Intelligence Bulletin

MAY 1946

MILITARY INTELLIGENCE DIVISION - WAR DEPARTMENT - WASHINGTON D. C.

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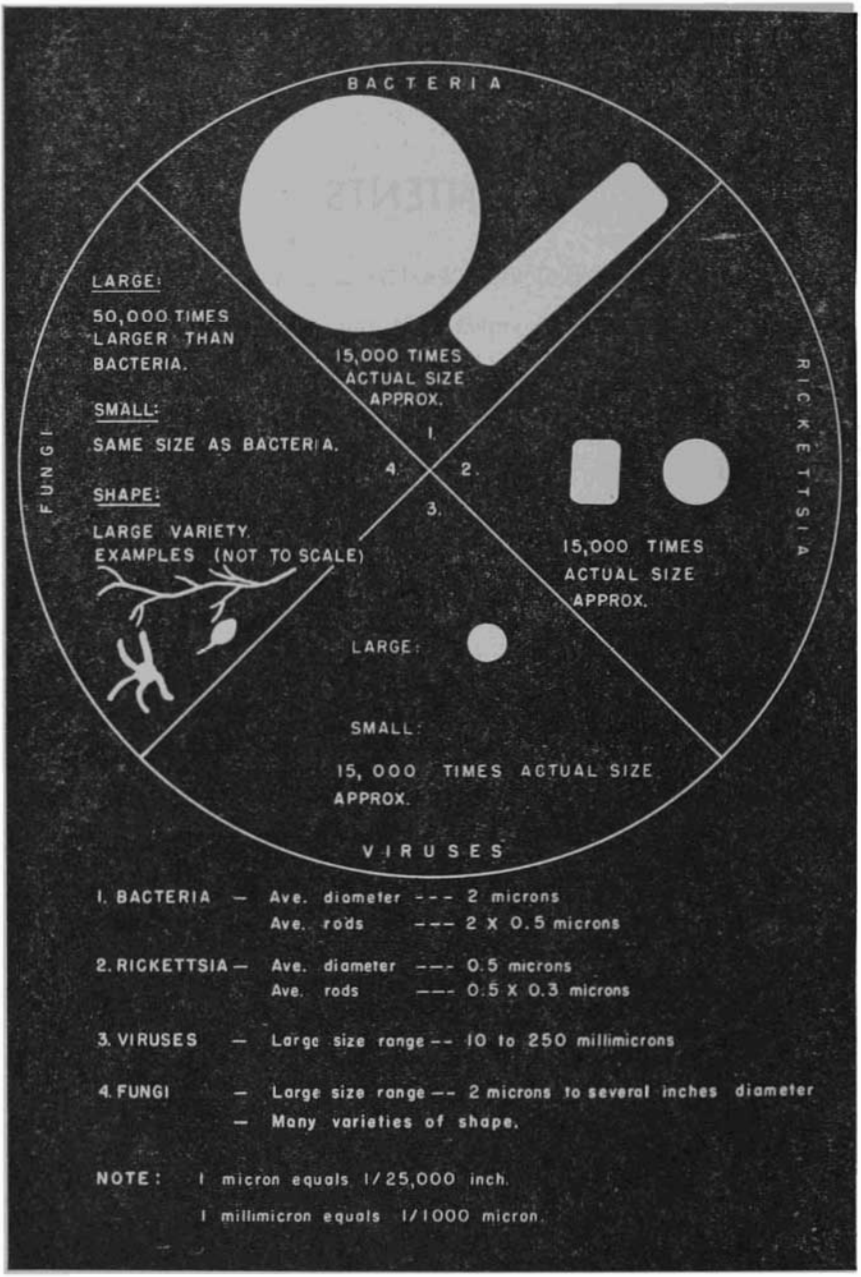
CONTENTS

COVER ILLUSTRATION: Gunners of a Red Army heavy mortar unit put their guns into battery during the siege of Stalingrad. There are seven 120-mm mortars of this type in the heavy mortar battery of a Red Army rifle regiment. These guns, with the medium and light mortar units of the regiment, give the Soviet infantryman two and one-half times the mortar support found in the U. S. infantry regiment. Support fire from these weapons in the Red Army is delivered by using artillery methods; the outstanding characteristic being the use of massed fire.



1. BACTERIA — Ave. diameter --- 2 microns
   Ave. rods --- 2 X 0.5 microns

2. RICKETTSIA — Ave. diameter --- 0.5 microns
   Ave. rods --- 0.5 X 0.3 microns

3. VIRUSES — Large size range -- 10 to 250 millimicrons

4. FUNGI — Large size range -- 2 microns to several inches diameter
   — Many varieties of shape.

NOTE: 1 micron equals 1/25,000 inch.
1 millimicron equals 1/1000 micron.

"BW"

Biological Warfare as a Weapon

Ever since men began fighting in groups, armies in the field have had to contend with two enemies—the troops of the opposing army, and epidemic disease. The latter has often proved to be the more deadly of the two. In fact, it has only been in World War II that armies could count on fewer men being incapacitated by sickness than by enemy action—a fact greatly to the credit of modern military medicine.

But with the advances of medical science during the past few generations, and the discovery of the causes and sources of certain epidemic disease, the leaders of warring nations have had to contend with the threat of a new weapon. Such a weapon is disease deliberately produced by a nation and spread among the peoples and troops of its enemies. Because of its nature, this threat has been called "biological warfare."

Charges have been made, but not entirely substantiated, that both Germany and Japan had made experimental use of biological warfare during World War II. In some cases, unofficial reports of such incidents have appeared in commercial publications, and quite often such reports have been distorted or exaggerated. For this reason, the INTELLIGENCE BULLETIN *presents herewith its explanation of "BW"—biological warfare.*

These are the principal agents of biological warfare—bacteria, rickettsia, viruses, and fungi. This diagrammatic chart illustrates the relative sizes of these agents, here enlarged approximately 15,000 times actual size. The light areas do not necessarily represent the actual shapes of the agents.

"The Black Death—terror of the Dark Ages—is back. And it may yet ruin the whole earth as it once nearly ruined Europe." Thus were the opening lines of a story that appeared recently in one of the sensation-seeking journals published for the benefit of the more gullible element in our society. This distorted attitude is unfortunate, and a clearer picture of the fundamental concepts of biological warfare is the privilege of all U. S. Army personnel.

During the recent war, the enemies of the Allied powers concluded that biological warfare could be molded into an effective, practical weapon. Many prominent scientific authorities concur in the belief that "BW," as it is called, is potentially an effective weapon of war, and must be regarded as a real threat. It must be remembered, however, as with any new weapon, that a great deal of research and development is necessary. Some such research was conducted by both Germany and Japan, but sufficient progress was not made by those countries to utilize "BW" successfully in World War II.

WHAT IS BW?

Naturally, the governments of both Germany and Japan took steps to keep any mention of their efforts highly classified. Therefore, it is not unusual that many people have never heard of biological warfare, much less understand it. In brief, biological warfare is the employment of living agents—popularly called "germs"—or their toxic products, to produce disease or death of man, animals, or plants. These so-called living agents are the microscopic and submicroscopic living organisms present around us at all times. Some of these minute bits of life, which cannot be seen by the naked eye, are capable of causing disease. Each organism causes a specific disease; some attack man, some animals, and others plants. An organism that causes such disease is called pathogenic. It is these pathogenic organisms that are referred to as "living agents."

Because of the great number of pathogenic organisms that exist, it is necessary to classify them into various groups such as bacteria, rickettsia, viruses, and fungi. (See frontispiece.) Anyone of these types of organisms may be used in biological warfare. Some of these organisms give off waste materials when they grow on certain types of foods. These waste materials may be poisonous to man or animals, and for that reason are called toxic products. A specific example of such a poison is the toxin given off by a bacterium called *Clostridium botulinum*. Of all the toxins formed by bacteria in food, this is the most powerful. Only a very minute quantity of this toxin is needed to kill a man. Such types of food poisoning are often erroneously called "ptomaine poisoning." It is this type of organism which may be used in biological warfare, and is therefore known as a "BW" agent.

Often the terms "biological" and "bacteriological" are used synonymously. Actually, they do not mean the same thing. Strictly speaking, "bacteriological" refers only to bacteria, whereas the term "biological" is much broader in scope and includes bacteria, rickettsia, viruses, fungi, and toxic products. Hence "biological" is the term that should be used in referring to this method of warfare.

In general, BW agents act only on living matter, and in this respect they are unlike high explosives and incendiaries. They are either infectious (cause disease) or toxic (poisonous) in action. The method of action would differ with various agents and, somewhat, with the manner in which they were used. In all cases, however, the ability of the agent to infect or poison and the resistance of the man or animal are primary factors.

Infection can be introduced through the lungs (by breathing), through breaks in the skin caused by bullets, shell splinters, etc., or by way of the intestinal tract when eating or drinking. Information obtained from Axis sources indicates that our recent enemies were studying many methods of disseminating BW agents. Some of these were BW bombs, shells, and bullets; sprays from airplanes; infected insects, animals, or objects; and by saboteurs. The enemy researchers believed it possible to introduce BW agents into large cities, rest areas, and similar strategic places, thereby directly infecting many persons not necessarily military personnel. Such a strategic use of biological warfare, they believed, might not only undermine the manpower of a nation, but create a damaging psychological effect on civilians on the home front, and troops in the field.

It was the opinion of enemy scientists that BW could also be used as a tactical weapon if the situation so permitted. It is conceivable that BW agents could be used against a well defended area by introducing an agent which takes a week before sickness appears. By proper timing, enemy troops could attack after the danger of direct infection had passed, and just when the effect of the agent was at its height among the defending troops.

Retreating enemy troops could infect food and equipment left behind. Advancing troops would then be subject to the effects of these BW agents. Toxins placed in abandoned food and drink could cause deaths and casualties.

IS THERE A DEFENSE?

Defensive measures against biological warfare may be classified as biological, chemical, and physical. When troops or civilians are immunized against a disease which may be used as a BW agent, the chance of contracting that particular sickness is greatly reduced. That is a method of biological protection. It is entirely possible to decontaminate some areas and equipment that have been subjected to a BW attack. Chemicals, and in some cases heat, may be used to destroy the agents and thus render them harmless.

Special suits and masks can be worn to provide physical protection against BW agents. (See next page.) BW casualties and exposed personnel can be isolated and promptly treated to prevent further infection. Of course, the general public health and sanitary measures are of great importance in preventing the spread of communicable diseases. In the field, increased control over troops would be necessary to prevent the use of other than authorized food, drink, or equipment. It is also entirely possible to train special defensive units for defense against biological warfare.

HAS BW EVER BEEN USED?

It is known that the Germans used BW by sabotage methods in World War I by infecting horses with a disease called glanders. There are many reported incidents of the use of BW in World War II, but most of these remain unconfirmed. Some of these alleged incidents were investigated and, although authorities are not completely agreed, qualified investigators stated that it was highly probable they were trial uses of biological warfare.

One claim states that the Japanese resorted to using BW in Chuhsien, Che Kiang Province, China. The report of the incident alleges that Japanese planes dropped grains of rice mixed with fleas infected with plague germs. Soon rats in the city died in large numbers, and cases of plague appeared among the civil population.

It is known that during the recent war the Nazis were concerned with the defense against BW, and in this regard necessarily studied some of its offensive aspects. They realized, however, that this work had begun too late, and that sufficient progress had not been made to employ BW successfully in World War II. Japanese efforts may be regarded in a similar light, although they did make some progress in both offensive and defensive BW research and development.

WHAT OF THE FUTURE?

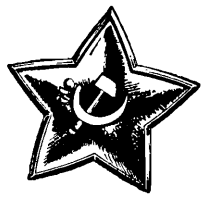
It is natural to wonder, now that German and Japanese plans have come to light, whether or not other nations have been engaged in biological warfare research, or if this weapon may be employed in any future conflict. An answer might be found in the international attitude toward the use of chemical warfare.

In 1922, the Conference on the Limitation of Armaments, meeting in Washington, D. C., condemned chemical warfare and prohibited its use. In 1925, the League of Nations again outlawed the use of chemical warfare and added, ". . . the High Contracting Parties, so far as they are not already Parties to Treaties prohibiting such use, accept this prohibition, agree to extend this prohibition to the use of bacteriological methods of warfare and agree to be bound as between themselves according to the terms of this declaration."

Not men from Mars—just evidence that the U. S. was ready to combat biological warfare had our recent enemies used this weapon against us. These are samples of protective clothing developed by the army for the use of BW decontaminating troops.

Since most major nations, fearing disregard of such agreements by other countries, prepared for chemical warfare, not only defensively, but also offensively, it is highly probable that biological warfare will be treated with the same attitude. In spite of any such international treaties, several nations have in the past carried out research and development in both the offensive and defensive aspects of biological warfare. It must be assumed that they will do so in the future.

"In all situations every leader must exert, without evasion of responsibility, his whole personality. Willing and joyful acceptance of responsibility is the distinguishing characteristic of leadership. This does not mean that the subordinate should seek an arbitrary decision without proper consideration of the whole or that he should not obey orders precisely or that he should let his feeling of greater knowledge take precedence over obedience. Independence of action should never be based upon contrariness. Independence of action, properly used, is often the basis of great success."—From *Truppenfuhrung* (Troop leading), German Field Service Regulations.



"ON THE WAY!"

The Employment of Mortars in the Red Army

Mortars, the infantryman's artillery, play a far greater tactical role in the Red Army than they do in our own. Used by the U. S. Army as a supplementary weapon, with fire control decentralized to a small infantry unit, mortars in the Red Army are fundamentally used for massed fire as an independent striking weapon. Since 1942, this large-scale use of mortars has been developed into a definite tactical doctrine among Soviet troops.

Although fire requirements are set by the Red Army infantry, technical control and coordination are the responsibility of an artillery commander. Field artillery methods are used by Soviet mortar troops, who conduct massed fire missions for antitank-antipersonnel barrages, countermortar fire, and interdiction. They also will fire smoke missions, or in support of automatic weapons.

In the Red Army, mortars are classed either as light, medium, or heavy. The light mortar, a 50-mm equivalent of our own 60-mm mortar, is the standard weapon of the rifle company, there being a two-mortar platoon to each company. These mortars may either support their own company in action, or all the mortar platoons in a battalion may be combined into a six-piece provisional mortar company which fires missions in support of the whole battalion. In such a case, a fire direction center will be established, and fire conducted through the use of messengers and visual signals. Where possible, 50-mm mortar fire is coordinated with that of the medium mortar units.

The Soviet medium mortar is an 82-mm piece, the equivalent of our own 81-mm mortar. Each battalion 82-mm mortar company, with nine pieces, may fire in support of its own rifle battalion. It is normal practice, however, when on the defense or in a static situation, to combine the

The crew of an M1941 50-mm mortar go into action during one of the Red Army's winter offensives. Although normally the weapon of a mortar platoon, the platoons within a battalion may be combined to form a provisional mortar company.

three medium mortar companies of a rifle regiment into a provisional battalion commanded by the regimental heavy mortar battery commander, whose pieces operate jointly with those of the three mortar companies. This provisional mortar battalion establishes a fire direction center with wire communication to observation posts, and to platoons through their company command posts. Observation posts are numerous, there being platoon OP's and company OP's in addition to those maintained by the

battalion. The provisional battalion commander is in turn under the command and coordination of the division artillery headquarters. Thus the provisional medium mortar battalion, unlike our own decentralized control of 81-mm mortar platoons, may fire massed concentrations in support of the entire regimental front, or may on occasion fire into the sectors of adjacent regiments, range permitting.

The Soviet standard heavy mortar is the 120-mm, there being seven of them in the regimental mortar battery. There is no equivalent organization or weapon in the U. S. Army infantry regiment. In 1942. the Red Army organized some GHQ mortar battalions and regiments that function much as do our own 4.2-inch chemical mortar battalions.

The crew of an M1938 82-mm mortar displace forward to a new firing position. In a fast-moving situation, the aggressive displacement of guns is one of the characteristics of Red Army mortar tactics.

CONDUCT OF MORTAR FIRE

Mortar troops of the Red Army conduct their fire according to a thorough procedure. Artillery intelligence is acquired aggressively, with platoons, batteries, and battalions, working with infantry and artillery patrols to push their OP's as far forward as necessary. Enemy information is carefully and thoroughly evaluated, and intelligence is exchanged by all echelons from field armies to mortar companies. Artillery intelligence reports, as issued by the artillery headquarters, contain the operational recommendations and requirements of even the lower echelon mortar units.

Based upon this intelligence, and upon a thoroughly developed firing technique, a comprehensive fire plan is established. Once established, the plan is not static, but changes continuously as the operational requirements of the supported rifle troops vary. Once in action, mortar units will determine the requirements of fire against various targets, make fire reconnaissance against minefields, register specific concentrations, and establish check points. Such preliminaries having been established, mortar units then concentrate on secrecy, surprise, aggressive displacement of guns, maneuver of fire, and varying their mortar tactics.

Constant coordination and liaison between the mortar units, the artillery command, and the rifle units is a strict rule. The result is a closely knit fire plan wherein a single system of terrain reference is maintained by all troops. This in turn facilitates the requests for fire by rifle units, and its delivery by any or all fire support units.

Officer supervision and centralized control of mortar batteries is stressed in the Red Army by assigning a larger number of officers to mortar units than will be found in the equivalent units of the U. S. Army. Also, the greater number of medium and heavy mortars found in the Soviet rifle division, give it a striking power, by weight of projectile, of two and a half that of an American infantry division.

THE MEDIUM MORTAR COMPANY

Although medium (82-mm) mortar platoons may be assigned to separate support missions, or medium mortar battalions may be formed for massed fire under certain operational circumstances, the medium mortar company is the standard operational unit among Red Army mortar troops.

When on the offense, the medium mortar company must supply supporting fire for the most forward rifle battalion troops. During the general artillery preparation that precedes a Red Army infantry attack, the mortars concentrate on neutralizing enemy infantry positions, and breaking gaps through minefields and wire entanglements. As the Soviet infantry deploys, the mortars join with the artillery in providing general covering fire, and during the attack the mortars fire concentrations against the foremost enemy positions, known weapons emplacements, and counterattacking infantry.

When on the offense, the medium mortar company must supply supporting fire for the most forward rifle battalion troops. Here the crew of an M1941 82-mm mortar move to a new position during the battle for Stalingrad.

When on the defensive, Soviet mortar companies, besides providing the normal support fires, must be prepared to put concentrations on concealed approaches anywhere within a mile and a half range, fire barrages to separate counterattacking enemy infantry from their tanks, and neutralize enemy forward support weapons. If enemy troops break into the Soviet defenses, the Soviet mortars are expected to aid in the destruction of these enemy elements by cutting off their path of retreat, and supporting the Red Army counterattack.

The Red Army mortar company moving into action is preceded by a reconnaissance section from the company, which selects the firing positions and observation posts. Whenever possible, the company OP is established near or in the same locality as the rifle battalion OP, since the mortar captain and the battalion commander maintain the closest liaison. Meanwhile, each mortar platoon establishes its own OP in front of its position, but not too far to prohibit the passing of verbal orders or signals from the OP's to the platoons. Telephone communication is established from each of the platoon OP's to the rifle battalion OP, and from there to the mortar company headquarters back at the firing position. There is also wire communication between the battalion OP and the battalion command post.

When the company moves into its firing position, the usual procedure is to deploy the platoons in line with no more than about 35 yards between platoons, each platoon front also being approximately 35 yards. Thus the mortars would be roughly dispersed in battery along a front of between 150 to 200 yards. This procedure varies with the terrain, of course, and mortar platoons may often be arranged in echelon, rather than line, but along a general, common front.

As the pieces are moved into position, a company base piece is designated, it usually being the mortar farthest to one flank. In turn, base pieces are designated for each platoon, again usually a piece on the flank of the platoon. The mortars are then laid to fire a parallel sheaf; that is, each mortar is laid to fire on the same azimuth. This is done by setting the platoon base pieces in parallel with the company base piece, usually by using an artillery aiming circle. Then the mortars of each platoon are laid in parallel with their respective base pieces, usually by reciprocal laying.

When the company firing position has been established, the company commander, his second in command, a telephone operator, and an observer from each platoon make a reconnaissance for an alternate firing position and observation posts. However, if the company is continually displacing forward to accompany rifle troops on the offensive, each platoon may reconnoiter and advance independently with the infantry company it is supporting. But in the more stable situation, the company commander may select a reserve firing position not less than 200 yards from his mortars, have mortar positions prepared at this alternate location, and have camouflaged communications trenches dug between the two localities.

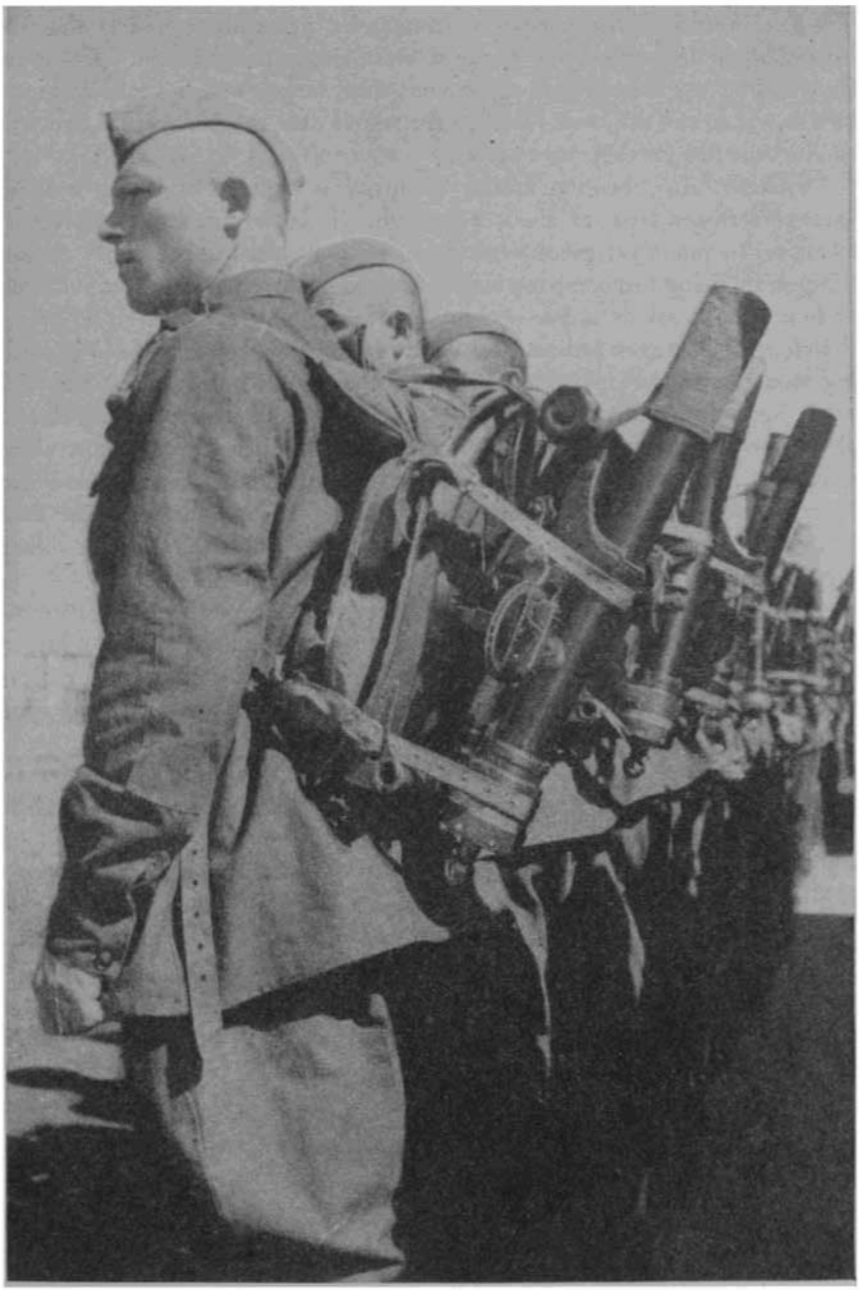
Members of a battalion medium mortar company set up an M1941 82-mm mortar among the ruins of Kharkov. The distance—about 33 yards—between this crew and the one in the background is SOP in the Red Army for medium mortars going into battery.


Red Army mortarmen lay their guns much the same way we do, however the sight they use may be either simpler or more complicated than our own. The sight on the 82-mm mortar (left) may be used for laying a parallel sheaf among mortars in battery.

After the company's sector of fire has been designated, probably by the artillery staff, the company commander prepares the company firing data with the aid of his observer. From five to seven reference points are selected in the company's sector, one of these being designated as the base point. Among these reference points are those which have also been selected by the rifle battalion commander for his own purposes.

It is not unusual for the mortar company commander then to assign separate fire missions to his platoons, particularly if several targets have previously been marked for destruction. In such cases, platoon commanders prepare additional firing data of their own, including such things as range determination, charge selection, and the determination of angle of fire and deflection shifts. But when the whole company fires a concentration on one target, the preparation of firing data again becomes the responsibility of the company commander.

Registration on base points, reference (check) points, planned concentrations, etc., is by observed fire using the bracket method. This is done by the company commander using his base piece, firing first on the base point. Successive corrections are made during registration until the ratio of overs to shorts in a narrow fork does not exceed two to one in successive bursts. Then the sheaf is adjusted by firing all pieces at the determined range. On occasion, the ladder method is also used. During fire for effect, transfers of fire are computed from base points or from previous targets.



Red Army mortarmen fall in for inspection at a Soviet training camp. The M1941 50-mm mortar, here shown in carrying position, is a weapon of the rifle company.

Smaller sectors, or individual targets, may be designated to platoons, which then will register independently.

When in action, the company commander generally conducts the fire when his whole company is engaged on a single fire mission. However, if several targets are engaged at the same time, targets and fire missions may be allotted to the different platoons, in which case the platoon leaders will conduct the fire for their own pieces.

The Red Army medium mortar company is capable of laying a fixed barrage across a front of about 275 yards. It is the usual Soviet practice to allot 14 rounds per piece when conducting such a fire mission. Action is begun by firing two company concentrations of three rounds each, followed by four platoon salvos at 5-second intervals.

Defensive barrages against tank-borne infantry attacks are fired according to a prearranged plan. A series of phase lines between 300 and 400 yards apart are selected along the expected route of approach, the closest phase line being about 300 yards from the forward friendly positions. The ranges of each of these phase lines are determined in advance, and fire begins at the furthest phase line at the moment the lead tanks cross it. Fire is then shifted to each succeeding phase line until the attack is either repulsed, or has penetrated the last line.

Zone fire is conducted against enemy assembly areas and troop concentrations, the zone engaged by one medium mortar company being not larger than about 7 acres. When the zone contains troops in extensive fortifications, the mortar fire will probably be preceded by artillery firing for destructive effect. Zone fire is conducted at the rate of about 18 rounds per 2 acres per minute. Elevation and deflection is shifted in order to cover a zone adequately, each platoon firing 2 to 4 rounds for every shift of about 50 yards.

Short, intense concentrations are fired at visible targets in exposed positions. These concentrations usually last for 2 to 3 minutes, with the ammunition expenditure being about 50 rounds per 2 acres per concentration.

MASSED MORTAR FIRE

Massing the medium mortars of a regiment to form a provisional medium mortar battalion, is a Red Army practice more likely to be encountered when Soviet troops are on the defensive, or when the situation is relatively stable. Placed under the command of the regimental heavy mortar battery commander, the 27 medium mortars, plus the 6 heavies (120-mm), can fire a barrage 600 to 700 yards wide.

When a provisional mortar battalion organizes its firing position, the companies are echeloned in depth along the front, with intervals of about 100 yards between companies. Dummy and alternate firing positions are prepared, but the battalion usually goes into position rather far forward in order to get the maximum range for its pieces.

When the battalion commander has received the battalion fire mission, he allots separate missions to each of the companies. The battalion sector may be divided among the medium mortar companies for general support purposes. He also designates the reference points, sectors for antipersonnel barrages, accompanying concentrations, and platoon and company phase lines for antitank-antipersonnel barrages, aimed at infantry riding on tanks.

Once the battalion is in position, the pieces are not registered until the order to do so is received from the headquarters of the artillery which is supporting the rifle troops on that particular front. This headquarters designates both the time and duration of the mortar registration. The order in which companies will register their mortars, and the methods of registration, are then set by the battalion commander in order to reduce the registration period, and to avoid interference among the companies.

Within the battalion, communication is by telephone, but for communication with the artillery headquarters and the infantry, radio is used. Once this communication has been established, the battalion commander is able to fire all companies as a single unit. This massing of fire is probably the outstanding feature of Soviet mortar tactics.

When firing a massed antipersonnel barrage, each company is given the coordinates of its right sector line. The pieces are laid so that each company's barrage will fall with the extreme right burst near its sector line. The other bursts then extend to the left across the sector. The command to fire is not given until the enemy infantry has approached to within 200 to 250 yards of the Soviet front-line positions. Then the command to fire is given only on the orders of the infantry commander, or the commander of the artillery group supporting the infantry. If the enemy approaches to within 150 to 200 yards of the front with no orders to fire having been received, then the battalion commander can open fire on his own initiative.

In frontal antipersonnel barrages, fire is conducted in a parallel sheaf fired from fixed settings. Ammunition allotment for such a barrage is 112 rounds per company, and duration of fire is from 2 to 3 minutes. If the enemy attack penetrates the barrage, adjustment is made immediately to reduce the range 100 yards, thus forcing the enemy to advance through another curtain of mortar fire.

SUMMARY

On the whole, Red Army mortar technique is, for the great part, very similar to that of the U. S. Army. The Soviets, however, seem to place greater emphasis on the role of the mortar as a support weapon, and therefore the mortar fire power of a Red Army unit is much greater than its U. S. Army equivalent. The most outstanding feature of the employment of mortars in the Red Army is the standing operating procedure for combining mortar units under one commander and firing the pieces in mass. Although some U. S. units have, on occasion, experimented with this technique, it is not a common practice among our own troops.

NOISE THAT KILLS

Never too busy to pick-up a new idea, or to try out a new weapon, some German scientists in World War II experimented with noise as a means of causing fatalities among troops of the enemies of the *Reich.* Such was the discovery of Allied observers who investigated the more technical aspects of the Nazi war effort.

Near the little town of Lofer, the Germans had established a small experimental station intended originally for research on problems concerned with mountain artillery. Eventually, however, this station became devoted to experiments in connection with lethal sound.

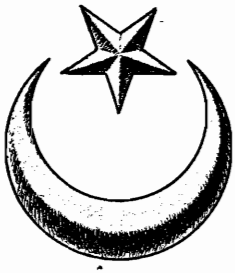
Experiments were carried on by a Dr. Richard Wallauscheck, the assistant director for technical research. His last and best design for a sound weapon consisted of a parabolic reflector slightly over 10½ feet in diameter, with a sound combustion chamber mounted to the rear of the reflector.

Into this chamber methane and oxygen was fed through two nozzles. The mixture of gases was exploded within the chamber, and the sound of the explosion was intensified and projected by the parabolic reflector. Explosions were continually initiated by the shock wave from preceding explosions at a rate of 800 to 1,500 per second.

The main lobe of the sound intensity pattern had a 65-degree angle of opening. At a distance of 60 meters (198.5 feet) from the generator, the sound intensity has been measured at a pressure believed sufficient to kill a man after 30 to 40 seconds exposure. At greater ranges, perhaps up to 330 yards, the same pressure, while not lethal, would be very painful and would probably disable a man for an appreciable length of time.

The operator of the device is housed in a wooden cabin at the rear of the machine and wears a soundproof helmet.

The weapon has a very doubtful military value, chiefly because of lack of range. The whole machine is large and unwieldy. Unlike some experiments carried on by the Germans, no actual tests were made with human beings acting as guinea pigs. Perhaps this indicates that the Germans themselves did not have too much faith in the device as an effective and practical weapon.



UNDER THE STAR AND CRESCENT

The Turkish Army

Playing a part in recorded history much longer than the armies of other western nations, the soldiers of Turkey have gained for themselves a reputation of being hardy, fierce, and skillful warriors. About their hardiness there is no dispute. Brought up on a meager diet and under relatively primitive standards, the Turk makes an obedient, somewhat dour, courageous fighter who is able to exist on little and to endure hard field conditions.

In the day of modern mechanized warfare, his skill is open to question. The low average educational standard of the Turk soldier and his relative ignorance of things mechanical have lost the Turk his pre-eminent position as a fighting man that he held in the days of the Paladin when the sharpness of his blade, the swiftness of his steed, and his personal courage and dash where the measure of a fighting force.

The Turks themselves have realized that courage and hardiness are no longer enough and have attempted to reorganize, to retrain, and to re-equip their army to meet the needs of the modern day. Consequently the Army of Turkey has been influenced greatly by foreign missions, notably those headed by General von der Goltz, a German, and followed in 1913 by a mission under General Liman von Sanders, also a German.

Advised by the German missions, the Turks completely reconstructed their army in 1886, using the German Army of that day as a model. In 1911, again on German advice, every Ottoman subject, whether Turk, Arab, Christian, or Jew, was made liable for military service. Previously, military service was theoretically compulsory of all Moslems, but after 1826 Chris-

tians were not allowed to serve but paid a special tax instead. Any person could purchase release from the active army by payment of this tax, and the development of real military strength was cramped as a result.

In 1914, the law of service was changed so that, for the first time, every subject of the Ottoman Empire was liable for military service, and payment of an exoneration tax did not free the individual from military service, but only from a portion of the full term.

The year 1913 saw the Turk Army receiving intense training under General Liman von Sanders, and 1914 saw a period of smooth mobilization prior to Turkey's entrance into World War II on the side of Germany.

In 1914, Turkey had 38 divisions, but few of them were up to strength and the total force was not more than 150,000 men. During World War I, the Turkish Army was expanded to between 50 and 70 divisions and by the armistice had mobilized 2,700,000 men.

The Army was thoroughly defeated in Mesopotamia and Palestine in 1918, and with the coming of peace the Army was almost totally demobilized.

The present Turkish Republican Army dates only from 1920. In that year, the old prewar regime passed into the hands of the Nationalists. The Nationalist Government raised and equipped an army. Included in the new army were the remains of the old Ninth Army, organized under Mustafa Kemal, which had withdrawn into Anatolia where it had not been engaged and defeated by the Allies.

After World I, and until the autumn of 1920, the Ninth Army and other small groups had existed as irregular units. In 1920 orders were issued that all irregular units should be placed under direct military control and disbanded. It was found preferable to form new divisions and regiments rather than bring the old units up to strength.

In 1922, this Turkish Republican Army, after a series of defeats, succeeded in driving the Greeks completely out of Anatolia. Following the defeat of the Greeks, the Army was reduced to a peacetime strength of 118,000. In 1939, with the outbreak of World War II, it was partially restored to a war footing of 500,000 men, and in 1944 it reached an estimated strength of 675,000 men. Since the end of hostilities in Europe it has been kept mobilized, though at somewhat less than its peak strength.

THE INDIVIDUAL SOLDIER

The Turk soldier, noted for his ability in close individual combat in which he excels and prefers, becomes liable for military service at age 16 and remains liable until he is 65. In actuality, conscripts are being called between the ages of 20 and 45.

All female persons between the ages of 25 to 40 are also liable for service. As yet there has been no record of any women being called for service, however.

Upon conscription, the recruit must serve from 1½ to 2½ years in the regular army, dependent upon the arm to which he is assigned. After completion of his active duty period, he remains in the reserve for a period of 25 years.

While in the reserve, the soldier may be called back into active service for training, for maneuvers, or to maintain order. He may be required to take training not to exceed 6 weeks every 2 years. The soldier may, of course, be called for active service before he reaches the normal age and may be held in service past his normal time of release, if the government so decrees.

In peacetime a man may be partially excused from active service if he pays the exoneration tax of 250 Turkish pounds ($193). After paying the tax, he must then spend 6 months in training with an infantry battalion. In time of war, the exemptee is then assigned to one of the auxiliary services.

The Turk GI generally makes his initial issue of clothing last through his entire period of service. His clothing issue consists of one complete field uniform plus two extra shirts and two extra breeches. The field uniform is of gray, rough woolen cloth and consists of a blouse with a high, stand-up collar, reinforced with patches at the elbows, and a cap, breeches, and leggings of the same material.

The NCO uniform is the same as that of other enlisted men except in the case of the professional NCO, who wears the same uniform as officers, but with NCO rank insignia on the sleeve.

Officers wear gray uniforms of better material, with black riding boots in place of leggings. They may, however, wear the same breeches and leggings as worn by enlisted men. The officer blouse, with breast pockets and lapels, is a better cut than that of the enlisted man. The elbows are not reinforced by patches, as are the enlisted uniform blouses. The cap badge for officers consists of a wreath surmounted by a crescent and star. Officers receive their first uniform as an issue.

Pay scales, by the standard of U. S. pay tables, are ridiculously low. The private receives the equivalent of $0.48 per month, the sergeant $6.40, and a lieutenant receives 125 times as much as the private, or $60 per month. Top pay for a Turkish general officer is $480 per month, with a colonel receiving $208.

The training which the individual soldier receives is not too good by our standards. The training of the officers has not been up to date, and as a group the older officers lack initiative. They have had no experience in modern warfare. Regular army officers are trained at the Harbiye Military Academy. There, their training is more traditional in nature than modern.

Boys who wish to become officers usually go to a military secondary school at the age of 13. These schools are free and are open to all classes through competitive examination. When they reach 15 years of age, they enter a Military Lycee. Finally, suitable candidates attend the military school at Ankara.

After completing the course at the Military Academy the cadets are commissioned as 3d lieutenants. They then go to the specialist school of their arm to complete their training. The period at specialist schools varies from 10 months for cavalry and 11 months for infantry to 2 years for artillery, engineers, signal, air force, railway, and transportation officers.

After 6 months and if their work is satisfactory, they are promoted to 2d lieutenants. Further promotions are based on seniority in grade. Time in grade requirements are much the same as for the U. S.

Once in the army, the enlisted man has little hope of promotion. In the infantry company of 4 officers and 140 enlisted men, there are only 3 noncommissioned ranks. They consist of one *Bash Chavush* (master sergeant), 1 *Muavinni* (staff sergeant), and 1 *Chavush* (sergeant). A corporal (*On Bashi*) is not considered as a noncommissioned rank. There are no commissions given from the ranks.

Sergeants are divided into two classes: "brevetted" or career sergeants and "non-brevetted." The former have graduated from noncommissioned officer schools and the latter have had training courses only. As previously explained, the career, or brevetted sergeant has the privilege of wearing the officer uniform, while the non-brevetted NCO must be content with the regular enlisted uniform.

Not only does the Turk soldier have little chance for promotion, but he has no chance to be a glamour boy. The old days of the Spahi and the elite Guards Corps of Janizaries are gone. Only one medal is now authorized, the "Medal of Independence" for those who rendered extraordinary service during the War of Independence from May 1919 to October 1922. No other medals may be worn, and none may be accepted from foreign governments.

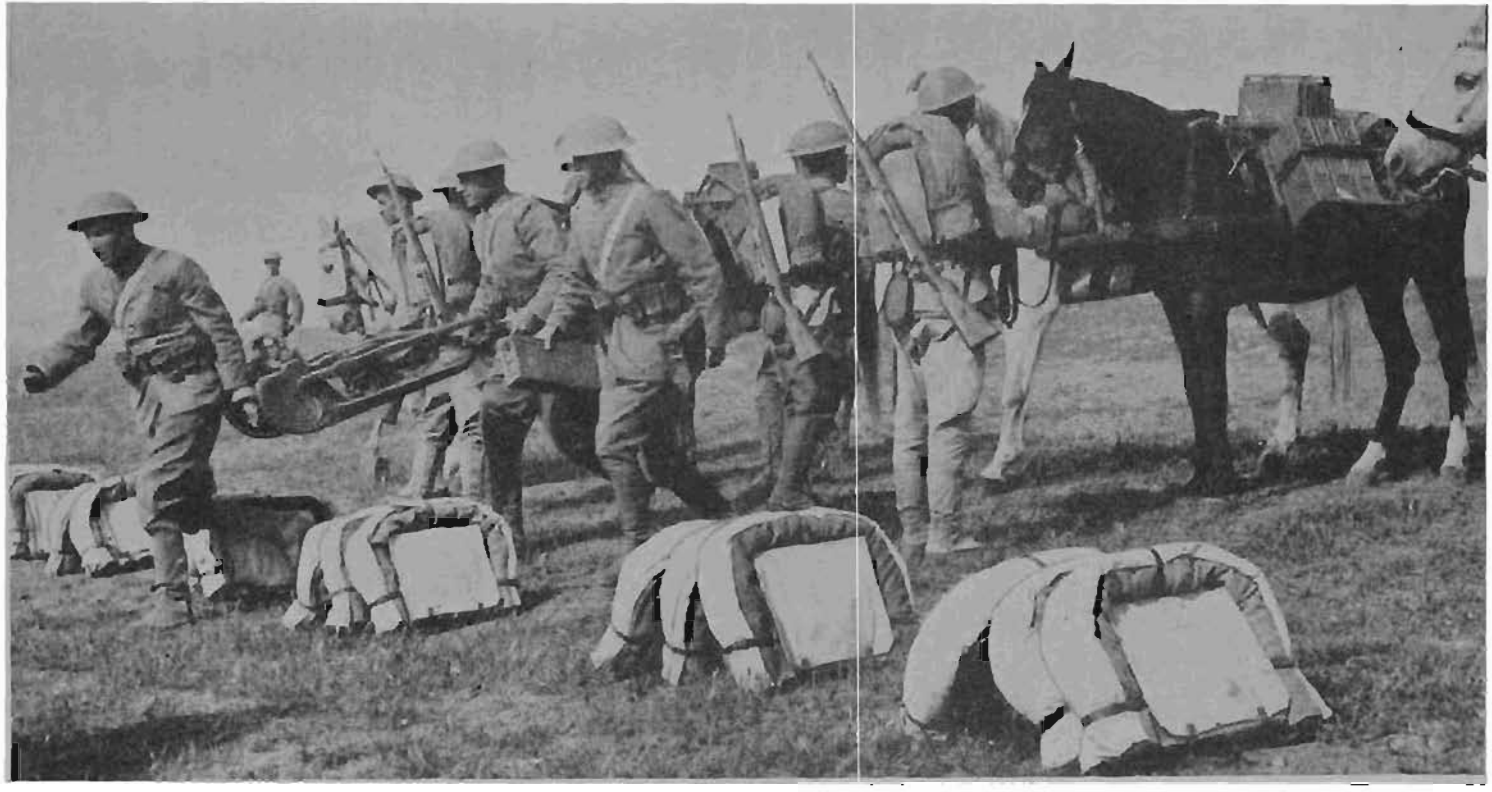
In garrison, the Turk soldier eats a ration consisting of bread, rice, a little meat, onions and other vegetables, tea, and a small amount of oil or butter and salt. Tobacco is included as part of the ration. In the field, the ration may be increased over the garrison ration, but it is basically the same. Turk soldiers are noted for their ability to go far on little food. Officers draw the same ration as enlisted men.

ORGANIZATION

The Turkish infantry division has three infantry regiments, one artillery regiment, and service troops. The strength of the division varies greatly, not only between peace and war time strengths, but between areas in which divisions are located, and between seasons of the year.

The average peacetime strength of the division is 3,500 men. The war strength is estimated to be 12,000. It can be seen from this that the peacetime strength of the division is actually little more than a cadre.

Following the usual Balkan custom, extensive furloughs are given in the winter, especially in those units stationed in northern and eastern Anatolia



These soldiers are unloading machine guns from pack animals during training. The mount shown is for the old German Maxim HvMG M1908. More often a tripod mount is used. The German influence is evident in the rifles and cartridge belts, and in the canteens.

where normal training is restricted by heavy snows from November to mid-March.

The infantry regiment varies between 800 and 1,500 men, again according to location, time of year, etc. In peacetime, the regiment has two active battalions, and one battalion that exists as cadre only.

The infantry battalion is organized into three rifle companies and a machine gun company.

The rifle company contains three platoons of three squads each. Each squad contains 14 men. The total war strength of the rifle company is 4 officers and 140 enlisted men. The men are individually armed with the rifle, bayonet, and hand grenades. Within the company there are 9 light machine guns and 9 grenade launchers. Officers and NCO's are armed with pistols. Rifle grenades are carried by rifle grenadiers.

FOOT SLOGGERS

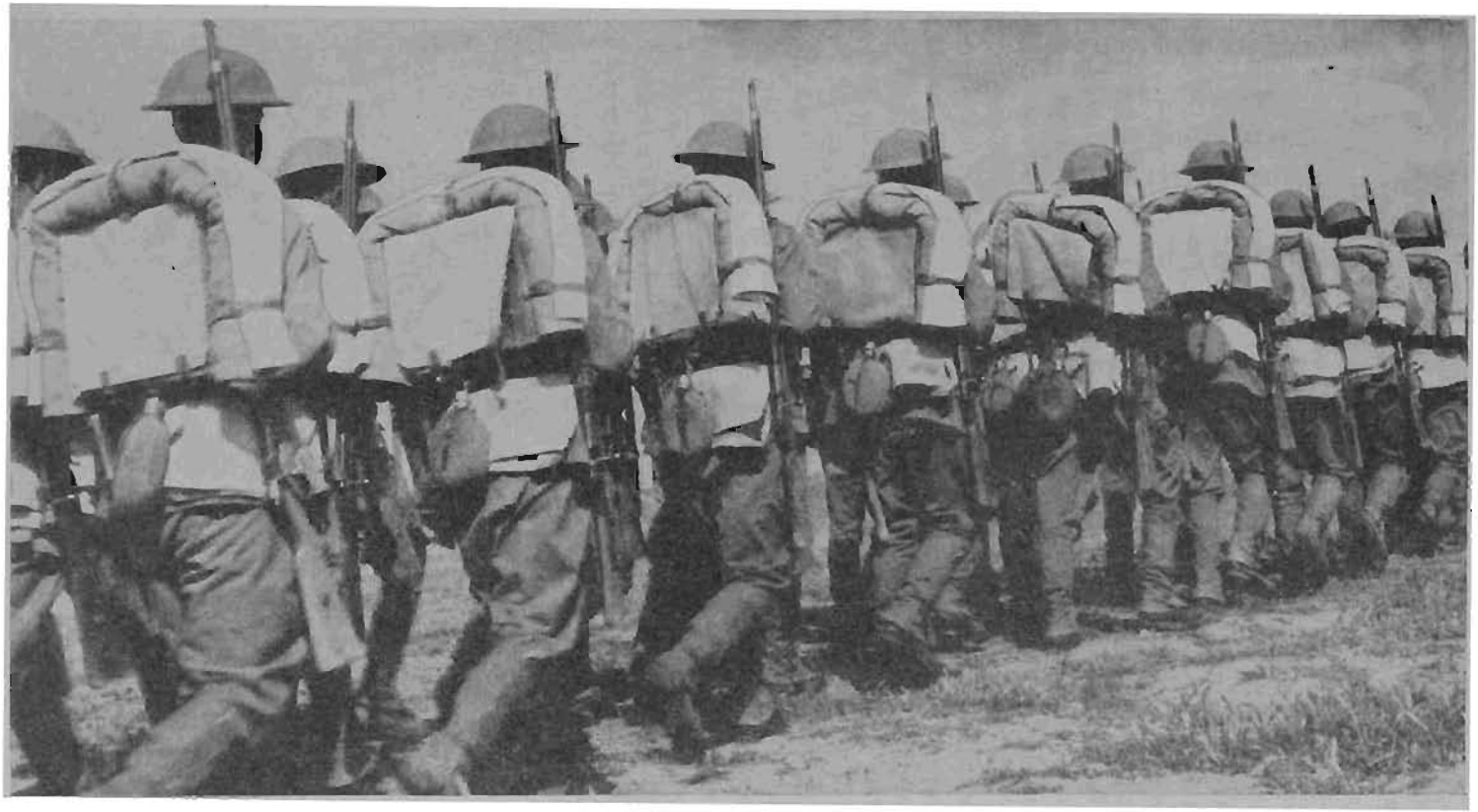
Most Turk GI's must walk but a few are mounted. Horse-drawn transport is employed for movement of supplies and ammunition. There is little mechanized equipment, although some has been received since the beginning of World War II, both through Lend-Lease from the Allies, and from Germany. Some tanks were received and some noncombat vehicles.

After World War I, Turkey was forbidden to build or carry out research on armored fighting vehicles. This partially explains her present lack of mechanized equipment. There are other reasons of course. Turkey has not had the manufacturing facilities of other nations, nor has she expended the amount of money on her armed forces that other nations have.

A large factor in determining the effectiveness of the mechanized equipment of any army is the maintenance efficiency of the Army. Turkey is sadly lacking in the mechanical skills and know-how. Although the Army has had the aid of foreign technical experts in developing mechanical skill and a competent maintenance system, the level of maintenance is extremely poor. After departure of the technical experts, who usually spend several months in instructing and supervising, the level of maintenance and technical efficiency drops.

The Turkish soldier has had little previous experience with motor vehicles and does not realize the necessity for constant and thorough maintenance. Mechanical aptitude is not a large factor in the make-up of the Turk. Before World War II, the Turkish Army was armed with a wild variety of weapons. Since Turkey has little armament manufacturing industry of her own, she has bought weapons wherever she could secure them. During the war, however, Turkish arms and equipment were modernized and standardized to a noticeable degree through Lend-Lease.

At the present time, a portion of the Turkish troops are armed with the British caliber .303 rifles and Bren light machine guns. The remainder are armed with older weapons, including such rifles as the German Mauser, various Mannlicher models, Lebel, Martini, Arisaki (Jap), and some Yugoslavian Mausers.



On a training march, these Turk Nefers carry Turkish Mauser rifles. The shelter half, atop their blanket rolls, when combined with two others, makes a three-man tent.

Machine guns are equally varied in model. There are represented such models as the Maxim, Hotchkiss, Schwartzlose, Colt, Vickers, St. Etienne, and Enitcheq.

Artillery has been just as mixed. The majority of the guns are standard British and American pieces. Other types include Krupp, Skoda, Schneider, Vickers, Austrian, Bofors, and Rheinmetall.

Other weapons, such as mortars, antitank guns, and antiaircraft guns are just as varied, but are, in the main, fairly modern and serviceable.

The Turkish Army, although not actively participating in World War II, has benefited through the experience of the other nations involved in that struggle. She has benefited in a material way, also, through acquisition of a fairly substantial quantity of modern equipment through Lend-Lease and from the Axis. Some of her junior officers have received training outside of Turkey, and this should add to the general efficiency of the Army.

The individual Turkish *Nefer* (private) is a stubborn fighter that excels on the defensive. He prefers close personal combat. He obeys blindly and when properly trained and led makes an excellent soldier. He does not demand much in the way of personal comforts. He is hardy and has behind him the traditions of a proud people who once dominated the Moslem world.

The chief deficiencies of the Turk Army are in the development of an adequately trained and responsible officer corps, in the acquisition and maintenance of a good quantity of modern equipment, and in the general educational level of the basic material for their army, the Turkish people. Efforts are being made to materially correct these deficiencies.

Intensely nationalistic in spirit, the Turkish Army is still a factor that must be reckoned with in any estimate of the military capabilities of the Moslem world.

THE ELECTRIC GUN

German Experiment With Electrically Launched Projectiles

A super-high-velocity gun, operating on electrical energy instead of an explosive propellant, has been a minor scientific dream for some time. The idea is not new; for it was tried by the French in World War I. But in World War II, a German scientist felt he was so close to a solution of the problems involved that the German Air Force had contracted for an experimental electric gun. This gun was to be capable of ejecting a 40-mm projectile at a muzzle velocity of 6,600 feet per second—far above the velocity of any shell yet fired from a conventional artillery piece.

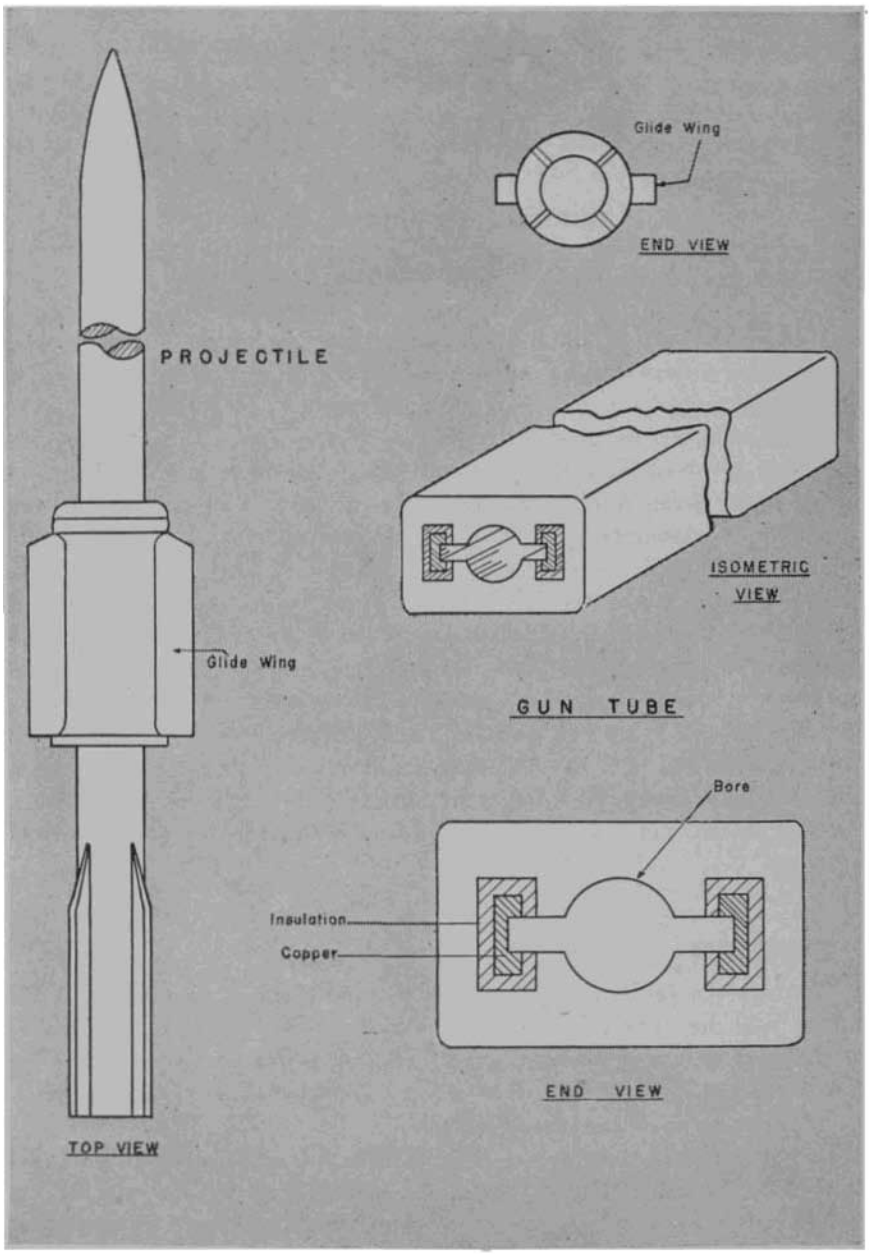
Although the gun ordered was not delivered before the end of the war, a miniature that actually worked was built and tested. Theoretical calculations, based upon tests made with the miniature gun, led the German scientists to believe it possible to build an electric gun capable of tossing a 14-pound projectile to an altitude of 12 miles in 13 seconds.

To men familiar with the problems of antiaircraft artillery, such a weapon appeared a godsend. The 90-mm antiaircraft gun of conventional, powder-burning design, can reach only 4.4 miles in altitude in the same length of time.

THE DESIGN

Although the problem of electrically ejected shells is an old one, it has still to pass the research stages. The chief problem is to obtain a source of sufficient electrical power that will not be all out of proportion to the size of the gun. Designing a gun did not seem to be too great a problem, for the German model appeared logical.

The German gun, had it ever been built to full scale, would have had a rectangular barrel 33.7 feet long. The round bore, as designed by the Germans, is flanked by two, square grooves 180 degrees apart, so that when the bore is seen from one end, it is the same shape as the aircraft identification insignia used by the U. S. Army Air Forces. The bore is not rifled. At the extreme ends of the two grooves, an insulated, copper glide rail runs the entire length of the barrel. It is through these glide rails that the electrical energy is conducted for ejecting the shell.



Diagrammatic sketch of the electric gun projectile (left) and its glide wing, and (right, top to bottom) end view of the projectile, isometric view of the gun tube, and end view of the tube showing the shape of the bore and the position of the copper glide-rails through which the propelling electric charge is passed.

The shell is a cylindrical projectile somewhat longer than the conventional artillery shell, and has four narrow fins at its base. It is fitted with a cradle, called a "glide wing," from which extend two studs which fit into the square grooves of the bore, and ride on the copper glide rails. After the shell has been placed in the gun, a jolt of electricity is shot into the weapon. The current, passing along the glide rails and through the glide wing, sets up an intense magnetic field. The reaction is such that the magnetic field and the current flow through the glide rails tend to repel each other. This, in effect, forces the projectile up the bore at an ever increasing velocity until, when it leaves the muzzle, it is traveling at a terrific rate of speed. This reaction is so fast that it is only a matter of a split second between the introduction of the current and the ejection of the shell from the gun.

CONCLUSIONS

It is the opinion of some scientists that the electric gun deserves further study and experimentation, since it contains, in theory at least, some marked advantages over the conventional antiaircraft artillery of the present day. It is theoretically capable of obtaining muzzle velocities far in excess of what to date has appeared possible for powder-burning weapons. It is noiseless, smokeless, and has no flash. Constructed of materials easily obtainable, it requires comparatively little high-precision machining. Unlike other artillery pieces, the machined surfaces are not subjected to high pressures and intense heat. Moving parts are few, and these can be greased. Recoil is negligible, and range can be adjusted by varying the electric current. The gun has a high efficiency, compared to ordinary pieces, since there is no energy wasted through heat and escaping gases, and the manufacture and handling of cartridges is eliminated. But perhaps most important is the fact that ranges and penetrating power now unattainable may be reached in the electric gun.

Of course, these advantages are in turn offset by the chief problem—power supply—and a myriad of minor electrical wrinkles that would require straightening before a truly efficient gun could be produced. It is one thing to handle large amperages in a power house, and quite another to supply them to, and use them in, a comparatively small piece of machinery which, to be of full military value, must retain the essentials of mobility.

CAVALRY IN MASS

Soviet Doctrine for Employing Horse-Mounted Troops

Horse cavalry, like an insurance policy, is expensive but nice to have around when you really need it. In Russia, where horsemanship is part of the every-day life of many thousands of people, the Red Army is able to maintain one of the finest horse-mounted components in the world. Here is the doctrine with which Soviet cavalrymen rode to victory in World War II.

The Red Army, unlike the rest of the Allied powers, did not relegate the horse cavalry into the discard during World War II. Instead, Soviet Russia made effective use of its cavalry components, and even increased the number of horse cavalry units. The U. S. S. R. proved that the employment of horse cavalry as an independent striking force, and as a component of a cavalry-tank team, is clearly justified. The results obtained by Red Army cavalry units have proven the right of the almost legendary Cossack to remain part of the armed forces of the U. S. S. R. The lessons learned may well be studied by other countries.

Horse cavalry has always played a large part in Russian military campaigns. Russian cavalry forces have been known in every war in which Russia's troops have fought. During the reign of Czar Ivan the Terrible, a relatively small Cossack force under Ermak achieved the conquest and annexation of Siberia. The great distances, unmarked by roads, and the difficult terrain of that area were tailor-made for a cavalry operation.

Even to this day there large areas of flat plains and steppes in the U. S. S. R. that have only a limited network of roads. Easy traverse of these areas is feasible only to horses. Climatic conditions in Eastern Europe, especially during the spring thaws, place a very stringent limitation on all movement, except over first-class highways. Each spring the Ukraine, White Russia, and Eastern Poland become veritable seas of almost unbelievably deep mud. In consequence, cavalry has been an indispensible arm of the Red Army, even in this war of mechanized and motorized forces.

Since 1917, when the Red Army took over the forces of the Czar, the

cavalry units of the Red Army have undergone many changes. Among other things, the over-all strength of the cavalry arm has been increased. During World War II, the Red Army had approximately 10 cavalry corps. Other changes have increased the fire power of cavalry units by adding mortars; more and heavier artillery, including self-propelled; more automatic weapons, including submachine guns; and by making tank regiments an integral part of cavalry corps.

Further emphasis is placed on the Red Army evaluation of horse cavalry as a fighting arm by the establishment, since 1934, of 74 stud farms, geographically located to breed horses best suited to the locality. The farms are operated by the Red Army Remount Service.

Red Army cavalry organization differs considerably from the organization of U. S. cavalry units. Numerically, Red Army units are the smaller. A Soviet cavalry corps is roughly equal numerically to a reinforced U. S. horse cavalry division. Within the Red Army cavalry corps, also, are from two to four tank regiments as organic elements of the corps. The U. S. S. R. cavalry regiment is so designed as to provide a small and mobile striking force, heavily reinforced by supporting weapons. Numerically equal to less than half a Red Army infantry regiment, the U. S. S. R. cavalry regiment has almost as much fire power in supporting weapons.

In the cavalry corps, the artillery elements play no small part. The corps artillery commander has at his disposal five artillery regiments, armed with a variety of weapons. The type and relative numbers of artillery weapons are selected to achieve maximum flexibility and shock power without impairing the mobility of the corps. Including mortars and artillery of the cavalry divisions, the cavalry corps has nearly 350 pieces of artillery, plus several multiple rocket launchers. This is sufficient to throw, in a single salvo, a metal weight of more than 6 tons.

CAVALRY IN THE OFFENSE

Red Army doctrine stresses that cavalry should be used as an independent striking force; that cavalry is not a substitute for mechanized forces, but is a powerful force for operations where motorized units are handicapped by impassable terrain. By Red Army definition, cavalry is capable of taking part in every kind of engagement, and of carrying out actions of every type in cooperation with other arms, in addition to being able to operate independently.

Operating apart from other troops, horse cavalry attempts to strike the enemy flank or rear, to encircle and destroy the main body, and to cooperate generally with air forces, armored units, airborne units, and frontal assault groups. Other cavalry missions are large-scale raids, screening of troop movements of other arms, and counterattacks against the enemy flanks and rear from concealed areas in the rear of a defensive position.

To be a cavalryman in the Red Army, a Soviet soldier does not have to be a Cossack. And, contrary to popular belief, the Cossacks have no monopoly over the cavalry arm. Cossack units, like the Kuban Cossacks (above), are recruited among the life-long horsemen of Kuban area of the U. S. S. R. But cavalrymen are also recruited from other areas, and although they may lack the glamour of the Cossack, they are none-the-less efficient soldiers. Such a non-Cossack cavalry unit is pictured below.

The crew of an 85-mm SP gun and tank destroyer, on a T–34 tank chassis, ride their weapon through a town in Rumania. These weapons are organic equipment of the two tank regiments within the Soviet cavalry corps.

T–34 medium tanks on the road in Manchuria. Like the tank destroyers, they are the organic armored strength within the two tank regiments of the cavalry corps.

Cavalry can operate in very severe climatic conditions and over severely cut-up terrain. Over extremely difficult terrain, Red Army cavalry can average 5 miles per hour. Small units are unable to maintain continuous movement for long periods under combat conditions due to lack of organic transport and difficulty of resupply. Large units, however, with a sizeable supply train and an established resupply system, can operate for much longer periods and over long distances. One reinforced cavalry corps was given the mission of penetrating behind German lines and advancing for 60 miles, parallel to the front and across the enemy lines of communication, thus effecting a junction with another cavalry corps in the area. The movement was entirely through forests and crosscountry in 2 feet of snow, with temperatures as low as 30 degrees below zero. In 6 days, the corps traveled 55 miles and captured large supplies of enemy matériel.

Red Army conception of cavalry raids extends to larger operations, over a longer period of time, and with a larger body of troops than is normally considered as a raid by U. S. doctrine. One raid made during World War II included a whole corps and lasted for 135 days, much of the fighting being behind the enemy lines.

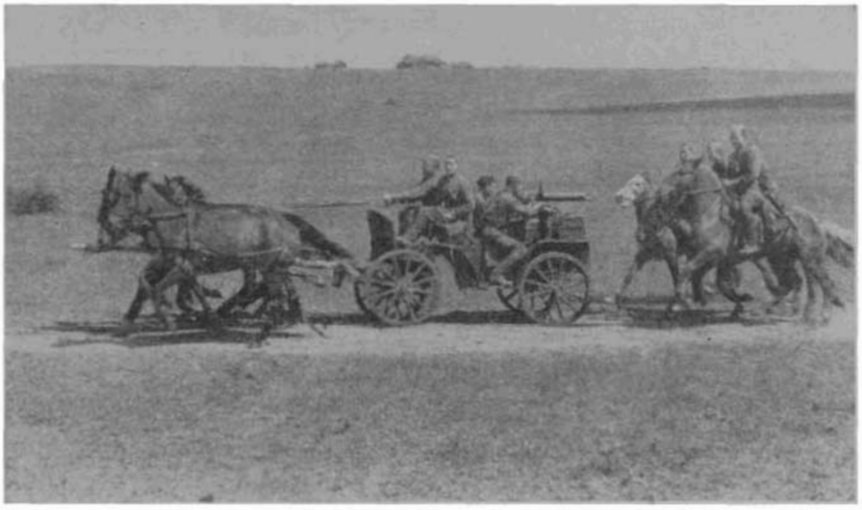
In the breakthrough, Red Army cavalry was a valuable asset to the pursuit. When an enemy rear guard attempted to hold up the pursuit, the cavalry was able to make wide flanking movements through swamps and other difficult terrain to strike the retreating enemy in the flanks and to set up road blocks. In addition, the Soviets believe cavalry is useful in attacking enemy artillery and salient terrain features to protect highways along which armor and self-propelled artillery can then advance more easily.

It is a Red Army practice to detach small cavalry units from the main body to reduce by-passed strongpoints. Here the cavalry attacks dismounted from all sides, supported by their mortars and machine guns. Generally these detached units are of sufficient strength to reduce the strongpoint quickly so that they can rejoin the main body of cavalry troops.

Cavalry is used by the U. S. S. R., in conjunction with other arms, in the same manner in which it is used by other armies. Cavalry is used for reconnaissance, counterreconnaissance, screening, and patrol missions. The Soviets make extensive use of night cavalry reconnaissance and raids, particularly during winter weather.

With infantry, Red Army cavalry is used to great advantage. While the infantry holds the enemy with a frontal attack, the entire mass of cavalry and tanks are thrown in on the enemy flank and rear.

The best time to commit a cavalry force, the Red Army believes, is when an initial penetration of enemy defenses has been made by a frontal or enveloping attack. At that time, when the enemy is bringing up his reserves and his defenses are in a fluid state, the enemy has not had time to con-



A Tchanka machine gun cart for Maxim M1910 76.2-mm machine gun rolls across the steppes of Russia. This is a weapon of the cavalry heavy machine gun squad.

Cossack artillerymen, men of the 76.2-mm howitzer battery of a cavalry regiment, go into action in the North Caucasus.

A Cossack cavalry patrol receives orders and instructions before departing on a reconnaissance mission. Red Army cavalry, unlike our own, carry their weapons slung on their back or chest, instead of in a rifle boot snapped to the saddle.

solidate and organize any strong defensive position, and cavalry will encounter conditions that are conducive to success.

CAVALRY IN DEFENSE

In defense, Red Army cavalry is used to cover the withdrawal and to protect the flanks and gaps between units. In extreme conditions, the cavalry troopers dismount and engage in defensive combat as infantry. Care is always taken to conceal horses in a defiladed area for safety and to facilitate withdrawal. In the defense of road blocks or tactically important terrain, the organic artillery and mortars are the basic defensive weapons upon which the Soviet cavalry relies.

TRAINING

Immediately after the Russian Civil War, the cavalry forces were led mostly by ex-Czarist officers who joined the Red Army. Then an officer cavalry school was established to develop cavalry officers of proletarian origin. This school later became the Buddennyi Red Army Cavalry Academy of Moscow, and is now the highest cavalry institute in the U. S. S. R. During the war there were nine cavalry officer training schools in operation.

Enlisted men and NCO's were trained in replacement cavalry regiments. There were 34 of these regiments during the war.

Don Cossack guardsmen, members of an elite Red Army cavalry regiment, rest in the foothills of the Carpathian mountains after action on the Second Ukrainian front. The broad-bladed sabre is the traditional weapon of these horsemen.

The cavalry courses at officers schools have ranged from 3 years in peacetime, prior to 1937, to 12 months during the war. Enlisted men serve 2 years in the cavalry army in peacetime. During the war, basic training for enlisted personnel lasted 8 months. During this time the enlisted man was trained in field tactics, individual weapons, elementary topography, care of horses and equipment.

CONCLUSION

The U. S. S. R., with vast distances and few roads, and with severe climatic conditions during much of the year, has used horse cavalry to great advantage during World War II.

By the results achieved, the Soviets have justified the use of cavalry, not as a substitute for armor and mechanized forces, but as an independent arm and as a supplement to armor and mechanized might in operations over severe terrain.

Russian cavalry has great power in supporting weapons. The organization is so designed as to provide a small and mobile striking force with adequate support of artillery, mortars, and automatic weapons. Cavalry and tanks have been combined into a smooth working and effective organization.

In World War II, as in most all of their other wars, the Russians were able to use large masses of horse cavalry, since much of the fighting took place within the borders or countries adjacent to their homeland. But over long distances, cavalry is not as economical. Transport of horses and equipment, especially ocean transport such as would have been necessary for the United States in the Pacific War, requires a large allotment of transportation facilities. In fact, the U. S. did maintain one horse cavalry regiment briefly in New Caledonia early in the war, but this unit was mounted on horses shipped from Australia. The unit existed as a horse-mounted organization only briefly, for it was eventually dismounted and sent into infantry action elsewhere in the Southwest Pacific. The only U. S. horse-mounted cavalry regiment to see action in World War II was the 26th Cavalry, a regiment of Philippine Scouts who covered the withdrawal of U. S. and Philippine forces to Bataan peninsula. This unit fought a classic cavalry rear-guard action from Lingayan to Bataan. Its mission was accomplished, although the regiment was virtually annihilated.

THE JAP ARMY GOES TO SEA

Japanese defense against assault landings has always been, theoretically, "to destroy the enemy on the beaches." It is only too evident that the Japs were unable to carry out this doctrine. But in preparing the defense of the home islands against the expected Allied landings, the Japs still clung to the notion that they could destroy the landing forces on the beaches. In fact, they even took their defenses a little farther afield, and planned to destroy at least a part of the landing force before it reached the beaches of the homeland.

This plan, as it was developed, took on some of the aspects of a Buck Rogers adventure strip. Among other things, there were to be special suicide units made up of men in underwater suits. These candidates for "glory" were to go underwater, wait for the approach of naval warships and landing craft, then rise to the underside of the vessel where they would blow themselves and the ship (presumably) to eternity by means of mines.

Another feature of this in-front-of-the-beach defense was to be a system of submersible gun posts, a sort of underwater pillbox. These pillboxes, like the divers, were to be kept underwater until the assault landing craft approached, they would then rise to the surface, where the crews would bring their 37-millimeter guns into operation.

Towed to their proper position prior to an anticipated landing, these pillboxes were sunk by means of a ballast tank which was filled with water. They were designed to withstand pressures at a depth of 100 feet, but were normally operated at depths only half that figure. They were raised to the surface by two buoyancy tanks. The first model was not equipped with the buoyancy tanks, and the ballast tank had to be emptied by means of a hand pump. This didn't seem to work too well, and the buoyancy tanks were added to the later model.

The pillbox, more accurately described as a floating gun platform, mounted a 37-millimeter gun with a 360-degree traverse. This small caliber limited the effective use of the device to small vessels, such as landing craft. About 50 rounds of ammunition could be stored within the structure. In action, one man operated the gun and the second man acted as an ammuntion passer. There were only two men in the crew.

No method of communication with the crew had been devised. One officer suggested a system of thumping on the sides of the vessel. No trial had been made of stringing telephone communications.

Two models were built for experimental purposes and tested. Tests were carried on only in calm water, however, and no tests were made to see what would happen in rough seas.

Another such device, mounting the same type gun, was also developed. It was equipped with a 15-horsepower oil engine, a 10-horsepower motor, and steering devices. This "Craft" was to operate principally as a sort of "mother ship" to the first type, and was equipped with a grapnel with which to free the submersible gun platforms from underwater obstructions, such as fouled ropes and anchors.

It is not probable that this type of defense would have been any great deterrent to Allied landings. The gun, being small, would have been limited in effectiveness. The gun platform would have provided a very unsteady base except in a perfectly still lagoon. Lack of communication facilities would undoubtedly detract from its already dubious value.

But, "East is East and West is West and never the twain— . . ." and maybe the Japs thought this would keep them apart.

"The first deductions concerning the enemy are usually derived from the general knowledge of his methods or are procured from special sources of information. Air and ground reconnaissance, the searching for and continual observation of the enemy, and information secured through special means provide a more definite picture of the hostile force. Along with accurate information and reports we must reckon on incomplete and inaccurate information. From the whole the commander is able to draw correct conclusions. Apparently unimportant details may, in connection with other reports, have considerable worth."—From *Truppenfuhrung* (Troop leading), German Field Service Regulations.

"GERONIMO!" AND THE RED ARMY

"The use of paratroopers is a fine and intricate art, which is being developed by the Red Army *not* as a sport, but as a means of steeling personal courage, and as an important basis of our military power."
Marshal Voroshilov, 1935.

Long before U. S. soldiers began stepping from aircraft in flight to cry "Geronimo!" as they floated earthward, the U. S. S. R. had a large body of trained paratroopers. In 1930, the Soviets began to experiment with sky soldiers, and in 1935 unveiled their troopers to the world in a mass jump of 1,200 men at Kiev.

In view of the fact that the Soviet Union was first in development of airborne troopers as a distinct striking arm, failure of the Russians to make adequate use of airborne forces in World War II is somewhat surprising. Paratroopers were used little, and Russian drops seem to have resulted in resounding failure.

No large-scale use of paratroopers, other than as elite infantry shock units in standard ground missions, was made by the Red Army with the exception of the drop of two brigades in 1943. Both brigades were almost entirely wiped out in this mission. Failure in this case was ascribed to the fact that the troopers were inadequately armed, and to insufficient training of the pilots making the lift. The troopers were dropped from too great an altitude, and were widely scattered. The equipment drops also failed.

The fact that the Russians made little use of airborne forces may be ascribed to several factors. For one thing, there was a critical shortage of aircraft, which were needed for other purposes, and there was a shortage of air crews trained in para drops. There was also a need to use the troopers as elite infantry in a purely ground role during the critical periods prior to 1944, and the airborne soldiers suffered very high losses in bitter combat, thus shortening the supply of experienced jumping personnel. Still another reason was the faulty registration of troopers trained prior to mobilization, with the result that many troopers were shunted into other type units when mobilization occurred.

Other missions carried out by Red Army paratroopers were generally on a small scale. Small parachute sections are believed to be attached to armies for espionage and sabotage purposes. Small groups of troopers have been used in cooperative roles with partisan groups behind enemy

lines, and one entire brigade was dropped near Smolensk, in 1941, behind German lines. Many of the personnel in this drop were dressed in civilian clothing, and were expected to operate as Partisans.

Prior to World War II, the Soviet attempted, with very poor results, to use troopers in the Finnish war. In the occupation of Bessarabia, in 1939, paratroopers in the strength of a regiment of two battalions, totaling 2,000 men, were dropped ahead of the main forces to secure key points.

Beyond these small efforts the Russians did not go. It must not be inferred from their little active use of paratroopers in an airborne role that the Soviets do not consider them to be of distinct military value. On the contrary, there is much from which to infer the opposite. Experimentation is still going on, and troopers are considered as an elite body of troops. In 1945, *Izvestia*, a Soviet newspaper, carried a long story telling of the jump of a Lieutenant Colonel Amintaev from an altitude of over 34,000 feet. This same officer was credited, in the same article, with a total of 1,643 previous jumps. The article stated that Lieutenant Colonel Amintaev had made what appears to be the astounding total of 53 jumps in one day, in order to test the resistance of the human organism.

SPECIAL PRIVILEGES FOR JUMPERS

As in our own army, paratroopers in the Red Army enjoy the status of elite organizations, special privileges, and extra pay. The later-formed airborne organizations have been designated as "Guards" units. The "Guards" designation is normally given only to units after the unit has especially distinguished itself in combat. In the case of the airborne brigades formed later, however, the title of "Guards" has been given to the unit when it was organized.

In addition to physical ability, Russian paratroopers must come from parentage that is irreproachable in the communistic sense, and a large percentage are members of the Communist Party or of the *Komsomol* (Communist Youth Association). All those who, in the course of training, show a lack of will power are immediately transferred to infantry units.

For the most part, troopers are young. Officers are older than the troops, but are still the younger officers of the Red Army. The educational level of the members of the airborne brigades is higher than that of the infantry. According to regulations, enlisted men must have completed the 5th grade, and officers must have completed the 7th to 10th grade. By U. S. standards, this may seem to be low, but by the standard of the average of the Red Army, it is quite high.

Extra pay, as received by the Red Army trooper, is based on the jump and the number of previous jumps completed. For the first jump, 25 rubles is paid in extra remuneration. For jumps 2 through 10, the sum of 10 rubles is paid for each jump. Jumps 11 through 25 are paid for at the rate of 25 rubles per jump.

Combat jumps are compensated for at a higher scale. Officers receive a whole month's pay for each combat jump, while noncommissioned officers receive 500 rubles and other enlisted men receive 300 rubles.

In order that bonus pay may be compared with regular rates of pay, the pay of a private of the Red Army may be considered to be 600 rubles per year, or approximately $120 per year. A rank similar to a private first class gets 1,000 rubles per year, or approximately $200. A sergeant receives 3,000 rubles per year, or approximately $600. Thus, for a combat jump, a sergeant would be paid the equivalent of a $100, a private would receive $60, or half a year's pay. A first lieutenant, who receives 7,700 rubles per year, or approximately $1,500, would receive for a combat jump a month's pay, or about the same amount that the private would receive as a normal year's pay.

Paratroopers enjoy privileges in the matter of food, also. A better ration is furnished the members of the airborne brigades than is general throughout the Red Army.

TRAINING PROGRAM

The course of training for the Red Army sky soldiers lasts approximately 4 months. During this period, the soldier receives a great deal of regular infantry training in weapons, tactics, signal communications, map reading, engineer training, artillery training, gas training, and maneuver. The parachute training comes in the second, third, and fourth months of the course. Each man makes five or six jumps before he is considered a trained parachutist, although he is awarded his parachutist emblem after his first jump. The first three jumps may be made from a captive balloon and the remainder from airplanes.

There is no special training school such as our own at Fort Benning, and training is given within the unit. There is, however, a special training center for officers, where the course lasts from 5 to 6 months. There, courses are graded according to rank and duties. It is interesting to note that some regular ground officers are detailed to these schools, and, in the course for platoon commanders, officers of the ground troops are trained on the same level as noncommissioned officers of the airborne brigades. This fact again speaks for the higher level of the airborne troops.

Many more officers are trained than are needed so that a definite selection of the better officers can be made, and it is often found that officers who have commanded battalions of infantry are found as company commanders in the airborne forces.

The physical condition of the men is good. Almost without exception they can endure the required day's march of 50 miles. Discipline is strict.

At the termination of the training period, large-scale combat exercises are held, with several brigades taking part.

ORGANIZATION

Within the Guards Airborne Brigades (Red Army short designation—"VDV") the battalion is the tactical unit. The battalion consists of three rifle companies of 115 men each, one machine gun company of 89 men, one trench mortar battery of 92 men, one antitank rifle company of 112 men, and one platoon each of engineers, signal communications, and reconnaissance troops. Total battalion strength is 699 men.

Each VDV rifle company has four platoons of three squads each. Three platoons are rifle platoons and the fourth is a machine gun or mortar platoon. The mortar company is equipped with six 82-millimeter mortars.

The VDV brigade consists of four battalions of the organization detailed above, with a headquarters containing a gas platoon, medical section, and band. VDV brigade strength is between 3,500 and 4,200 men.

Officers, noncommissioned officers, and certain designated men are armed with submachine guns. Officers also are equipped with a pistol. Other men, with the exception of special "sharpshooters who are armed with special sharpshooter rifles, are armed with rifles or carbines. Hand grenades are handed out in unlimited number.

Each rifle company is equipped with nine light machine guns and three 50-millimeter mortars.

"STAND IN THE DOOR!"

Operational jumps are done at night. In particularly urgent cases, day jumps may be made by small parties, but it is not done if it can be avoided. Jumping altitudes are from 500 to 1,000 feet for day jumps, and from 1,300 to 1,900 feet at night.

The time necessary to release a stick of jumpers varies with the type of plane used and the degree of training of the jumpers. With one type plane, 18 men may be dropped in 18 to 20 seconds, though the Russians emphasize that poorly trained men may require as much as 90 seconds to clear the plane. With another type plane, 15 well-trained men may be dropped in 5 to 7 seconds. Some Soviet planes used for airborne drops are equipped with double doors and jumpers leave the plane from both sides.

Parachutes used by enlisted men are generally square cotton chutes with an area of approximately 70 square yards. It is semiautomatic in operation, and is also equipped with a handle release for emergency use. Enlisted men do not use reserve chutes.

Officers use a round chute, also of cotton, with approximately the same area as that used by enlisted men. It also is equipped for both hand and semiautomatic operation. Officers, however, are equipped with a silk reserve chute.

In training, the "PD–6" chute is used. This is the same chute used by officers. For operational jumps, however, the square "PD–41" chute is used, since it can be jumped from much lower altitudes than can the PD–6 because of its faster opening action.

Lined up for pre-jump inspection, these Red Army troopers wear regular infantry dress. Several types of chutes may be seen. In general, enlisted men do not use reserve chutes except on qualifying jumps.

The square parachute of the Red Army is equipped with a "köli" (keel), which is arranged by the jumper to turn the chute into the wind, and which cuts down on oscillation or swinging, thus making a very stable chute.

A cotton chute with a load capacity of approximately 250 pounds is the standard equipment chute. Other types are used for special equipment.

The uniform of the VDV soldier is the same as that for regular Red Army infantry, though paratroopers are issued only new clothing. There is also a special parachute infantry coat which has a fur collar and which is covered with a waterproof fabric.

The mission of airborne troops is considered by the Soviets to include the following: supporting the advance of their own troops; cutting the enemy routes of retreat; blocking the enemy reserves; isolation or destruction of enemy headquarters and rear echelons; the capture of key points; the forming of bridgeheads; capture of staffs and the capture of airplanes; and the protection of sea landings by securing stretches of coast line.

For small groups, missions are considered to be the execution of reconnaissance, sabotage work, and the support of Partisan groups.

Great emphasis is placed on cooperation with Partisans by airborne groups. Paratroopers are expected and encouraged to operate as Partisans themselves when the primary mission is accomplished. Indeed, the primary mission may be that of reinforcing Partisan groups, or Partisan operations only.

WINTER WARFARE

The Soviets note that the large-scale employment of paratroopers may especially be used to advantage in winter, particularly in forests and mountain terrain. To this end, many VDV units are trained and equipped with skis. These are dropped with the men, or later at the place of assembly.

The VDV troops are trained in taking advantage of snow cover and severe cold in executing their mission. Emphasis is placed on the fact that security troops are normally placed on the roads during winter, thus ski-equipped paratroopers may make quick, surprise assaults on the flanks of a main body.

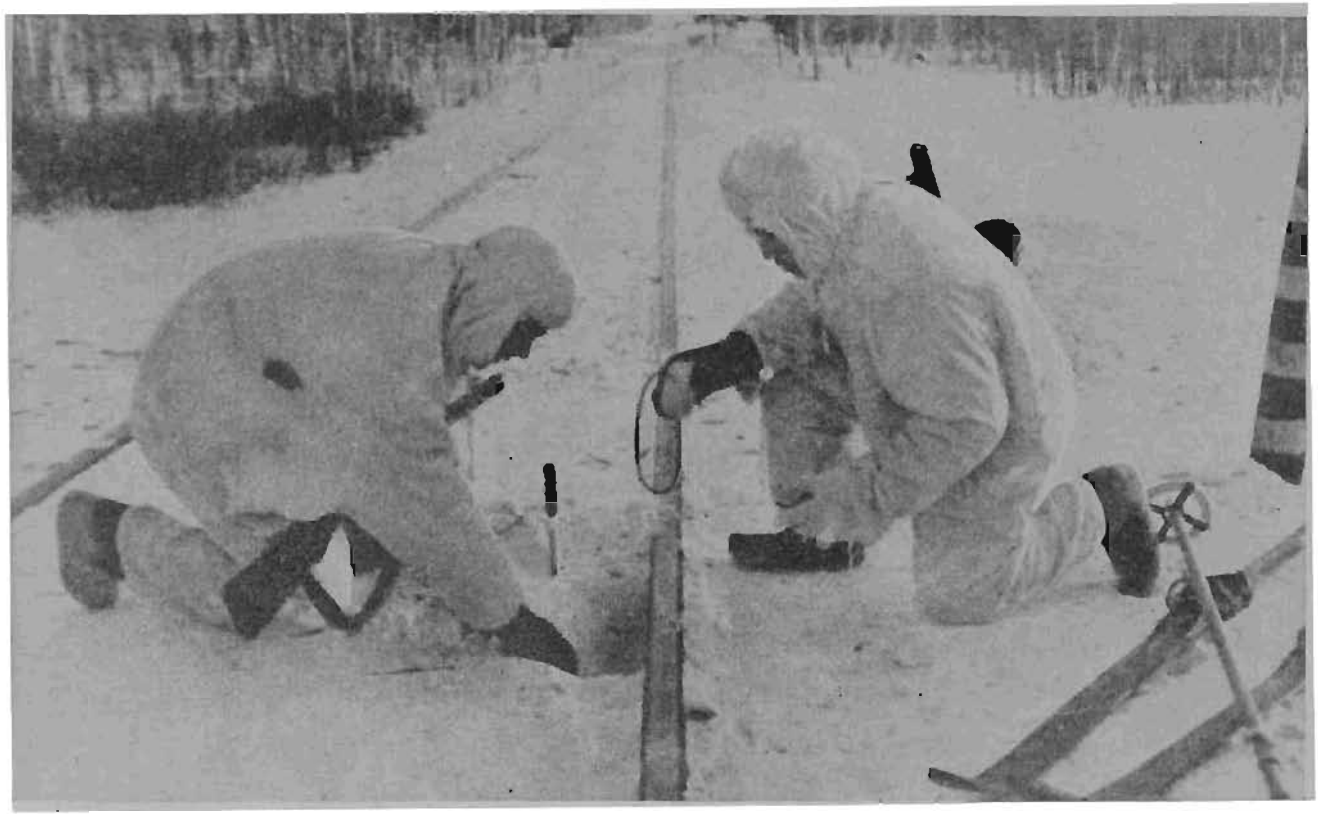
Troops are warned about using the same trail twice. They are instructed in doubling back on their own trail to set an ambush, leaving false trails, and other means of hiding their true route and ultimate destination from discovery by observation of ski trails.

VDV troops are given training in living in severe cold, and in means of improvising shelter. They are also given training in first aid in severe cold.

ASSEMBLY PATTERN

That bug-a-bear of all parachute operations, quick assembly on the ground, is provided for in Russian training. In order to cut scattering to a minimum, extraordinary precautions are taken. Lighter men are dropped first in the stick, and heavier men last, in attempting to concentrate the

These troopers, trained in winter warfare, reflect the hardy physical specimens selected for elite airborne units. All are armed with submachine guns, though such is not the normal distribution of weapons in the airborne brigades.



Paratroopers may be extremely effective in executing sabotage missions in the enemy rear. These troopers are preparing to blow rails on an enemy supply line after skiing from the drop zone. Soviet troopers are trained in winter warfare.

landing area. The Soviets expect that an average plane load will be landed in an area approximately 200 yards by 100 yards under normal conditions.

The normal method of assembly is as follows: The first men to jump go 50 yards in the direction in which the plane was flying. The last men, upon landing, go 50 yards in the opposite direction. In between they would normally find the other jumpers. They assume that it will take about 20 minutes to assemble a plane load in this manner.

Platoons are normally jumped from two planes which fly closely together to minimize scattering and drift. Assembly of a platoon is assumed to take 50 minutes.

Assembly of a company is carried out with the accent on preventing the enemy from determining the place of assembly. Prior to the jump, the company commander informs his company of the assembly area. Immediately after landing, the company commander proceeds to that area, where he leaves a man with instructions for the platoons. The instructions may be something on the order of "3 miles, azimuth of 90 degrees." At the second place, the company commander leaves guides.

As the platoons are assembled individually under the control of the platoon leader, the man stationed at the initial assembly area gives the platoon leader the instructions. The platoon then proceeds to the second area where the guide meets them and guides them to the third and final assembly area. In each of the first two assembly areas, the guides may use a weak flash to signal their position to the others, but at the third and final area no such signal is made. This procedure safeguards disclosure of the company assembly point if some of the men should fall prisoner.

The battalion normally does not assemble, but the company commander, or his representative, goes to a predesignated spot from which they are guided to the battalion staff. There they get their orders, while their companies wait in their individual assembly points, or move in the direction previously ordered by the battalion order. Under certain circumstances the company may receive its final operational order before the jump, but this is not the usual practice since the Soviets go to great lengths to keep the operation secret. In some cases, the men have not even been told they were on an operation, and have thought, until landing, that they were on practice missions.

The Russians assume that it will take 4 hours to assemble the entire battalion after landing.

Since, in combat operations, scattering is normally greater than in training maneuver, and the orderly assembly may be interfered with, the assembly may be done differently. Special signals may be devised for assembly. Voice signals, special light signals, and all kinds of other signals such as smoke, flares, etc., may be used.

Equipment bundles are dropped, whenever possible, in the center of a stick landing area. Baggage is often dropped before the men, some of it

These members of a Red Army parachute organization are machine gunners and are equipped with Degtyarev light machine guns, Model 1928. Some of the weapons are equipped with flash hiders, while the gun at lower right is fitted with a muzzle-cap.

without chutes. If it is not within the landing area, the men are instructed to form into a chain with 5 yards between each man to sweep the area.

Once assembled, normal infantry tactics are used. The tactical unit is the battalion. The company seldom is used on independent missions.

NOT FORGOTTEN

At this time, there is little information available on airborne forces as distinguished from purely parachute organizations. What part the glider and air-landed troops play in the Russian organization is still largely a matter of conjecture. It is known that there are provisions for glider forces in the Red Army. In 1935, an entire division was transported by air from Moscow to Vladivostok. Included in this air movement were some light tanks. The Germans seemed to believe that the Soviets are instituting a light tank battalion in the new VDV brigades.

The organization and role of Russian parachutists has continually changed since the first large mass public jump in 1935. In the late years of World War II, the new VDV brigades were organized with a cadre from a small group of higher ranking officers and a few previously trained paratroopers. Most of the latter were salvaged from hospitals where they had been sent as the result of wounds suffered in normal ground combat operations. Since that time, provision has been made to train new men and to retain control over them by the airborne forces.

Continuing interest has been shown since the organization of the VDV brigades. It is probable that more changes will take place in organization and tactics on the basis of the slight war experience of the Soviets, and on the basis of what information is available about U. S. and British airborne operations.

The Russians have long realized the potentialities of vertical envelopment—longer then have the other nations. It is not likely that they will neglect an arm which has shown itself to be of high value in certain situations, both defensive and particularly offensive. It is probable that airborne troops will remain an elite force within the Red Army, and a force which must be soberly considered in any estimate of the Soviet military potential.

"The greatest demands are placed on the leaders of all employed reconnaissance agencies, down to include patrol leaders. The personality of the leader is of decisive importance. Craftiness, dexterity, understanding of the situation, determined movement in every terrain, terrain resourcefulness by day and night, coldbloodedness, quick and independent conduct must be demanded."—From *Truppenfuhrung* (Troop leading), German Field Service Regulations.

GOING TO JAPAN?

What the Japanese Think of Us

Americans who have arrived in Japan since the surrender have been amazed by the apparent friendliness, cooperation, and politeness of the Japanese people. Japan's cities are in ruins and its people are threatened with starvation, yet the Japanese outwardly welcome their conquerors with smiles and sincere offers of assistance. To American veterans particularly—who have encountered the ferocity of Japanese armies in battle—this seemingly abrupt change of attitude is well-nigh incomprehensible. How can it be, they wonder, that the Japanese masses now seem genuinely anxious to please and cooperate with the occupation forces? Several explanations present themselves.

THE EMPEROR

The Emperor's announcement of Japan's surrender on 15 August was generally received by the stunned Japanese people in obedient submission, and by some with regret, but even so with a certain sense of relief. The decision to surrender had been made by dominant Japanese groups who realized that continuation of the war could only mean complete destruction of Japan, and who sought to save as much as possible of the old regime. A few die-hards in the Japanese forces who entertained ideas of continuing resistance were promptly suppressed, and the nation awaited General MacArthur's commands with disciplined resignation.

OFFICIAL AND COMMERCIAL MOTIVES

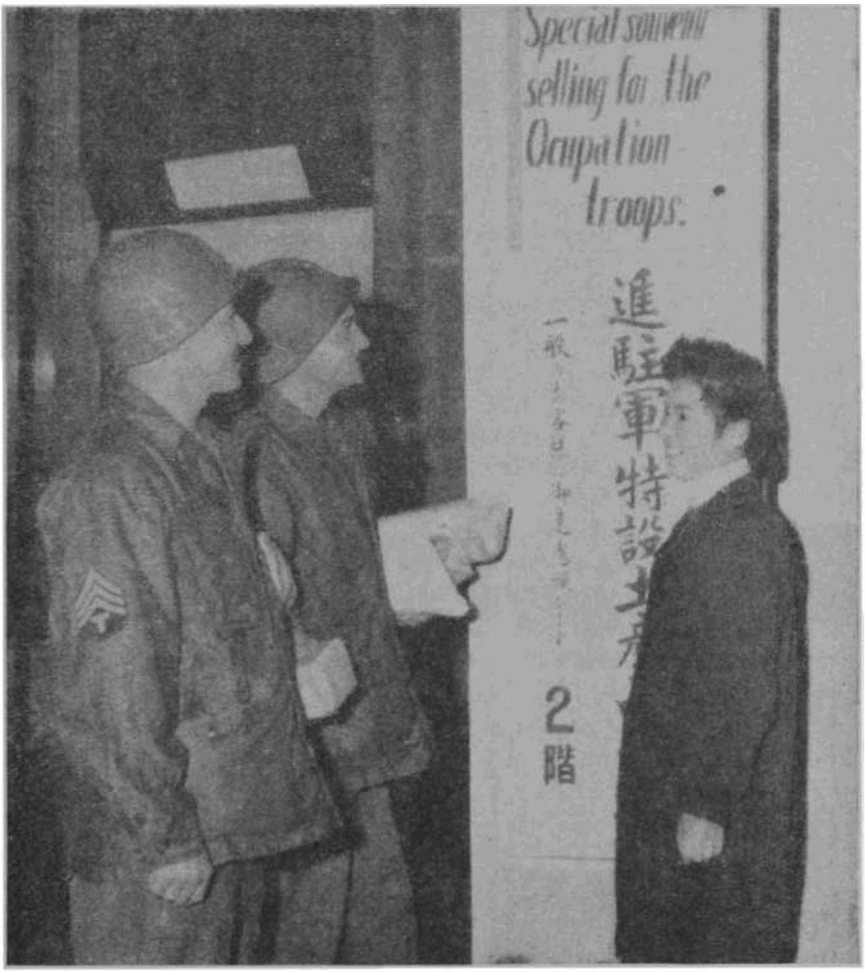
American troops found the cooperative yet reserved reception initially accorded them soon changed to one of extreme cordiality. This cordiality was encouraged by the Japanese Government and by Japan's old ruling groups, who hoped to ingratiate themselves with the occupying forces and thereby perpetuate their own control. The Japanese press, which generally reflects prevailing official opinion, also adopted an intensely pro-American line. Through the press and through the still influential police, this line has been passed along to the people who are accustomed to thought direction from above. Another reason for Japanese cordiality has been the fact that the American soldier provides a lucrative source of income for many Japanese.

After their surrender, many Japanese feared that occupation by our troops would mean for their country slavery, pillage, and plunder. Here, airborne troops, among the first to land in Japan, move from Atsugi airdrome to occupy and secure Yokahama area.

Innumerable dance halls, pseudo-geisha establishments and souvenir shops have sprung up in occupied areas.

GENUINE CORDIALITY

However the friendly attitude of the Japanese towards our troops is not due entirely to official or commercial inspiration. The Japanese people had awaited the arrival of American occupation forces with apprehension, since Japanese wartime propaganda had pictured Americans as a race of barbarians. Thus many Japanese feared that occupation by our troops would mean for their country slavery, pillage and plunder. Around the initial occupation areas, doors and windows were barred and daughters were sent to relatives in the country. These fears of American barbarity and oppression soon proved to be without foundation. The well-disciplined American troops amazed the Japanese people by their generally orderly conduct and by their kindliness, especially towards women and children. The Japanese soon learned that the occupation, although fair and just, would be conducted with firmness and determination. The occupation brought release from the binding restrictions which the old militarist and nationalist groups had imposed on all aspects of Japanese life. It brought new con-



One reason for Japanese cordiality toward our occupation troops has been the fact that the American soldier provides a lucrative source of income for many Japanese. Typical example—this souvenir shop in Sapporo, Hokkaido.

cepts of freedom of thought and of action. Although they were not really understood by the average Japanese, the press enthusiastically greeted reforms instituted by SCAP. Among these have been: freedom of thought, speech, press, and religion; abolition of police organizations which had kept the people under the heel of the militarists; purges of jingoists and militarists from positions of influence and authority; agrarian reform and the establishment of rights for labor; abolition of State Shinto, the national cult, which proclaimed the Japanese emperor a descendant of the gods and the Japanese people, a "master race"; and the drafting of a new and liberal constitution.

DEMOCRACY TO THE JAPANESE

The Japanese people, especially those in urban areas, have little time or inclination to try to understand the meaning of these reforms. They are in large part preoccupied with the problem of how to get enough to eat. Japan today is in a state of economic chaos. Food, housing, and clothing are short, jobs are scarce, and inflation is rampant. The Japanese government has proved increasingly unable to cope with the situation. Quite naturally the people have lost all confidence in their government at this time, and look to Allied Headquarters, as the supreme authority in Japan, to help them through the economic crisis.

Today "democracy" is in vogue in Japan, though most Japanese have little conception of what we mean by democracy. The Japanese have never before experienced the political freedoms which we associate with democracy. They have been subjected, for the past decade, to a complete indoctrination of militaristic and expansionist ideologies. Their only concept of democracy is embodied in the behavior of the GI. They find their new freedom bewildering and, unfortunately, some Japanese seem to believe that democracy means complete lack of restraint and disrespect for all laws. In order to carry out effectively our occupation policy of democratizing Japan, the Japanese people must undergo a considerable period of re-education to give them a real understanding of democratic processes. Some intelligent Japanese have expressed the hope that our re-education and reform of Japanese life will not consist merely of transplanting to Japan, in toto, Western institutions and systems. They feel that Japanese institutions must be greatly altered but in such a manner as to retain their Japanese character. If this is not done, these Japanese fear a violent reaction against the West will be inevitable. It was just such a reaction against the West that helped the Japanese Army in climbing to power in the thirties.

CRITICISM OF OCCUPATION

Although Japanese reaction to the occupation continues to be favorable there has been a small, but increasing, amount of criticism of, and antagonism towards, our forces and our policies. This criticism may be regarded as a natural and even a healthy sign that the Japanese people are rallying from a condition of stunned acceptance and bewilderment to an awareness of the importance of many of SCAP's reforms. Some antagonism towards American troops is also natural and to a certain extent justifiable. The Japanese see contrasted everywhere the relative luxury in which their conquerors live and their own meager living conditions. Many of the combat veterans who constituted the original occupation force have been replaced by younger, less disciplined men. Unfortunately some of these replacements are playing the role of victor in a heavy-handed way. Complaints from Japanese of assault and robbery by occupation troops have increased. Black market activities of a few soldiers have lowered the general prestige of our

A great potential danger to the ultimate success of the occupation lies in demobilized Japanese soldiers, such as these (above), who have returned to Japan from Asia to find their country in ruins, good jobs difficult to secure, and themselves an additional burden to the nation. Below is the ruined Ginza district of Tokyo.

troops. There has been some criticism recently, on the part of both Americans and Japanese, of the overbearing and obtrusive conduct of some American soldiers—drunkenness, boisterousness, "pawing" of women. Rather frank and expansive American manners tend to be a source of irritation to the Japanese people who, because of the cramped conditions in which they live, have developed a highly formalized code of conduct. To the Japanese this formalized etiquette ensures, in a figurative sense at least, respect for individual privacy; to Americans, reared in a country which has surpluses of almost everything, especially space, the Japanese seem overly restrained. The greatest and most obvious source of animosity, however, is the fraternization of American troops and Japanese women.

A great potential danger to the ultimate success of the occupation lies in demobilized Japanese soldiers, notably amongst those who, in China, were not defeated in combat, young professional military men, and other young men of extremist leanings. The professionals have been dismissed and banned from holding any office. Ex-servicemen return to Japan to find their country in ruins, good jobs difficult to secure, themselves only an additional burden to the nation and they realize their suffering and privation have been in vain. Their intense hatred of the Allies has not yet worn off; they feel, in some cases, that they were not adequately supported by the home front. Together with other unemployed malcontents, they constitute fertile fields for the sowing of seeds of discontent and disorder. Although there is evidence that some of these men have formed small, underground groups, they are too few and scattered to constitute a threat to the occupation forces. They will die out completely if the Japanese people have food to eat and constructive work to do, if the reforms which the occupation authorities have initiated are carried out and take root in Japanese life, and if our occupation forces continue to command the respect and admiration of the Japanese people. If these objectives are not realized, we may expect the growth of forces inimicable to the development and maintenance of a peaceful and healthy democratic Japan.

"The knowledge of the hostile leadership and war principles can influence the decision and aid our battle conduct, but it must never lead to preconceptions."—From *Truppenfuhrung* (Troop leading), German Field Service Regulations.

TOKAREV M1940

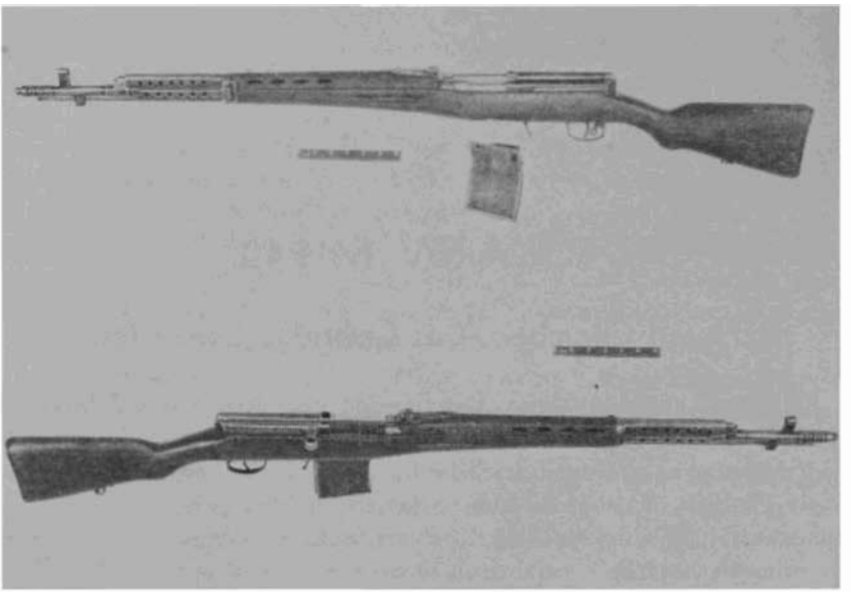
Fluted Chamber Aids Cartridge Extraction

Proper and rapid cartridge extraction has long been one of the problem children of ordnance design. Many of the stoppages prevalent in automatic and semiautomatic weapons may be traced directly to extraction troubles. Many methods of achieving proper extraction have been tried, involving numerous changes in the design of cartridges, chambers, and extractors. Experiments have been carried on to develop cartridges that will be consumed in the firing, thus doing away with extraction altogether. (See *Intelligence Bulletin,* April 1946.)

Not altogether a new system, but a reasonably effective means of aiding extraction is demonstrated in the chamber design of the *Tokarev* series of Soviet rifles. Although the principal cause of faulty extraction in automatic weapons has been the unlocking of the breech under pressure, some fault lies in the undue expansion of the cartridge case against the walls of the chamber, thus making the cartridge case difficult to remove, and forcing the use of heavily built extractors. The Russians have, in some measure, compensated for this expansion by manufacturing chambers which are longitudinally fluted instead of smooth. A fluted chamber throat is one which, instead of being smooth, has small grooves cut into the walls. These grooves are passages into which a portion of the propellent gases escape when the cartridge is fired. When the gases, at the instant of firing, enter the grooves, they tend to equalize the forces on the inside of the cartridge, thus reducing the adhesion of the cartridge case to the chamber walls. The cartridge, then being less tight in the chamber, may be extracted with less effort and in smoother action. Lighter extractors may be used, and broken extractors and jammed empty cartridge cases are less frequent.

The German *FG42* (Paratroop rifle 42) and some issues of the *MP44* make use of the same principle in that they have chambers that permit escape of gases around the cartridge case, though the chamber throats of these German weapons are not fluted as is that of the Russian M1940 *Tokarev* rifle, but rather are of larger diameter for approximately one-half of the rear half of the chamber.

A description of the *Tokarev* rifle, Model 1940, may be of interest as being somewhat indicative of trends in Russian design.



The Tokarev M1940 semiautomatic rifle.

The Russian *Tokarev* Semiautomatic Rifle, M1940, is a 7.62-millimeter (cal. .30) gas-operated, air-cooled, magazine-fed, shoulder weapon. The bulk of the M1940's are capable only of semiautomatic fire. In 1942, in order to provide a light antiaircraft weapon, a certain proportion of selective trigger groups, allowing the weapon to fire on full automatic, replaced the old trigger groups, and a 15-round magazine was introduced in place of the old 10-round magazine. However, the weapon was only allowed to fire full automatic on order of the unit commander.

Workmanship in the rifle is good, but it lacks the ruggedness that is evident in U. S. design. This is primarily due to the Soviet attempt to make a rifle of light weight. In order to eliminate extra weight, the barrel and receiver are manufactured from very thin stock. The receiver walls are very easily bent putting the weapon out of action. This has its drawbacks, as the maximum permissible continuous fire (bursts) is only 30 rounds, or two magazines. Fifty rounds fired in continuous bursts will generally ruin the rifle. The stock, too, has been made of light woods, and is kept dry rather than oiled. All this has resulted in a rifle of light weight—only 8.6 pounds with an empty magazine.

Effective rates of fire are considered to be 20 to 25 rounds per minute in semiautomatic fire, and 70 to 80 rounds per minute when the rifle is fired on full automatic.

The weapon develops a muzzle velocity of 2,720 feet per second when M1908 ball ammunition is used. The maximum effective range is con-

sidered to be 440 yards against ground targets, and 500 yards against strafing planes.

Unlike the U. S. M1, which has the gas chamber and operating rod placed below the barrel, the *Tokarev* has the gas chamber, cylinder, and operating rod above the barrel. This assembly is covered by a hand guard. A gas regulator with five different apertures may be adjusted by means of a small wrench, without disassembly of the piece.

A six-baffle combination muzzle brake compensator is permanently mounted on the muzzle. This helps keep the muzzle down and lessens the recoil, but the back blast from the gases produces a very bad effect on the firer in a comparatively short time. Over-all length is 48.2 inches, not including the bayonet of 9.5 inches.

The front sight is a threaded post type, equipped with a hood which is a part of the sight base. The rear sight is of the Mauser tangent leaf on ramp type with an open U notch. The leaf is graduated from 100 to 1,500 meters, and is elevated by means of a slide moving on a ramp.

In the rifles modified to fire semi- or full automatic the safety lever at the rear of the trigger guard is also used as a change lever. When turned to the left, uncovering the letter "O," the rifle will fire single shots; when turned to the right, uncovering the letter "A," the rifle is set to fire full automatic; when the lever is placed in a vertical position, the rifle is "safe."

There are very few moving parts in the rifle. The bolt operates straight to the rear, and has no turning action. The locking action takes place when the locking lugs on the rear of the bolt are forced down into a locking recess by the bolt housing.

A convenience that will be appreciated by everyone who has had to clean a rifle for inspection is a type of swinging cap on the rear of the receiver. This cap may be rotated to permit cleaning the rifle from the breech end. Of course, this little feature also makes it much easier for the inspecting officer to see a dirty bore. The cleaning rod, incidentally, is carried in a groove on the right side of the stock.

With the inclusion of a 3.5 X telescope that is easily mounted with a horseshoe type mount, the rifle may be used for sniping.

Red Army doctrine for using this weapon is closely parallel to U. S. Army theory in regard to automatic rifles. It is interesting to note, however, that Red Army regulations forbid full automatic fire except on order of the commanding officer.

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