	2	3	4	5	6
7	10-11 Oct 1944	Assistance to troops of Karelian Front in breaking through enemy defenses on Sredniy Peninsula in course of Petsamo-Kirkenes Operation	Detachment of ship support consisting of destroyers "Greyash- chiy" and "Gromkiy" of Northern Fleet	jointly with aviation and shore artillery for units and formations of 67th Army in crossing strong enemy defensive positions on left bank of Neva, defeating enemy forces in western part of Shlisselburg Salient and capture of Shlisselburg  Support of amphibious landing in area of Malaya Volokovaya Bay; neutralization of enemy batteries and destruc- tion of its crossings in area of Titovka River; artillery sup- port for 12th Naval Infantry Brigade in storming Musta-Tunturi Mountain Range	caused in enemy positions  Enemy batteries (150-mm and 105-mm) neutralize on elev. 195.8; crossing of Titovka River dis- rupted for 4-5 hrs; several dumps de- stroyed; fires caused in enemy rear

\* The table was compiled from data of: TsAMO SSSR [Central Archives of the USSR Ministry of Defense], folio 363, inv. 6208, file 80, sheet 1; folio 214, inv. 37448, file 3, sheets 104-108; TsVMA [Central Naval Archives], folio 112, file 141, sheet 81; folio 115, file 19192, sheets 413, 414; folio 2, file 10963, sheets 247-249; folio 19, file 6535, sheets 27 verso-31; folio 3, file 84, sheets 3, 4; folio 2, file 8, sheets 57, 63; folio 10, file 18503, sheet 2; folio 2, file 6, sheets 60-121; folio 7, sheets 1-107; folio 9, file 27553, sheet 2; folio 3, file 34321, sheets 30, 40, 42, 43; folio 46, file 25882, sheets 384-398; folio 25, file 11090, sheets 146-150; folio 9, file 33037, sheet 107; folio 25, file 11090, sheets 143, 144; folio 9, file 33037, sheet 109; folio 27557, sheet 105; file 27553, sheets 1-10; folio 209, file 8493, sheet 18; folio 93, file 8089, sheets 59-66; file 6297, sheet 138; folio 9, file 33038, sheet 284; folio 11, file 17142, sheets 7, 35; file 37073, sheet 35 and others.

the ground troops. Thus, in the defense of Tallinn in August 1941, the use of ship armament was determined by naval documents coordinated with the armament chief of the X Rifle Corps of the 8th Army. These set out the sequence of entry into combat of the various caliber weapons and defined the procedure for summoning and conducting fire. The command post of the naval armament headquarters was located on the cruiser "Kirov" and this received orders from the fleet command post and allocated tasks among the ships. Logs for firing positions were worked out. These gave the responsible firing sectors from each of the positions, the calculated target data, the signals scheme, the TUS [procedure chart], as well as the procedure for calling in and halting fire. Each position was danlayed and had topographic surveying. In accord with the log, the ship took up a position and could immediately open fire without losing time for calculations. The required adjusted data were received from the general fleet correction posts located in the troop battle formations. Contact with the command posts and the ships was maintained by telephone and radio.(1)

The effectiveness of naval gun fire against shore installations increased if the firing positions were specially equipped. In the defense of Sevastopol, 11 firing positions were prepared for the ships. At each of these marker buoys were set out on anchors as well as other auxiliary figures which facilitated aiming. During nighttime firing these were illuminated by fires.

One of the effective measures for increasing the results of armament support provided by ship armament was the organizing of mobile correction posts which were sent out to convenient points for observation. Here year after year the number of firings carried out with correction gradually increased as well as with the subsequent elucidation of the achieved results. While in the defense of Leningrad in 1941, these were, respectively, 26 and 30, in 1942 they were 35 and 55, and a year later, 52 and 70.(2)

The ships achieved significant results in the course of armament support when they operated as specially established detachments. Thus, for the defense of Odessa from the sea and for assisting our units defending the city from the land, in August 1941, as part of the Odessa Naval Base, a detachment of ships was organized from the northwestern region of the Black Sea. This included the destroyers "Shaumyan" and "Nezamozhnik," the minelayer "Komintern," the 2d Brigade of Torpedo Boats, a division of gunboats, the 5th Minesweeper Division, as well as a detachment and group of patrol boats.(3)

Large groups of ships were created in January 1944 during the first stage of the Leningrad-Novgorod Operation for supporting the offensive operations of the 2d Shock and 42d Armies. The ship guns (77 barrels from 305 to 130-mm in caliber) together with the shore guns by their fire destroyed the defensive centers and strongpoints of the enemy on the forward edge and deep in its defenses, they neutralized the groupings impeding the advance of our attacking troops, they neutralized enemy observation and correction posts, command posts and communications centers and hit the lines of communications and concentration areas of reserves.

For fire support for the ground troops surface gunnery vessels of all classes were employed (from a ship of the line to an armored boat) as well as

destroyers, escort vessels, patrol boats and minesweepers. In firing from indirect positions most often destroyers and patrol boats were used and against visible targets, small subchasers and minesweepers. In individual instances, direct laying was carried out. Significant harm was caused to the enemy in the event of employing rockets by the boats. The ship guns of the lake and river naval flotillas (see the Table) provided effective fire support for the ground formations and units on the defensive and offensive. For example, the Volga Naval Flotilla participated actively in the Stalingrad Battle, the Azov in the defense and liberation of the Crimea, the Ladoga in the Vyborg Offensive Operation and the Dnieper in the Belorussian and Berlin Operations.

Counterbattery bombardment was an important task for the naval guns. Thus, on 22 June 1941, this was carried out by the ships of the Danube Naval Flotilla together with batteries of the shore and organic artillery.(4) For example, the ship armament was successfully employed for counterbattery bombardment in the defense of Odessa. Out of the total number of rounds carried out by it, 15 percent went for carrying out this mission.(5) In the battles of Leningrad after the stabilizing of the front line, counterbattery bombardment assumed primary significance for the naval armament. Here more than 100,000 rounds were fired and this was 65 percent of the total consumption of ammunition. In 1943 alone, the enemy lost 28 batteries, 69 individual guns from the fire of Baltic Fleet armament and enemy artillery fire was neutralized up to 10,000 times.(6)

The success of counterbattery bombardment was ensured primarily by the precise target designation, since the firing, as a rule, was carried out at maximum range against distant targets. Due to the systematic observation of the enemy firing positions, the careful processing of data on its fire plan as well as the prompt issuing of the necessary information to the commanders of the ships (ship groups), to the skillful and precise organization of the firing, to the teamwork of the gun crews and the skill of the gunnery ratings, the enemy batteries were quickly knocked out. Of great importance were target reconnaissance and fire correction. These were carried out particularly successfully by aviation. The collected information on the objectives and the enemy fire plan (primarily the location of the batteries) complemented with artillery reconnaissance data as well as the use of spotter planes and illuminating planes during the firing significantly increased the effectiveness of counterbattery bombardment.

In combat the Navy widely employed amphibious landings. Experience showed that the success of their landing was largely ensured by dependable artillery support, including the firing of ship guns. In the landing of the force at the village of Grigoryevka near Odessa in September 1941, two cruisers and three destroyers from a range of 15-20 cable lengths intensely worked over the landing area. In some 10 minutes, 630 180-mm and 130-mm shells were fired. With the approach of the first wave forces to the shore, fire was skirted in depth. During the landing fire was carried out against visible firing points as well as according to the data of the correction posts. The landing largely due to the support of the ship guns carried out the mission confronting it.(7)

In the collecting of information for the ship armament a major role was played by reconnaissance of targets in the zone of the enemy antilanding defenses. One of the reasons for the unsuccessful landing of the force in the area of Yuzhnaya Ozereyka (February 1943, Black Sea Fleet) was the unsatisfactory artillery reconnaissance of the antilanding defenses and an analysis of the location of its installations. As a result, the artillery softening up did not succeed in neutralizing the enemy fire plan. The flat trajectory fire of the ship armament was unable to destroy the enemy firing positions and infantry sheltered on the back slopes of the mountainous terrain. The absence of fire correction by airborne aircraft also led to the low effectiveness of the attack.

The ships frequently had to carry out sea shipments as well as support river and lake crossings (see the Table). The forces carrying out these missions were covered by ship armament. It defended them against the fire of enemy shore batteries as well as against attack by enemy aircraft, surface vessels and submarines. For example, in November-December 1941, transports and vessels made 339 trips to Sevastopol and from it. In 258 instances (76.2 percent) they were escorted by combat vessels the armament of which participated in providing virtually all types of defense.(8)

The mission of supporting movements at sea to a significant degree was facilitated for the ship armament by cooperation with shore and field artillery. This was possible if the routes of the transports and vessels as well as the ships escorting them lay in the coastal zone. The organizing of this cooperation with the presence of the appropriate resources was simpler on lakes and rivers. The most intense movements (crossings) were carried out here in the course of the offensive actions of our troops. Here the shock force of the river flotillas was comprised of armored boats many of which were armed with artillery rockets. The gunboats and patrol boats were the main force of the lake flotillas.

Thus, the experience of employing ship armament in carrying out various missions to assist the ground troops disclosed the need to have fleet representatives at the command posts of the all-arms chiefs as well as the establishing of uniform and precise visual, sound and radio signals. The use of uniform maps (navigation-artillery or military topographic) contributed to the correct calculations for fire cooperation in terms of target, time and place. The centralizing of control over the naval armament ensured precise leadership over its combat employment and the prompt concentration of fire power on the necessary sectors. Success also depended upon the correct setting of fire tasks for the ships and these had to correspond to the purpose and capabilities of the ships, the calculated placement of forces, the prompt organizing of target reconnaissance and fire correction as well as a dependable cover for the ships (primarily air).

#### FOOTNOTES

1. TsVMA [Central Naval Archives], folio 2, file 10355, sheets 4-10.

2. V. I. Achkasov, N. B. Pavlovich, "Sovetskoye voyenno-morskoye iskusstvo v Velikoy Otechestvennoy voyne" [Soviet Naval Art in the Great Patriotic War], Moscow, Voenizdat, 1973, p 196.
3. TsVMA, folio 2, file 10459, sheets 134, 135.
4. Ibid., file 20963, sheets 235, 236.
5. Ibid., folio 204, file 6771, sheet 46; file 32608, sheets 34-35.
6. A. A. Sagoyan, "Boyevoye ispolzovaniye artillerii KBF" [Combat Employment of the Baltic Fleet Armament], Moscow, Voenizdat, 1947, pp 83, 104-105.
7. TsVMA, folio 107, file 6165, sheets 2-115; folio 204, file 6771, sheets 70-79; folio 83, file 23446, sheets 126-133.
8. Ibid., folio 10, file 1951, sheets 278, 279.

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## TECHNICAL RECONNAISSANCE OF RAILROADS

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[Article by Col Ye. G. Antonov and Lt col V. Ya. Ostashevskiy; the article was written from the experience of certain operations in the Great Patriotic War]

[Text] Prior to the Great Patriotic War, the railroad troops did not have special subunits for conducting technical reconnaissance. The first non-T/O technical reconnaissance subunits (teams) were established by an order of the Main Military Reconstruction Directorate(1) of 3 February 1942 on all the staffs of the railroad brigades and the railroad reconstruction battalions comprising them. This same order outlined the main tasks of the technical reconnaissance subunits. They were to use their own forces to clear mines on the routes as well as secure information on the nature and scope of destruction on the track, station equipment, man-made structures, railroad communications lines as well as the mining of elements on railroad structures. Their duties also included the accounting for materiel (tools, railroad materials, and unfelled forests) and manpower which could be employed for rebuilding the railroads.

The experience of organizing railroad technical reconnaissance in the first offensive operations of the Soviet Army indicated that the non-T/O teams were unable to meet the tasks confronting them, since their size was variable and the personnel did not have special training. Because of this in February 1943 the TOE of the railroad reconstruction battalions began to include TOE technical reconnaissance (TR) teams which possessed the necessary resources for examining all types of railroad installations and structures. The personnel of each of these included the following groups: headquarters, mine reconnaissance, railroad track and station reconnaissance, man-made structures on the railroads, railroad communications facilities, switch centralization and blocking (STsB), traction devices and railroad water supply. The teams were equipped with the following: means of transport (motor vehicles, motorcycles, bicycles), tools and equipment for mine clearing (mine detectors, listening devices and probes), measuring instruments (tapes and meter sticks) and photographic equipment.

The staffs of the railroad brigades (zhdb) received the orders for reconnoitering railroad sections (installations) from the chief of the front railroad troops ahead of time, prior to the start of the operation.

For inspecting the medium and large railroad bridges, by an order of the chief of the Railroad Troop Directorate of the Soviet Army of 25 June 1943 envisaged in the railroad bridge battalions the establishing of special non-T/O technical reconnaissance teams. The teams consisted of the groups: headquarters, mine and technical reconnaissance.

From the second half of 1943, the staffs of the railroad brigades began to combine the technical reconnaissance teams of the battalions into reconnaissance detachments and move them up to the forward units on the railroad sectors assigned for reconnaissance. As a rule, one of the assistant chiefs of the technical reconnaissance department of the brigade staff was appointed the chief of the reconnaissance detachment. He assigned to the teams the railroad sections according to the compiled technical reconnaissance plan and subsequently directed their work. The data gained by technical reconnaissance was forwarded directly by the chief of the reconnaissance detachment to the railroad brigade staff. On the basis of detailed technical reconnaissance, the reconstruction work was planned and designed.

During the years of the Great Patriotic War, railroad reconnaissance was conducted by commander reconnaissance groups and technical reconnaissance teams. Commander reconnaissance was aimed at obtaining general brief information on the condition of the railroad sections or major installations in a short period of time. Detailed descriptions and diagrams of the sections (installations) ordinarily were not drawn up. As a rule, the groups were sent out in those instances when the technical reconnaissance teams significantly outdistanced the advancing troops (300 km and more) as well as for reconnaissance of the lateral railroad sections. The composition of the commander reconnaissance groups varied. Usually a group consisted of five-six men. The railroad sections and installations were investigated in detail by the technical reconnaissance teams. They submitted to the staffs detailed diagrams, lists, and explanatory notes on all installations and structures. The average rate of conducting technical reconnaissance on a railroad section reached 50-60 km a day with the complete working out of the reconnaissance documents.(2)

On liberated territory technical reconnaissance was carried out by various methods depending upon the operational situation. Thus, with the advance of troops along the railroad routes this was carried out "from the head" of the railroad section and with the simultaneous liberation of the entire length of a certain railroad section by the troops, this was done "along a broad front." The latter method was usually employed in examining the railroad lateral lines. When only individual sections of railroads were liberated, technical reconnaissance was conducted "bypassing" the enemy occupied railroad sections. In a neutral area as well as in an area of enemy small-arms and machine gun fire, technical reconnaissance was carried out by continuous observation. Most often this method was employed in reconnoitering major railroad bridges.

A characteristic example of the organizing of railroad technical reconnaissance by the "from the head" method would be the actions of the technical reconnaissance team sent out from the 19th zhdb (commander, Lt Col P. K. Kuleshov) of the Voronezh Front. The operating procedure of the reconnaissance groups from this team on the Prokhorovka--Gostishchevo railroad section on 21-24 July 1943 is shown in Diagram 1.

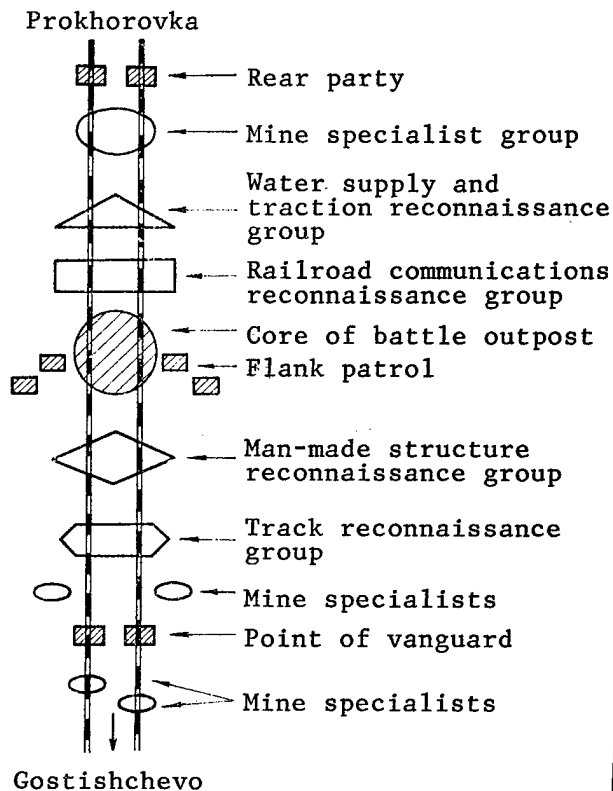


Diagram 1. Battle Order of Technical Reconnaissance Team from 19th zhdb (21 July 1943)

The technical reconnaissance team was split up into several specialized groups which carried out tasks solely within their specialty. Thus, the mine clearing group ensured the safe passage of the team, it marked with stencils the detected and assumed minefields in the area of the railroad right-of-way. The track and railroad communications reconnaissance groups photographed the state of the track, drew up a plan of the communications line (with the indicating of the kilometrage), clarified the dimensions of installations, determined the type of track superstructure, examined railroad communications, established and determined the amount of destruction. The man-made structure reconnaissance group made sketches (drawings) of individual details of a structure particularly those surviving after destruction and determined the size of the structures.

The most complicated was the organizing of technical reconnaissance in railroad junctions as in an exceptionally short period of time it was essential not only to provide general information on the installation but also draw up detailed diagrams of track development, describe all facilities in the area of the junction and indicate destruction carried out by the enemy.

Technical reconnaissance by the railroad troops had at times to be carried out under a difficult operational situation. The teams moved up with the forward units and frequently came under artillery and small-arms fire. Sometimes reconnaissance was carried out under the conditions of repelling an attack by diversionary troops as well as scattered enemy groups which remained in the rear of the advancing Soviet Army units. Thus, in the course of the Vistula-Oder Operation, the technical reconnaissance team from the 95th Separate Railroad Reconstruction Battalion of the First Belorussian Front came under fire on 22 January 1945 on the Wialaczew--Opochno leg (near Sitowo siding) by an enemy group numbering up to 60 men. The railroad troops accepted combat. A portion of the scouts headed by lt Podkopayev covertly outflanked the enemy and attacked it from the rear. Hand-to-hand fighting broke out. The Nazis lost 8 men killed and 25 captured.(3)

In advancing rapidly, in January 1945, the Soviet troops had cleared a large portion of Polish territory. The technical reconnaissance of the mainline and local railroads existing here was carried out "along a broad front" by technical reconnaissance teams from the 1st Guards (commander, Maj Gen Tech Trps V. P. Tisson) and 5th (commander, Col T. K. Yatsyno) Railroad Brigades. In a short period of time these forces had reconnoitered the railroad sections of Warsaw--Radom--Skarzysko--Kamienna, Warsaw--Skierniewice--Koluszki, Warsaw--Lowicz--Kutno--Wrzesnia, Kutno--Torun, Kutno--Plock and others.(4)

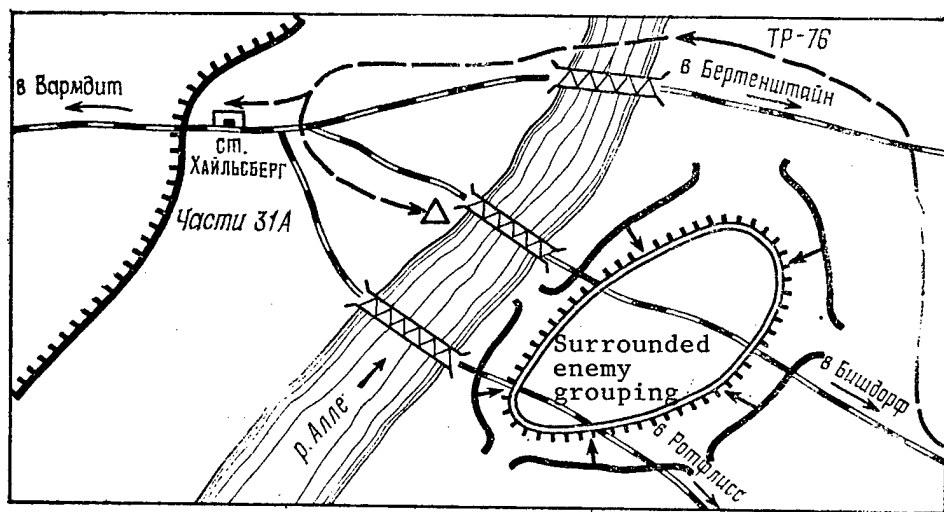


Diagram 2. Advance of Technical Reconnaissance Team From 76th Separate Railroad Reconstruction Battalion in "Bypassing" Enemy Occupied Railroad Section (2 February 1945)

In the East Prussian Operation, technical reconnaissance of the bridge over the Alle River on the Bischdorf--Heilsberg railroad section and the Heilsberg Railroad Station on 2 February 1945 was carried out by the technical reconnaissance team from the 1st Guards zhdb (Third Belorussian Front). The team arrived at the station and began working here while a group of eight men was dispatched to reconnoiter the bridge. It investigated the eastern and western sides of the bridge and all the destroyed elements and the soldiers under enemy fire had to climb up the piers and beams of the bridge and take its dimensions (see Diagram 2).(5)

Since only bridge specialists could correctly determine the amount of work to rebuild the bridges as these had experience in designing and rebuilding bridges, the technical reconnaissance subunits had to establish specialized reconnaissance groups for bridge reconnaissance. The scouts had to not only give a technical description of the structures and determine the degree of their destruction but also propose the most rational reconstruction method. Usually the bridges were reconnoitered in two stages. Preliminary reconnaissance with the compiling of a report on the state of the bridge was carried out immediately upon the arrival of the group on the spot. After this a work schedule was drawn up and the personnel began detailed reconnaissance. Diagram 3 shows the hourly schedule for organizing the work of the technical reconnaissance team from the 11th zhdb (commander, Col G. P. Debolskiy) in reconnoitering the bridge over the Neman at Kaunas at the beginning of August 1944.(6)

Name of Job	Hours											Notes		
	10	11	12	13	14	15	16	17	18	19	20		21	22
Clearing approaches to bridge														
Compiling preliminary report														
Exam. of span structures														
Exam. of bridge supports														
Compiling diagram giving dimensions														
Compiling full report														
Passing documents to report collection point														
Composition of team: 1 Off., 1 Sgt, 5 Pvts														

Diagram 3. Work Schedule for Technical Reconnaissance Team of 11th zhdb in Reconnoitering Bridge Over the Neman (August 1944)

For obtaining information on the state of railroads in the enemy rear and for future planning of their reconstruction, the technical reconnaissance bodies maintained constant contact with the reconnaissance sections of the front

staffs and through them with the staffs of the partisan movement. For example, from April 1943 through March 1944, the technical reconnaissance bodies from the headquarters of the chief of the railroad troops of the Fourth Ukrainian Front received from the front staff of the partisan movement data on sabotage successfully carried out by the partisans on railroads in the enemy rear, the Donbass railroads which had been rebuilt by the Nazis as well as enemy preparation of obstructions at the railroad junctions of Mariupol, Berdyansk, Kherson, Nikolayev, Ochakov, Odessa, Zaporozhye, Melitopol, Feodosiya, Kerch, Sevastopol and others.

The reconnaissance aviation of the fronts upon requests from the chiefs of the railroad troop headquarters photographed railroad installations in the enemy rear. For example, in July 1944, the aviation of the Third Belorussian Front at the request of the chief of the railroad troops conducted aerial photography of the railroad junctions of Insterberg, Welau, Konigsberg, Gerdauen, Korschen and elsewhere.(7) The information received after interpreting the aerial photographs made it possible for the staffs of the railroad troops to become acquainted with the nature and state of the enemy railroads and to note ahead of time the main areas of reconstruction work and the methods for rebuilding individual facilities.

Under the conditions of the rapid rate of advance, particularly in 1944-1945, the number of railroads simultaneously liberated from the enemy increased sharply. The technical reconnaissance teams fell behind the forward units and were not always able to promptly provide information on the state of railroad facilities. This circumstance necessitated a change in the methods of conducting technical reconnaissance. The chiefs of the teams began to work with two or three groups which were given independent assignments to reconnoiter railroad sections. With the acute shortage of teams this made it possible to conduct reconnaissance at the necessary pace on all rail routes liberated from the enemy. The technical reconnaissance teams began to work for the first time using the new method in September 1943 on the Voronezh Front.

For rapidly obtaining preliminary data on the state of railroad facilities, visual air reconnaissance began to be widely employed. This was conducted by officers from the railroad troop headquarters of the fronts. Thus, at the start of 1943, on the Voronezh and Western Fronts for the first time they worked out and introduced a system of aerial technical reconnaissance of the railroads. This was carried out by slow-speed aircraft of the U-2 (PO-2) type. Reconnaissance was conducted from an altitude of 50-100 m. When necessary the planes could land right beside the installations being reconnoitered. Air technical reconnaissance provided an opportunity to obtain rather precise data on the state of the railroad facilities some 4 or 5 hours after the sortie. Thus, time was gained for analyzing and evaluating the state of the railroad network of the front, for choosing the routes for reconstruction and taking decisions to plan the work. This made it possible for the command of the railroad troops of the fronts to quickly give missions to the brigades and rapidly organize reconstruction. The scope of air technical reconnaissance conducted by officers from the railroad troops of the First Ukrainian Front during the war years can be seen from the table published below.

Table

Data on Conducted Reconnaissance	-- 1943 --		----- 1944 -----		-- 1945 --		Total	
	Jan- Apr	Aug- Dec	Jan- Apr	July	Aug- Sep	Jan- Mar		Apr- May
Number of aircraft sorties	7	15	12	18	13	7	3	75
Length of recon- noitered track, km	455	492	524	414	596	469	450	3,400
Number of recon- noitered large bridges	4	2	5	3	6	2	3	25

The effectiveness of the work carried out by the technical reconnaissance teams could be described by the pace of conducting reconnaissance and this depended upon the condition of the section, the season of the year, the operational-rear situation and the training level of the scouts. Under normal conditions the teams reconnoitered 8-10 km a day in 1942, 15 km in 1943, and 25-30 km in 1944. The pace of technical reconnaissance with the work of several teams using the "broad front" method was an average of 20-25 km a day in the summertime and 10-15 km a day in the winter.(8)

Contact between the groups and the chief of the technical reconnaissance team was provided, as a rule, by messengers. The reports of the team chief to the staff of the railroad brigade were also delivered by messengers. Data were transmitted to the headquarters of the chief of the railroad troops of the front by telephone, telegraph while primary documents (diagrams and photographs) were delivered by messengers on motor vehicles or motorcycles. The reconnaissance data on the state of the railroads were submitted daily to the Directorate of the Railroad Troops of the Soviet Army over wire, telegraph and radio communications.

The experience of the Great Patriotic War showed that for taking sound decisions to rebuild the railroad routes, the command of the fronts had to possess up-to-date, complete and reliable information on the state of the railroads to the entire depth of the offensive operation. Only regular technical reconnaissance subunits could successfully carry out the task of a complete examination of the railroads and the facilities on them.

During the years of the last war, the technical reconnaissance teams carried out extensive work in reconnoitering the railroads. The command of the railroad troops received from them all of the necessary data for prompt planning and execution of work to rebuild the railroad mainlines destroyed by the enemy. During the years of the war, around 180,000 km of track were

examined as well as over 135,000 railroad stations and sidings, more than 16,000 small bridges and culverts, around 2,500 medium bridges and 1,000 large railroad bridges.(9)

The increased capability of the troops to destroy and block railroad facilities require a further improvement in the technical reconnaissance system and greater skills on the part of the railroad troop personnel. A study and generalization of the rich experience in organizing and conducting railroad technical reconnaissance during the war years are one of the most important ways for preparing the officers, staffs and units of the railroad troops for a further improvement in the technical reconnaissance system.

#### FOOTNOTES

1. In January 1942, the State Defense Committee entrusted leadership over all construction and obstruction work on the railroads to the NKPS [People's Commissariat of the Railroads] and within this the Main Directorate of Military Reconstruction Work (GUVVR) was organized under Gen N. A. Prosvirov. Headquarters of Military Reconstruction Work (UVVR) were organized on the fronts. The chiefs of the UVVR were simultaneously the chiefs of the railroad troops of the fronts. All railroad troops and special organizations of the NKPS were subordinate to the GUVVR and UVVR.
2. TsAMO SSSR [Central Archives of the USSR Ministry of Defense], folio 24, inv. 11415, file 983, sheet 44.
3. Ibid., file 5, sheet 78.
4. Ibid., file 959, sheets 155, 180.
5. Ibid., file 960, sheet 148.
6. "Zheleznodorozhnyye voyska v Velikoy Otechestvennoy voyne" [Railroad Troops in the Great Patriotic War], Moscow, Transzheldorizdat, 1947, p 86.
7. TsAMO, folio 24, inv. 11415, file 960, sheet 17.
8. "Zheleznodorozhnyye voyska...", p 18.
9. Ibid.

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