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# USSR Report

MILITARY AFFAIRS

(FOUO 11/81)



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MILITARY-POLITICAL ISSUES

BOOK REVIEWS COSTS OF PURSUING ARMS RACE

Moscow EKONOMICHESKOYE BREMYA MILITARIZMA in Russian 1980(signed to press 18 Jul 80)  
pp 1-2, 183-4

[Table of contents and annotation of book by Yu. Ye. Vlas'yevich]

[Excerpts] Title Page:

Title: EKONOMICHESKOYE BREMYA MILITARIZMA (The Economic Burden of Militarism)

Publisher: Mysl'

Place and year of publication: Moscow, 1980

Signed to Press Date: 18 July 1980

Number of Copies Published: 12,000

Number of Pages: 184

Brief Description:

This book examines the costs of the two world wars in the 20th century and the present arms race. It studies the causes of the increasing costs of wars, the sources and methods for covering them. The policies of imperialists, who make a profit from wars and the arms race, are disclosed. The active role of the CPSU and the Soviet state in the struggle for relaxing international tension is shown. A critique is given of the views of bourgeois sociologists on the arms race.

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AIR DEFENSE FORCES

BOOK EXCERPTS: AIR DEFENSE FORCES IN WARTIME

Moscow VOYSKA PVO STRANY V VELIKOY OTECHESTVENNOY VOYNE 1941-1945 - KRATKAYA KHRONIKA (National Air Defense Forces in the Great Patriotic War 1941-1945 - A Brief Chronicle) in Russian 1981 signed to press 16 Sep 80 pp 1-9, 166-171, 263-267, 372-375

[Annotation, table of contents, excerpts from three chapters, conclusion from book by P.I. Grekhnev, N.Ya. Komarov(in charge of the group of authors), V.L. Manilov, I.N. Mikhaylenko and F.P. Tkachev, Voenizdat, 40,000 copies, 375 pages]

[Text] This book reveals the heroic path covered by the National Air Defense Forces in the last war. It gives a day-by-day account of the combat activities of the formations and units and cites brilliant examples of the valor and heroism demonstrated in the fighting by the defenders of our homeland's air borders.

The book was written for the general reader.

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AUTHORS' INTRODUCTION

More than 30 years has gone by since the end of World War II, an extremely important part of which was the Soviet Union's Great Patriotic War. The remembrance of the great feat performed by the Soviet people and their Armed Forces in the mortal engagement with the aggressive fascist bloc is sacredly preserved in the grateful memory of mankind, however. The Soviet Union and its army bore the brunt of World War II, the bloodiest war in history. The Soviet-German front was the main, the crucial front of the war, and it was there that the main forces of fascist Germany and its allies were utterly defeated.

The great feat performed by the Soviet people and their Armed Forces in World War II was a result of thousands of battles and engagements on land, in the air and at sea, and in the rear of the fascist German forces. This feat was brought about by millions of people. Our memory of them is sacred. "...We think with pride and reverence," General Secretary of the CPSU Central Committee L.I. Brezhnev has stated, "about the people whose unprecedented heroism determined the outcome of the great battle waged against fascism."<sup>1</sup>

The victory gained by the Soviet Armed Forces over the armies of the fascist bloc was achieved by the sweat and blood of fightingmen of all the services and branches of troops--infantrymen, tankmen, artillerymen, pilots and sailors. The National Air Defense Forces--that service of the Armed Forces primarily responsible for the reliable functioning and the security of the fighting nation's rear area--also contributed their bit, a considerable one, to the accomplishment of that victory.

The authors of this book have used information from archives and periodicals to show the reader how the nation's air defense grew and gained strength, day after day, under the Communist Party's leadership, and to tell about the mass heroism demonstrated by the pilots, antiaircraft gunners, fightingmen in the VNOS[air warning] service and searchlight operators, about their courage and valor in the crucial engagements with the German fascist invaders. The authors have focused entirely upon the struggle waged by the National Air Defense Forces against fascist Germany's air forces and have not dealt with wartime operations against militaristic Japan. Although operational air defense formations were created in the Far East Theater, they were not required to engage in active fighting.

The authors express their gratitude to officers and employees of the Main Staff, National Air Defense Forces, and the Central Archives of the Ministry of Defense for placing the needed materials at their disposal and also for their valuable suggestions and advice on the contents of the book.

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## NATIONAL AIR DEFENSE FORCES DURING THE FIRST PERIOD OF THE WAR(22 June 1941-18 November 1942)

The National Air Defense Forces made a worthy contribution to the setback in the German fascist command's plans to totally defeat the Soviet Army in the very beginning of the war with joint strikes by ground forces and aircraft and to gain a victory over the USSR as early as the fall of 1941.

Beginning with the military reform(1924/1925) the National Air Defense Forces grew in size under the Communist Party's leadership, their organizational structure and technical equipment were improved, and their relative size and their role in the Armed Forces grew. They developed especially rapidly during the years immediately preceding the Great Patriotic War.

During the first period of the war the National Air Defense Forces were set up for the defense of individual facilities. The defense was based on two main elements: the creation of cover for important administrative-political and industrial targets, as well as railway lines within reach of a likely enemy's aircraft, and the crucial concentration of personnel and equipment to defend the nation's more important facilities with an all-round defense. In other words, the nation's air defenses consisted of a number of centers of defense.

The nation's largest administrative-political and industrial centers--Moscow, Leningrad and Baku--had the most powerful air defense systems. A full 42.4 percent of all the medium-caliber antiaircraft batteries and up to 50 percent of the fighter regiments were concentrated there to defend them. Adequately powerful groupings of Air Defense Forces were also created in the Transcaucasus and the Far East.

Fascist Germany's treacherous attack upon the Soviet Union began with massive strikes by German Fascist aircraft against airfields, large cities and railway junctions to a depth of up to 500 kilometers. At the same time the enemy was making extensive use of its aircraft in support of army groups on the main axes. The ways and methods by which the Hitlerite air forces--the Luftwaffe--were used were not original or new: They had been employed by the Wehrmacht in the war against Poland and other Western European nations and were known to the Soviet command. The troops and rear facilities were not reliably covered from the air, however, because of a shortage of personnel and equipment and the imperfect organization of the air defense system.

The distribution of personnel and equipment among the air defense zones actually resulted in a scattering of these forces, which in the final analysis produced a weakening of our air defense on the main operational axes. During the summer/fall campaign of 1941, however, steps were taken to mass the air defense men and equipment. By the end of July, for example, a grouping consisting of 585 fighters, more than 1,000 medium- and small-caliber antiaircraft guns, 336 antiaircraft machine guns and 618 antiaircraft searchlights had been created to provide a reliable air defense for Moscow.<sup>2</sup>

In the summer and fall of 1941 the air defense forces performed their most intensive operations to cover the nation's largest centers--Moscow and Leningrad. Dozens of formations and units(up to 700 fighters and 1,800 antiaircraft guns of various systems) helped to repel massive enemy air raids, their efforts being coordinated by a single command responsible for air defense.

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The State Defense Committee passed the decree "On the Reinforcement and Strengthening of Air Defense of the Soviet Union's Territory" on 9 November 1941. In accordance with this decree responsibility for the air defense of important facilities was assigned to the newly appointed commander of National Air Defense Forces--the deputy people's commissar of defense. Prior to this the National Air Defense Forces were under the Main Directorate of Air Defense Forces, the chief of which until July 1941 was Colonel General of Artillery N.N. Voronov. All formations and units covering administrative and political centers, industrial, railway and other vitally important facilities in the Soviet Union were under the command of the newly appointed commander of National Air Defense Forces (the only exception were Leningrad's air defense forces, which temporarily remained under the front commander). The air defense zones in the European part of the Soviet Union were disbanded and used to create corps, division and brigade air defense areas, which were essentially tactical formations. Fighter corps and divisions detailed from the Air Forces to perform national air defense missions were first operationally and then totally under the commander of National Air Defense Forces, and locally--under the commanders of corps and division air defense areas.

The centralized control of the National Air Defense Forces from top to bottom made it possible to resolve all questions pertaining to the air defense of installations, promptly and with flexibility, and to extensively maneuver air defense men and equipment. Interaction among the main air defense forces--the fighter aviation and the anti-aircraft artillery--improved sharply.

The formation of corps and division air defense areas made it possible to improve the reliability of air defense for the frontline railways and water routes of communication. In 1942 the Soviet command began to build a defense for lines of communication, combining specific-installation air defense of important junctions with a mobile defense of stages and trains en route, enlisting ground facilities and fighter aircraft to perform the missions involved. Defense maneuverability was achieved by using mobile anti-aircraft groups and air defense armored trains.

The railways and water lines of communication for fronts operating on the Stalingrad axis were provided with the most substantial air defense during the second half of 1942. Cover was provided by five air defense formations.

In addition to defending large centers and industrial areas, as well as lines of communication for the fronts, the anti-aircraft artillery of the National Air Defense Forces, by order of Headquarters, Supreme High Command, was also frequently called upon to perform missions for the ground forces. This was necessitated primarily by the inadequate quantity of antitank artillery. In November/December of 1941, when enemy troops were near Moscow, three anti-aircraft artillery groups were detailed out of the forces manning the Moscow Air Defense Zone, which operated as part of the Western Front on the Solnechnogorsk-Istra and Rogachev axes, as well as in the area of the Moscow-Volga Canal on the boundary between the 1st Assault Army and the 20th Army, beating off fierce attacks by enemy tanks and infantry.

An anti-aircraft artillery grouping was set up in advance at the Stalingrad Air Defense Post, designed to provide both air and antitank defense. The correctness of this decision was confirmed by the entire subsequent course of events.

In the situation of inadequate air support for operations by the ground forces and the fronts' small air forces, the air defense fighter aviation was used in many cases

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to perform front aviation missions. By decision of Headquarters, for example, many air units of the 6th Air Defense Fighter Corps were enlisted for the conduct of front operations in the fall and winter of 1941/42 near Moscow. As a result of the participation by an air corps of the air defense forces in the air operations our aviation gained air superiority for the first time during the war and retained it until the first phase of the counter-offensive was completed.

Our defense of facilities immediately adjacent to the frontline revealed the need for more extensive and thorough coordination of combat operations of the Air Defense Forces with those of the combined-arms armies and fronts(fleets) and with troop air defense. The most lengthy interaction between the National Air Defense Forces and the air defense of the troops and naval forces took place during the heroic defense of Leningrad. The air defense of the city on the Neva was an integral part of the overall system of its defense by all services of the Armed Forces and branches of troops.

In 1942 the Stalingrad Corps Air Defense Area, like the Leningrad Air Defense Army, was temporarily placed under the operational command of the commander of the Stalingrad Front. This helped us to make more purposive use of the air defense forces and facilities in accordance with the developing situation.

The tactics employed by the branches of air defense forces underwent considerable development during the combat operations. The air defense fighter aviation began to intercept the air enemy by means of radar. Views on the organization of the combat formations of fighters for aerial combat were reconsidered. The pair of fighters became the main element in the combat formation. In the air battle special attention began to be attached to the surprise and the determinedness of an attack and to mutual support by the fighters in a battle.

Our experience in combatting enemy aircraft was studied and summarized, which enabled us successfully to resolve matters pertaining to the massing of barrage and accompanying antiaircraft artillery fire by means of fire control radar at night and in adverse weather conditions. Procedures were worked out for firing at diving aircraft and at aircraft in a "circular" formation. Personnel of the VNOS units and subunits mastered procedures for monitoring the air for enemy aircraft and guiding fighters by means of radar.

And so, the first period of the war was a turning point for the National Air Defense Forces with respect to improving both their organizational structure and the methods for employing them in combat. Interacting with the fighter aviation and antiaircraft artillery of the fronts and fleets, the National Air Defense Forces prevented the destruction of the nation's administrative and political and industrial centers and its lines of communication by the German fascist Luftwaffe and inflicted great damage upon the enemy. The enemy lost 4,652 aircraft in 1941/42. A total of 2,617 of these were destroyed by fighter aircraft and 2,035 were destroyed by antiaircraft artillery, antiaircraft machine guns, VNOS and barrage balloon subunits.<sup>3</sup> The National Air Defense Forces also destroyed a considerable number of enemy tanks. All of this helped considerably to create the preconditions for a basic reversal in the course of the war. After April of 1942 the German fascist command no longer attempted to strike at Moscow. Our homeland's powerful air defense system provided a reliable shield protecting Moscow against German fascist air raids.

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- The operations of the National Air Defense Forces were assessed primarily not by the  
- number of enemy aircraft shot down but by the number of cities and population centers  
- saved from destruction and by the effectiveness with which the uninterrupted function-  
- ing of front lines of communication and the nation's rear area was ensured.

- Like the other sections of this chronicle, the first section cites only the most typi-  
- cal combat developments and the most important events out of the life and the combat  
- work of the National Air Defense Forces. Described on a daily basis they provide an  
- adequately complete picture of the enormous organizational work performed by the Com-  
- munist Party to route the Wehrmacht, the mass heroism, courage and stamina demon-  
- strated by the nation's air defense fighters.

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THE NATIONAL AIR DEFENSE FORCES DURING THE SECOND PERIOD OF THE WAR(19 November 1942-December 1943)

The second period of the Great Patriotic War went down in history as the period during which the turning point was achieved in the military operations. The Soviet Union itself dealt the decisive defeat to the German fascist army. This showed the entire world the great power and vital force of the Soviet society and the Soviet state system.

The main mission of the National Air Defense Forces continued to be the same as during the first period of the war--to defend the nation's large industrial centers, railway junctions, bridges and communication lines near the front. The active involvement of the National Air Defense Forces in the support of extensive offensive operations by the fronts and their participation in the air blockade of encircled enemy groupings and in the destruction of enemy landing groups were important missions.

The National Air Defense Forces considerably increased their combat strength by outfitting the units with new equipment and by providing new formations. The number of combat crews in the fighter aviation increased 1.6-fold, medium-caliber antiaircraft guns--1.4-fold, small-caliber antiaircraft guns--4.7-fold, large-caliber antiaircraft machine guns--5.8-fold and antiaircraft searchlight stations--1.5-fold. The fighter units received aircraft of the latest design--La-5, Yak-7 and Yak-9 with speeds of up to 670 kilometers per hour and carrying powerful armaments(1 or 2 guns with a caliber of 20 to 37 mm and large-caliber machine guns).<sup>4</sup> Radar was installed on the fighters, which sharply increased their combat effectiveness.

Units of medium-caliber antiaircraft artillery were reoutfitted with 1939-model 85mm antiaircraft guns. A battery had four 85mm guns, the PUAZO-3 antiaircraft director, the DYa stereoscopic range finder with a 4-meter base and 24-fold magnification, which made it possible to determine a target's altitude at a range of up to 50 kilometers, and the DShK large-caliber antiaircraft machine gun. Antiaircraft artillery subunits received the SON-2 fire control radar, which permitted the batteries to conduct accurate aimed fire at night and in adverse daytime weather conditions. Eight-gun batteries were created to increase the fire power and the likelihood of destroying targets, the PUAZO of which were synchronized and linked with the fire control radar. The antiaircraft machine gun units were totally reoutfitted with 12mm and 7mm large-caliber antiaircraft machine guns.

The VNOS and fighter units received the improved Redut-43 and Pegmatit detecting and vectoring radar stations. This improved our ability to search for enemy aircraft, to provide warning of an air enemy and to guide fighters to the targets.

The antiaircraft searchlight troops received the first searchlight-control radar--a system consisting of detecting and tracking radar with a searchlight--which made it possible to illuminate targets at maximum range practically from the "moment of fire."

The quantitative and qualitative growth of the weaponry of the National Air Defense Forces significantly increased their combat capabilities, especially for conducting combat in the dark. Because of its large losses the German fascist command could no longer count on carrying out successful air strikes against Moscow, the capital of our homeland. Although the capital was within range of the enemy's tactical aviation the enemy gave up its attempts to carry out massive strikes against Moscow. The main

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efforts of the German fascist air forces focused upon providing direct support for combat operations by the ground forces. The most active operations by the enemy aviation during the first half of 1943 were bombing attacks against railway lines of the Bryansk, Central, Voronezh and Southern fronts, lines of communication for blockaded Leningrad and the Kirovsk Railway. In June of 1943 fascist Germany's air forces for the first time during the war carried out a number of large raids against targets in the nation's interior. The Soviet air forces gained air supremacy at the beginning of the fighting near Kursk and the expansion of offensive operations by Soviet forces in the summer of 1943, however, and maintained it until the end of the war.

Changes in the nature of the German fascist aviation's operations made it necessary to redistribute the efforts of the National Air Defense Forces. The quantity of air defense personnel and equipment detailed to defend lines of communication near the front was increased sharply. The defense of the nation's vitally important facilities and areas was stepped up at the same time. Air defense was set up for facilities in liberated territory, for which purpose new air defense formations were created. The depth of the nation's air defense was increased to 1,000-1,500 kilometers.

By decision of the State Defense Committee the Western and Eastern Air Defense Fronts were created in 1943 to improve control of the National Air Defense Forces. The Leningrad Air Defense Army and the Ladoga Division Air Defense Area remained under the operational command of the Leningrad Front. The creation of front air defense formations considerably improved troop control and interaction with the fronts and fleets.

During the second period of the war the most intense battles against the German fascist aviation were conducted by forces of the Stalingrad Corps Air Defense Area; the Leningrad Air Defense Army and the Ladoga Division Air Defense Area, which defended blockaded Leningrad and its lines of communication; the Murmansk Air Defense Area during the defense of the Port of Murmansk and the Kirovsk Railway; the Voronezh-Borisoglebsk, Rostov, Ryazhsk-Tamov, Khar'kov, Donbass, Bologoye and other air defense areas, which were defending lines of communication at the front; and the Gor'kiy, Saratov-Balashov and Rybinsk-Yaroslavl' air defense areas during the defense of Gor'kiy, Saratov and Yaroslavl'.

The air blockade of an encircled 330,000-man enemy grouping near Stalingrad was accomplished by formations of the air armies and antiaircraft artillery of the fronts interacting closely with the National Air Defense Forces. Troops of the Stalingrad Corps Air Defense Area took part in the air blockade. Antiaircraft artillery units of that formation became a part of the antiaircraft artillery groups of the combined-arms armies. During the air blockade of the encircled grouping Soviet pilots and antiaircraft gunners destroyed around 1,200 enemy aircraft, 80 percent of them transport planes or bombers.

Troops of the Leningrad Air Defense Army performed the main mission, defending Leningrad against air strikes. Around half of the air defense units and formations took an active part in the breakthrough of the Leningrad blockade and in the defense of its lines of communication. Raids on Leningrad became considerably less intense during the second period and were halted entirely by the end of that period. More than 8,200 enemy flights were made within the boundaries of the Leningrad Air Defense Army during the second period, which was 25 percent of all overflights within those borders by enemy aircraft during the war. A total of 136 raids were flown against Leningrad, mainly at night. Only 253 aircraft reached the city.<sup>5</sup>

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During the breakthrough of the Leningrad blockade five air regiments were detailed out of seven air defense fighter corps to cover troops of the 67th Army. Our fighters paralyzed the enemy's bomber aviation. During the period of offensive fighting corps pilots flew more than 364 combat missions, engaged in 104 air battles, shot down more than 50 fascist aircraft and put 16 others out of action. During the time they provided support for the operations of the ground forces the antiaircraft gunners destroyed 30 aircraft, 4 batteries, 9 machine guns, 8 earth-and-timber emplacements and as many as 300 enemy soldiers and officers.<sup>6</sup>

Troops of the Ladoga Division Air Defense Area provided air defense for lines of communication over Lake Ladoga, which carried the main flow of freight for Leningrad and the Leningrad Front, covered the Tikhvin-Lake Ladoga main rail line and, following the breakthrough of the Leningrad blockade, also the newly built railway linking Shlisselburg with the Mga-Volkhovstroy rail line.

Troops of the Murmansk Division (Corps as of October 1943) Air Defense Area provided air defense for Murmansk and the Kirovsk Railway.

The enemy aviation made a great effort to disrupt the operation of the Kirovsk Railway. Especially fierce raids were carried out against railway facilities on the Loukhi-Kandalaksha section in December of 1942 and during the first half of 1943. The defense of the rail facilities was reinforced by decision of the air defense area command, and tactics were frequently changed to conform to the nature of the enemy air raids. The normal movement of trains and the uninterrupted shipment of goods for the Karelian Front and the Northern Fleet were resumed in May/June of 1943 as a result of increasing the quantity of personnel and equipment and improving the air defense of railway facilities.

An intense struggle for air superiority was launched on the Kuban' in the spring of 1943. Troops of the Rostov Division Air Defense Area and the 105th Air Defense Fighter Division played an important role in that struggle. These formations provided air defense for lines of communication for the Southern and North Caucasus fronts and for industrial installations in the North Caucasus. Troops of the Rostov Division Air Defense Area and units of the 105th Fighter Division conducted especially fierce battles to defend the Bataysk and Rostov railway junctions in March/May of 1943. The fighter aviation acquired extensive experience in conducting group aerial battles.

Forces of the Ryazhsk-Tambov, Voronezh-Borisoglebsk, Khar'kov and Tula division air defense areas, together with four air defense fighter divisions under their operational command, provided air defense for the nation's important facilities within their borders and for lines of communication of the fronts operating on the Kursk axis. As support for the planned summer offensive in the area of the Kursk salient the German fascist command created a powerful air grouping on the Kursk axis. It consisted of formations of the 4th and 6th air fleets and included a total of more than 2,000 aircraft.<sup>7</sup> Successful preparations by our fronts to break up the offensive by the German fascist troops and to route their assault groupings depended to a significant degree upon a reliable air defense for our rail lines. Headquarters, Supreme High Command, assigned this task to the National Air Defense Forces. Four air defense formations and four air defense fighter divisions, interacting with air armies and the antiaircraft artillery of the fronts, ensured the uninterrupted functioning of lines of communication for the fronts and inflicted large losses upon the enemy aviation.

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In June of 1943 the German fascist aviation undertook massive raids against the Soviet Union's industrial cities of Gor'kiy, Saratov and Yaroslavl'. The enemy carried out seven massive nighttime raids against Gor'kiy between 4 and 22 June, with 645 bombers taking part. The raids were repelled by units of the Gor'kiy Corps Air Defense Area and the 142nd Air Defense Fighter Division. The antiaircraft artillery and fighter units performed under great pressure to repel the raids. They destroyed 14 enemy aircraft.<sup>8</sup>

The enemy carried out nine night raids against Saratov between 12 and 27 June 1943, with up to 420 bombers taking part. Units of the Saratov-Balashov Division Air Defense Area and the 144th Air Defense Fighter Division, which were deployed there, operated successfully. The smoke-screening of the enemy's intended targets was highly effective. During the last night strike not one of the aerial bombs dropped by the enemy hit the target, since the crews of the enemy aircraft could not detect them.<sup>9</sup>

Units of the Rybinsk-Yaroslavl' Division Air Defense Area and the 147th Air Defense Fighter Division performed smoothly and in an organized manner to repel two massive raids against Yaroslavl', as well as diversionary strikes against the stations at Rybinsk, Konstantinovsk, Ivanovo, Komsomol'sk and Uglich. Only 32 of 110 enemy aircraft taking part in the raids against Yaroslavl' reached their targets.

During the second period of the war the National Air Defense Forces were successful on the whole in combatting the German fascist aviation and covered the enemy's targets in the rear. During 1943 they destroyed 1,615 enemy aircraft.<sup>10</sup>

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## NATIONAL AIR DEFENSE FORCES DURING THE THIRD PERIOD OF THE WAR(January 1944-May 1945)

During the third period of the war the National Air Defense Forces conducted combat operations in a situation in which the Soviet air forces had total superiority over the enemy aviation. The German fascist aviation was becoming constantly less active. The combat capacity of the National Air Defense Forces was increasing, however, and they were constantly at a high level of combat readiness. The nature of the enemy aviation's operations and its tactics were altered considerably, along with the drop in its activity. Its main efforts focused upon supporting the enemy's ground forces, delivering air strikes against attacking troops of the Soviet Army and destroying installations and lines of communication along the front. The enemy attempted to make up for its shortage of forces by maneuvering air formations and units to the more important sectors of the Soviet-German front. The enemy sometimes managed to concentrate large air groupings there, and the massing of air defense men and equipment was required to combat them.

Nor was there any relaxation of the danger of strikes against individual, vitally important targets in the nation's rear, which could involve heavy bombers(He-177, VW-200 Kondors) carrying a heavy bomb load and with a radius of operation exceeding 1,000 kilometers. There was also the danger that the enemy would use a new weapon--the V-1 cruise missile. For example, the German fascist command intended to make strikes against Leningrad with these unmanned missiles launched from positions in Estonia.

The main mission of the National Air Defense Forces continued to be that of protecting large centers against air attacks. The air defense system for Moscow, Leningrad, Baku and Gor'kiy was further improved. Double or triple the 1941 level of air defense means was detailed to defend such liberated cities as Riga, Vilnius, Minsk, L'vov, Kiev and Odessa. More than 50 percent of the fighters and medium-caliber antiaircraft guns and around 70 percent of the antiaircraft searchlights were concentrated for the defense of the nation's most important political and economic centers.<sup>11</sup>

Air defense of the fronts' rail and water lines of communication continued to be an important task of the National Air Defense Forces. The need to cover them reliably considerably increased the range of tasks of the National Air Defense Forces. They frequently covered lines of communication in the immediate rear and a number of crossings had to be covered at the forward edge(crossings over the Kerch' Strait, the Dnepr, the Vistula, the Oder and other bodies of water). In addition, formations of the National Air Defense Forces covered airfields of the front and long-range aviation, trains and river vessels en route and coastal, sea lines of communication, helped implement the air blockade of encircled groupings(near Korsun'-Shevchenkovskiy, Budapest, Breslau and elsewhere) and battled sabotage detachments and bands operating in the rear and airborne landing groups. At crucial points in the battle the air defense fighter aviation was enlisted to perform the missions of front air forces on the main axes, and the antiaircraft artillery of the National Air Defense Forces--field artillery missions.

As the Soviet Army advanced rapidly to the west the depth of the territory defended by the National Air Defense Forces increased greatly. The two front air defense field forces(Western and Eastern) were replaced by four air defense fronts--the Northern, Central, Southern and Transcaucasus fronts--in 1944 to provide for more flexible control of the National Air Defense Forces and closer interaction between them and the forces of the fronts.

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During the 1944 winter campaign the Soviet Army carried out devastating strikes against German fascist forces near Leningrad and Novgorod, in the Right-Bank Ukraine and the Crimea. During the campaign the National Air Defense Forces primarily fought the enemy's aviation, which was attempting to disrupt rail transport operations along the front. The most intense battles against the air enemy during that period were those fought by forces of the Leningrad Air Defense Army and the Kiev, L'vov and North Caucasus air defense areas. Troops of the Leningrad Air Defense Army took a direct part in the offensive by forces of the Leningrad Front. The air defense fighter aviation provided air cover for the combat orders of our rifle formations and made bombing attacks upon enemy ground forces. Part of the antiaircraft artillery was drawn upon to provide artillery support for the offensive by the Leningrad Front's 42nd Army.

Between January and April of 1944, when Soviet forces launched their grand offensive in the southwest, it became especially important to provide air defense for the rail lines of communication of the Ukrainian fronts, against which the enemy had concentrated up to 56 percent of its combat aircraft (1,200-1,450 planes).<sup>12</sup> Regarding the disruption of communications for those fronts as one of its aviation's main tasks, the German fascist command arranged for more than 450 bombing raids against railway installations.

The Soviet command concentrated around 50 percent of all the personnel and equipment of the National Air Defense Forces to cover lines of communication in the southwest. Forces of the Kiev, Kursk, Khar'kov, Donbass, L'vov and Odessa air defense areas of the Western Air Defense Front provided air defense for the rail lines of communication. Upon encountering the powerful air defense the enemy altered its tactics and switched to air strikes against trains en route. This tactic was countered by providing direct cover for trains en route by air defense groups created in advance (1-2 small-caliber guns and 3-4 antiaircraft machine guns per train).

Antiaircraft armored trains were assigned a large role in the covering of important rail facilities in liberated territory. We were most successful when we were able to achieve the element of surprise in the use of antiaircraft fire from armored trains.

The creation of a solid radar detection and vectoring field for the fighter aviation over vast areas was a typical feature of the air defense for lines of communication of the Ukrainian fronts. The skilful application of camouflage procedures contributed to the successful defense of crossings on the Dnepr, which were highly important to the development of the offensive by forces of the 1st and 2nd Ukrainian Fronts in the Right-Bank Ukraine. For example, the enemy's lead bombers would mark the routes to targets with flares to guide their assault groups of aircraft to them. In response to this air defense fighters began to drop flares along routes to false targets. The use of camouflage smoke bombs frequently forced the enemy to halt bombings of crossings. The crossings camouflaged with smoke were not damaged. The National Air Defense Forces repelled all attempts by the enemy aviation to halt crossing operations over the Dnepr and secured uninterrupted operational troop shipments for the 1st, 2nd, 3rd and 4th Ukrainian Fronts.

In the summer/fall campaign of 1944 the Soviet Armed Forces carried out the main strike on the western sector. By destroying the enemy front there our army cleared its way to Berlin. The role of the National Air Defense Forces in covering lines of communication for the fronts and important areas and facilities in the liberated territory became even greater in this campaign. During preparations for and the conduct of the Belorussian Operation forces of the Northern and Southern Air Defense Fronts

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reliably covered all railway junctions and bridges and almost all railway stations, even the small ones, to a depth of 150-200 kilometers from the frontline. Mobile air defense groups continued to be used to protect trains en route.

The concentration of bodies of National Air Defense Forces to protect facilities along the front made it possible to use the air defense means of the ground forces to cover formations in the first echelon, which was important to the successful development of operations.

The most intensive combat operations during the summer/fall campaign were conducted by formations of the National Air Defense Forces covering targets in the zones of the Baltic fronts (the 2nd Air Defense Corps) and the Belorussian fronts (the 4th Air Defense Corps and the 81st Air Defense Division) and troops of the Leningrad Air Defense Army. Forward air defense units continued to be maneuvered to provide timely and rapid defense of important targets behind the advancing troops in liberated territory. There was extensive maneuvering from the nation's interior of units and even formations of air defense forces relieved of defending targets which had become inaccessible to the enemy's aviation. Air defense personnel and equipment were frequently maneuvered among the air defense fronts.

During the second half of 1944 the Soviet Supreme High Command took a number of determined steps to reinforce the air defense for groups of forces and installations near the front in the theaters of military operations and to cover important economic areas in Poland, Hungary and Romania. Five corps of National Air Defense Forces were redeployed outside the nation.

In the final campaign Soviet forces conducted a number of offensive operations, concluding with the Berlin and Prague operations. Formations of the 1st operational echelon of National Air Defense Forces played an important role in those operations, their main efforts continuing to focus upon providing reliable cover for lines of communication near the front. They also covered crossings on the Oder, the Vistula and the Dunay and areas of concentration of large groups of enemy forces, and defended a number of important industrial areas outside the Soviet Union--Ploesti, Dombrau, Silesia and others.

In the Berlin Operation the availability of extensive air defense personnel and equipment made it possible to plan interaction between the National Air Defense Forces and air defense units of the 1st Ukrainian and the 1st and 3rd Belorussian fronts not only for specific installations but for entire areas of operation as well. Air defense personnel and equipment of the fronts covered the advancing troops, while formations of National Air Defense Forces covered rear facilities of the fronts, lines of communication and crossings over bodies of water.

During the third period of the war the National Air Defense Forces successfully performed their combat missions. They destroyed 1,045 aircraft, 618 of which were shot down by fighters and 427 by antiaircraft artillery.<sup>13</sup>

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## CONCLUSION

The combat action of the National Air Defense Forces during the war was of great operational and strategic importance and was an integral part of the overall efforts of the Soviet Army and Navy to route the German fascist invaders. They essentially operated as a separate branch of the Armed Forces. That extremely important principle of military art that victory is achieved through the joint efforts of all services of the Armed Forces and branches of troops received practical confirmation. The Communist Party Central Committee, the State Defense Committee and Headquarters, Supreme High Command, were the main organizers of air defense for the Soviet State throughout the entire war.

The main mission of the National Air Defense Forces throughout the war consisted in protecting large administrative-political and industrial areas against air strikes. At least half of all the air defense personnel and equipment was involved in this mission. The air defense of troops and lines of communication was an important task. Protecting the rear of the operating fronts (supply bases, airfields, front crossings and so forth) was one of the tasks of the National Air Defense Forces. Along with performing these main tasks the National Air Defense Forces also had to combat enemy tanks and infantry, to take part in the blockading of encircled enemy groupings and the penetration of defensive zones, to cover naval convoys, to escort bombers and cover airborne landing operations.

Fascist Germany's aircraft had a relatively small radius of operation. It had few long-range bombers and no strategic aircraft at all. As our territory was liberated the relatively small radius of operation of the German fascist aviation permitted us to relieve entire air defense formations from the defense of targets which had become inaccessible to the enemy's aircraft and to redeploy them behind the advancing forces of the fronts. This sort of operational use of the National Air Defense Forces was warranted at the time.

During the war years enemy aircraft are known to have made 304,157 flights in areas defended by the National Air Defense Forces. The National Air Defense Forces destroyed 7,313 aircraft. This included 3,930 aircraft shot down by fighters in air battles and 238 destroyed at airfields, 2,654 destroyed by antiaircraft artillery and 491 aircraft destroyed by antiaircraft machine guns, armored trains, barrage balloons and other air defense means.<sup>14</sup> This was a significant contribution to the struggle for strategic air supremacy. In addition they destroyed a considerable quantity of tanks and infantry, artillery and mortar batteries. The main result of the combat operations of the National Air Defense Forces, however, lay in the fact that they saved many cities, centers of population, industrial enterprises and rail lines of communication from destruction from the air. The enemy did not succeed with its air strikes in disrupting the functioning of the nation's rear or the supplying of the front with everything necessary to conduct the war.

The combat activities of the National Air Defense Forces frequently took on the nature of air defense operations, especially during the strategic defense conducted by the Soviet Army and in the strategic offensive. This occurred in the battles of Moscow and Leningrad in 1941, the battles of Voronezh and Stalingrad in 1942, during the repelling of enemy air strikes against Gor'kiy and Saratov in 1943 and the defense of lines of communication at the Kursk staging area. A new area of Soviet military art--the operational art of the National Air Defense Forces--came into being and underwent development.

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The following were the typical features of the operational art of the National Air Defense Forces: the combat employment of air defense formations and field forces according to a single operational plan; the creation of all-round defense of the nation's large centers, economic areas and individual facilities, the preservation of which was vitally important to the state; the extensive maneuvering of air defense formations; centralized troop control; and close interaction with operational field forces of other services of the Armed Forces.

The continuous quantitative and qualitative growth of the National Air Defense Forces provided the material foundation for the creation and development of their operational art. Thanks to the concern of the Communist Party and the Soviet Government and the selfless labor of the Soviet people the National Air Defense Forces received everything necessary to successfully combat the fascist aviation. The level of their armament and the numerical strength of the National Air Defense Forces almost doubled during the war years.

Determined implementation of the principle of centralization in the combat employment of the National Air Defense Forces and the creation of a separate organizational structure were of exceptional importance to the development of tactical and operational principles underlying their combat employment. This also accounted for the fact that the National Air Defense Forces essentially became a separate branch of the Armed Forces. They had strictly defined missions and a strictly defined combat composition and centralized control from top to bottom. Such combat traditions as a high level of combat readiness, skill in the conduct of combat, speed of action and creativity in the search for unfailing ways to perform the combat mission were born and became solidly established.

By the end of the war the National Air Defense Forces had four fronts, six armies (including one air army), 19 corps (including four air corps), 42 divisions (including 24 air divisions) and five separate air defense brigades. Their armament consisted of around 3,200 fighters, 9,800 medium-caliber antiaircraft guns and more than 8,900 small-caliber guns, 8,100 antiaircraft machine guns, 5,400 antiaircraft searchlights, 1,400 barrage balloons, 230 radar detection stations and 360 fire control radar stations.<sup>15</sup>

Political organs, party and Komsomol organizations always played a large role in the life and the combat activities of the National Air Defense Forces. Party-political work has been conducted in a flexible and purposive manner, using diverse forms and methods, and this has helped to make it highly effective.

Since the end of the Great Patriotic War the aerial weapons of likely enemies have undergone significant quantitative changes. The National Air Defense Forces have undergone constant development and now differ greatly from what they were during the war. The modern National Air Defense Forces are qualitatively new forces. Ground-to-air guided missiles and missile-carrying fighter-interceptors have become their main weapon. Various automatic control systems and radioelectronic equipment are extensively used.

The National Air Defense Forces are always in a state of combat readiness and are reliably guarding the air borders of the Soviet socialist state.

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FOOTNOTES

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CIVIL DEFENSE

BOOK EXCERPTS: CIVIL DEFENSE MEDICAL SERVICE

Kiev ORGANIZATSIYA I TAKTIKA MEDITSINSKOY SLUZHBY GRAZHDANSKOY OBORONY in Russian (signed to press 16 Jul 80) pp 1, 2, 68-69, 3-4, 67

[Title page information, annotation, table of contents, excerpts from Chapter 1-- "Tasks of Civil Defense", and List of Literature from book "Organization and Tactics of Civil Defense Medical Service", by P. P. Babinskiy and N. I. Glebov, Izdatel'stvo ob'yedineniye "Vishcha shkola", 15,000 copies, 72 pages]

[Text] This textbook presents the principles for the organization of civil defense and its medical service in accordance with the program for training nurses of the reserve.

It is intended for female students in higher educational institutions of the humanities and teachers of the Civil Defense departments. It can be used in training nurses in questions on the organization and tactics of MSGO [Civil Defense Medical Service].

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## Chapter I. Principles of USSR Civil Defense

## 1. Civil Defense Tasks

Under conditions of the ceaseless arms race in the imperialist states, the Communist Party and the Soviet state are manifesting tireless concern for strengthening our country's defensive might and improving civil defense.

The main task of civil defense is protection of the population from all contemporary means of destruction. The accomplishment of this mission is attained by the sheltering of the population in protective structures, its dispersal and evacuation from the cities and providing individual and medical protective equipment, and training the population in methods of protection against weapons of mass destruction.

Civil Defense, which was created on the base of local air defense in 1961, is a component part of the system of State defensive measures which are accomplished in peacetime and wartime to protect the population and the national economy against weapons of mass destruction and other enemy means of attack and to conduct rescue and emergency reconstruction work (SNAVR) in stricken areas and in zones of catastrophic flooding. In peacetime, Civil Defense forces are used in the conduct of rescue work in areas of natural disasters and with big production emergencies and catastrophes.

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All state organs, public and cooperative organizations, enterprises, institutions, kolkhozes, and sovkhozes are required to accomplish civil defense measures.

The basic tasks of Civil Defense are:

- protection of the population against weapons of mass destruction and other enemy means of attack;

- improving the operating stability of facilities and branches of the national economy under wartime conditions;

- protection of agricultural animals, plants, food, food raw materials, water sources, and water-supply systems against radioactive, chemical, and bacteriological contamination and the conduct of measures to eliminate the aftereffects of contamination;

- conduct of SNAVR and rendering assistance to the victimized population in stricken areas and in areas of national disasters;

- creation, training, and maintenance of civil defense forces in constant combat readiness;

- universal mandatory instruction of the population in methods of defense against weapons of mass destruction and other enemy means of attack and in actions to eliminate the aftereffects of enemy attack;

- creation and maintenance in readiness of Civil Defense command posts, equipment and systems for warning and communication, observation, and monitoring radioactive, chemical, and bacteriological contamination;

- warning the population of the danger of contamination and catastrophic flooding;

- preparation and conduct of blackout of facilities of the national economy and populated places.

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MILITARY SCHOOLS AND ACADEMIES

BOOK EXCERPTS: HISTORY OF THE FRUNZE MILITARY ACADEMY

Moscow VOYENNAYA AKADEMIYA IMENI M. V. FRUNZE in Russian 1980 (signed to press 26 Feb 79) pp 1, 2, 5, 6, 262, 280

[Title page, information on authors and editors, annotation, table of contents, authors' introduction and concluding comments from book "The M. V. Frunze Military Academy", Voenizdat, 50,000 copies, 280 pages]

[Text] The M. V. Frunze Military Academy

A History of the Military Academy (Order of Lenin, Order of the October Revolution, Order of the Red Banner, Order of Suvorov)

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Illustrations selected by D. F. Lavrov

The M. V. Frunze Military Academy is the first Soviet institute of higher military education and training, and a center of military and scientific thought. It has trained tens of thousands of highly qualified commanders, and has produced Marshals of the Soviet Union, chief marshals, and marshals of branches of service.

This is the book's second edition. It relates the history of the academy, its role in the preparation of military personnel, and in the development of military and scientific thought. It describes how the professorial and instructor staff and the students participated in front line combat during the civil war and Great Patriotic War.

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This edition has been supplemented with new material, in particular, with respect to the role of V. I. Lenin in founding the academy, and on its development during the post-war period. The book is intended for a wide circle of readers.

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## Authors' Introduction

This book relates the history of the first Soviet institute of higher military education and training--the M. V. Frunze Military Academy; Order of Lenin, Order of the October Revolution, Order of the Red Banner, Order of Suvorov. For 60 years now the academy has been preparing highly qualified military personnel of command and staff profile for the Soviet armed forces.

The birth and entire activity of the academy are inherently related to the titanic struggle of the Communist Party in creating and strengthening the Soviet state and its army. The academy was established at the personal direction of V. I. Lenin and his close comrades-in-arms, to include the distinguished statesman, Ya. M. Sverdlov, and the famous military worker of the party, N. I. Podvoyskiy. In the beginning it was called the General Staff Academy of the Workers' and Peasants' Red Army. It was redesignated in 1921 as the Military Academy of the Workers' and Peasants' Red Army, and since 1925 has been known as the Military Academy of the Workers' and Peasants' Red Army imeni M. V. Frunze.

Over the period of its existence the academy has trained hundreds of thousands of officers--ideologically hardened and dedicated to the Soviet people, possessing military knowledge and skills on the level of the latest achievements in military science. Students of the academy have taken part in fierce battles for the freedom and independence of the Soviet Republic over the years of intervention and the civil war. They fought with the Japanese militarists in the Lake Khasan region and on the Khalhin-Gol River, with White Finns on the Karelian Isthmus, led units [chast' and soyedineniye] and formations [ob'yedineniye] into battles and skirmishes against the German fascist invaders and Japanese militarists during the Great Patriotic War.

Former students of the academy include such military leaders as Marshals of the Soviet Union I. Kh. Bagramyan, P. F. Batitskiy, S. S. Biryuzov, S. M. Budenny, L. A. Govorov, F. I. Golikov, A. A. Grechko, A. I. Yeremenko, G. K. Zhukov, M. V. Zakharov, I. S. Konev, P. K. Koshevoy, G. I. Kulik, V. G. Kulikov, R. Ya. Malinovskiy, K. A. Meretskov, K. K. Rokossovskiy, V. D. Sokolovskiy, S. K. Timoshenko, F. I. Tolbukhin, and V. I. Chuykov.

Approximately 700 academy alumni have been granted the title Hero of the Soviet Union for their able troop leadership on the fields of battle, for the courage and heroism they exhibited in defending the Motherland.

In the post-war period, the academy has graduated new contingents of officers who hold responsible posts in today's central and peripheral leadership structure, who command units [soyedineniye, chast'].

The academy has always been and remains one of the centers of development for Soviet military science.

This edition has been supplemented with new material and documentation. The organizational role played by V. I. Lenin in establishing the academy has been more fully presented. His meetings with graduates and instructors of the academy are described in greater detail, and more light is shed on the academy's most recent period of activity.

In writing this book, the authors have used works published at the academy, documents from the archives, and the memoirs of former students and instructors.

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In Place of Conclusion

The M. V. Frunze Military Academy has traversed a great path. Behind it are 60 years of creative striving, the heroic accomplishment and selfless labor of the professorial and instructor staff, of students, workers and other employees of the academy. Established by the Communist Party at the initiative and personal direction of V. I. Lenin, the academy has trained thousands of highly qualified, ideologically hardened officer cadre, who have devoted their entire being to the Motherland. Regardless of adversity or the complexity of tasks they had to face, no matter what difficulties they had to encounter, personnel of the academy have always been, and remain rallied around the CPSU Central Committee and the Soviet government. The academy bears with honor and merit the title of first Soviet academy for commanders.

During the years of peaceful socialist construction, the academy made a significant contribution to working out a number of major issues of military science and the military art, and to accomplishing many practical tasks associated with building the USSR's armed forces.

The Great Patriotic War was a severe test for the Soviet Union as to the correctness of the basic directions, forms and methods of training command personnel for our ground forces. Through heroic activity and capable troop leadership on the fields of battle against a brutal enemy, academy graduates showed the superiority of the Soviet military over the war theories of Hitler's generals, over their adventuristic strategy and tactics. Courage, a readiness for self-sacrifice and loyalty to their military obligation--among many other outstanding moral, combat qualities--were demonstrated by our Red Army commanders in the struggle against fascism. Among these commanders are a great number of academy alumni.

The post-war years presented academy personnel with important missions that had to be fulfilled. This involved first of all the rebuilding of the entire training process in conformity with new military requirements. This meant increased attention devoted to matters of moral, political and psychological hardening of personnel. Finally, it involved concern and attention paid to further development of military science and the military art. The academy managed every one of these tasks, and continues to manage them successfully.

The strength of our army and navy lies in the sage leadership of the Communist Party and in its Leninist Central Committee. This is what comprises the base of the academy's successful operation.

The sacred duty of every general and officer of the academy, of every worker and employee, is to be an active conveyor of Communist Party policy from this time forward, and to follow all aspects of its directives.

History of the academy continues.

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