JPRS L/10445

9 April 1982

USSR Report

MILITARY AFFAIRS

(FOUO 4/82)

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APPROVED FOR RELEASE: 2007/02/09: CIA-RDP82-00850R000500050021-8

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CONTENTS

AIR DEFENSE FORCES

ARTICLES ON AIR DEFENSE FORCES FROM 'KALENDAR' VOINA'

From 1980 Calendar

Moscow KALENDAR' VOINA NA 1980 GOD in Russian 1979 (signed to press 23 Aug 79) pp 121-124

[Unattributed article: "Guarding the Homeland's Sky"]

[Text] National Air Defense Forces Day (Den' Voysk protivovozdushnoy oborony strany) on 13 April is a notable holiday for interceptor pilots, missilemen, radar operators, communicators and other specialists who stand vigilantly on guard over the homeland's sky, for scientists and designers, and for defense industry workers.

The National Air Defense Forces have a grand heroic history, the beginning of which came in the menacing days of the Great October. It was then that the first antiaircraft batteries and fighter aviation detachments were formed at V. I. Lenin's personal instructions to defend Red Piter. They immediately departed for forward positions and entered the fight against White Guard bands and foreign invaders.

The first air defense subunits screened Petrograd, Moscow, Tula, Astrakhan', Kronshtadt, Baku, other industrial and administrative centers, military installations and Red Army troop groupings against enemy air attack. They courageously and selflessly performed combat assignments to defeat the enemy both in the air and on the ground. For example, the 2d Railroad Antiaircraft Battery shot down eight British and American aircraft and killed hundreds of interventionists. For this exploit it was awarded the VTsIK [All-Russian Central Executive Committee] Honorary Revolutionary Red Banner. The very same awards were conferred on the 3d Separate Light Antiaircraft Battery in the Northern Front.

Thanks to concerns of the Communist Party and Soviet government in the years of the prewar five-year plans, the National Air Defense Forces as well as other branches of the Armed Forces were considerably rearmed with new equipment and were strengthened organizationally. Troop personnel were trained to perform missions of screening installations against enemy air attacks both in the border zone and in the depth of the country. This was confirmed by the very first fighting of the Great Patriotic War. Air Defense Troops withstood powerful strikes by fascist Germany's Luftwaffe and managed to safeguard very large industrial, administrative and cultural centers and hundreds of the

country's cities and populated points against disastrous air strikes and support the uninterrupted operation of industry and transport. By their actions they helped maintain high morale in the populace. In the final account the fascist air forces were not able to overcome our air defense system and inflict substantial damage on the economy of the socialist state as a whole. At the same time, enemy aircraft suffered heavy losses.

And not just the aircraft. When necessary the Air Defense personnel would destroy enemy tanks, self-propelled guns and infantry by direct fire. Suffice it to say that during the years of the Great Patriotic War the National Air Defense Forces shot down more than 7,300 aircraft and destroyed over 1,000 tanks, some 1,500 guns and mortars, much other equipment and many enemy personnel. On the approaches to Moscow alone over 1,300 Hitlerite aircraft were destroyed by the famed defenders of the capital's skies and 1,560 divebombers were shot down in the sky over Leningrad.

The famous exploits of Air Defense personnel were recognized by high governmental awards. Three combined units and 26 units became guards units. Many corps, divisions and regiments received honorary designations and were presented orders. Over 80,000 privates, NCO's, officers and generals were recognized by the Motherland with orders and medals, 92 soldiers were honored with the high title of Hero of the Soviet Union, and test pilot A. T. Karpov received this title twice. The present generation of defenders of the Motherland's air borders sacredly reveres the heroic exploits of the frontlinesmen and is multiplying their glory.

The present-day National Air Defense Forces differ fundamentally from what they had been not only in the past war but even in the 1950's. They now have highly effective surface-to-air missile systems, supersonic all-weather fighter-interceptors, reliable radar facilities, diverse electronics, automated control systems and high-speed communications equipment. All this permits the timely detection and destruction of any targets at various altitudes day or night in any weather.

But the people, the soldiers, are the chief force capable of making the formidable weapons victorious. The National Air Defense Forces have 95 percent of servicemen with a class rating and some 70 percent of them are specialists of a high class. National Air Defense Forces personnel consist of 90 percent party or Komsomol members, who are the leaders of all good deeds and who set the tone in combat and political training.

Even in peacetime the National Air Defense Forces are in operational readiness, which is performance of a combat mission of state importance. In a single combat formation with personnel of other branches of the Soviet Armed Forces and fraternal armies of Warsaw Pact nations, they stand vigilantly on guard over the achievements of socialism and in defense of the peaceful creative labor of their people, builders of the communist society.

*National Air Defense Forces Day was established by USSR Supreme Soviet Presidium Decree dated 20 February 1975 and is celebrated annually on the second Sunday of April.

*The USSR air border consists of over 60,000 km with missilemen, interceptor pilots and radar operators vigilantly performing operational readiness duty for its entire extent. They resolutely cut short attempts by imperialist states to probe reliability of our air borders' security.

*On 1 May 1960 a surface-to-air missile battalion commanded by Maj M. R. Voronov shot down the American U-2 spy plane piloted by the aviator Powers with the very first missile. Two months later, on 1 July 1960, Capt A. A. Polyakov, commander of an air flight, shot down an American RB-47 reconnaissance aircraft over Soviet territorial waters in the Barents Sea east of Cape Svyatoy Nos.

*Socialist competition is widespread in the National Air Defense Forces under the mottos: "Hit targets with the first missile," "Second class in the first year of service," "Fight for 3-4 emblems of soldier valor" and others. During this competition the personnel strive for outstanding performance of operational readiness duty and full interchangeability in the teams, and they are significantly bettering the norms of combat work.

*Thousands of Air Defense personnel have been awarded orders and medals in the postwar period for success achieved in combat and political training and for vigilant performance of operational readiness duty. The Moscow Air Defense District was awarded the Order of Lenin and the Baku Air Defense District the Order of Red Banner for a great contribution to strengthening the defensive might of the Soviet state and its armed protection, and for successes in combat and political training.

From 1981 Calendar

Moscow KALENDAR' VOINA NA 1981 GOD in Russian 1980 (signed to press 30 Sep 80) pp 106-109

[Unattributed article: "Sentries of the Homeland's Sky"]

[Text] National Air Defense Forces Day (Den' Voysk protivovozdushnoy oborony strany) is a notable holiday for the vigilant sentries of the Soviet sky. It was established by USSR Supreme Soviet Presidium Decree dated 20 February 1975 and is celebrated annually on the second Sunday of April.

After the victory of the Great October the party of Bolsheviks and V. I. Lenin devoted much attention to problems of national air defense. In November 1917, when forces of the counterrevolution were moving on Petrograd, Vladimir Il'ich Lenin visited the Putilovo Plant to learn how work was going to manufacture armored railway mountings with antiaircraft guns. An armored train left for the front on the following day. That was the beginning of activation of the Putilovo Steel Artillery Battalion--the first air defense subunit of the Soviet Republic. By the spring of 1918 the Red Army already had over 200 antiaircraft (air defense) batteries and 12 fighter aviation detachments.

During the years of the Civil War and foreign intervention air defense personnel fought selflessly at many fronts where the destiny of the young Republic of Soviets was being decided. At that time the 2d and 3d antiaircraft batteries distinguished themselves in particular among air defense units, and they were awarded the VTsIK [All-Russian Central Executive Committee] Honorary Revolutionary Red Banners.

The work of improving air defense in the years of the prewar five-year plans was carried on at rapid rates. New artillery systems, high-speed fighter aircraft and antiaircraft directors were created and entered the troop inventory. In technical specifications they conceded nothing to the best foreign models and surpassed them in a number of indicators.

The Air Defense Forces made a worthy contribution to the defeat of fascist German invaders during the Great Patriotic War. It was their chief mission to defend major administrative-political and industrial centers of the Soviet Union from the air. Combat deeds of the defenders of the Moscow sky were marked with high heroism. They destroyed over 1,300 enemy aircraft.

Many air defense pilots would use the weapon of the bold--the ram--at a critical moment in combat. For example, on 7 August 1941 Jr Lt V. Talalikhin, a pilot in the 177th Fighter Regiment, rammed an enemy bomber at night without searchlight illumination for the first time in the history of aviation. He was awarded the title of Hero of the Soviet Union. Lt A. Katrich was the first in the history of aviation to knock down a Hitlerite aircraft by a high-altitude ram while managing to preserve his own combat craft. He also was awarded the title of Hero of the Soviet Union.

Personnel of air defense of Leningrad, Odessa, Sevastopol', Kiev, Novorossiysk, Kerch' and many other cities fought the enemy valorously. In so doing models of courage and valor were set by air defense pilots Twice HSU Capt A. Karpov, HSU's majors P. Kalyuzhnyy and F. Fedorov, captains V. Bashkirov, K. Titenkov, M. Yevteyev and S. Litavrin, Sr Lt V. Kharitonov, junior lieutenants M. Zhukov, S. Zdorovtsev, A. Sevast'yanov and many others.

During the Great Patriotic War the National Air Defense Forces dealt a heavy loss on the ground enemy, destroying over 7,000 enemy aircraft, more than 1,000 tanks and armored vehicles, some 1,500 guns and mortars and much more combat equipment and enemy personnel.

The famous exploits of our fighting men and commanders have been recognized with high governmental awards. Over 80,000 privates, NCO's, officers and generals of the National Air Defense Forces were decorated with orders and medals, 92 persons received the title Hero of the Soviet Union, and 34 of them are listed eternally on the rolls of military units. Three combined units and 26 units of the National Air Defense Forces became guards units.

Today's generation of defenders of the homeland's sky is sacredly following the heroic traditions of the frontlinesmen. All the best born in the flame of battle has been adopted. High ideals, allegiance to military duty and the great cause of the Party of Lenin, and fiery Soviet patriotism and internationalism--all these and other qualities needed by the air defense

fighting man characterize today's soldiers. Following the example of their fathers and older brothers, they are persistently mastering the sophisticated equipment and weapons and strengthening discipline and efficiency.

The National Air Defense Forces include various combat arms--surface-to-air missile troops, fighter aviation and radiotechnical troops. They are outfitted with the latest means of defending the national air borders through the will of the party and people. The powerful and effective missile, aviation and radar equipment is capable of detecting and destroying all existing and future means of enemy air attack at various altitudes, day or night, in any weather, and with heavy electronic countermeasures.

The people are the chief strength of the Air Defense Forces as they are of the Armed Forces as a whole, the creators of their high combat readiness. Young people now are being called up for the National Air Defense Forces and among them up to 70 percent are youths with a higher or secondary education. Utterly dedicated to the party and having high moral-combat qualities, they are persistently learning sophisticated equipment and vigilantly performing operational readiness duties. Among them 90 percent are party or Komsomol members. Seventy percent of the personnel are rated specialists and every other air defense soldier is outstanding in combat and political training.

Inspired by our party's resolutions, air defense personnel as well as all of the Armed Forces are directing their knowledge, experience and energy at a further improvement of combat schooling and an increase in combat readiness.

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In 1954 the National Air Defense Forces were made an independent branch of the Armed Forces. The command and control of them exercised by the CIC of the National Air Defense Forces and Deputy Minister of Defense of the USSR is strongly centralized. Since May 1954 this position has been held in succession by Mar SU L. A. Govorov, Mar SU S. S. Biryuzov, Mar Avn V. A. Sudets and Mar SU P. F. Batitskiy. The present CIC of the National Air Defense Forces is Mar Avn A. I. Koldunov.

From 1982 Calendar

Moscow KALENDAR' VOINA NA 1982 GOD in Russian 1981 (signed to press 31 Jul 81) pp 106-108

[Unattributed article: "Always on the Alert"]

[Text] Personnel of the Air Defense Forces (Voysk PVO), who are celebrating their annual holiday on the second Sunday of April, are worthily performing their duty in the same combat formation with personnel of other branches of the Armed Forces. Created by personal direction of V. I. Lenin, the Air Defense Forces covered a grand path of development and victories. Since the end of 1917 when the Putilovo Steel Antiaircraft Battalion was activated until our days they have been and remain a reliable shield screening the homeland's sky.

Air defense fighting men successfully defended the most important economic centers of the young Soviet Republic from air attacks in the fiery years of Civil War and foreign intervention.

Thanks to steadfast concern by the party and government air defense units were outfitted with the very latest aircraft, air defense guns and machineguns, fire control directors and means of surveillance and communications (for those times) in the period of peaceful construction.

The air defense personnel's contribution to the victory over fascist German invaders and Japanese militarists at fronts of the Great Patriotic War is especially significant. In planning the Blitzkrieg against the USSR, Hitler's command attached primary importance to the factor of surprise and to winning air superiority. According to its plans the massive bombing strikes against our country's cities, troops, airfields and lines of communication were to paralyze the defenders' will and provide for unhindered advance by the Wehrmacht's tank and mechanized columns.

But the enemy erred severely. Air defense personnel together with Air Force fighter aviation not only successfully withstood fascist aviation in the very first days of the war, but even inflicted heavy damage on it. Pilots of the 123d Figher Aviation Regiment fought selflessly on approaches to Brest. On the morning of 22 June 1941 they shot down 30 aircraft in fighting against a numerically superior enemy. Lt P. Ryabtsev, a deputy commander of this regiment, rammed a fascist buzzard, and pilot Lt I. Kalabushkin destroyed five enemy aircraft.

History has preserved many similar examples of the heroism of air defense personnel. It was no accident that the first persons awarded the title of Hero of the Soviet Union in those days were air defense fighter pilots S. Zdorovtsev, M. Zhukov and P. Kharitonov.

The air defense of our Motherland's capital proved insurmountable for the enemy. From July through December 1941 the Hitlerites undertook over 8,000 sorties against Moscow. Our valorous air defense pilots and gunners shot down over 1,300 aircraft. Jr Lt V. Talalikhin, Lt A. Katrich and Lt V. Kovalev, who rammed German aircraft, distinguished themselves in fighting for the capital. Air defense men of the platoon commanded by G. Volnyanskiy, who knocked out 14 enemy tanks in one fight, performed an exploit for the glory of the Motherland here.

Air defense personnel acted successfully in fighting for Leningrad, Stalingrad, Kiev and Odessa, in the Kursk Bulge, on the Dnepr, at Kerch' and Novorossiysk, in the Battle of Berlin and also in defeating the Japanese militarists.

Over 80,000 air defense personnel were awarded orders and medals for combat exploits and 93 of them received the title of Hero of the Soviet Union. The present generation of air defense personnel sacredly preserves and augments the grand traditions of the frontlinesmen. Air Defense Forces today are outfitted with the most sophisticated means of combating the air enemy thanks to the constant concern of the party and government for strengthening the combat might of the Armed Forces.

Air Defense Forces personnel are utterly devoted to the party and their people and have a high general educational and specialized training. Every third soldier is outstanding and there are almost 70 percent of specialists with a high rating. Party and Komsomol members, who make up 90 percent of the personnel, are in the front ranks of competitors for implementing resolutions of the 26th CPSU Congress.

The importance of vigilance and constant combat readiness is growing in the present complex international situation where militant circles of imperialism, and U.S. imperialism above all, are attempting to disrupt detente, build up the arms race and interfere in the internal affairs of other countries. Air Defense personnel always are on the alert and always ready to rebuff any aggressor.

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CSO: 1801/096

EXCERPTS FROM BOOK ON CIVIL DEFENSE FOR THE POPULATION

Moscow GRAZHDANSKAYA OBORONA in Russian 1981 (signed to press from matrix 23 Mar 81) pp 1-25, 81, 107, 109, 115, 117-118, 123, 127, 138, 153, 179-188, 192

[Information on authors, annotation, table of contents, introduction, chapters 1, 2 and 9 and excerpts from chapters 3-8 from book "Civil Defense", approved by Chief of USSR Civil Defense as a textbook for training the population, by A. P. Zaytsev et al, edited by V. I. Korolev, Order of Labor Red Banner USSR Ministry of Defense Voyennoye izdatel'stvo, 100,000 copies, 192 pages; passages enclosed in slantlines printed in boldface]

[Excerpts] Author's collective: A. P. Zaytsev, A. V. Korzhavin, A. I. Korneyev, A. M. Kostrov, F. G. Malanichev, D. I. Mikhaylik, Yu. A. Sipaylov, A. A. Chugasov and A. N. Chulkin.

This textbook, intended for training the population in Civil Defense matters, tells in a popular science form about the principles of CD organization, its missions, the population's CD obligations, methods of protection against mass destruction weapons, and rules for the population's conduct in various centers of destruction and during natural disasters. It also devotes attention to features of the protection of children, methods of giving self-help and mutual help for injuries of a varying nature, and moral-political and psychological training of the population.

Table of Contents

Introduction

The Communist Party, the Soviet state and CPSU CC General Secretary, Chairman of the Presidium of the USSR Supreme Soviet, Comrade L. I. Brezhnev are personally waging a consistent, steadfast struggle for implementing the Peace Program proclaimed by the 24th and 25th party congresses and developed by the 26th CPSU Congress. There is no more important task on an international plane for the Communist Party and Soviet state than to defend the peace. Comrade L. I. Brezhnev emphasized at the 26th CPSU Congress: "The Soviet Union and its allies now more than ever before are the main support for peace on earth."

But the international situation became seriously complicated at the borderline of the 1970's and 1980's through the fault of imperialist circles. There was an abrupt increase in the aggressiveness of imperialism's politics, and that of American imperialism above all. Not wishing to reckon with realities of the modern world, leaders of the NATO militaristic bloc headed by the United States set a course for changing the military balance existing in the world in their own favor and to the detriment of the Soviet Union and the socialist community as a whole, and to the detriment of international detente and the security of nations.

Hence imperialism's line toward intensifying the arms race, organizing provocations against socialist and other independent states, and creating centers of tension; and hence NATO's militaristic activeness.

A rapprochement of aggressive circles of the West, and the United States above all, with the Chinese leadership is occurring on an antisoviet basis inimical to the cause of peace. The partnership of imperialism and Beijing hegemonism represents a new and dangerous phenomenon in world politics.

The Communist Party of the Soviet Union is steadily continuing a course toward preserving and developing international detente. At the same time the CPSU believes that the intrigues of imperialism and other enemies of peace require constant vigilance of Soviet citizens and a comprehensive strengthening of our state's defenses so as to disrupt imperialism's plans for attaining military superiority and carrying out a world diktat.

As stated in the CPSU CC Report at the 26th party congress, "the party and state have not lost sight for a single day of matters of /strengthening the defensive might of the country and its Armed Forces."/

Now the capabilities of modern strategic means of attack, which are practically unlimited in range and which carry mass destruction weapons, bring us face to face with the need to mobilize the country's entire population to take a most active part in carrying out measures for its protection.

The purpose of this textbook is to familiarize the population with the history of the creation and development of USSR Civil Defense and to tell about principles of its organization, about its missions, the population's Civil Defense duties, methods of protection against mass destruction weapons, and rules for

conduct in various centers of contamination and during natural disasters. It also devotes attention to features of the protection of children, methods of giving self-help and mutual help for injuries of a varying nature, as well as moral-political and psychological preparation of the population for actions under difficult conditions of modern warfare.

The textbook was drawn up in conformity with Civil Defense training programs for the population approved by the Chief of USSR Civil Defense.

Chapter I - From the History of Civil Defense

In the article entitled "The Fall of Port Arthur," written by Lenin back in 1905, he stressed that modern wars are waged not by mercenary armies, but by peoples. Taking note of one other important feature of modern wars during the years of civil war in our country, Lenin pointed out that "a strong, organized rear is necessary to wage war /in a genuine manner/."[1] Consequently, in order to undermine the capability of armed forces to conduct combat actions the belligerents will strive to disorganize to the maximum the work of the enemy rear.

The capability for such disorganization of the rear appeared for the first time during the World War of 1914-1918, when combat aviation capable of delivering strikes against populated points in the enemy rear was employed during military actions. This circumstance made it necessary to organize the protection of major cities against air strikes. The population began to be included in activities intended to assure protection of the population and industrial enterprises against air attack and the rapid mop-up of the aftermath of air raids, in addition to active measures of air defense carried out by troops. This led to the creation of local air defense systems relying on the peaceful urban population.

The foundation of Civil Defense in the Soviet Union--up until 1961 it was called Local Air Defense or MPVO--began to be laid in the very first years of establishment of Soviet power. The first MPVO measures were carried out in Petrograd in March 1918 following the first aerial bombardment of the city by German aircraft. Residents of a number of other major cities were included in MPVO measures during the Civil War when the threat of air raids arose.

Based on Civil War experience and the growing military significance of aviation, the Soviet government issued a number of decrees, beginning in 1925, aimed at setting up and strengthening national air defense.

In 1925 the USSR SNK [Council of People's Commissars] promulgated the decree "On Air Defense Measures at Building Sites in the 500-Kilometer Border Zone." Within the limits of this zone, determined by the radius of action of combat aviation of that time, it was directed that appropriate engineering-technical measures for protection of the population and national economic installations be carried out in the course of new construction.

1. V. I. Lenin. "Polnoye sobraniye sochineniy" [Complete Collected Works], XXXV, 408.

The following year the USSR Council for Labor and Defense (STO) issued a decree making it mandatory to conduct air defense measures on railroads within the threatened zone. In particular shelters were to be built and special antiair and antichemical defense formations set up at railroad stations.

In 1927 the USSR Council for Labor and Defense promulgated the decree "On Organization of Air and Chemical Defense of USSR Territory." In conformity with this decree the country's territory was divided into a border (threatened) zone and a rear. All cities in the border zone began to be designated air defense point cities. Overall direction of air defense measures was made the responsibility of the Narkomat [People's Commissariat] for Army and Navy Affairs. That same year the USSR STO made it mandatory for the Narkomat for Army and Navy Affairs to set up special courses training leadership cadres of air and chemical defense for the needs of civilian narkomat's. Such courses were set up at Moscow, Leningrad, Baku, Kiev and Minsk.

The first Statute on USSR Air Defense approved in 1928 by the Narkom [People's Commissar] for Army and Navy Affairs stated that air defense had the purpose of protecting the USSR against air attacks, using for this purpose personnel and means belonging both to the military department and to civilian departments and corresponding military public organizations. In connection with this statement of the issue, the need arose to set up training of the population in protection against air and chemical attack. Osoaviakhim [Society for Assistance to Defense and Aviation-Chemical Industry of the USSR and the Soviet Red Cross were chiefly involved in performing this task. They included hundreds of thousands of local air defense activists in the training.

Mass training of the population in air and chemical defense permitted the creation of over 3,000 voluntary MPVO formations by 1932. Over 3.5 million persons were provided with protective masks and several thousand bomb shelters and gas shelters were prepared for sheltering the population in the threatened zone. Measures were taken for blacking out cities in the threatened zone and to create high-speed systems for warning the population about the threat of attack.

Thus the necessary organizational and material preconditions for setting up the unified statewide system of Local Air Defense in the country had been created by 1932. Meanwhile the rapid increase in combat aviation's capabilities to deliver strikes against targets in the rear demanded a further improvement in the organization of protection for the population and the national economy.

On 4 October 1932 the Council of People's Commissars approved a new Statute on USSR Air Defense, under which local air defense was made an independent component of the entire air defense system of the Soviet state. That date is considered the beginning of the existence of an all-union MPVO.

The basic missions of MPVO were to warn the population about the threat of air attack and notify it when the threat was past; to camouflage populated points and national economic installations against air attack (especially blackouts); to mop up the aftermath of air attack, including an attack involving toxic

chemical agents; to prepare bomb shelters and gas shelters for the population; to organize medical first aid and medical assistance for victims of an air attack; to give veterinary aid to injured animals; to maintain public order and ensure observance of the regime established by organs of authority and MPVO in the threatened areas. All these missions were to be accomplished by forces and means of local organs of authority and national economic installations, which thus determined the designation of that system of air defense.

MPVO staffs, services and formations were formed only in those cities and at those industrial installations which might be within the radius of action of enemy aircraft. Air defense and chemical protection measures were performed to the full extent in such cities and at such installations.

The MPVO organizational structure was determined by its missions. Inasmuch as it was a component of the overall national air defense system, overall direction of MPVO in the country was carried out by the Narkomat for Army and Navy Affairs (from 1934 by the USSR Narkomat of Defense) and, within the limits of military districts, by the district command element.

Cities and the largest enterprises were air defense points and installations respectively. The chief of an air defense point was appointed by the USSR Narkom for Defense from among officers and generals, and the chief of an air defense installation was the enterprise director. Staffs were set up in air defense point cities, and they were control entities of the air defense point chief.

Appropriate forces were organized to accomplish MPVO missions: MPVO military units, subordinated to the military district command elements; and voluntary MPVO formations--sector teams in city rayons, installation teams at enterprises, and self-defense groups under house managements. MPVO formations were put together based on a figure of 15 persons per 100-300 workers and employees at enterprises and establishments and per 200-500 residents under house managements. Sector teams consisted of various specialized formations and the self-defense groups usually consisted of six subunits: medical, emergency restoration, fire protection, protection of order and lookout, decontamination, and shelter services. Sector teams and self-defense groups were subordinate to the chief of a militia office.

Training of MPVO cadres was accomplished at special MPVO courses, and population training was accomplished through a training network of public defense organizations.

Beginning in 1935 training of the population in air defense and chemical protection assumed even broader scope with establishment of test norms for the "Ready for PVKhO (Air and Chemical Defense)" badge. Population training was improved in voluntary MPVO formations. By decree of the USSR VKP(b) [All-Union Communist Party (Bolshevik)] CC and SNK dated 8 August 1935, preparation of the population for passing the norms for the "Ready for PVKhO" badge and organization of MPVO formations were announced as missions for Osoaviakhim.

Norms for the "Ready for Medical Defense (GSO)" complex for adults and the "Be Ready for Medical Defense (BGSO)" complex for schoolchildren were introduced for the purpose of improving forms used for disseminating medical and defense knowledge and skills. Responsibility for introducing these norms was placed on committees of the Union of Societies of the Red Cross and Red Crescent (SOKK i KP).

The USSR SNK decree dated 20 June 1937 entitled "On Local (Civil) Air Defense of Moscow, Leningrad, Baku and Kiev," was an important milestone on the path of strengthening MPVO. It outlined a number of new steps for strengthening local air defense in these cities. In particular, direct management of MPVO in these cities was made the responsibility of local organs of authority, the soviets of workers' deputies, and the positions of deputy chairmen for MPVO of ispolkoms of soviets of workers' deputies were established as part of the ispolkoms of city soviets of these cities.

The creation and training of various MPVO services were completed not long before the beginning of the Great Patriotic War of 1941-1945, the services being: warning and communications, medical-sanitary, protection of order and safety, shelters, transportation, trade and public nourishment, water supply and sewers, reconstruction of buildings, roads and bridges, and light discipline. Services were formed on the basis of corresponding enterprises and organizations of urban entities of authority. A wide range of specialists who had considerable supplies and technical resources at their disposal participated in their work. By this same time all city enterprises in the threatened zone were local air defense installations, and T/O&E positions of deputy enterprise directors for MPVO had been instituted at especially important installations.

And so by the beginning of the Great Patriotic War much work had been done to prepare the population and cities of the threatened (border) zone for air defense and chemical protection. Suffice it to say that the entire population of the threatened zone had an idea about methods of protection against means of air attack, and a large number of protective masks had been stockpiled for city residents.

In connection with the local character of the work of MPVO entities and forces and the need to concentrate the efforts of the USSR Narkomat for Defense on preparing the Armed Forces for the war approaching the USSR's borders, USSR SNK decree dated 7 October 1940 transferred direction of MPVO to the USSR Narkomat of Internal Affairs, within which the Main Administration of MPVO was formed.

On 22 June 1941 all MPVO staffs, services and forces were placed in combat readiness. The very first days of the war convincingly demonstrated the high readiness of the MPVO system and simultaneously uncovered certain deficiencies which were quickly remedied.

The USSR SNK Decree dated 2 July 1941 entitled "On Universal Compulsory Training of the Population for Air Defense" played an important part in mobilizing

MPVO for successful accomplishment of tasks which arose in connection with fascist Germany's attack on the Soviet Union. In conformity with this decree, all Soviet citizens from ages 16 to 60 were to master requisite knowledge in MPVO. In addition, men from ages 16 to 60 and women from 18 to 50 were obligated to be in self-defense groups. I. V. Stalin's program speech of 3 July 1941, which pointed out the need for immediate adjustment of local air defense, played no less important a role in activating MPVO. Carrying out party and government demands, the USSR Ministry of Internal Affairs approved the Statute on Self-Defense Groups of Residences, Establishments and Enterprises on 3 July 1941.

MPVO swiftly gathered strength during the war years. Its formations numbered over six million persons, sector formations were reorganized into city military units of MPVO, and the number of engineer-chemical defense military units increased considerably.

The measures accomplished by the party and government for strengthening MPVO fully proved themselves. MPVO forces successfully coped with their mission in the war years. They mopped up the aftermath of over 30,000 fascist air raids, prevented over 32,000 serious accidents at national economic installations in cities, and disarmed 430,000 aerial bombs and almost 2.5 million artillery and mortar rounds. The efforts of MPVO formations and units put out 90,000 objects which caught fire or conflagrations. In short, in coordination with Armed Forces units, MPVO made a substantial contribution during the war to the job of protecting the population and national economy against fascist air raids and in a number of instances its forces also took part in repulsing attacks by enemy ground units against cities.

MPVO steadily continued to improve in the postwar period based on the extensive experience of the Great Patriotic War. A new Statute on Local Air Defense was adopted which reflected all positive experience of preceding MPVO work. MPVO missions and organizational structure were updated.

The appearance of nuclear weapons in the arsenal of the U.S. Armed Forces and rapid build-up of nuclear stockpiles forced another revision of MPVO organization in 1956. For the first time MPVO was designated as a system of statewide measures carried out for purposes of protecting the population against modern means of destruction, for creating conditions ensuring reliable operation of national economic installations in an enemy air attack, and for performing rescue and urgent emergency restoration work. Although nuclear weapons were not mentioned, the main efforts of the system of MPVO measures were aimed at organizing protection specifically against them.

MPVO was given the responsibility for organizing training for the country's entire population in air, atomic, chemical and bacteriological defense. The USSR Minister of Internal Affairs remained the Chief of MPVO. MPVO chiefs in union and autonomous republics were the ministers of internal affairs, but overall direction of MPVO activities was made the responsibility of councils of ministers of union and autonomous republics and, in oblasts, krays, cities, rayons, ministries and departments, the responsibility of ispolkoms of soviets of workers' deputies, the ministries and the departments.

Formations of republic, kray, oblast and rayon MPVO services--detachments, brigades, teams and so on--became the most massive MPVO forces. Creation of self-defense groups was envisaged in housing areas of cities and settlements.

Methods for protection of the population and national economic installations also were revised.

The adventuristic politics of the United States and NATO countries, the forced development of strategic nuclear missile forces of the United States and other imperialist powers, as well as the increased capabilities of means for delivery of nuclear weapons made the further improvement not only of the Armed Forces, but also of the system of measures for protection of the population and national economy necessary in the late 1960's. In July 1961 MPVO was transformed into Civil Defense. The organizational structure of USSR Civil Defense approved that same year began to meet the heightened demands on organizing protection of the country's rear to the greatest extent.

Under present-day conditions, when the country's rear has become one of the primary targets of armed attack, Civil Defense becomes an important factor assuring the state's defensive capability.

Chapter II - Missions and Organization of Civil Defense. Civil Defense Duties of the Population

USSR Civil Defense is a component part of the system of statewide defense measures taken in peace and wartime for protecting the country's population and national economy against enemy mass destruction weapons and other modern means of attack, and for performing rescue and urgent emergency restoration work in stricken areas and zones of catastrophic flooding.

Civil Defense is called upon to perform its mission together with the USSR Armed Forces. In accomplishing defensive measures, Civil Defense must ensure maximum reduction in the effect of enemy weapons when they are employed against cities, enterprises, railroad junctions and other important installations.

Chief of USSR Civil Defense and Deputy Minister of Defense of the USSR Arm Gen A. T. Altunin states: "We have very convincing and extensive facts indicating that with a good arrangement of civil defense and capable accomplishment of the entire complex of statewide measures for protection of the population and economy, it is possible to achieve a considerable reduction in the disastrous consequences of the employment of means of mass destruction."[1]

USSR Civil Defense is organized so that practical accomplishment of its measures is possible in all necessary instances, immediately and to the full extent corresponding to the situation.

1. A. T. Altunin, "Civil Defense Today," in the collection "Lyudi i dela grazhdanskoy oborony" [Civil Defense People and Affairs], Moscow, Voyenizdat, 1974.

1. Civil Defense Missions

The chief Civil Defense mission is protection of the population.

People represent the supreme value of our socialist state and assuring the safety of Soviet citizens is the most important purpose of all our defense activities. Success in accomplishing all other missions both of civil defense and the state's defense in general depends wholly on successful accomplishment of the task of protecting the population.

Population protection and preservation of people's lives represent the most humane goal of USSR Civil Defense, which meets the workers' fundamental interests.

"Everything created by the people must be protected reliably." This familiar thesis written in CPSU resolutions determines the following civil defense mission: ensuring stable operation of installations and sectors of the national economy under wartime conditions.

Stable operation of installations and sectors of the national economy is taken to mean maintaining their capability to manufacture established products in the volumes and products lists prescribed by appropriate plans (or, for installations and sectors not producing physical assets--transportation, communications and so on--maintaining their capability of performing their functions) during war.

One other important civil defense mission--performing rescue and urgent emergency restoration work (SNAVR) in stricken areas and zones of catastrophic flooding--is most closely linked with the missions indicated above.

The main purpose of SNAVR is to rescue the population stricken during enemy attacks and to give victims necessary assistance. Without successful performance of such work it is impossible to adjust the work of installations and sectors of the national economy subjected to enemy attacks and it will be impossible to create normal conditions for vital activities of the population of stricken cities and rayons.

Rescue and urgent emergency restoration work usually includes reconnaissance of stricken areas; the search for and rescue of the stricken population and giving the population necessary assistance; fighting fires; localization and mopping up after accidents in national economic installations; personal decontamination of the people; decontamination of grounds, structures, equipment, food, clothing and footwear when contaminated by radioactive, toxic chemical or bacteriological substances.

2. Organizational Principles and Forces of Civil Defense

The leading role of the Communist Party of the Soviet Union in carrying out all measures connected with the protection of our socialist Motherland against imperialist aggression is a fundamental principle in organizing civil defense

in our country. The CPSU Central Committee and Soviet government constantly give unremitting attention to the development of civil defense and they determine the basic principles of its organizational development and the character and extent of its activities. As stated in Article 14 of the Law on the USSR Council of Ministers adopted by the 9th Session of the USSR Supreme Soviet, 9th Convocation, the USSR Council of Ministers exercises overall direction of USSR Civil Defense.

The organizational structure of civil defense in the country is determined by the system of statewide structure, the structure of entities of state authority and state control, and the entire tenor of our social life. Civil defense is organized to assure the most favorable use of human and physical resources and provides for successful accomplishment of its missions with least separation of people from their daily production activities.

Civil defense is organized on a territorial-production principle. This means that the planning and conduct of all its activities is accomplished both through channels of soviets of people's deputies and through the departments and establishments which manage production and economic activities.

Civil defense is directed by republic, kray and oblast soviets of people's deputies in union and autonomous republics, in krays and in oblasts. With respect to kray and oblast soviets, for example, this is mentioned in Article 21 of the Law on Basic Powers of Kray and Oblast Soviets of People's Deputies adopted by the 3d Session of the USSR Supreme Soviet, 10th Convocation.

Rayon and city soviets of people's deputies bear responsibility for the status of civil defense on the territory of rayons and cities in conformity with the USSR Supreme Soviet Presidium Ukase dated 19 March 1971, "On Basic Rights and Duties of Rayon and City Soviets of Workers' Deputies (and of Rayon Soviets in Cities)." This responsibility of local soviets of people's deputies also is fixed in the USSR Constitution (Basic Law). Article 146 of the Constitution states that they "assist in strengthening national defenses."

Chairmen of ispolkoms of soviets of people's deputies exercise direct leadership of civil defense in cities, settlements and rural soviets. These persons are civil defense chiefs and bear responsibility for carrying out measures for protection of the population and national economic installations against mass destruction weapons to an appropriate extent and within established time periods.

The fact that executive entities of Soviet power head civil defense beginning with its local elements gives civil defense an exceptionally goal-oriented, authoritative and effective character.

All practical defense work in union and autonomous republics and in krays, oblasts, rayons, cities and the rural area are accomplished under the direct leadership of party entities.

Nonparamilitary formations comprise the main civil defense forces.

There are two kinds of nonparamilitary civil defense formations--general purpose formations and services. The former are intended for independent conduct of rescue and urgent emergency restoration work and the latter for performing special missions and reinforcing general purpose formations. In addition, there may be installation and territorial formations. The installation formations usually perform SNAVR at their own installations and territorial formations are intended for performing work at the most important installations (independently or jointly with installation formations).

In addition to performing rescue and emergency restoration work in stricken areas and zones of catastrophic flooding, civil defense forces may be used to combat massive forest fires and for mopping up the aftermath of natural disasters and major accidents.

3. Civil Defense at a National Economic Installation

National economic installations--industrial and other enterprises, various organizations, establishments and educational institutions, kolkhozes, sovkhozes and other agricultural production installations--have an important role to play in organization of civil defense.

National economic installations are the basic link in the civil defense system. The bases of all civil defense activities are laid down here, with an entire complex of measures carried out for protection of workers and employees, for ensuring stability of installation operations in wartime, and for training forces to perform rescue and urgent emergency restoration work.

A block diagram of civil defense organizations at a national economic installation is given in Fig. 1.

Responsibility for the organization and status of civil defense at a national economic installation rests with its director, and in conformity with a party and government resolution he is the installation's civil defense chief. His orders and instructions on performing civil defense measures are mandatory for all installation officials.

At the present time our country essentially has not one national economic installation where civil defense is not organized. If a plant or factory, establishment or educational institution, kolkhoz or sovkhoz is headed by a director who is very knowledgeable both in his production area and in the other vitally important matters and is able to take a state approach to any matter, civil defense tasks also are accomplished there confidently and correctly.

A deputy is appointed to assist the installation civil defense chief (several deputies may be appointed at major installations).

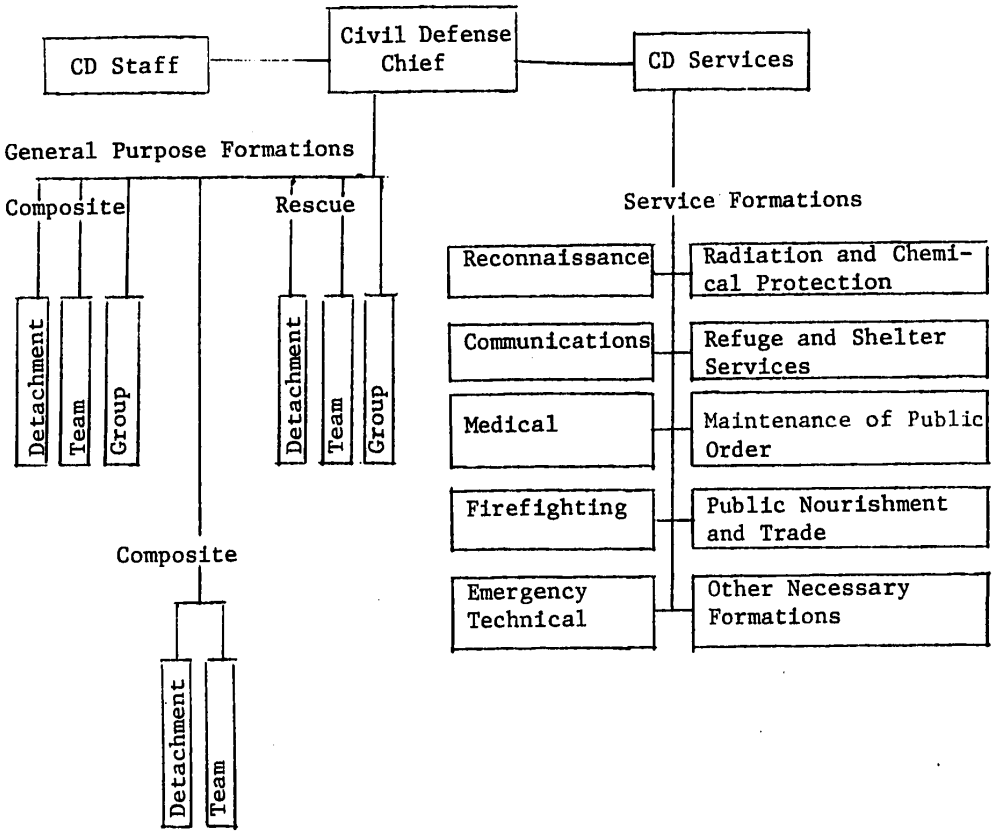

Fig. 1. Block diagram of civil defense organization in national economic installation.

General purpose formations are formed in a differentiated manner: All indicated detachments may be set up at major installations; at other installations there may be some of the detachments and teams or groups also may be formed.

The CD chief's group also usually includes the party committee secretary (director of the party organization), local committee chairman (director of the trade union organization), and Komsomol committee secretary (director of the Komsomol organization) at the installation.

This composition of the installation's civil defense leadership (command element) gives it great authority and competency. The fact that the installation civil defense chief relies on the assistance of party and public--trade union and Komsomol--organizations in managing civil defense makes it easier to accomplish civil defense missions and permits the more qualified and efficient implementation of its measures.

A CD staff is set up under the installation CD chief. This is the control entity of the CD chief and organizer of all practical activities in civil defense matters at the installation. Depending on the size and importance of the installation it is manned by T/O&E civil defense workers and from among appointed persons who are not relieved of their main duties. The staff organizes and performs its work on the basis of decisions by the installation CD chief.

The CD chief of staff is the installation CD chief's deputy, or the first deputy in the presence of other deputies. He is given the right to issue orders and instructions on civil defense matters at the installation in the name of the CD chief.

The following CD services also are set up at national economic installations: warning and communications, medical, firefighting, emergency technical, radiation and chemical defense, refuges and shelters, power supply, light discipline, maintenance of public order, transportation, and logistics. Other services also may be set up where necessary and with the presence of an appropriate facility. In addition a service for protection of agricultural animals and plants is set up at agricultural installations. The purpose of these services is to prepare necessary personnel and means for performing SNAVR and to direct these forces in their performance of the work indicated. Services are headed by the directors of corresponding divisions, shops, brigades and other installation subunits on which their activation is based.

CD staffs and services may not be set up at small installations, with their function in carrying out necessary activities performed by structural control entities of these installations.

CD forces of national economic installations are nonparamilitary CD formations. All able-bodied persons--workers, kolkhoz members and employees--may be made a part of such formations in conformity with existing law.

Formations are staffed according to the production principle by shops, divisions, departments, brigades and other sectors of production. Consideration is given to the specific features of production, work skills of workers, employees and kolkhoz members, as well as the capability of outfitting formations with equipment and gear used in production. Formations usually are set

up in production sectors where there are the most workers (employees, kolkhoz members) and in such a manner that the work shift or brigade is an independent formation or a subunit thereof.

The majority of installations staff rescue detachments, teams or groups consisting of teams, groups and sections respectively, and also consisting of medical aid teams. These formations are given the responsibility of searching for victims, moving them from under debris, from demolished buildings and collapsed protective structures, evacuating the injured and giving them medical first aid. Formations are outfitted with equipment necessary for the rescuers to clear obstructions, open up collapsed structures and perform other work involving the rescue of people, and the formations also may be reinforced with such equipment from other formations.

Large industrial enterprises additionally may set up composite detachments (teams, groups) and composite work mechanization detachments (teams). In addition to rescuing people, these formations are called upon to perform urgent emergency restoration work, extinguish fires, and decontaminate sectors of terrain, transportation and various objects, for which they are outfitted with appropriate equipment.

Composite detachments (teams, groups) are the most mobile and well equipped formations of enterprises. They are intended for accomplishing missions both in wartime and peacetime and always must be ready to perform SNAVR in stricken areas and to mop up the aftermath of natural disasters and major accidents.

In addition to these general purpose formations, the following service formations are set up at installations: reconnaissance groups (sections), radiation and chemical observation posts, communications groups (sections), medical aid team detachments (medical aid teams) and medical stations, firefighting teams (squads, sections), emergency technical teams, radiation and chemical defense teams (points, stations), refuge and shelter service sections, public order maintenance teams (groups), public nourishment and trade subunits, and others.

In establishments, organizations and educational institutions the formations are set up basically to carry out measures for rescue of people at their own installations. Higher educational institutions additionally may set up rescue formations, reconnaissance groups (sections), public order maintenance teams (groups) and other specialized formations based on the kind of educational institution, and formations for employment under city and rayon CD plans. Rescue teams (groups), radiation and chemical observation posts, and medical aid stations may be formed from students of secondary educational institutions. Schoolgirls of the 9th and 10th grades of secondary schools may be used as medical aid team members for attending patients in medical establishments.

Nonparamilitary formations--primarily emergency technical groups (sections), radiation and chemical observation posts, shelter and refuge service sections, and public order maintenance groups (sections)--also may be set up in residential sectors of cities and in workers' settlements, and under ZhEK's [housing and housing-maintenance office] and housing managements.

Composite teams (groups) and medical aid teams intended both for rescue work at their own installations in case they are stricken and for giving assistance to cities subjected to enemy nuclear strikes are set up at kolkhozes, sovkhozes and other agricultural production installations. Teams (brigades) for protection of agricultural animals and teams (brigades) for protection of agricultural plants (on the basis of farms and brigades) also are formed there. The detachments (teams) formed from schoolchildren may take an active part in preparations for protection of stock raising farms and in fighting various pests of agricultural plants. Other formations may be set up on the basis of agricultural installations as well, such as reconnaissance and firefighting formations, for use in the interests both of the installations themselves and of stricken cities.

Agricultural production installations, primarily those located in suburban zones, also will have to accomplish such tasks as the accommodation of enterprises and establishments and nonparamilitary formations evacuated from cities, accommodation of the dispersed and evacuated population, as well as the acceptance, accommodation, assistance and treatment of victims evacuated from stricken areas. To this end such installations draw up measures involving acceptance of persons being evacuated to their areas and adaption of spaces as hospitals and other medical establishments.

Reserve medical first aid detachments and medical aid teams intended for giving medical assistance in stricken areas may be set up in hospitals and other medical establishments of rural areas.

4. Civil Defense Duties of the Population

Civil defense is a matter for all the peoples. All Soviet citizens are vitally interested in successful accomplishment of its tasks at enterprises, establishments, organizations, kolkhozes and sovkhozes. Every citizen of our Motherland is obligated to take an active part in performing civil defense activities.

Population training for accomplishing CD missions is formed from an entire complex of activities. The most important of them, aimed directly at population protection, consists of training the population in measures of protection and giving self-help and mutual help, and conducting rescue and urgent emergency restoration work in stricken areas. Although these activities hardly exhaust all civil defense activities in timely preparation for protection against mass destruction weapons, they comprise its basic content.

What are the population's civil defense duties?

/First of all, the population must have the requisite knowledge of protection against mass destruction weapons./ The minimum amount of such knowledge is defined by programs for training the population in methods of protection against mass destruction weapons.

The population's training in protection against modern weapons always was given an important place in the complex of civil defense activities, and even

now there is no deviation from this rule. The program for the universal mandatory minimum of the population's knowledge in protection against mass destruction weapons orients one on a further qualitative improvement in universal training.

In training the population in protection against mass destruction weapons, special attention is given to practices and to training by the method of acquiring, reinforcing and improving requisite practical skills. This largely is facilitated by the population's participation in integrated installation exercises.

The experience of the Soviet Union's Great Patriotic War confirmed with all persuasiveness that practical training is the best method for training the population in measures of protection and rules of conduct under conditions of an enemy attack. Soviet citizens who underwent training in prewar years in air defense circles and as part of MPVO formations successfully mopped up the aftermath of enemy bombings: They extinguished incendiary aerial bombs and fires, rescued victims, gave them medical first aid, disarmed unexploded aerial bombs, and restored demolished buildings and structures. The residents of Moscow, Leningrad, Stalingrad, Kiev, Odessa, Sevastopol' and a number of other cities, who selflessly mopped up the aftermath of enemy attack, can serve as an example of this.

Here is one of the examples. On 8 September 1941 enemy aircraft conducted a massive raid on Leningrad, dropping 6,327 incendiary bombs. There were 178 fires which broke out in the city. There appeared to be no force which could put out the resulting sea of flame, but the firefighting detachments, self-defense groups and thousands of workers joined in the fight against the fiery elements after recovering from the first minutes of confusion and conquered them.

The situation may be even more difficult should the imperialists unleash a nuclear missile war. Protection against mass destruction weapons will require each person to know the entire complex of civil defense measures and be able to carry them out in practice. And it is here that those skills which each person will acquire in classes and practices and when tested in the norms prescribed by programs for population training in methods of protection against mass destruction weapons will come in handy.

Therefore the quality of population training, i.e., the degree of its readiness for proper and capable actions under special conditions, acquires special importance under present-day conditions. Since the demand on quality of civil defense training is growing, there naturally also is an increase in the role of organized training, since it is this form of training which provides the best results.

We must not limit ourselves only to organized classes. We must deepen and expand our knowledge continuously on our own as well in protection against mass destruction weapons. A large number of aids are being published at the present time and special posters, training films and slide films are being put

out for this purpose. For example, the instruction booklet for the population entitled "Everyone Must Know and Be Capable of This," and the aids "Radiation Shelters in the Rural Area," "Building Rapidly Fabricated Refuges and Radiation Shelters," "The Simplest Protective Gear," "Civil Defense Formations in the Fight Against Natural Disasters" and others came out in a mass printing. It is an important task of the population to study these and similar aids.

It is also very useful to attend talks and practical classes on civil defense at CD training points, to view films and television broadcasts on civil defense, and to participate in various exercises. All this will deepen and broaden knowledge in protection against mass destruction weapons.

Not only adults, but children as well must master skills in protection against mass destruction weapons.

/Secondly, the population must follow rules for protection against mass destruction weapons./

Great Patriotic War experience indicates that losses among the population occurred chiefly as a result of an ignorance or violation of rules of protection. Children especially suffered in the first days of the war: Remaining at home unsupervised, they did not go to refuges and shelters at the "Air Alert" signal and died from fragments of shells and bombs or in the basements of demolished buildings.

It was impossible to be reconciled with this. Urgent steps were required, aimed at reducing losses among the population. The USSR SNK Decree dated 2 July 1941 entitled "On Universal Compulsory Air Defense Training of the Population" played a large part here. This decree required immediate training of the country's entire population in protective measures, beginning with eight-year-olds, and strict fulfillment of these steps. Training results began to tell rapidly and the number of losses from bombings dropped considerably.

Residents of Moscow, Leningrad and other cities set examples in following rules for protection during enemy air raids.

"The Germans made the first raid on Moscow on 22 July 1941. At 2207 hours the 'Air Alert' signal was given around the city. The population assembled in refuges and shelters in 25-30 minutes. People remained only in lookout towers and ground observation posts, on the roofs of buildings and at building entrances.[1]

1. K. G. Kotlukov et al, "Grazhdanskaya oborona vchera i segodnya" [Civil Defense Yesterday and Today], Moscow, Atomizdat, 1975, p 34.

The city of Lenin came under especially fierce bombings and bombardments. "Beginning on 10 September daily attacks were made against Leningrad from the air. Their duration sometimes reached nine or more hours. On some days the raids were repeated up to 11 times. The 'Air Alert' signal was sounded 251 times in Leningrad in September, October and December 1941. Such an intensity of raids exhausted the people..."[1] "And the alert was declared in all cases regardless of the number of aircraft which appeared. People would take cover in basements or especially dug slit trenches and remain there . . . until the all clear sounded."[2]

But the possible losses in a modern nuclear missile war cannot be compared with any losses among the population in previous wars if the population does not firmly know and follow rules of protection against mass destruction weapons. Everyone is familiar with the terrible result of the first uses of atomic bombs in mankind's history at Hiroshima and Nagasaki--tens of thousands of dead and hundreds of thousands of injured. Even many years later the horrible consequences of atomic bombings have an effect: People irradiated during the explosions die and children whose parents survive the bombing are born crippled. Had the population of these cities known the means and methods of protection against nuclear weapons and had the "Air Alert" signal been given in the cities prior to the bombings and the people had taken cover in refuges and shelters, the number of victims naturally would have been considerably fewer.

/Thirdly, the population is obligated to participate in civil defense activities./

It is the duty of every worker, kolkhoz member and employee, of every person, to act capably and precisely in response to civil defense signals, to participate in the work of protecting people, national economic installations, animals, food products and water against the effects of mass destruction weapons, to build protective structures, to adapt buried spaces as shelters, and to carry out light discipline--in short, to take an active part in all civil defense activities. It is impossible to conduct protective measures quickly and with proper quality without the mass participation of the entire population of the country.

It is no less important that a significant part of the population be trained in capable actions as part of nonparamilitary civil defense formations.

A. S. Chuyanov, first secretary of the Stalingradskaya Oblast Party Committee in the war years, writes as follows: "There was no family in the city which did not have a member participating in one of the MPVO subunits. In the days of enemy air raids people in helmets and with protective masks stood like soldiers at their posts on the roofs of houses, shops and enterprises. Their combat post was here, although shovels, picks, buckets, water barrels and sand boxes served as their weapons. The entire population took part in building shelters. Earthen slit trenches were dug and dugouts built everywhere,

1. See K. G. Kotlukov, p 37.
2. D. V. Pavlov, "Leningrad v blokade" [Leningrad in the Blockade], Moscow, 1967, p 50.

on all streets without exception, in courtyards, in city gardens and parks, at streetcar stops and on the grounds of enterprises. Reliable basements were organized as bomb shelters. A roomy bomb shelter was built in the slope of a steep bank of the Tsaritsa River. By early August 1942 174,000 running meters of slit trenches in which at least 350,000 persons could take shelter had been dug in Stalingrad."[1]

During the Great Patriotic War MPVO formations performed major tasks of protecting the population and national economic installations, giving assistance to victims and restoring a devastated economy.

In Leningrad "over 60,000 men and women from self-defense groups stood duty on the rooftops every night. They assisted the city's MPVO units in warning the population about danger which threatened and found time to train in putting out incendiary bombs by various methods. Not only the adults, but teenagers as well quickly mastered the technique of handling them, and they eliminated thousands of incendiary bombs before the bombs burst into flames. The people's massive, timely training for neutralizing the bombs was of exceptionally great importance in defense of the city, as confirmed by the following data: On 13 October enemy aircraft dropped over 12,000 incendiary bombs on the city, or almost twice as many as on 8 September, the day of the largest raid, but they caused only 40 fires, i.e., a little over four times less than on 8 September, and those fires were quickly localized. Active military defense was effectively supplemented by civil defense."[2]

We are proud of the work of MPVO, but can in no way compare the scale of its actions with that of civildefense actions in a future war should it be unleashed by imperialists. During that period missions basically reduced to building bomb shelters, providing warning within the limits of one's city, performing light discipline, and conducting rescue operations in individual buildings and structures. Of course in those years there was no need to organize protection of the population of every city and national economic installation on the territory of the entire country, i.e., to accomplish missions of protecting the population on a statewide scale. Such a need has arisen in our time with the appearance of nuclear missiles.

All citizens who are part of formations are obligated to take a very active part in their work, the more so as many of the formations can be used in peacetime for fighting massive forest fires and mopping up the aftermath of natural disasters and major accidents.

/Fourthly, a very important duty of the population is to develop high moral-political and psychological qualities in oneself and comrades./

1. A. S. Chuyanov, "Na stremnine veka" [In the Rapids of the Era], Moscow, Politizdat, 1977, p 144.
2. Pavlov, pp 51-52.

People must be steadfast and courageous, set examples of efficiency and discipline and cut short false rumors and panic under the most difficult conditions.

Soviet citizens demonstrated many examples of courage, steadfastness and heroism in the Great Patriotic War. For example, T. I. Sukenik, member of an MPVO team in Stalingrad, turned out to be in the very center of a bombing attack by fascist German divebombers during duty at a lookout tower located on a rooftop. Dozens of divebombers were bombing the Stalingrad-1 Station and the adjoining housing area. Bombs were bursting all about. The "Inturist" Hotel was transformed into ruins before Sukenik's eyes, fires broke out and smoke hindered observation, but the fighting man did not leave his post and continued to report the situation at hand to the rayon headquarters.

In Leningrad Nevskiy Rayon MPVO member Natal'ya Popova saw during her duty at a lookout tower that an artillery round had fallen in a house where her family was located at the time. A fire broke out, but Popova did not leave her post and continued to perform service.

"On the night of 22/23 April 1942 fascist aircraft conducted a massive raid on Stalingrad in groups of 9-15 bombers. The raid lasted three hours. Although the AAA barrage fire was very dense, over 1,500 incendiary bombs and many high-explosive bombs fell on the tractor plant's housing area. Nineteen centers of fire broke out. Tractor plant personnel beat off the air onslaught in a concerted manner. Young people acted beyond all praise and everywhere they were first to move in to put out fires. MPVO member nurse L. I. Kostina threw several incendiary bombs from the roof at the risk of her life and while burning her hands. She saved a hospital where 300 patients lay."[1]

Should a nuclear missile war be unleashed by the imperialists, it will be an even more serious test, and of man's moral forces above all. It will require high awareness and enormous courage and steadfastness of everyone. Effectiveness in performing missions facing civil defense will depend to a significant extent on development of high moral-political and psychological qualities by Soviet citizens.

The task is to develop in oneself and other people confidence in the effectiveness of civil defense measures and a readiness to perform one's duties in the most difficult situation both in stricken areas and in areas of natural disasters while maintaining high efficiency and discipline in conducting any civil defense activities.

Adults' attitude toward protection of children serves as one of the most important indicators of the population's high moral qualities. The fact is that by protecting children, people are defending the country's future. Although schoolchildren are familiarized with fundamentals of protection against mass destruction weapons during school classes, this does not relieve adults of duties in the matter of protecting the children.

1. Chuyanov, p 103.

Earlier only the population's basic civil defense duties were enumerated. Citizens' steadfast and precise performance of these and other duties will contribute to the strengthening of civil defense and consequently the defensive might of the Soviet state.

Chapter III - Principles of Population Protection

Protection of the population against enemy mass destruction weapons and other modern attack means is achieved through maximum accomplishment of all civil defense protective measures and by optimum use of all methods and means of protection.

The basic methods of population protection against mass destruction weapons are:

--Shelter of the population in protective structures;

--Dispersal in a suburban zone of workers and employees of enterprises, establishments and organizations continuing their work in cities, as well as evacuation of all the remaining population from these cities;

--The population's use of individual protective gear.

In addition to this, the following is accomplished for assuring protection of the population against mass destruction weapons: universal compulsory training of the population in methods of protection; organization of timely warning of the threat of enemy attack and about his use of mass destruction weapons; protection of food, water, agricultural animals and plants against contamination by radioactive, toxic chemical and bacteriological substances; organization of radiation, chemical and bacteriological reconnaissance as well as of dosimetric and laboratory (chemical and bacteriological) monitoring; performance of fire prevention, anti-epidemic and medical-hygienic measures; observance of work regimes at national economic installations and the population's conduct in zones of radioactive, chemical and bacteriological contamination; organization and conduct of rescue and urgent emergency restoration work in stricken areas; and the conduct of personal decontamination of people, special processing of equipment, clothing and footwear, and decontamination of grounds and facilities.

This chapter examines basic methods of population protection against mass destruction weapons. Other measures will be covered during presentation of the remaining material.

Chapter IV - Population Actions with the Threat of Enemy Attack and in Response to Civil Defense Signals

Successful protection against mass destruction weapons depends largely on the population's conduct and its capable, correct actions under threat of an enemy attack and in response to civil defense warning signals.

Chapter V - Rules of Conduct and Population Actions in Centers of Destruction

1. Rules of Conduct and Population Actions in a Center of Nuclear Destruction

A center of nuclear destruction is taken to mean territory with populated points, industrial, agricultural and other installations which has been subjected to the direct effects of an enemy nuclear weapon.

The population's conduct and action in a center of nuclear destruction depends largely on where it is located at the moment of the nuclear burst--in or out of refuges (shelters).

As was shown previously, refuges (shelters) are the most effective means of protection against all injurious factors of nuclear weapons (Fig. 37 [figure not reproduced]) and against consequences stemming from use of these weapons. One must only follow carefully the rules for staying in them and strictly fulfill requirements of commandants (persons in charge) and other persons responsible for maintaining order in protective structures. Gear for individual protection of respiratory organs while in refuges (shelters) must be constantly in readiness for immediate use.

The length of people's stay in refuges (shelters) depends on the extent of radioactive contamination of the terrain where the protective structures are located. If the refuge (shelter) is in a contaminated zone with radiation levels of from 8 to 80 roentgens per hour one hour following a nuclear burst, the time sheltered people remain there will be from several hours to one day; the people's stay in the protective structure will increase to three days in a contaminated zone with radiation levels of from 80 to 240 roentgens per hour; and this time will be three or more days in a contaminated zone with a radiation level of 240 roentgens per hour or more.

At the end of the indicated time periods one can move from the refuges (shelters) into living areas. During the next 1-4 days (depending on radiation levels in contaminated zones) it is possible to go outside of such living areas periodically, but for no more than 3-4 hours in a 24-hour period. During dry and windy weather conditions where dust formation is possible one should use gear for individual protection of respiratory organs when emerging from the living areas.

The requirement to have stores of food products (for at least two days), potable water (3 liters per person per day) as well as drugs and basic necessities becomes understandable with the indicated time periods for remaining in refuges (shelters).

2. Rules of Conduct and Population Actions in a Center of Chemical Contamination

Territory subjected to the effects of toxic chemical agents (OV) as a result of which injuries have appeared or might appear to people, animals or plants, is a center of chemical contamination.

Modern toxic chemical agents possess extremely high toxicity. Therefore prompt actions of the population aimed at preventing injury from OV largely will depend on a knowledge of revealing signs of the enemy's use of chemical weapons or presence in the air of strong toxic chemical agents (SDYaV) which appeared, let's assume, as a result of an accident at a national economic installation.

3. Rules of Conduct and Population Actions in a Center of Bacteriological Contamination

A center of bacteriological contamination consists of cities, other populated points, national economic installations and territories contaminated by bacteriological agents and which are a source for the spread of infectious diseases. The enemy may create such a center by using numerous causative agents of various infectious diseases.

The promptness and effectiveness of steps taken for protection against bacteriological agents, which comprise the basis of the injurious effects of bacteriological weapons, will be determined largely by how well the revealing signs of an enemy bacteriological attack have been learned. With some keenness of observation it is possible to note the presence of drops of liquid or powderlike substances on the soil, on vegetation and on various objects in locations where bacteriological weapons have detonated, or the formation of a light cloud of smoke (fog) when the weapon explodes; the appearance of a dark band which gradually settles and disperses behind an aircraft flying over; an accumulation of insects and rodents, the most dangerous carriers of bacteriological agents, not common to a given area and for a given season of the year; the appearance of mass illnesses among people and agricultural animals as well as a mass loss of livestock.

On detecting just one of the signs of the enemy's employment of bacteriological weapons one must immediately put on the protective mask (respirator, antidust cloth mask or cotton-gauze bandage) and if possible means of skin protection, and report this to the nearest CD control entity or medical establishment. Then, depending on the situation, one can take cover in a protective structure (refuge, radiation shelter or very simple shelter). The prompt and correct use of individual protective gear and protective structures will safeguard a person from getting bacterial agents in respiratory organs, on the skin or on the clothing.

Successful protection against bacteriological weapons also depends largely on the extent of the population's immunity to infectious diseases and the effects of toxins. Immunity can be achieved above all by overall strengthening of the body by regular conditioning and physical culture and sports activities. Conduct of these activities must be the rule for the entire population even in peacetime. Immunity also is achieved by conducting specific prophylaxis, which is performed ahead of time through injection of dead and live vaccines, serums and the various use of other special preparations.

4. Population Actions in Decontaminating the Working Area, Apartments (Homes) and Food Products and in Performing Personal Decontamination

The first thing which must be assimilated firmly and followed strictly in performing work of decontaminating a working space, apartment (house) and other installations in case they are contaminated with radioactive substances or toxic chemical and bacterial agents is to perform this work on a mandatory basis wearing individual protective gear. One should use not only gear for protecting respiratory organs, but also for the protection of skin--rubberized aprons, rubber boots and rubber gloves.

Chapter VI - Rules of Conduct and Population Actions in Natural Disasters and Production Accidents

Natural disasters are taken to mean various phenomena of nature causing sudden disruptions in the population's normal vital activities as well as the devastation and destruction of physical assets. Natural disasters often have negative effects on the surrounding natural environment.

Natural disasters may be of a geophysical or meteorological origin. In some cases they arise through the fault of man, as a result of his production or other activities without consideration for the existing ecological balance in nature.

Earthquakes, floods, mudflows, landslides, snow accumulations, volcanic eruptions and droughts usually are included among natural disasters. Fires, especially massive forest and peat fires, also can be included among such disasters in a number of cases.

Production accidents also are dangerous disasters. Accidents at enterprises of the petroleum, natural gas and chemical industries represent a special danger.

Natural disasters, fires, accidents... They can be met in different ways. In a confused, even doomed manner, as people for centuries greeted various disasters, or calmly, with unbending faith in one's abilities and with the hope of taming them. But only those who, armed with knowledge on how to act in a particular situation, will make the only correct decision can take up the challenge of disasters with confidence: They will save themselves, give assistance to others, and prevent, insofar as they are capable of doing, the devastating effect of elemental forces.

Chapter VII - Features of Protection of Children and Adult Duties for Their Protection

Concern for children is the law of our socialist state.

Even in the most difficult war years the Communist Party of the Soviet Union and Soviet government took every possible step to save the lives and health of children. Children were first to be evacuated to the deep rear, they above

all were provided with housing, food products and medicines, and an extensive network of children's homes, kindergartens and nurseries were maintained for them. On 2 July 1941 the USSR Council of People's Commissars passed a special decree which introduced universal compulsory training of the population of the country in using individual protective gear, and children were trained in this from the age of eight.

The USSR Constitution states: "USSR citizens are obligated to see to the upbringing of children, prepare them for socially useful labor and raise worthy members of a socialist society."

Those measures envisaged in the civil defense system also can be viewed as a natural continuation of concern for the future of children.

Chapter VIII - Giving Medical First Aid (Self-Help and Mutual Help) to Victims

Soviet public health performs a most noble task in showing constant concern for the population's health and at the same time not remaining aloof in carrying out civil defense measures aimed at protection of the country's population in case of enemy attack.

Public health agencies set up and train the civil defense medical service, which organizes special training of medical personnel and creates and trains special formations and establishments for accomplishing a complex of medical-prophylactic and sanitation-epidemic control measures. First aid detachments (OPM) which are to give medical assistance to victims coming directly from sites of rescue operations and prepare them for evacuation to surviving hospitals are set up on the basis of existing medical establishments. In addition the medical service organizes a number of other special formations and establishments and ensures their constant readiness for actions to give medical assistance to the population.

Chapter IX - Moral-Political and Psychological Preparation of the Population

Marxism-Leninism teaches that the course and outcome of war depends on a number of factors both social-political, economic and scientific-technical as well as strictly military. The most important part in winning victory belongs to the moral forces of the people and the army in the dialectical unity and interrelationship of these factors.

V. I. Lenin wrote that "in any war victory is determined in the final account by the state of spirit of those masses who are shedding their blood on the battlefield."[1] This classic formula and other propositions of Lenin's reveal the deciding role of the morale of the warring masses and formulates one of the laws of warfare reflecting the dependence of victory in armed conflict on the state of morale of the warring masses and the army.

1. Lenin, XLI, 121.

The moral factor is the most active aspect of society's spiritual forces, moral potential in action, the aggregate of spiritual qualities of the popular masses, the degree of people's understanding of those goals and missions for the sake of which they are acting, and the masses' readiness to put out for the sake of victory of the cause for which they are fighting.

As applied to the military sphere the moral factor consists of ideological and psychological components of society's spiritual forces set in motion for victory over the enemy.

The moral factor is not neutral toward matters of national defense even in peacetime. The Soviet people's high moral-political sentiment and the party's many-sided work of ideological-political indoctrination of the masses and their mobilization for performing tasks of building communism--all this contributes to a build-up in efforts to increase our Motherland's economic and military might. USSR Minister of Defense Mar SU D. F. Ustinov said that "by their selfless labor in all sectors of the building of communism Soviet citizens are strengthening and developing national economic and consequently defense might and creating social-political and spiritual preconditions for a steadfast increase in the Armed Forces' combat might."[1]

Moral forces represent a profoundly social, class, concrete-historical phenomenon. In all ages the moral forces of the army and people have depended on the social order, goals and ideals of struggle and degree of their proximity to the interests of the working classes and toiling masses. It is the advanced social order and just character of wars in defense of the socialist homeland that cement the unity of the Soviet people and their Armed Forces and give rise to mass heroism of the homeland's defenders at the front and in the rear. The exploit for the sake of the Motherland is the standard of conduct for Soviet citizens.

Stressing the enormous importance of the moral factor, Marxism-Leninism at the same time refutes assertions of "leftist" revisionists that victory or defeat in war are automatically predetermined by its character and not by the relative strength of material and spiritual forces of the belligerents. V. I. Lenin wrote that "the very best army and people most dedicated to the cause of revolution will be annihilated by the enemy immediately if they are not sufficiently armed, provided with food and trained."[2]

The role and importance of the moral factor is steadily growing in public life and in modern wars.

Scientific-technical progress and the tasks of increasing work effectiveness and quality require a shift of labor efforts to the mental-psychological sphere and an increase in the role of people's social awareness and social activeness. Mental and psychological development is becoming a most important reserve for accomplishing tasks of building communism, including tasks of defending the achievements of socialism.

1. D. F. Ustinov, "Sixty Years Guarding the Achievements of the Great October," PRAVDA, 23 February 1978.
2. Lenin, XXXV, 408.

Should the imperialists succeed in unleashing a world thermonuclear war, it will bear an acute class and uncompromising character. Not only groupings of armed forces and individual rear installations will be subject to it, as was the case in past wars, but the entire rear of the country to its entire depth. Such a war can cause unprecedented devastation to entire countries and can annihilate entire peoples.

Such a war will require high morale and psychological stability not only of Army and Navy personnel, but also of Civil Defense personnel and the country's entire population. The effectiveness of the entire system of statewide measures comprising civil defense will depend to a decisive extent on the moral steadfastness, self-control and courage of millions of people who are not wearing a military uniform.

The CPSU always has given and is giving unremitting attention to developing in Soviet citizens the high spiritual qualities of fighters for communism.

"Establishing in the minds of workers, and the young generation above all, ideas of Soviet patriotism, socialist internationalism, pride for the Land of Soviets and for our Motherland, and a readiness to come to the defense of achievements of socialism has been and remains one of the most important party tasks,"[1] stated L. I. Brezhnev at the 25th CPSU Congress.

There are diverse forms and methods for developing high moral-political and psychological qualities in Soviet citizens. They are shaped by the entire course of affairs in society and by persistent ideological indoctrination work of the party and all its organizations. The organizational and political work performed in the civil defense system under the direction of party entities also contributes to this.

Experience indicates that people who have received moral-political and psychological training in civil defense classes, practices and exercises have a deeper understanding of the class-political sources of modern wars and imperialism's aggressive essence and they evaluate with clearer understanding the real threat of war on imperialism's part and possibility of its employment of mass destruction weapons. They take a more responsible attitude toward performing their patriotic duty of strengthening the Soviet Motherland's defenses and in particular toward performing their own civil defense duties.

Moral-political training is taken to mean the development of scientific, Marxist-Leninist persuasions and profound communist moral principles in the population. This arms Soviet citizens with communist ideology and a thorough understanding of party and government policy and the essence and goals of war in defense of the socialist homeland. This forms the ideals which become the motives in their activity and it permits each citizen of the Land of Soviets to perceive state interests and goals as his own.

1. "Materialy XXV s"yezda KPSS" [Materials of the 25th CPSU Congress], Moscow, Politizdat, 1976, p 75.

Psychological training assumes the development of those psychological qualities in people which make them capable of acting in the dangerous, stress-filled conditions of modern warfare, performing tasks in complete conformity with their communist convictions and moral principles of conduct, courageously enduring the most severe military ordeals and all moral and physical stresses, displaying self-control, courage and valor at difficult and critical moments, and acting vigorously and skillfully in a difficult situation.

In explaining the thesis of what it means to endure all burdens of war and display high moral qualities in fighting the enemy, V. I. Lenin wrote: "To hold out in the moral sense means not to allow oneself to become demoralized or disorganized, to retain a sober estimate of the situation and to preserve cheerfulness and firmness of spirit."[1]

Moral-political and psychological training are closely connected and mutually determined. This is a unified process of developing Soviet citizens' communist outlook and high moral-psychological qualities. A leading place in the unity of ideological and psychological aspects of man's spiritual training belongs to the ideological aspect.

Communist ideals and persuasions serve as a spiritual foundation of man's psychological preparedness and given social direction to his feelings. This is the strongest weapon of our society and despite the fact that combat equipment is becoming more and more sophisticated and formidable, the deciding force in war has been and remains man--ideologically persuaded, expertly handling his entrusted weapons, and morally prepared to endure all trials for the sake of winning victory.

The foundation of Soviet citizens' communist conviction and readiness to defend the Motherland is a thorough understanding of the ideas of Marxism-Leninism, the world historic socialist achievements accomplished in our country, the tasks of building communism, Lenin's precepts on defending the socialist homeland, theses of party congresses, the CPSU Program and the USSR Constitution on the need for a comprehensive strengthening of our Motherland's defense might, and party and government requirements on improving civil defense. Realization of the grandeur of our work and of the real threat to October's achievements on the part of imperialism inspires Soviet citizens to high political vigilance and new efforts aimed at increasing national defenses, and it increases their moral-psychological steadfastness. In the book "Malaya Zemlya" L. I. Brezhnev writes: "There is some line, some instant when the soldier-patriot's awareness of his duty to the Motherland muffles the feeling of fear, the pain, and thoughts about death. That means an exploit is not an unconscious action, but conviction as to the correctness and grandeur of the cause for which a person consciously gives his life."

Faith in the invincibility of our Armed Forces is one of the conditions for maintaining high morale in military personnel, the personnel of CD formations and the population and for maintaining their steadfastness, endurance and courage under the most difficult ordeals of modern warfare. It is important

1. Lenin, XLIV, 229.

for CD personnel and the population to have a thorough understanding of the increased role of USSR Civil Defense in supporting the state's vital activities in wartime and conviction as to the effectiveness of its measures and the availability of real, reliable means of protection against modern weapons.

Mass destruction weapons possess enormous destructive force and carelessness in questions of protection against them is fraught with serious consequences. The Communist Party and Soviet government are not relaxing efforts to strengthen national defenses. They are taking necessary steps to prepare the population for protection against any means of destruction. It is important to ensure that the population has firm knowledge that there are real capabilities for protection against modern weapons. Knowledge of these capabilities and conviction as to their effectiveness help a person learn to master himself under difficult circumstances and put down fear by an effort of will.

It is very important also to understand thoroughly the humane character of goals and missions of our civil defense. Imperialist circles attempt to distort its true goals and regardless of the actual facts they distort matters to appear as if it bears some potential danger for countries of the West and "threatens to destabilize the strategic correlation of forces." But it is no secret to anyone that the main mission of our country's civil defense is protection of citizens against an aggressor's weapons.

What could be more humane or important? Performance of this mission inspires Soviet patriots to steadfastness and determination. Persuasive evidence of this is the heroic exploits by MPVO personnel in the Great Patriotic War and the courage and valor shown by civil defense personnel in peaceful days in fighting natural disasters.

Active propaganda of the revolutionary, combat and labor traditions of the Soviet people and the heroics of the present-day life of the USSR Armed Forces and Civil Defense helps develop our citizens' pride in their people and readiness to follow the example of their best representatives.

Bourgeois propagandists stop at nothing to weaken the enormous indoctrinational force of the Soviet people's exploits in the name of the Great October's ideals. Writer Grigoriy Konovalov expressed this thought comprehensively and figuratively: "The old world has such a desire that its bones ache that not eagles, but sparrows hatch in the eagles' nests of our fathers."

But efforts of the world of capital are in vain. Our Soviet youth are worthy replacements for veterans of the revolution, war and labor. Fascist aviation dropped millions of high explosive and incendiary bombs on our land in the war years. Tens of thousands of MPVO personnel worked courageously to disarm them. The fighting died away, but the bomb disposal experts of Civil Defense subunits continue the unbelievably dangerous labor, sometimes at the borderline of risk. Officer Ivan Kryuk was awarded the Order of Red Star and a Komsomol CC Honor Badge for clearing ammunition left from wartime. His younger brother Aleksey Kryuk has over 15,000 deactivated bombs, artillery and

mortar rounds and land mines to his credit. How many times he risked his own life for the lives of Soviet citizens! And this is not a solitary example. Over 700 civil defense bomb disposal experts have been awarded USSR orders and medals for courage and valor shown in deactivating explosive objects left from the Great Patriotic War.

Existing experience indicates that the high ideological-theoretical level of civil defense classes, vigorous propaganda of CD matters at courses and training points and through the press, radio, television and movies, and the conduct of CD days, weeks and months permit accomplishing the tasks of military-patriotic indoctrination and contribute to development of a communist outlook in the population.

With regard to a person's psychological qualities, of primary importance here is special training for actions under difficult, oftentimes dangerous conditions approximating an actual combat situation to the maximum. For, as V. I. Lenin remarked: "The element of war is danger. There is not a single minute in war when you are not surrounded by dangers."[1] In modern warfare danger is not decreased, but increased.

People react to dangers in a war in different ways, but one thing is indisputable: A well prepared and well trained person is more steadfast in the moral-psychological sense. He acts confidently and boldly. And to the contrary, a poorly trained person shows uncertainty and doubt, is subject to negative emotions, orients himself poorly in a situation, may be subject to panic and may himself become a victim of this panic.

People unversed in the effects of radiation on a person display particular psychological instability. Radioactive contamination is not perceived directly by the sense organs and a person is inclined to exaggerate the danger. People who have received knowledge and skills in performing rescue and urgent emergency restoration work turn out to be more stable in the psychological sense in all instances of real danger.

The most effective method of civil defense training is to practice the norms, techniques and methods of protection against mass destruction weapons. The drills, practice of techniques and methods of action, and development of practical skills help a person adapt to various conditions of existence and a varied situation, i.e., to adapt themselves.

A person's adaptation to difficult conditions occurs faster the more vigorously he acts. During the Great Patriotic War M. I. Kalinin said that steadfastness is developed above all by combat and active combat actions.[2]

Tasks of moral-political and psychological training of civil defense personnel and the population are accomplished most successfully in integrated installation exercises. Here the knowledge, skills and abilities and the moral-psychological qualities acquired in the training process are displayed and

1. Lenin, XLIV, 210.
2. See M. I. Kalinin, "O vospitanii sovetskikh voinov" [On the Indoctrination of Soviet Soldiers], Moscow, Voyenizdat, 1975, p 220.

developed to the full extent. They shape labor collectives into a force capable of accomplishing missions under difficult conditions.

Best results are achieved in those exercises where the planned activities are worked fully and there is a struggle against indulgences and oversimplification. The extensive organizational and political work performed in civil defense exercises not only assures the workers' active participation in the exercises, but also is a reliable means for the people's spirited mood and their moral-political and psychological preparation for actions under difficult conditions.

And to the contrary, exercises conducted in an oversimplified situation and on poorly prepared full-scale sectors and ranges do not provide the proper effect in the moral-psychological plane. Exercises in which the work sometimes does not reach the most difficult stage--performance of SNAVR--and the instructors themselves show no desire to leave the office and classroom to go to the field, the full-scale sector or the national economic installation, are of no benefit.

Practices in occupying protective structures and staying in them, and timely training in dispersal and evacuation have a positive influence on people's minds. Such practices unquestionably will reduce considerably people's nervousness and confusion at a time when the question of protecting the population against enemy mass destruction weapons becomes a practical necessity.

Many valuable qualities--fearlessness, composure, adroitness, physical endurance and others needed in performing SNAVR--can be developed and reinforced during classes on special obstacle courses, which are a component element of training compounds.

Moral-political and psychological training of the personnel of nonparamilitary formations is an important task. The foundation for accomplishing this task is laid down by ideological indoctrination work in labor collectives.

The interests of high readiness demand that every formation be a cohesive, easily controlled body capable of performing its assigned missions successfully. Consequently there is an increase in the need for psychological cohesion of formations. This is a broad, many-sided problem which can be resolved successfully only with combined, planned, thoroughly conceived and purposeful influence on all aspects of the life and work of formation personnel.

Such influence begins from the very moment a person joins the formation and is told his missions and duties. Subsequently moral-political and psychological training must be performed continuously in classes and exercises, while mopping up the aftermath of natural disasters and production accidents, and during people's continuous labor activities.

The personal example of commanders and party and Komsomol members is important in developing high moral-political and psychological qualities in trainees. Decisiveness in their actions, self-control and confidence help the personnel display self-control and courage under difficult conditions and reinforce

their sense of duty. The sensations and perceptions arising under the effect of the commander's word and courageous conduct activate ideological motives and have a strong influence on the personnel's awareness, will and feelings.

A positive psychological effect is produced in exercises and classes with nonparamilitary formations by implementation of a very important principle of psychological conditioning such as introducing tolerable elements of stress, danger and risk into people's actions. Stress is achieved by increasing physical and neuropsychological loads on the personnel through creation of a psychological model of a combat situation and by surprise (the sudden declaration of a combat alert, surprise use of means of simulation, a rapid change in situation narratives, "disabling" of some of the personnel and equipment, and so on). Elements of stress and danger introduced into the training process gradually accustom people to overcome the very highest psychological stress and perform their mission vigorously and productively in a difficult and stress-filled situation.

In addition to the overall moral-psychological qualities which each member of the nonparamilitary CD formation needs, he also needs specific qualities determined by the specialty. For example machine operators need confidence in equipment and the ability to react quickly to a change in the situation and in this connection change the location and work mode of his machine or assembly; scouts need boldness, initiative and keenness of observation; chemical specialists need confidence in the correctness of their actions, and steadfastness and physical endurance connected with the wearing of individual protective gear.

Machine operators and personnel of the emergency technical teams have to withstand great physical and psychological stresses in performing their assigned missions. Good results in their training are provided by regular practices in which contests are held in performing duties wearing protective gear simultaneously with taking the test of norms in the universal compulsory minimum of knowledge. This not only reinforces the knowledge obtained, but also conditions the trainees' minds.

Bomb disposal experts--specialists who deactivate explosive objects--are required to have great courage and self-control. These qualities can be developed successfully in classes at specially outfitted bomb disposal compounds where the bomb disposal experts learn to find, deactivate and destroy explosive objects, including those with fuses and devices with increased explosion risk. Such classes instil confidence in the capability of deactivating any explosive object and in the reliability of Soviet instruments and bomb disposal methods.

The lives and health of people who are victims in stricken areas and during natural disasters largely will depend on the skill with which they are given first aid by medical aid teams. This circumstance determines the high exactingness placed on training of medical aid team members, including the instilling of psychological stability in them. It must be borne in mind that additional factors--the suffering and disturbed minds of victims--will have a negative effect on the minds of medical aid team members.

One of the most effective methods for developing necessary qualities in medical aid team members is the practice in treatment and prophylactic establishments where they actually encounter seriously sick and injured people and give them practical help. During such practice they not only reinforce professional skills, but also obtain psychological conditioning.

Tours of duty of medical aid team members at plant medical points and city emergency medical assistance stations are arranged on the recommendation of the CC's of societies of the Red Cross and Red Crescent of a number of republics. During such tours of duty medical aid team members go out along with medical workers to give first aid to victims of traffic accidents and other accidents (they give assistance for bleeding, serious intestinal injuries, open chest wounds, victims in a disturbed mental state, and so on).

Participation in exercises with other nonparamilitary formations and military subunits provides medical aid team members with tangible results in the area of moral-psychological conditioning. During such exercises they gain a deeper understanding of the importance of tasks assigned them and gain a more serious perception of their responsibility for people's lives and health.

Study of the CD course in educational institutions plays an important part in the ideological and moral-psychological conditioning of the youth. Classes and practices help develop high citizenship and discipline in the young people and instil confidence in them as to the reliability of methods and means of protection against mass destruction weapons.

Information acquires great importance in assuring the high moral-psychological stability of civil defense personnel and the population while performing tasks under difficult conditions. Nothing has such an oppressive effect on people's minds as the unknown. In addition, it must be borne in mind that lack of prompt and truthful information makes the enemy's work of misinformation easier and can become the reason for the spread of harmful rumors. Hence the need to master forms and methods of information constantly.

It is especially important to provide prompt information to people in protective structures, at evacuation collection points, on trains, in columns afoot and in motor transport columns. Their mood, disicpline and organization will be determined largely by promptness of information on the situation at hand, on decisions being made by party and soviet entities and the military command, about upcoming tasks and methods of accomplishing them.

The moral-political and psychological qualities gained by civil defense personnel and the population in the process of training and mass political work are displayed vividly and are developed and reinforced while mopping up the aftermath of natural disasters. People who have received civil defense training act selflessly, courageously and bravely in fighting forest and peat fires, mudflows and the aftermath of earthquakes. That was the case, for example, in putting out forest fires in Siberia and the Far East and that is how it was when a mudflow came down on the mining settlement of Kyzyl-Kiya in the Kirghiz SSR.

The ideological and psychological stability of CD personnel and the population is an important component of civil defense readiness. It is the patriotic duty of civil defense personnel and all Soviet citizens to prepare themselves morally and psychologically for actions under the severe conditions of a possible war.

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CSO: 1801/113

CIVIL DEFENSE

EXCERPTS FROM BOOK ON DEFENSE WORK OF LOCAL SOVIETS

Moscow OBORONNAYA RABOTA MESTNYKH SOVETOV in Russian (signed to press 4 Jul 80) pp 2, 87, 3-4, 48-58

[Annotation, table of contents, foreword, and Chapter 4 from book "Defense Work of Local Soviets", by V. G. Strekozov, Yuridicheskaya literatura, 20,000 copies, 88 pages]

[Text] The book examines such trends in the defensive work of local soviets as ensuring the implementation of the law on the universal military obligation, observance of legislation on privileges for servicemen and members of their families, and direction of civil defense on the territory of the soviet. Great attention is devoted to the organization of the military-patriotic indoctrination of the youth and teenagers.

It is for personnel of the ispolkoms of local soviets, deputies, and party and soviet activists.

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Foreword

The Soviet state is peace-loving by its very nature. The fact that the Lenin Decree on Peace became the first legislative act of the first workers' state in the world is profoundly symbolic. By the adoption of this decree Soviet power showed to all the peoples on Earth the only correct way out of the bloody chaos of wars into which the exploiter system plunged them. The decree of peace proclaimed a clear and precise program for a struggle for a just, democratic, universal peace, for the realization of which the Soviet state tirelessly speaks out during its more than 60-years' history. A tremendous constructive role in the matter of developing and deepening international detente belongs to the peace program adopted by the 24th CPSU Congress and its organic continuation--the program for the further struggle for peace and international collaboration and for the freedom and independence of peoples which was put forth by the 25th Congress of the Leninist Communist Party.

The peace-loving nature of our state finds its brilliant manifestation in the standards of the Soviet constitution. In the clear provisions of Chapter 4 of the Soviet constitution, "Foreign Policy," it says that the Soviet state consistently conducts the Lenin peace policy and steps forth for the strengthening of the security of peoples and broad international collaboration. The Soviet Union, the constitution stresses, is striving to achieve universal and complete disarmament. The propagandizing of war in the USSR is prohibited by law. For the first time in the history of mankind our state has confirmed in its Basic Law such principles for mutual relations with other states as the principle of sovereign equality; mutual rejection of the employment of force or the threat of force; the inviolability of borders; the territorial integrity of the state; the peaceful settlement of quarrels and non-interference in internal affairs; respect for the rights of man and basic freedoms; equality of rights and rights of peoples to master their own destiny; collaboration between states; and the conscientious accomplishment of obligations which follow from universally recognized principles and standards of international law and from international treaties concluded by the USSR.

The history of socialist construction confirmed the truth of one of the basic theoretical conclusions of Marxism-Leninism that the defense of socialist achievements against aggression is an objective regular law for the building of a new society.

The General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, Comrade L. I. Brezhnev, said that the aggregate experience in the development of world socialism convinces us that: "Socialism can be confirmed only in the case where the power of the workers is able to defend the revolution against any attacks of the class enemy (and such attacks are inevitable --internally as well as, most likely, externally)."*

Activity in the defense of the socialist fatherland has a broad content and presumes the implementation of a complex of measures of an economic, scientific-technical, socio-political, and military nature which ensure the country's constant readiness and ability to repel any attempts at aggression against its integrity and inviolability.

* Brezhnev, L. I. "Leninskim kursom" [Following the Lenin Course]. Speeches and Articles. Vol 6, Moscow, Politizdat, 1978, p 588.

The decree of the CPSU Central Committee of 26 April 1979, "On further improvement of ideological and political-indoctrinational work," requires: "Our duty is to oppose the subversive political and ideological activity of the class enemy and his malicious slander against socialism by the steadfast solidarity and mighty ideological unity of its ranks, the profound conviction and political vigilance of each Soviet person, and his readiness to defend the motherland and socialism's revolutionary achievements."

The soviets of people's deputies, which comprise the political basis of the USSR, are also making their contribution to the attainment of these goals. Therefore, in the booklet main attention is devoted to disclosing the content of the soviets' activity in assisting in the strengthening of the country's defensive capability; work on realizing powers in the sphere of defending the socialist fatherland which have been conferred on the representative organs of state authority is examined.

Local Soviets and Civil Defense

One of the most important directions in the defense work of the local soviets of people's deputies is their direction of the organization of civil defense on their territory, which has found direct legislative ratification.

Civil defense is a component part of the Soviet state's activity in organizing the defense of the socialist fatherland and the defense of the USSR. It is a system of state measures which are conducted in peacetime as well as wartime and are directed toward the defense of the population and the national economy against weapons of mass destruction and other means of enemy attack as well as for the conduct of urgent rescue and damage restoration work in centers of mass destruction and areas of natural disasters.

The main weapon in accomplishing the defense of the socialist fatherland and the defense of the USSR are the Soviet Armed Forces. However, their power is directly dependent on the comprehensive preparation and clear operation of the rear area. This is why the defense of the country's rear area is a most important state task. To a considerable degree the solution of many problems--mobilization and preparation of reserves, support of combat operations, and elimination of the aftereffects of a nuclear attack--also depends on the completeness of the conduct of civil defense measures.

Measures for the protection of the population and installations of the national economy were widely conducted during the years of the Great Patriotic War. They were accomplished primarily to protect the population, cities, and industrial installations against enemy air attacks within the framework of local air and chemical defense.

With the start of the Great Patriotic War the USSR Council of People's Commissars adopted the decree, "On the universal mandatory training of the population for air defense," which established the mandatory training of the country's entire adult population from 16 to 60 years of age in air and chemical defense. This decree also required the citizens to participate in self-defense groups, the material support and equipping of which with special equipment was assigned to the ispolkoms of city and rayon soviets.

The experience of the Great Patriotic War showed that the Soviet citizens who received this training and joined self-defense groups selflessly eliminated the aftereffects of enemy attack. They extinguished thousands of fires in the cities and at installations, restored destroyed roads and bridges, knocked down obstructions, and gave first aid to people who received wounds, traumas, and burns, which permitted tens of thousands of Soviet citizens to return to labor activity.

Civil Defense--The Common Cause of the Nation

Civil defense of the USSR as a system of state measures was created in 1961 by the decision of the Soviet government. Its creation was caused by the appearance and development of nuclear missiles. The equipping of modern armies with these weapons increased immeasurably the threat of destruction of industrial and administrative-political centers in the country's deep rear where a tremendous number of the population resides and the main mass of industrial enterprises and material valuables is concentrated. The necessity to organize civil defense over the country's entire territory arose.

The strengthening, improvement, and development of civil defense in our country is the common cause of the nation. The more widely and actively the Soviet citizens participate in it, the more reliable and stronger it will be. The national nature of Soviet civil defense is manifested in the active participation in its measures by local party, soviet, and economic organs and the broadest strata of the population.

Each Soviet citizen is required to participate actively in the conduct of civil defense measures, which follows directly from the sacred duty to defend the socialist fatherland which has been imposed on the citizens of the USSR.

Civil defense is not some narrow departmental system, but a state and national matter. Its organizational structure is determined by our entire social system and the system and principles for the activity of the organs of Soviet state authority and control.

The Organization of Civil Defense

The civil defense of the USSR is organized according to the territorial-production principle. This principle presumes the direct responsibility, for the state, organization, and conduct of civil defense meaures, of the organs of state control in the person of the Councils of Ministers of the union and autonomous republics, executive committees of local soviets of people's deputies, ministries, and departments as well as of the managers of enterprises, institutions, and organizations of kolkhozes and sovkhozes.

Overall direction of civil defense on the entire territory of the country is accomplished by the USSR Council of Ministers. Its direct supervision is accomplished by the Soviet Minister of Defense.

Direction of civil defense in the krays, oblasts, cities, and rayons is accomplished by the civil defense chiefs who, in their posts, are the chairmen of the executive committees of the soviets of people's deputies. At installations of the national economy (plants, factories, kolkhozes and sovkhozes, installations, educational institutions, and so forth) the civil defense chiefs are their managers.

Civil defense headquarters and services--the main organs for the control of civil defense--are created with the civil defense chiefs of all elements.

Soviet legislation assigns the duty of organizing civil defense in administrative-territorial units to the local soviets of people's deputies and their ispolkoms. The main directions of this work are determined by the tasks facing civil defense. They include tasks connected with:

--the direct ensuring of the population's protection against weapons of mass destruction--preparation of protective structures in good time to provide cover for the population, providing it with individual protective equipment, instruction in the means and methods of protection, timely warning of the population concerning the threat of enemy attack, organization and conduct of the dispersal of people, and evacuation of the population from cities and big populated places;

--ensuring the working stability of installations of the national economy and agricultural production under conditions where the enemy employs weapons of mass destruction;

--elimination of the aftereffects of the enemy's employment of weapons of mass destruction--the timely creation of groupings of civil defense forces, bringing them to complete readiness with the emergence of a threat of enemy attack, ensuring constant control of these forces, and the organization and conduct of emergency rescue and damage restoration work in stricken areas;

--the elimination of the aftereffects of natural disasters (earthquakes, floods, conflagrations, and so forth).

The civil defense forces consist of troop units, non-militarized formations, and such institutions as medical, municipal, and so forth.

Non-militarized formations are created in cities, rayons, and installations of the national economy to perform rescue and damage restoration work and other measures in wartime. Under peacetime conditions these formations are used to combat forest fires and eliminate the aftereffects of natural disasters.

Concerning their subordination, these formations are divided into territorial, which are led by the chairmen of the ispolkoms of local soviets of people's deputies, and installation, which are led by the persons who head the enterprises, organizations, and so forth. The composition of the non-militarized civil defense formations includes workers, kolkhoz workers, and employees in accordance with the legislation in effect.

Non-militarized formations are a specially trained and equipped part of the civil defense forces. Success in implementing civil defense measures, especially the conduct of rescue and emergency damage restoration work in stricken areas and in regions of natural disasters, will depend to a great extent on the level of training of these formations.

The special training of the formations includes the training of the leader personnel and the formations as a whole. This training pursues the goal of training

the personnel of the formation in operations in stricken areas and in regions of natural disasters, the maintenance of coordination with other formations and subunits and troop units, and mastery, by the personnel of the formations, of equipment, mechanisms, instruments, organizational property, and procedures and methods of operation when conducting rescue and emergency damage restoration work.

The basic methods to acquire this knowledge and skills are special practical and tactical lessons and exercises.

The leadership of the organization and the conduct of lessons and exercises are performed by the civil defense chiefs who, as we have noted, are the chairmen of the ispolkoms of local soviets of people's deputies on the territories of the corresponding administrative-territorial units. Direct leadership of the special training of non-militarized formations is accomplished and supported by the civil defense staffs and the chiefs of its services.

The content of the special training of formations is determined by the program of training of non-militarized civil defense formations. From 8 to 16 hours per training year are allotted for working out these problems depending on the civil defense specialty.

The civil defense chiefs approve the plans for lessons and exercises: together with personnel of the staff and chiefs of services, they conduct reconnaissance of the lesson or exercise area; solve the problems of their support with equipment, transportation, mechanisms, instruments, tools, and other authorized property; direct the course of the exercise; and organize a critique of the results of the lesson or exercise with all its participants.

In the Ukraine, Latvia, and Estonia combined exercises in civil defense are conducted with the participation of all installations located on the territory of the soviet. These exercises are directed by the chairmen of the soviet ispolkoms. In 1977, for example, 6 such exercises were conducted in Limbazhskiy rayon, Latvian SSR, and 14 enterprises and the entire population not occupied in production and the services sphere took part in exercises in the Aloya village soviet. Combined exercises were conducted successfully in the Raazikuskiy rural soviet of the Estonian SSR under the direction of the rural soviet chairman.

It must be noted that under the conditions of contemporary war, where the tasks of civil defense are more significant in their volume and content, the involvement of troop units and non-militarized formations alone will be insufficient. Actually the entire able-bodied population of the country should participate in the accomplishment of these tasks. Therefore civil defense, as a component part of the overall activity in the defense of the socialist fatherland, is truly a common cause of the nation. The complete encompassing of the entire population with knowledge of the principles of civil defense unquestionably is being furthered by the introduction of mandatory instruction in 1978 for those Soviet citizens who are not engaged in production and the services field. Civil defense chiefs of rayons, cities, settlements, and rural soviets who are the chairmen of the ispolkoms of local soviets bear responsibility for the organization of this instruction.

The common tasks facing civil defense also determine the specific duties of Soviet citizens in this sphere. The basic duties are:

--instruction in methods of protection against weapons of mass destruction by visiting lessons, drills, and exercises which are organized by special civil defense organs under the direct supervision of the ispolkoms of local soviets of people's deputies;

--the participation of males 16-60 years of age and females 16-55 years of age in civil defense formations;

--the execution of orders and instructions of civil defense officials;

--the execution of instructions of the corresponding organs on the dispersal or evacuation of one or another category of workers and employees;

--implementation of the rules of behavior established with the giving of civil defense signals "air alert," "radioactive contamination," "chemical attack," and so forth;

--participation in the preparation of collective means of protection as well as the preparation of one's home or apartment for defense;

--participation in the elimination of the aftereffects from the employment of weapons of mass destruction as part of civil defense formations.

Organization of the Population's Study of the Principles of Civil Defense

The effectiveness of the conduct of civil defense measures depends greatly on the population's knowledge of the damage-causing factors of weapons of mass destruction and the working out of skills in employing methods of protection against them.

Instruction in the civil defense system is regulated by normative acts in which the most important propositions and basic principles for the organization and implementation of civil defense are formulated. In addition, training programs and methodological instructions for instruction in civil defense have been worked out and put into operation for individual categories of the population.*

Youths of pre-draft and draft ages study the principles of civil defense within the framework of primary military training. They learn about the combat properties of weapons of mass destruction and methods for protection against them, become acquainted with the operation of instruments for radiation and chemical reconnaissance and learn to handle them, and they study methods for the conduct of reconnaissance and rescue work at installations of the national economy in stricken (contaminated) areas. Along with the acquisition of primary knowledge and skills in one of the military-technical specialties within the framework of primary training, they learn actions as members of its formations.

* See: Yegorov, P. T., Shlyakhov, I. A., and Alabin, N. I., "Grazhdanskaya oborona" [Civil Defense], Moscow, Vysshaya shkola, 1977, p 243.

Girl students study the principles of military affairs and civil defense and undergo training as members of voluntary aid detachments.

Youths who are not studying in daytime educational institutions receive primary civil defense knowledge and skills together with the study of primary military training at special training centers created at enterprises and in organizations, installations, kolkhozes, and sovkhozes.

The responsibilities assigned to the soviets of people's deputies for the state of civil defense on their territory give this system an authoritative and effective nature. The organization of civil defense in the country envisages the necessary combination of centralism and the initiative of the localities.

Considerable attention is devoted to questions of the organization of civil defense by local party and soviet organs. Thus, in November 1977, a meeting of party activists of Moscow's Gagarinskiy rayon took place which was devoted directly to civil defense tasks. A report by the rayon civil defense chief--the chairman of the rayispolkom--was heard and measures were outlined to improve this important sphere of activity.

Questions of the improvement of civil defense were a subject for special consideration at a session of the Sverdlovskiy rayon soviet of people's deputies of the city of Frunze. The report of the ispolkom chairman and rayon civil defense chief was discussed in the course of the session, shortcomings in the organization of civil defense instruction at enterprises of the rayon were disclosed, and measures were outlined to eliminate these shortcomings.

Local soviets of people's deputies of Estonia actively participate in the accomplishment of civil defense tasks. Questions connected with civil defense are often discussed at sessions of the republic's local soviets and sessions of ispolkoms. Attention is deserved by the experience of creating city and rayon universities of military-patriotic indoctrination in the republic which, in their work, devote great attention to propagandizing civil defense knowledge as well as to the moral-political and psychological preparation of the population for possible tests of contemporary war. The best ones are the "Patriot" University in the city of Kokhtla-Yarve and the university "Za Rodinu" [For the Motherland] in Narva and universities in the city of Tallin of Kalininskiy rayon, in Sillamyae, and Kingiseppskiy and Paydeskiy rayons.

The local soviets of people's deputies and their ispolkoms select cadres for their civil defense staffs, create the necessary conditions for their normal activity, and check the execution of the decisions of higher organs and of their own decisions in questions of organizing civil defense.

The ispolkoms of rayon and city soviets create civil defense services and determine their total number and number at each installation of the national economy on the territory of the rayon or city. These, as a rule, are communication, medical, fire-fighting, engineer, anti-radiation, anti-chemical, motor transport, municipal engineering, technical, and a number of other services.

These formations are created with installations of the national economy for the conduct of protective measures and the performance of rescue and damage-restoration work in stricken areas. Reservists who have mobilization assignments, invalids, pregnant women, and women who have children up to 18 years of age are not enrolled in them. Upon representation of the civil defense chiefs of staff the ispolkom of the local soviet of people's deputies creates these formations on the scale of an administrative-territorial unit.

Local soviets ensure the monitoring of the teaching of civil defense principles to the management personnel of enterprises, institutions, kolkhozes and sovkhozes, and educational institutions and of the organization of the general instruction of the population in protection against weapons of mass destruction, and they direct the conduct of civil defense exercises on their territory.

In some rayon (city) soviets of people's deputies of our country civil defense commissions have been created and constantly function with the ispolkoms and they include servicemen, DOSAAF representatives, and representatives of other public organizations and labor collectives. Their basic task is monitoring the accomplishment of the corresponding decisions of the soviets and their ispolkoms. The commissions participate in the organization of civil defense measures, accumulate and generalize leading experience, analyze the status of civil defense at installations of the national economy, and prepare materials for consideration at the sessions of the soviets and the executive committees.

Among the basic directions in the activity of local soviets and their ispolkoms in the field of civil defense, it is also necessary to point to their solution of such a difficult problem as providing the population with shelters in cities and large populated places. Engineering and technical measures for their creation and equipping are conducted in the interests of protecting people and for the creation of conditions which ensure the stable operation of industrial and transportation installations in time of war.

The deputies also render great assistance to the civil defense organs. They discuss urgent civil defense problems at meetings of ispolkoms and sessions and participate actively in checks of the course of instruction of workers and employees in measures for protection against weapons of mass destruction at enterprises, institutions and organizations, kolkhozes, and sovkhozes. The deputies render practical assistance to civil defense staffs in raising the quality of lessons being conducted, ensuring the material-technical base of training centers, propagandizing civil defense knowledge among the workers, and so forth.

The ispolkoms of local soviets of people's deputies and their chairmen, being the civil defense chiefs on their territory, also conduct important work on the coordination of the activity of local organs of military control, the DOSAAF organs, organs of trade union and Komsomol organizations, and the leaders of enterprises, organizations, institutions, kolkhozes, and sovkhozes in the organization of civil defense.

The powers of the local soviets of people's deputies to divert lands for the country's defensive needs are also closely contiguous with the accomplishment of civil defense tasks.

The Diversion of Lands for Defense Needs

Lands which are made available for the country's defense needs include parcels of land: which support the activity of the Soviet Armed Forces; for organizing the protection of state boundaries; for the placement of enterprises, institutions, and organizations whose activity is directly connected with ensuring the military power of the Soviet Union.

The procedure for diverting lands for defense needs is regulated by all-union as well as republic legislation.

Soviet legislation grants oblast (kray) ispolkoms of soviets of people's deputies the right to decide to perform exploratory work on lands intended for diversion for defense needs. Applications concerning the diversion of lands located outside cities and city-type settlements are considered by the ispolkoms of oblast (kray) soviets of people's deputies, and of lands located within cities and city-type settlements--by city and settlement ispolkoms of local soviets of people's deputies.

In the case of submission of an application to the oblast (kray) ispolkom concerning the diversion of kolkhoz lands, the local organs of state authority (rayon, rural, and settlement soviets) provide a certificate on the impossibility of accomodating the installation on state lands and on the amount of land of the given kolkhoz and they provide a conclusion concerning the possibility of withdrawing the lands (with the agreement of the general meeting of kolkhoz members). A special commission of the rayon soviet's executive committee (with the participation of representatives of the kolkhoz and Soviet Ministry of Defense) prepares a statement concerning an estimate of expenditures and outlays connected with diversion of the lands.

A commission is created to accept the parcel of land, the composition of which must include a representative of the local soviet of people's deputies and representatives of the parties (for example, the kolkhoz and the troop unit). The local soviets, in the person of the ispolkoms, also include their representatives in the commission to determine the amounts and estimate the losses connected with the diversion of the lands for defense needs. Disagreements on the amounts of compensation for losses for individual citizens when pulling down structures belonging to them in populated places in connection with the diversion of lands are finally decided by oblast and city (in cities with rayon division) ispolkoms of soviets of people's deputies.

The executive committees of rayon soviets of people's deputies maintain a State Book for the Recording of Land Use where all land including those diverted for defense needs are accounted for.

Thus, the local soviets of people's deputies and their ispolkoms, in realizing the competence which has been assigned to them in the field of directing civil defense on their territory, and also in solving problems in the diversion of lands for defense needs, are making their contribution to the strengthening of the country's defensive might.

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CSO: 1801/114

CIVIL DEFENSE

BOOK EXCERPTS: CIVIL DEFENSE IN RADIOACTIVE ENVIRONMENT

Moscow LIKVIDATSIYA POSLEDSTVIY RADIOAKTIVNOGO ZARYAZHENIYA in Russian 1980 (signed to press 18 April 80) pp 1, 2, 3-6, 7, 16, 29, 50-51, 72, 78-79,87-89, 98-101, 110, 117, 118-119

[Annotation, table of contents, foreword, excerpts from Chapters 1 through 9, and table of contents from book "Overcoming the Effects of Radioactive Contamination", by V. A. Gaydamak, Atomizdat, 50,000 copies, 120 pages]

[Text] The basic problems in overcoming the effects of radioactive contamination are presented. Recommendations are provided on the use of equipment of the national economy when conducting decontamination work and also on the procedure for training personnel of non-militarized civil defense [CD] formations in overcoming the effects of radioactive contamination.

For teachers of civil defense in educational institutions and CD courses and commanders of non-militarized CD formation, the book may be used by the population which is studying CD to the extent of the general mandatory minimum of knowledge in protection against weapons of mass destruction.

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Foreword

Nuclear weapons possess the greatest destructive effect in comparison with any other known weapons of mass destruction. The damage-causing factors of nuclear weapons-- shock wave, thermal radiation, and initial radiation-- operate briefly; in contrast with them, radioactive contamination may create the threat of injuring people on a vast territory for a long period of time.

Thus, as a result of a test burst with a yield of about 15 MT which was conducted by the United States in the Pacific Ocean near the Bikini Atoll on 1 March 1954, heavy radioactive contamination was observed in a zone more than 530 kilometers long and 100 kilometers wide. Several islands located east of the range and the Japanese fishing vessel "Lucky Dragon" which was located 160 kilometers from the burst position were subjected to radioactive contamination. The residents of the islands received radiation doses of from 14 to 175 R*, and radiation damage to the skin and changes in the composition of the blood were observed in many. As a result of the fallout of radioactive dust on the fishing vessel, all 23 of its crew members received a radiation dose of about 200 R and suffered radiation sickness from which one person died. If the crew of the vessel had not washed the radioactive dust overboard after its fallout, the effects from the irradiation of the people could have been even more serious.

A large quantity of nuclear weapons has been accumulated in various countries now and their mass employment in case of the outbreak of nuclear missile warfare will entail the radioactive contamination of vast territories.

As one of the damage-causing factors of nuclear weapons, radioactive contamination may cause an increase in losses among the personnel of non-militarized civil defense (CD) formations** and the population and may create difficulties in ensuring the steady operation of many branches of industry and agriculture in time of war.

It should be noted that it is also possible for radioactive matter to land in the environment in peacetime. The quantity of radioactive materials being employed in various fields of science and technology is growing with each passing year. In various countries now, thousands of scientific research institutes, nuclear power enterprises, and laboratories are using radioactive materials. These materials are produced, transported, used, and finally destroyed in the form of waste, and at each stage the possibility of the emergence of an accident or emergency which can create the danger of injury to the servicing personnel is not excluded.

As a result of accidents, as rule, the zones of radioactive contamination which are created are not as vast as those formed by the bursts of nuclear weapons but the danger of injury to the people does not become less because of this. This danger can be eliminated or reduced through the conduct of a complex of measures on overcoming the effects of radioactive contamination by CD forces and equipment and by the population. These measures include: the people's observance of permissible radiation doses, decontamination of contaminated objects, reduction of the entry of radioactive matter in the human body, prevention of radioactive injury to people's

* $R = 2.58 \cdot 10^{-4}$ C/kg.
** Henceforth we will write "formation" instead of "non-militarized CD formation."

skin, the use of prophylactic means and the treatment of casualties, and raising the psychological stability of the formation personnel and the population as a whole.

The implementation of these measures is envisioned in a single complex and simultaneously; only then can conditions be created for the effective protection of people who have found themselves in zones of radioactive contamination and for ensuring the steady operation of installations of the national economy. The combined conduct of measures to overcome the effects of radioactive contamination is possible only with the organization of the training and equipping of CD forces and means with protective equipment, instruments, and equipment in advance. This requirement can refer first of all to decontamination measures which, even with their differentiated conduct, require the accomplishment of considerable volumes of work with the involvement of formations and the population.

Thanks to the tremendous efforts of the Soviet government, in August 1963 the Moscow Treaty on Prohibiting Tests of Nuclear Weapons in the Atmosphere, Outer Space, and Beneath the Water was concluded. Later, treaties were concluded between the USSR and the United States on limiting underground nuclear weapons tests and underground nuclear explosions for peaceful purposes. All these agreements formed a good foundation for the complete resolution of the problem of forbidding all nuclear weapons tests. A specific draft for such a treaty was worked out by the Soviet Union and introduced for consideration by the UN in 1975. The Soviet initiative on concluding a treaty on the complete and universal outlawing of nuclear weapons tests encountered approval on the part of many states in the UN: almost 100 delegates voted for the proposal of the USSR. The Soviet proposal, however, did not receive support on the part of the other nuclear powers.

The Soviet Union is undertaking great efforts to eliminate the danger of employing nuclear weapons and solve the problem of preventing the spread of these weapons. However, thus far the problem of complete prohibition of nuclear weapons and elimination of supplies of these weapons which have been accumulated has not been solved and the danger of the outbreak of nuclear war has not passed. Consequently, neither has the threat of contamination of tremendous territories by radioactive materials been eliminated.

Therefore now, in peacetime, we should learn to overcome the effects of radioactive contamination under conditions of a varied, at times very difficult situation which may develop in zones of contamination. This is necessary for the specialists of the CD services, and for commanders and fighters of the formations, and for the population. It is necessary that all persons who have found themselves in zones of radioactive contamination know the most general information about the nature of contamination of various objects, the properties of radioactive substances, and practical recommendations on decontamination questions so that each one, in his place, can perform his duties in protecting himself, his family, and production against the effects of radioactive contamination in a qualified manner. This requirement determined the selection of materials for this book and their arrangement in it.

Chapter 1 briefly examines the special features of the radioactive contamination of objects of the environment and its consequences for man. It is kept in mind that the acquaintance of the reader with these questions will help him to evaluate the necessity for the accomplishment of an entire series of requirements which are part

of the complex of measures to overcome the effects of radioactive contamination with greater understanding.

Chapter 2 presents the principles for overcoming the effects of radioactive contamination. It tells about the basic measures which must be conducted to prevent or reduce losses in zones of radioactive contamination.

Chapter 3 is devoted to a description of decontaminating substances and solutions and special and national-economic technical means to conduct special processing and the decontamination of territory and structures.

Chapter 4 examines questions of preparation and the conduct of decontamination measures. It presents general recommendations on determining possible volumes of work on decontaminating territory in cities and the sequence for its conduct. It sets forth methodological recommendations for the conduct of lessons with the personnel of the clothing decontamination station on the subject, "Actions of formations for anti-radiation and anti-chemical protection when overcoming the effects of the enemy's employment of weapons of mass destruction." The procedure for the organization and conduct of this lesson is basically also effective for other formations for anti-radiation and anti-chemical protection created based on stationary institutions for the domestic servicing of the population. The procedure for the conduct of decontamination work by the decontamination team at various installations in the stricken area and outside it is indicated.

Chapter 5 and subsequent chapters present detailed practical recommendations on the performance of specific measures for the medical processing of people and the decontamination of clothing, transportation, territories, food, and water.

Chapter 1. Radioactive Contamination of the Environment

With nuclear bursts, the degree of radioactive contamination as well as the shape and size of the regions of contamination depend on the yield and type of nuclear burst, methodological conditions, terrain relief, the time elapsed since the burst, and the nature of the soil and vegetation.

Heavy contamination of the terrain is observed with surface and shallow underground nuclear bursts. Radioactive contamination does not present a serious danger with the other types of nuclear bursts.

Chapter 2. Principles for Overcoming the Effects of Radioactive Contamination

Overcoming the effects of radioactive contamination envisages the conduct of a complex of measures directed toward the prevention or reduction of losses from radioactive contamination and which contribute to ensuring the steady operation of installations of the national economy in vast zones of radioactive contamination. This chapter tells about the basic measures directed toward overcoming the effects of radioactive contamination.

Chapter 3. Equipment Used for Decontamination

To conduct decontamination work, use can be made of substances which permit raising the effectiveness of removing radioactive matter from various contaminated surfaces of buildings, structures, transportation, and equipment, from clothing and individual protective equipment, and from water. These substances include surface-active washing materials and preparations, complex-forming materials, waste products of industrial enterprises (which possess washing action), organic solvents, sorbents, and ion-forming materials.

Various technical means are also used for the conduct of decontamination work. They include special instruments and machines as well as some types of national-economic equipment which are suitable for purposes of conducting decontamination.

Chapter 4. Preparation and Conduct of Contamination Measures

The accomplishment of the tasks on the preparation and conduct of decontamination measures is assigned to all CD services. Along with this, there are CD services in cities, rayons, and at installations which have been specially created for the conduct of decontamination work. We can include among them the service for the medical processing of people and decontamination of clothing, public utilities and technical service, and others. These services are created on the base of city and rayon institutions and enterprises for communal services and domestic services for the population.

The service for the medical processing of people and the decontamination of clothing and the public utilities and technical service ensure the conduct of measures for the medical processing of people and the decontamination of clothing, footwear, and individual protective equipment as well as the decontamination of territories and structures.

At installations of the national economy, these tasks are accomplished by the anti-radiation and anti-chemical service. They include installation formations for the special processing of people, clothing, equipment, and transportation and the decontamination of territory and structures: sanitation-washing posts, clothing decontamination stations, transportation decontamination stations, and decontamination teams (groups).

The involvement of other formations which have equipment for the conduct of decontamination work is possible. They include, first of all, formations of the CD engineer and fire-fighting services. Subunits of troop units can be drawn upon for coordination in the conduct of decontamination work.

The leaders of institutions and organizations on whose base the services are created are designated as the chiefs of the services. A service staff or control cell is formed with the chief of a service. The chiefs of services organize the conduct of CD measures and the work of the services subordinate to them on the basis of the decision of the CD chief and the instructions of higher chiefs of service. The services coordinate their measures with the appropriate CD staff.

The formations will accomplish the greatest volume of decontamination work in the cities. Obviously, a radiation situation which is characterized by different radiation levels may develop in each rayon of a city as a result of radioactive contamination. Therefore, when planning and conducting decontamination measures it is expedient to consider a city rayon as an independent unit.

The planning of decontamination work in a city can proceed in accordance with the following scheme. In city rayons, installations of the national economy and the territory with residential and administrative buildings adjacent to them and which must be subjected to decontamination are noted. The territory of the installation with the residential and administrative buildings as a whole is designated a decontamination sector. The area of each sector is divided into a number of decontamination sites. Each such site receives a number. This permits ensuring the clear organization of the work and will facilitate the distribution of men and equipment when conducting decontamination on the sector.

Chapter 5. Medical Processing of People

Personnel of formations and the population who have been subjected to contamination by radioactive contamination undergo medical processing to prevent losses or reduce them to the minimum possible. Where possible, it should also be conducted where monitoring of the degree of contamination has not been conducted for some reasons but people proved to be contaminated by radioactive substances as a result of a stay in zones of contamination. It is most expedient to conduct medical processing during the first hours after contamination.

In the course of medical processing radioactive substances which have landed on the skin or mucous membranes of the eyes, nose, and oral cavity are removed. As decontaminating solutions use can be made of water as well as aqueous solutions of washing means. Here the decontamination coefficient can reach large values (radioactive substances are virtually completely removed).

During work or the stay of people in areas of radioactive contamination the contamination of their clothing, footwear, and individual protective equipment usually occurs. Therefore, as a rule medical processing is accompanied by the decontamination of these objects.

Depending on the situation, the nature of the contamination, and the presence of the appropriate means the medical processing of people may be partial or complete.

Chapter 6. Decontamination of Clothing, Footwear, and Individual Protective Equipment

Clothing, footwear, and individual protective equipment are usually contaminated at the time of the fallout of radioactive matter from the cloud of a nuclear burst or when people are conducting operations on contaminated terrain. Heavier contamination of clothing and footwear is possible in the case of the fallout of radioactive matter with rain.

The degree of contamination of clothing by radioactive dust is determined by the amount of dust which may adhere to the clothing and its specific activity. The quantity of dust which may be on the special clothing of a worker under the conditions

of a dusty shop reaches 100-200 grams per day; the specific activity with global fallout of products of nuclear bursts may reach 0.5 Cu/g.* Therefore, contaminated clothing can represent a specific danger for people and should be subjected to decontamination.

Many means for the decontamination of clothing, footwear, and individual protective equipment exist. However, they are not all equivalent. In selecting the decontamination method, we are guided not only by the general conditions (availability of time and equipment) but we also consider the nature and degree of contamination as well as the special features and quality of the materials from which the clothing, footwear, or protective equipment are made.

Decontamination of clothing, footwear, and individual protective equipment may be partial and complete.

Chapter 7. Decontamination of Transportation Means and Equipment

The contamination of transportation means and equipment can occur during the fallout of radioactive dust from the cloud of a nuclear burst or when they move over contaminated terrain.

With the same radiation levels on the terrain, the density of contamination of machinery may be different depending on the type of machinery, its condition, and the contamination conditions. The density of contamination on various machinery surfaces will also differ. This is explained by the fact that radioactive dust is easily poured together or washed away by precipitation from smooth, sloping surfaces but concentrates on oily and dirty surfaces of complex configuration. It is believed that with the fallout of radioactive dust in dry weather transportation equipment and means are contaminated with a density which comprises 10 percent of terrain contamination density. If transportation means and equipment are contaminated through the processes of secondary dust formation, it can be considered that the density of its contamination is approximately 100 times less than the terrain contamination density.

Contamination in rainy weather or during a snowfall is greater since rain and damp snow form a film with radioactive substances on the surface of transportation means and equipment. Contamination density also increases in connection with the adhesion of a large quantity of contaminated dirt to the running gear.

Since a certain relationship exists between the radiation level on contaminated terrain and the terrain contamination density, by measuring the radiation level on the terrain we can also estimate approximately the degree of contamination of the transportation means and equipment located on it:

$$Q_{equip} = 80\ P,$$

where P is the radiation level on the terrain, R/hour.

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* 1 Cu = $3.700 \cdot 10^{10}$ Bq.

One or another method of decontamination is employed depending on the availability of decontamination equipment, degree of contamination, and time.

One of the most accessible decontamination methods is washing away radioactive matter by a jet of water under pressure. It is accomplished using special machines and instruments as well as machines and instruments used in the national economy. When washing away radioactive dust, the entire surface of the contaminated object is washed with a strong jet of water in turn from top to bottom. The jet is directed at an angle of 30-60° to the surface being processed from a distance of 3 to 4 meters so that the water runs off onto the ground and does not splash to the sides. Special attention is paid to flushing grooves and slits. The degree of an object's contamination can be reduced 10-20-fold as a result of such processing.

Another decontamination method is the washing away of radioactive matter with water or washing solutions with simultaneous wiping using field expedients (rags, hay, straw, and so forth) soaked with decontaminating solutions, water, or solvents. Rag wads or straw bundles are used to wipe contaminated surfaces from top to bottom, and in slits and grooves, especially thoroughly. Outer surfaces are wiped with wads (bundles) abundantly soaked, and inner surfaces, with squeegees. It is recommended that wads be changed more often (bury dirty ones in the ground). In order to achieve completeness of decontamination, contaminated surfaces are wiped two or three times and are rubbed dry after each wiping. When sets for special processing are available, brushes from these sets are used.

The sweeping away of radioactive dust with brooms, brushes, rags, and other field expedients is the simplest but not very effective method which is employed primarily to conduct partial decontamination; it ensures a reduction of contamination of two- to four-fold. The sweeping of a contaminated object is begun with sections of the surface which are on the windward side, successively moving on to sections on the leeward side.

Under winter conditions, the processing of contaminated objects can be accomplished by wiping their surfaces with snow two or three times. Special attention is devoted to processing places difficult to reach.

Vacuum-cleaning is used to decontaminate dry surfaces which are not oily. The vacuuming of the dust is accomplished with simultaneous wiping of the surface being processed with brushes from top to bottom. Grooves and slits as well as parts and assemblies with which personnel must come in contact when using the equipment are processed with special thoroughness.

Depending on the conditions and methods for the conduct of decontamination and the equipment being used in so doing, decontamination of transportation means and equipment is customarily divided into partial and complete.

Chapter 8. Decontamination of Territories and Structures

Work on the decontamination of territories and structures is conducted in those cases where their contamination will represent unquestioned danger for people and where this work provides a considerable savings in time in comparison with that which is required for natural decontamination.

The following decontamination methods are employed when decontaminating territory:

--washing away radioactive matter from roads and areas having a hard surface with a jet of water under pressure using street sprinklers, fire engines, special machines, motor pumps, and other assemblies which provide the feeding of water;

--the removal of radioactive matter by sweeping using sweepers and vacuum cleaners and, from small terrain sectors with a hard surface--brushes and brooms;

--cutting off a layer of contaminated soil or snow using bulldozers, scrapers, graders, and track layers, and removing a layer of snow using snow plows;

--plowing or digging up a contaminated surface using tractor plows or shovels;

--covering a contaminated surface with a layer (six to eight centimeters) of uncontaminated dirt, gravel, or crushed stone.

Work on decontaminating territories is organized in such a way that technical decontamination equipment has a broad work front (large areas, thoroughfares, lanes). Terrain sectors where it is inconvenient to employ machines are processed manually using instruments which are operated manually as well as shovels, wheelbarrows, litters, and so forth.

Among the methods to decontaminate structures, the main place is allotted to processing with jets of water under pressure. The effectiveness of this method is increased if the contaminated surface is wiped simultaneously with brushes. The remaining decontamination methods (processing with washing solutions, using industrial vacuum cleaners at installations of the national economy, sand blasting) can be considered as auxiliary since they are used when conducting work which is small in volume.

The selection of methods and procedures of contamination and the order of their conduct depends primarily on the type, nature, and character of the contamination as well as on the availability of necessary equipment and time.

The basic data which characterize the methods for decontaminating territories and structures, including the productivity of the technical means for decontamination and the effectiveness attainable with them in so doing, were presented in Table 4.1 [not reproduced]. The effectiveness of the decontamination which is estimated in this table using the decontamination coefficient K^{o}_{d} depends on which radioactive particles fall out in a given place by size. It has been established by tests that in decontaminating road surfaces the effectiveness of removal of dust with particles 20-75 microns in size is noticeably lower than when removing dust which contains bigger particles. The effectiveness of decontamination of road sections contaminated with big particles and decontaminated using sweepers or by washing away with a jet of water is estimated as $K^{o}_{d} = 10$, and with contamination with fine dust--$K^{o}_{d} = 2\text{-}5$. It is believed that it is necessary to employ more improved equipment to increase the decontamination coefficient. This circumstance must be considered when conductingthe decontamination of territories and structures which are located along the trail of the radioactive cloud far from the area of the nuclear burst.

Although the effectiveness of removing radioactive matter when sweeping is not high, which is explained by the presence of various depressions, fissures, and other roughnesses on the areas being processed, this method is finding wider application as a result of the speed of its conduct and the presence of a large number of various types of sweepers in the national economy. The method of washing away radioactive matter with a jet of water is effective for hard surfaces; however, when using it it is necessary to have runoff to remove the contaminated water.

The method of decontamination by cutting off a layer of contaminated soil (snow) ensures rather high effectiveness when using road equipment (graders, bulldozers). But the presence of a large amount of dirt which must be removed and the long time expended on this reduce the overall effectiveness of the work. The upper layer of soil (snow) which is removed when cutting is moved to the edges of the sectors being cleared, forming embankments which can be used to protect against radiation from adjacent contaminated sectors. Such embankments consist of a mixture of contaminated and pure soil (snow) and, therefore, their radioactivity is significantly reduced.

The danger of irradiating people depends on the area of contamination. A reduction of the radiation level within given limits can be attained by decontamination of the very sectors where people will be located as well as of the side and end berms adjacent to them which are a protective zone protecting against the effect of radiation from terrain sectors which have not been subjected to decontamination. Thus, the creation of protective zones along streets, roads, and thoroughfares can reduce significantly the external irradiation of people. The dependence of the decontamination coefficient on the width of the strip being decontaminated is characterized by the following data:

Width of decontamination strip, meters	1	10	50	100
Decontamination coefficient	3	7	20	42

Figure 8.1 [not reproduced] shows an area in the form of a rectangle on which it is necessary to conduct decontamination. The dimensions a and b show how much the width and length of a decontaminated sector with dimensions a_0 and b_0 should be increased to obtain the required decontamination coefficient (Table 8.1) through a reduction in the radiation level at point C (irradiation conditions are more rigid at this point than at any other point located on the axis of the sector being processed).

For example, to ensure $K^o_d = 16$, the value a should equal 10, and the ratio $b/a = 2$, that is, b = 20 meters. These data provide the opportunity to determine the area of the sector which should be subjected to decontamination; removal of radioactive matter from this area will provide the required decontamination coefficient which guarantees a reduction of the danger of irradiating people.

Protection of the population from irradiation in rural terrain will be accomplished, as is known, in anti-radiation shelters. After contamination of the terrain, it is necessary to conduct decontamination of shelters immediately, using for these purposes such methods as sweeping away (with brushes, brooms) radioactive matter, cutting away contaminated soil (with shovels), and wiping contaminated surfaces (with wet rags).

Table 8.1. Dependence of Decontamination Coefficient K^{o}_{d} on Ratio b/a

a, meters	K^{o}_{d} with ratio b/a equal to				
	5	4	3	2	1
10	200	47	21	16	13
50	1000	167	56	42	38
100	-	500	110	91	83

Along with protective structures, the population in cities will use residential and production buildings for protection against external irradiation. A reduction in the irradiation of people who have taken cover in structures and buildings will be furthered by the decontamination of roofs with which up to 80 percent of radioactive matter is removed. For this purpose, a 10-meter zone is decontaminated around the houses. If the area around the houses has a hard surface, the radioactive fallout is removed by washing away with water or sweeping away using field expedients; in the absence of a hard surface, it is necessary to dig up the dirt or remove it.

Chapter 9. Decontamination of Food and Water

Food may become contaminated primarily by radioactive matter which falls out in the form of dust or rain. Primarily salty foods which contain a large quantity of common salt are contaminated through induced activity. Food which has induced activity is not subject to decontamination; it is left for natural decontamination. Water in open basins is contaminated with underwater nuclear bursts when a portion of the radioactive matter remains in the water as well as with the landing of radioactive matter in the basin which falls out in the form of dust or rain along the trail of the radioactive cloud.

The contamination of water by radioactive matter is dangerous only in the case where it exceeds permissible standards. The degree of radioactive contamination of the water is determined using a radiometer-roentgenometer; however, an approximate estimate of the degree of contamination of the upper layer of water in large basins can be determined by the formula:

$$Q = 1.13 \cdot 10^{-9} P,$$

where P is the radiation level on the water surface, R/hour.

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CSO: 1801/120